

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED] [REDACTED]

Representing: Wisconsin Society for Ornithology

Address: [REDACTED]

Oregon WI

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or*,
• Fold this sheet and mail stamped sheet to the printed address on the back; *or*,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

will mail comments from organization

Additional sheets are included: Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

CONCERNED

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: Wisconsin Society for Ornithology (WSO)

Address: [REDACTED]

Madison WI 53707

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Additional sheets are included: Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

CONCERNED ABOUT
BIRDS

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: Christa Westenberg
Representing: Friends of the Black River Forest
Address: 211 S. Paterson St. #320
Madison WI 53703
Phone: 608/3104-3564
E-mail: westenberg@mwsalbomery.com

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,

- Fold this sheet and mail stamped sheet to the printed address on the back; or,
- Send email comments to:
DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Written comments provided separately.

Additional sheets are included: Yes No

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: _____

Address: [REDACTED]
Sheboygan WI 53081

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or*,
• Fold this sheet and mail stamped sheet to the printed address on the back; *or*,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Additional sheets are included: ____ Yes ____ No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: self

Address: [REDACTED]

Sheboygan WI

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or*,

- Fold this sheet and mail stamped sheet to the printed address on the back; *or*,
- Send email comments to:
DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Additional sheets are included: Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [Redacted]

Representing: Myself

Address: [Redacted]
Sheboygan 53081

Phone: [Redacted]

E-mail: [Redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or*,
• Fold this sheet and mail stamped sheet to the printed address on the back; *or*,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Additional sheets are included: ____ Yes ____ No

My Name is [REDACTED]. I live at [REDACTED] in the Town of Sheboygan.

I am here to speak in favor of the proposed 18 hole golf course in the Town of Wilson.

I am in favor of this project for two main reasons:

First, it will be good for the economy of Sheboygan County. It will create jobs for the local economy as well as generate tourist revenue when visitors come to the Sheboygan Area to use this course.

Second, this proposed golf course will be a good neighbor to surrounding residential and business owners in the Town of Wilson. As the owner of a residential property in Milwaukee County that has bordered the Tuckaway Golf Course for almost 50 years, I can attest that a golf course is a good neighbor. I have no doubt that this proposed golf course will also be a good neighbor.

arsenic and wildlife, well digestion, water quality, phosphorus
No issues regarding
July 24

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [Redacted]

Representing: Residents of WI

Address: [Redacted] Sheboygan

Phone: [Redacted]

E-mail: [Redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,

- Fold this sheet and mail stamped sheet to the printed address on the back; or,
- Send email comments to: DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Precedent set by allowing easement of state park land for profit of a developer.

Additional sheets are included: Yes No

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: _____

Representing: home owners

Address: _____



[Redacted address information]

Phone: _____

E-mail: _____

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or,*

- Fold this sheet and mail stamped sheet to the printed address on the back; *or,*
- Send email comments to:
DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

The Forest on the proposed Golf Course Site.

The Sand Dunes

The Bird population etc. etc. etc.

* Personally, because I live about 1/2 Block directly west of the proposed site, I am deeply concerned for the health of my well.

Additional sheets are included: Yes No

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [Redacted]

Representing: Myself

Address: [Redacted]

Phone: [Redacted]

E-mail: [Redacted]

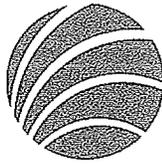
PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

damage to wetland from fertilizers and pesticides leading to damage to the black river itself and ground water + wells
Intertidal wetlands are present and are ~~very~~ susceptible
this land is an irreplaceable integral part of wild life corridors of Kohler Andrew State park and the Lake Michigan Flyway

Additional sheets are included: Yes No



McGILLIVRAY
WESTERBERG
& BENDER LLC
ATTORNEYS

July 24, 2015

Via Email

Jay Schiefelbein
Wisconsin Department of Natural Resources
2984 Shawano Ave
Green Bay, WI 54313-6726
DNRKohlerProposal@wisconsin.gov
Jeremiah.Schiefelbein@wisconsin.gov

*Re: Scoping Comments for the Kohler Golf Course Project Environmental
Impact Statement*

Dear Mr. Schiefelbein:

On behalf of members and supporters of Friends of the Black River Forest ("FBRF"), this firm submits the following comments and attachments regarding the scope of the Department's environmental impact statement ("EIS") for Kohler's proposed golf course project in the Town of Wilson, Sheboygan County. These comments are supplementary to comments delivered at the informational meeting on July 14, 2015.

As an initial matter, FBRF supports the EIS process for this project. The proposed site includes innumerable sensitive environmental resources, such as high-quality and rare wetlands, coastal forests, dunes, and beach, which provide habitat for migratory birds and rare species. The site also contains numerous cultural resources and burial mounds for Wisconsin's first inhabitants. As such, this site presents numerous challenges for large developments, including the golf course and associated facilities that Kohler has proposed. The EIS process in an appropriate way to for the public and policymakers to investigate and understand the impacts of this project, and to assess whether the necessary approvals can be granted.

The environmental impact report ("EIR") that Kohler has prepared does not fully explore or acknowledge this project's significant environmental and other impacts. It provides some useful data but, overall, is better characterized as advocacy than informational. For example, the EIR portrays the project as much less impactful than Kohler's original site plan, but this is not the proper point of reference: rather, the EIR should examine the impacts of *this current proposal* on the environment. The EIR overemphasizes the project's economic benefits, and supporting documentation for the EIR

is simply referred to and not provided.¹ Necessary details like specific site layouts and conclusive wetland fill numbers are lacking. The EIR does not supply the level of detail commensurate with the complexity and scale of the project required for an EIS under NR 150.30(2), and it is at most only a starting point for the DNR's own review.

To that end, we agree with the DNR's additional requests for information in its May 22, 2015, letter, as appropriate and necessary to evaluate this project. We encourage the DNR to promptly post information it receives on the Department's Kohler golf course website, which will reduce administrative burdens on DNR associated with responding to Open Records requests, and ensure the public has current information.

Beyond the information contained in the EIR and requested in the Department's May 22, 2015 letter, we believe other information is necessary to assess this project. It includes information in the attached comments of Dr. Quentin Carpenter, as well as:

- A complete analysis of surface and groundwater flows at and around the site, to understand above- and below-ground impacts to wetlands, neighboring wells, stormwater runoff, vegetation, and other issues.
- An investigation into the number and nature of area residential wells. One speaker last week stated that many residents have shallow, sand-point wells, that could be negatively affected by groundwater quality and quantity alterations.
- A detailed description of the best management practices and integrated pest management Kohler proposes to use for fertilizers, pesticides, and herbicides, and an analysis of whether they will actually work to protect groundwater quality, surface water quality, native vegetation, and wetlands.
- Details on the proposed "Lake Michigan Observation Tower" and its impacts on the viewshed from Lake Michigan and elsewhere. These impacts have implications under Wis. Stat. Ch. 30 and required considerations for natural scenic beauty.
- An evaluation of Kohler's plans to use septic systems to treat wastewater. The EIR states at page 7 that groundwater is sometimes only three feet from the ground surface, but yet that adequate separation will be maintained from the shallow groundwater aquifer. The DNR should verify this assessment, including whether

¹ These include Kohler's feasibility studies for water supply (EIR Section 2.2.1), groundwater modeling data (Section 2.2.2), traffic study (Sections 2.3.4 and 3.3.2), testing that purports to support use of conventional septic field systems to treat domestic wastewater (Section 2.3.5), on-site investigation and test borings (Section 2.3.7), stormwater management plan (Section 2.3.8), field study, well logs, well monitoring data, and well pump test reports (Sections 3.1.3, 4.1.3), documentation of vegetation sampling efforts (Section 3.2), wildlife observation surveys, including for endangered and threatened species (Sections 3.2.5 and 4.2.1), and an archeological study (Section 3.3.4). Kohler should provide copies of all of these reports to the DNR to allow for independent assessment and verification.

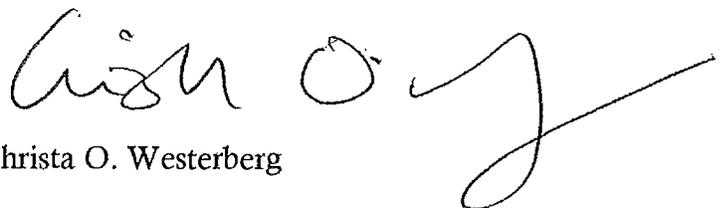
septic will be sufficient to protect groundwater at the outset and over time. Septic systems are known to fail, and especially to impair shallow groundwater aquifers. See attached Bradbury/Wilcox Study. Wastewater management is just one of many infrastructure challenges this project presents.

- The effectiveness of proposed measures to protect sensitive dune and other communities from foot and cart traffic and misplaced equipment. For example, will roped-off areas be enough to keep a golfer who has had a few cocktails from tromping into protected areas to retrieve a wayward ball?
- A study of the current use of the area proposed for Kohler's entrance road and buildings on DNR property. The EIR minimizes the recreational value of this property, but individuals stated last week that they use the property for recreation, such as observing wildlife.
- Kohler emphasizes the value of increasing access for residents of Timberlake subdivision, but this property is already designated as a forest preserve in NR 15.01(16)(b). We understand Kohler has removed signs designating the area as a game refuge under NR 15.01, and the EIS should accordingly evaluate the impact of the loss of this designation.
- The DNR's alternatives analysis should of course examine the "no build" and smaller course options. However, the DNR should evaluate alternatives that do not require an easement across state park property, which is also necessary for the DNR's Section 6f LAWCON conversion application, should it submit one. The EIR only contains one such scenario (Alternative D-7), and while Kohler admits all alternatives are "constructible and viable" (EIR Page 9), its preference is to use state park land. This is in contrast to Kohler's position when it had proposed a "tented forest" for this property. At that time, Kohler asked for and received a letter from DNR stating that use of the state park entrance (which neighbors in the Timberlake subdivision had urged) would not be allowed. (See attached correspondence.) Presumably, nothing has changed, and access through the state park will again be rejected. The EIS should reflect this scenario.

Thank you for the opportunity to provide these comments. Please let me know if you have any questions or need any further information.

Sincerely,

McGILLIVRAY WESTERBERG & BENDER

A handwritten signature in black ink, appearing to read "Christa O. Westerberg". The signature is fluid and cursive, with a long, sweeping tail on the final letter.

Christa O. Westerberg

Attachments:

- 1) Comments and C.V. of Dr. Quentin Carpenter
- 2) Bradbury, Kenneth, and Jeffrey D. Wilcox, Impacts of Privately Sewered Subdivisions on Groundwater Quality in Dane County, Wisconsin
- 3) Documents regarding proposed "tented forest" entrance to Kohler Property

cc: FBRF

My name is [REDACTED]. I have been a Town of Wilson resident and registered voter since 1970 and currently live at [REDACTED], just 4 houses from Lake Michigan and a short walk down the beach to the proposed golf course site.

I want to thank you for offering us this opportunity to speak about this very important issue. I don't envy you the very difficult decision that lies ahead. I hope that the comments and literature I will give you will aid in that process.

I spent many hours walking on the Black River Forest land, marveling at its beauty and enjoying its peacefulness. It saddens me to think that bulldozers would tear up the trees and dunes to plant grass for fairways and greens destroying a natural area and replacing it with high maintenance turf grass for roughs and greens that have to be mowed, manicured, watered, and sprayed with toxic chemicals.

Let me talk about those toxic chemicals for a moment. We were asked to provide scientific information to back up our opinions, so I did the most sensible thing I could think of and Googled: "Chemicals and Golf Courses". Up came the Rachel Carson Council website. Since I had read Rachel's book "Silent Spring" in high school and learned about pesticides and their effects on the environment, I was intrigued to see what her Council had to say.

Their publication, "Golf at the Crossroads" provided me with a lot of valuable, scientifically based information. (Here's your copy)

Several of the Council's key points:

- Certain pesticides banned from use on home lawns due to their toxicity are the most commonly used chemicals on golf courses
- Pesticide run off from treated courses after a rainstorm can contaminate streams until virtually all aquatic life forms.
- The toxic power of many pesticides produces unpredictable and sometimes adverse effects on non-pest organisms such as beneficial insects, birds, wildlife and humans, etc.
- The golf courses in other countries are using far less chemical pesticides than the United States by developing nonchemical management methods.
- Scientists warned that our natural resources are being threatened by Chemical contaminants – including pesticides.
- It is recommended to use a combination of three outcomes: social, environmental, and financial when developing new golf courses. In addition to economic considerations, the bottom line ought to be the well-being of society and of the environment.
- There are approximately 212 active ingredients registered with the EPA that are used on golf courses. The Council looked at 29 of those most commonly used: 12 – herbicides, seven – insecticides 10 – fungicides.
- golfers and golf club workers coming in direct contact with pesticides are at risk of being exposed to cancer, neurological disorders, hormonal problems, and development issues
- The insecticide chlorpyrifos is banned from the US home market but can be applied up to six times per year in fairways and greens.

- The fungicide chlorothalonil is labeled by the EPA as being too toxic for home lawn use but can be applied on golf course turf up to 13 times a year.
- Over 40% of these 29 pesticide active ingredients commonly used on golf courses are carcinogenic as determined by the EPA.
- Pesticides adversely affect wildlife: directly by killing them or by sickening them, or indirectly by damaging their habitat or food supply and pose a serious threat to wildlife.
- Of the 25 commonly used pesticides, three may be very highly toxic to birds – insecticides chlorpyrifos, imidacloprid, and trichlorfon. The herbicide 2,4- D may also be highly toxic to birds. 17 of the 29 commonly used pesticides are highly or very highly toxic to aquatic organisms.
- Groundwater: 30% of golf course chemicals have been detected in groundwater, the subsurface water, Wells and underground aquifers and may contaminate in some areas the deep aquifers.
- According to a chart on page 17 the United States uses far more fungicides, herbicides, and insecticides in any of the other developing countries in the world.
- There are non-chemical turf management methods that can be used to develop golf courses according to the Council's pamphlet. These will protect the health of people and the planet. They also respect the ecosystem and how it supports all of life.

There are four key points underpinning my reasons for not wanting to have this golf course built:

Water, Wells, Wetlands, and Woodlands.

- I am very concerned about these as they are the lifeblood of our Town of Wilson- Black River neighborhood.
- I'm concerned that chemicals used on the golf course will pollute our Black River, our groundwater, our wells, and Lake Michigan.
- I'm concerned that the use of millions of gallons of water to irrigate 18 holes of turf grass will dry up our wells and at some point may deplete our ancient water aquifer.
- I'm concerned that deforesting over 125 acres of trees will not only dry up many of the precious wetlands which serve as filtering and flood control mechanisms, but will destroy the migratory routes and habitats of over 150 species of birds, 33 different species of mammals and 400 known plant species in the area. (see Kohler Andrae Park handout)
- I'm also concerned that if this proposed golf course is approved, it may follow in the steps of Whistling Straits and become a site for a major golf tournament that will bring in hundreds of thousands of people and cars. The attendance at the 2004 PGA Whistling Straits golf tournament was 320,000 people in one week's time. The Black River Forest and area are significantly smaller than Whistling Straits. I can't imagine all those people in our little Township! This is in direct opposition to our Town of Wilson 20 year plan and Town ordinances.

Finally, I am opposed to the use of our State Park land for private profit. I am also opposed to the changing of the Kohler Andre State Park Master Plan to allow a vehicle rotary for the golf course and state park entrance.

There is no doubt that Kohler does things well and with class, but this land and this Town are the wrong place for a golf course. I ask that you deny this permit request based on the facts I and others have presented. This will NOT be a benefit to the Town or the wellbeing or health of its residents.

Thank you.

██████████
██████████
██████████



FILE/AP

The Obama administration announced an updated five-year plan for restoring the Great Lakes on Wednesday, calling for accelerated efforts to address toxic pollution, invasive species and farm runoff and restore plant and wildlife habitat.

EPA releases 5-year plan to improve Great Lakes

It targets toxic pollution, invasive species, farm runoff

By **Tammy Webber**
Associated Press

CHICAGO—The Obama administration unveiled an updated five-year plan for restoring the Great Lakes on Wednesday that outlines accelerated efforts to address toxic pollution, invasive species and farm runoff

and restore plant and wildlife habitat.

U.S. Environmental Protection Agency Administrator Gina McCarthy released the Great Lakes Restoration Initiative's action plan in Chicago at a meeting of mayors from Great Lakes states, calling it a roadmap for federal agencies to "strategically target the biggest threats to the Great Lakes ecosystem."

The plan also has a new component: Beginning in 2017, projects must consider the impact of climate change. For example, wetland plants and trees would be selected for suitability to warmer temperatures and watershed restorations would be designed to handle more frequent and intense storms.

Congress has appropriated \$1.6 billion since 2009 for restoration projects, coordinated by the EPA with support from 10 other federal departments.

The general priorities of the plan "are right on target," said Joel Brammeier, president and CEO of the Alliance for the

Great Lakes, adding that he welcomes its new focus on data management and research, and efforts to adapt to climate change.

"Five or 10 years ago, cities were talking about developing climate action plans, but now it seems the smart money has moved beyond that and into building climate resilience," said Brammeier. "It has to be integrated into every part of the work."

Efforts across the eight-state region have included the removal of toxic sediments and invasive plants and the rebuilding of wetlands. The initiative also has supported efforts to prevent Asian carp from reaching the lakes and is targeting runoff from farms and sewage plants that causes noxious algae blooms like those that contaminated the water supply in Toledo, Ohio, this summer.

The plan calls for increasing voluntary actions by farmers and other agricultural operations, and for slowing runoff in urban areas through projects that include wetland restoration, reforestation

and buffer zones between pollution sources and waterways.

Solving the problem of nutrient runoff is possible, but requires "a level playing field that recognizes that pollution is pollution no matter whether it comes from a pipe or from land that is producing our food," Brammeier said.

The administration also will begin evaluating how well projects are meeting their short-term objectives, rather than just long-term goals such as making all fish safe to eat or waters safe for recreation.

Since the initiative began in 2010, five Great Lakes areas that are listed as "areas of concern" because of toxic contamination have been cleaned up, and one area — Presque Isle Bay, in Pennsylvania — has been taken off the list. In the next phase, cleanup should be completed at 10 more sites, according to the plan.

Online: <http://greatlakesrestoration.us/actionplan/pdfs/glri-action-plan-2.pdf>

Strategy for Wildlife Species of Greatest Conservation Need



Wisconsin

Prepared by
Wisconsin Department of Natural Resources
with Assistance from Conservation Partners

Natural Resources Board Approved August 2005
U.S. Fish & Wildlife Acceptance September 2005



10 Reasons the DNR Should Say “NO” to Kohler’s Black River Golf Course:

1. Bulldozing will destroy or desecrate sacred **Native American Burial Mounds** located in the proposed course site
2. **Wetlands**, some ancient, which are vital to erosion control, filtering toxins, and supporting wildlife, will be irrevocably damaged or destroyed
3. **Pesticides, Herbicides, Fungicides and Fertilizers** are all POISONOUS to humans, the water and/or the environment. Champion level courses use significant amounts of these
4. Taking **our state park land** for private profit is unacceptable
5. **Bulldozing/Deforesting over 125 acres** of forest and replacing with turf grass for greens and fairways will destroy major bird migratory habitats and pathways thereby eliminating a major bird presence in the area
6. Using pesticides, insecticides, and herbicides will severely affect the already declining numbers of **Monarch butterflies and bees**
7. Using millions of gallons of water to irrigate fairways and greens will affect the ground water, neighboring wells and the aquifer we all share
8. Bulldozing **irreplaceable and ancient, interdunal sand dunes and wetland systems** will seriously affect wildlife and plant habitats
9. **Pesticides: (Fungicides, Herbicides, Insecticides) and Fertilizers** will eventually run off and pollute our ground water, the Black River and Lake Michigan
10. Bulldozing this area will result in the virtual destruction of the **rare Dune Thistle and Beach-Dune Tiger Beetle**, not to mention what it will do to the rest of the creatures that live there.

We are the ***Friends of the Black River Forest*** and we do NOT want Kohler Co. to be approved to build a championship level golf course on this precious land. As we see it, there is NO benefit from this project to our Town residents’ health and wellbeing.

Go to: www.friendsblackriverforest.org to find out more information.

Or call [REDACTED]

References:

Rachel Carson Council- *Golf At the Crossroads*
EPA Wetlands Status Beyond Pesticides

Respite for Migratory Birds- Great Lakes Stop Over Initiative
Wisc. Endangered Species List

Wisconsin Endangered and Threatened Species Laws & List



PUBL-ER-001 2004
REV January 2014

Definitions

Wisconsin Endangered Species: Any species whose continued existence as a viable component of this state's wild animals or wild plants is determined by the Department to be in jeopardy on the basis of scientific evidence.

Wisconsin Threatened Species: Any species which appears likely, within the foreseeable future, on the basis of scientific evidence to become endangered.

State Laws

Endangered and Threatened Species Laws (State Statute 29.604 & Administrative Rule NR27)

Animals - It is illegal to take, transport, possess, process or sell any wild animal that is included on the Wisconsin Endangered and Threatened Species List without a valid permit.

Plants - No one may process or sell any wild plant that is a listed species without a valid permit. On public lands or lands you do not own, lease, or have the permission of the landowner, you may not cut, root up, sever, injure, destroy, remove, transport or carry away a listed plant without a permit. There is an exemption on public lands for forestry, agriculture and utility activity.

Permits - No one is exempt from these laws, but an Endangered or Threatened Species "Scientific" Permit or an Incidental Take Permit can allow you to conduct certain activities under specified conditions. The Department of Natural Resources may issue these permits, under specified terms and conditions to take, transport, possess, or export listed endangered or threatened species. Permit information and applications are available from the Bureau of Natural Heritage Conservation (address below).

Violations

Endangered and Threatened Animals: If the state law is violated unintentionally, the violator is subject to a fine of no less than \$500 and no more than \$2,000 and the court shall revoke all hunting privileges for one year. If the law is violated intentionally a person may be fined no less than \$2,000 and no more than \$5,000 or may be imprisoned for 9 months, or both. The court shall revoke all hunting privileges for three years. Violations of Federal Laws will result in additional penalties.

Endangered and Threatened Plants: If the state law is violated unintentionally, the person is subject to a fine of \$1,000 or less. If the law is violated intentionally, the person is subject to a fine of \$1,000 or less and/or 9 months imprisonment.

Report violations of wildlife laws to the toll-free Wisconsin Emergency Hotline: (1-800-847-9367).

Wisconsin Department of Natural Resources

Natural Heritage Conservation Program

P.O. Box 7921

Madison, WI 53707-7921

Telephone: (608)-267-2108

FAX: (608)-266-2925

Website: <http://dnr.wi.gov/>

The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services, and functions under an Affirmative Action Plan. If you have any questions, please write to Equal Opportunity Office, Department of Interior, Washington D.C. 20240.

This publication is available in alternative format (large print, Braille, audio tape, etc.) upon request. Please call (608)-267-2108 for more information.

Wisconsin's Endangered and Threatened Species List

Effective Dates of Listing

(A) October 1, 1972	(G) April 1, 1985
(B) October 1, 1975	(H) August 1, 1989
(C) May 1, 1978	(I) August 1, 1997
(D) October 1, 1979	(J) October 1, 1999
(E) November 1, 1981	(K) June 1, 2011
(F) December 1, 1982	(L) January 1, 2014

MAMMALS

ENDANGERED

(A) American Marten *Martes americana*

THREATENED

(K) Big brown bat *Eptesicus fuscus*
(K) Little brown bat *Myotis lucifugus*
(K) Northern long-eared bat *Myotis septentrionalis*
(K) Eastern pipistrelle *Perimyotis subflavus*

BIRDS

ENDANGERED

(D) Piping Plover** *Charadrius melodus*
(L) Black Tern *Chlidonias niger*
(H) Yellow-throated Warbler *Dendroica dominica*
(L) Kirtland's Warbler** *Dendroica kirtlandii*
(B) Peregrine Falcon *Falco peregrinus*
(H) Worm-eating Warbler *Helmitheros vermivorum*
(D) Loggerhead Shrike *Lanius ludovicianus*
(F) Red-necked Grebe *Podiceps grisegena*
(H) Caspian Tern *Sterna caspia*
(D) Forster's Tern *Sterna forsteri*
(D) Common Tern *Sterna hirundo*

THREATENED

(I) Henslow's Sparrow *Ammodramus henslowii*
(L) Upland Sandpiper *Bartramia longicauda*
(D) Red-shouldered Hawk *Buteo lineatus*
(D) Great Egret *Casmerodius albus*
(I) Yellow Rail *Coturnicops noveboracensis*
(I) Spruce Grouse *Dendragapus canadensis*
(H) Cerulean Warbler *Dendroica cerulea*
(H) Acadian Flycatcher *Empidonax vireescens*
(H) Yellow-Crowned Night-Heron *Nyctanassa violacea*
(H) Kentucky Warbler *Oporornis formosus*
(D) Greater Prairie-Chicken *Tympanuchus cupido pinnatus*
(H) Bell's Vireo *Vireo bellii*
(H) Hooded Warbler *Wilsonia citrina*

AMPHIBIANS

ENDANGERED

(F) Northern Cricket Frog *Acris crepitans*

REPTILES

ENDANGERED

(D) Slender Glass Lizard *Ophisaurus attenuatus*
(A) Queen Snake *Regina septemvittata*
(B) Massasauga Rattlesnake *Sistrurus catenatus*
(A) Ornate Box Turtle *Terrapene ornata*
(D) Western Ribbonsnake *Thamnophis proximus*
(D) Northern Ribbonsnake *Thamnophis sauritus*

THREATENED

(B) Wood Turtle *Clemmys insculpta*

FISHES

ENDANGERED

(H) Skipjack Herring *Alosa chrysochloris*
(D) Crystal Darter *Crystallaria asprella*
(D) Gravel Chub *Erimystax x-punctata*
(D) Bluntnose Darter *Etheostoma chlorosomum*
(D) Starhead Topminnow *Fundulus dispar*
(D) Goldeye *Hiodon alosoides*
(D) Pallid Shiner *Hybopsis amnis*
(D) Striped Shiner *Luxilus chrysocephalus*
(I) Black Redhorse *Moxostoma duquensnei*
(D) Slender Madtom *Noturus exilis*

THREATENED

(D) Blue Sucker *Cycleptus elongatus*
(D) Black Buffalo *Ictiobus niger*
(D) Longear Sunfish *Lepomis megalotis*
(H) Redfin Shiner *Lythrurus umbratilis*
(D) Shoal Chub *Macrhybopsis hyostoma*
(H) River Redhorse *Moxostoma carinatum*
(H) Pugnose Shiner *Notropis anogenus*
(A) Ozark Minnow *Notropis nubila*
(D) Gilt Darter *Percina evides*
(H) Paddlefish *Polyodon spathula*

SNAILS

ENDANGERED

(H) Midwest Pleistocene Vertigo *Vertigo hubrichti*
(H) Occult Vertigo *Vertigo occulta*

THREATENED

(H) Wing Snaggletooth *Gastrocopta procera*
(H) Cherrystone Drop *Hendersonia occulta*

INSECTS

ENDANGERED

(H) Pecos River Mayfly *Acanthametropus pecatonica*
(I) Red-tailed Prairie Leafhopper *Aflexia rubranura*
(H) Flat-headed Mayfly *Anepeorus simplex*
(L) A Leafhopper *Attenuipyga vanduzeei*
(H) Swamp Metalmark *Calephelis mutica*
(L) Beach-dune Tiger Beetle *Cicindela hirticollis rhodensis*
(L) Ottoo Skipper *Hesperia ottoo*
(H) Northern Blue Butterfly *Lycæides idas*
(H) Giant Carrion Beetle** *Nicrophorus americanus*
(H) Powesheik Skipperling** *Oarisma powesheik*
(H) Extra-striped Snaketail Dragonfly *Ophiogomphus anomalus*
(I) Saint Croix Snaketail Dragonfly *Ophiogomphus susbehcha*
(H) Silphium Borer Moth *Papaipema silphii*
(H) Phlox Moth *Schinia indiana*
(I) Hine's Emerald Dragonfly** *Somatochlora hineana*
(I) Warpaint Emerald Dragonfly *Somatochlora incurvata*
(H) Regal Fritillary *Speyeria idalia*
(H) Knobels Riffle Beetle *Stenelmis knobeli*
(I) Lake Huron Locust *Trimerotropis huroniana*

Wisconsin's Endangered and Threatened Species List

INSECTS cont.

THREATENED

(L) An Issid Planthopper	<i>Fitchiella robertsoni</i>
(H) Frosted Elfin	<i>Incisalia irus</i>
(I) Prairie Leafhopper	<i>Polyamia dilata</i>
(I) Spatterdock Darner Dragonfly	<i>Rhionaeschna mutata</i>

MUSSELS

ENDANGERED

(H) Spectaclecase**	<i>Cumberlandia monodonta</i>
(H) Purple Wartyback	<i>Cyclonaias tuberculata</i>
(H) Butterfly	<i>Ellipsaria lineolata</i>
(H) Elephant-Ear	<i>Elliptio crassidens</i>
(H) Snuffbox**	<i>Epioblasma triquetra</i>
(H) Ebonyshell	<i>Fusconaia ebena</i>
(C) Higgins Eye**	<i>Lampsilis higginsii</i>
(H) Yellow/Slough Sandshell	<i>Lampsilis teres</i>
(H) Bullhead**	<i>Plethobasus cyphus</i>
(H) Winged Mapleleaf**	<i>Quadrula fragosa</i>
(H) Rainbow	<i>Villosa iris</i>

THREATENED

(H) Slippershell mussel	<i>Alasmidonta viridis</i>
(H) Rock-Pocketbook	<i>Arcidens confragosus</i>
(H) Monkeyface	<i>Quadrula metanevra</i>
(H) Wartyback	<i>Quadrula nodulata</i>
(H) Salamander Mussel	<i>Simpsonaias ambigua</i>
(H) Buckhorn	<i>Tritogonia verrucosa</i>
(L) Fawnsfoot	<i>Truncilla donaciformis</i>
(H) Ellipse	<i>Venustaconcha ellipsiformis</i>

PLANTS

ENDANGERED

(G) Pale False Foxglove	<i>Agalinus skinneriana</i>
(E) Carolina Anemone	<i>Anemone caroliniana</i>
(D) Hudson Bay Anemone	<i>Anemone multifida</i> var. <i>multifida</i>
(D) Large-leaved Sandwort	<i>Arenaria macrophylla</i>
(D) Lake Cress	<i>Armoracia lacustris</i>
(G) Purple Milkweed	<i>Asclepias purpurascens</i>
(D) Green Spleenwort	<i>Asplenium trichomanes-ramosum</i>
(D) Alpine Milk Vetch	<i>Astragalus alpinus</i>
(E) Prairie Plum	<i>Astragalus crassicaarpus</i>
(G) Coopers Milk Vetch	<i>Astragalus neglectus</i>
(I) Prairie Moonwort	<i>Botrychium campestre</i>
(E) Moonwort	<i>Botrychium lunaria</i>
(G) Goblin Fern	<i>Botrychium mormo</i>
(D) A Marsh Marigold	<i>Caltha natans</i>
(G) Wild Hyacinth	<i>Camassia scilloides</i>
(E) Crow-spur Sedge	<i>Carex crus-corvi</i>
(I) Smooth-sheathed Sedge	<i>Carex laevivaginata</i>
(D) Hop-like Sedge	<i>Carex lupuliformis</i>
(D) Intermediate Sedge	<i>Carex media</i>
(I) Schweinitz's Sedge	<i>Carex schweinitzii</i>
(E) Brook Grass	<i>Catabrosa aquatica</i>
(D) Hemlock-parsley	<i>Conioselinum chinense</i>
(E) Obovate Beak Grass	<i>Diarrhena obovata</i>
(D) Hoary Whitlow-cress	<i>Draba cana</i>
(I) Neat Spike-rush	<i>Eleocharis nitida</i>
(D) Angle-stemmed Spikerush	<i>Eleocharis quadrangulata</i>
(I) Wolf Spike-rush	<i>Eleocharis wolfei</i>
(D) Harbinger-of-Spring	<i>Erigenia bulbosa</i>
(D) Chestnut Sedge	<i>Fimbristylis puberula</i>

PLANTS cont.

(E) Umbrella Sedge	<i>Fuirena pumila</i>
(D) Northern Commandra	<i>Geocaulon lividum</i>
(H) Bog Rush	<i>Juncus stygius</i>
(H) Prairie Bush Clover*	<i>Lespedeza leptostachya</i>
(E) Dotted Blazing Star	<i>Liatris punctata</i>
(D) Auricled Twayblade	<i>Listera auriculata</i>
(I) Fly Honeysuckle	<i>Lonicera involucrata</i>
(E) Smith Melic Grass	<i>Melica smithii</i>
(I) Mat Muhly	<i>Muhlenbergia richardsonii</i>
(I) Louisiana Broomrape	<i>Orobanche ludoviciana</i>
(H) Fassett's Locoweed*	<i>Oxytropis campestris</i>
(D) A Grass-of-Parnassus	<i>Parnassia parviflora</i>
(E) Smooth Phlox	<i>Phlox glaberrima</i>
(E) Butterwort	<i>Pinguicula vulgaris</i>
(D) Heart-leaved Plantain	<i>Plantago cordata</i>
(H) Eastern Prairie White-fringed Orchid*	<i>Platanthera leucophaea</i>
(I) Western Jacob's Ladder	<i>Polemonium occidentale</i> ssp. <i>lucustris</i>
(D) Pink Milkwort	<i>Polygala incarnata</i>
(G) Spotted Pondweed	<i>Potamogeton pulcher</i>
(E) Rough White Lettuce	<i>Prenanthes aspera</i>
(D) Great White Lettuce	<i>Prenanthes crepidinea</i>
(D) Pine-drops	<i>Pterospora andromedea</i>
(D) Small Shinleaf	<i>Pyrola minor</i>
(E) Small Yellow Water Crowfoot	<i>Ranunculus gmelinii</i>
(I) Lapland Buttercup	<i>Ranunculus lapponicus</i>
(D) Lapland Rosebay	<i>Rhododendron lapponicum</i>
(D) Wild Petunia	<i>Ruellia humilis</i>
(D) Sand Dune Willow	<i>Salix cordata</i>
(I) Satiny Willow	<i>Salix pellita</i>
(I) Hall's Bulrush	<i>Schoenoplectus hallii</i>
(G) Netted Nut-rush	<i>Scleria reticularis</i>
(G) Small Skullcap	<i>Scutellaria parvula</i>
(E) Selago-like Spikemoss	<i>Selaginella selaginoides</i>
(I) Fire Pink	<i>Silene virginica</i>
(E) Blue-stemmed Goldenrod	<i>Solidago caesia</i>
(D) Lake Huron Tansy	<i>Tanacetum bipinnatum</i> spp. <i>huronense</i>
(D) Hairy Meadow Parsnip	<i>Thaspium barbinode</i>
(E) Foamflower	<i>Tiarella cordifolia</i>
(I) Purple False Oats	<i>Trisetum melicoides</i>
(D) Dwarf Bilberry	<i>Vaccinium cespitosum</i>
(D) Mountain Cranberry	<i>Vaccinium vitis-idaea</i>
(D) Squashberry	<i>Viburnum edule</i>
(D) A Violet	<i>Viola fimbriata</i>
THREATENED	
(E) Northern Monkshood*	<i>Aconitum noveboracense</i>
(G) Muskroot	<i>Adoxa moschatellina</i>
(E) Woolly Milkweed	<i>Asclepias lanuginosa</i>
(G) Dwarf Milkweed	<i>Asclepias ovalifolia</i>
(H) Prairie Milkweed	<i>Asclepias sullivantii</i>
(G) Pinnatifid Spleenwort	<i>Asplenium pinnatifidum</i>
(G) Kitten Tails	<i>Besseyia bullii</i>
(I) Sand Reed	<i>Calamovilfa longifolia</i>
(H) Large Water Starwort	<i>Callitriche heterophylla</i>
(H) Calypso Orchid	<i>Calypso bulbosa</i>
(D) Carey's Sedge	<i>Carex careyana</i>
(H) Beautiful Sedge	<i>Carex concinna</i>
(H) Coast Sedge	<i>Carex exilis</i>
(G) Handsome Sedge	<i>Carex formosa</i>
(D) Garbers Sedge	<i>Carex garberi</i>
(E) Lenticular Sedge	<i>Carex lenticularis</i>

Wisconsin's Endangered and Threatened Species List

PLANTS cont.

(H) Michaux's Sedge	<i>Carex michauxiana</i>
(D) Prairie Thistle	<i>Cirsium hillii</i>
(D) Dune Thistle*	<i>Cirsium pitcheri</i>
(D) Rams-head Ladys-slipper	<i>Cypripedium arietinum</i>
(D) White Ladys-slipper	<i>Cypripedium candidum</i>
(D) English Sundew	<i>Drosera anglica</i>
(E) Linear-leaved Sundew	<i>Drosera linearis</i>
(G) Pale Purple Coneflower	<i>Echinacea pallida</i>
(E) Beaked Spike Rush	<i>Eleocharis rostellata</i>
(D) Thickspike Wheatgrass	<i>Elytrigia dasystachya</i> ssp. <i>psammophila</i>
(G) Forked Aster	<i>Eurybia furcata</i>
(D) Western Fescue	<i>Festuca occidentalis</i>
(G) Blue Ash	<i>Fraxinus quadrangulata</i>
(G) Round Stemmed False Foxglove	<i>Gerardia gattingeri</i>
(H) Tubercled Orchid	<i>Habenaria flava</i> var. <i>herbiola</i>
(D) Round Fruited St. John's Wort	<i>Hypericum sphaerocarpum</i>
(H) Dwarf Lake Iris*	<i>Iris lacustris</i>
(H) Slender Bush Clover	<i>Lespedeza virginica</i>
(E) Bladderpod	<i>Lesquerella ludoviciana</i>
(D) Broad-leaved Twayblade	<i>Listera convallarioides</i>
(E) Brittle Prickly Pear	<i>Opuntia fragilis</i>
(G) Small Round-leaved Orchis	<i>Orchis rotundifolia</i>
(D) Clustered Broomrape	<i>Orobanche fasciculata</i>
(I) Plains Ragwort	<i>Packera indecora</i>
(E) Marsh Grass-of-Parnassus	<i>Parnassia palustris</i>
(D) Sweet Coltsfoot	<i>Petasites sagittatus</i>
(D) Braun's Holly Fern	<i>Polystichum braunii</i>
(D) Prairie-parsley	<i>Polytaenia nuttallii</i>
(G) Algal-leaved Pondweed	<i>Potamogeton confervoides</i>
(E) Sheathed Pondweed	<i>Potamogeton vaginatus</i>
(G) Cliff Cudweed	<i>Pseudognaphalium saxicola</i>
(E) Seaside Crowfoot	<i>Ranunculus cymbalaria</i>
(E) Long-beaked Baldrush	<i>Rhynchospora scirpoides</i>
(I) Canada Gooseberry	<i>Ribes oxycanthoides</i> ssp. <i>oxycanthoides</i>
(I) Tea-leaved Willow	<i>Salix planifolia</i> ssp. <i>planifolia</i>
(I) Dune Goldenrod	<i>Solidago simplex</i> var. <i>gilmanii</i>
(E) Clustered Bur Reed	<i>Sparganium glomeratum</i>
(D) False Asphodel	<i>Triantha glutinosa</i>
(I) Tussock Bulrush	<i>Trichophorum cespitosum</i>
(E) Snow Trillium	<i>Trillium nivale</i>
(E) Spike Trisetum	<i>Trisetum spicatum</i>
(E) Marsh Valerian	<i>Valeriana sitchensis</i>

** also Federally Endangered

* also Federally Threatened

A Reminder

The Department of Natural Resources reminds you that the Endangered and Threatened Species list is only a first step toward identifying a problem that exists. It doesn't tell what the problem is or what to do about it. Moreover, it does not guarantee survival of the plants and animals listed. The real work follows listing. The Bureau of Natural Heritage Conservation formulates management plans to aid the recovery of listed species. DNR resource managers put the plans to work in the field, while conservation wardens enforce laws protecting endangered resources.

A Request

The Bureau of Natural Heritage Conservation welcomes observations of endangered and threatened plants and animals. We are also interested in observations of species of special concern (species about which some problem of abundance or distribution is suspected but not yet proven). If you would like to obtain reporting forms for submitting observations and/or a list of special concern species, please contact us at the address or phone number in the box at right.



Henslow's Sparrow

Help Us Protect Wisconsin's Natural Diversity!

The Wisconsin Natural Heritage Conservation Program is funded primarily by contributions to the tax checkoff on the Wisconsin state income tax form, the purchase of Endangered Resources License Plates, or through donations sent directly to the Bureau of Endangered Resources. Your support is vital. Help us continue recovery efforts for endangered species, preservation of rare plants and animal communities and educational efforts to protect our rich natural heritage. Remember to designate a gift on your tax form, order a license plate or send a contribution to the address below.

For further information, contact:

Wisconsin Department of Natural
Resources
Natural Heritage Conservation Program
P.O. Box 7921
Madison, WI 53707-7921
Telephone: (608) 267-2108
FAX: (608) 266-2925

If you would like an application form for an Endangered Resources license plate, send a request to the above address or to:

Wisconsin Department of Transportation
Special Plates Unit
P.O. Box 7911
Madison, WI 53707-7911



This publication has been made possible by contributions to the Endangered Resources Fund and the purchase of Endangered Resources License Plates.

[REDACTED]

From: [REDACTED]
Date: Monday, April 28, 2014 9:18 AM
To: [REDACTED]
Subject: mammals birds plants - DNR article

Source: WI Dept of Resources, Kohler-Andrae State Park "Visitor", 2013

From the marshes along the Black River to the shoreline of Lake Michigan, Kohler-Andrae supports literally hundreds of species of animal and plant life.

Plants

More than 400 known plant species are found in the park, including more than 50 different tree species. Many plants that grow in the dune areas of the park are very specialized and found only in this area. The "Kohler Dunes Natural Area" located north and south of the nature center has many unique examples of dune vegetation and protects some threatened species as well. Please be careful not to damage any vegetation in this fragile area.

Mammals

At least 33 different species of mammals are known to live in the park. Deer can be spotted most anytime. The curious striped ground squirrels are seen throughout the park as they surface from their network of tunnels. Fox, chipmunks, several types of squirrels, muskrats, mink, raccoons, rabbits, opossums and many other common mammals also live here. Occasionally more rarely seen mammals are spotted such as river otters, beaver, coyotes and badgers.

Birds

More than 150 birds species are known to live in or migrate through Kohler-Andrae. The lakeshore of Lake Michigan acts as a migration corridor for birds during the spring and fall. Impressive numbers of diving ducks can be seen offshore. Many hawks also migrate through the park area, as do several other endangered and threatened species of birds. Many birds live and nest in the park. Types range from ducks, gulls, and shorebirds to woodland warblers, vireos, sparrows and marshland rails, sandhill cranes, and herons. Bring your binoculars and enjoy the colorful bird show. See the list of common birds found in Kohler-Andrae and the seasons when viewing is best.

<http://dnr.wi.gov/topic/parks/name/kohlerandrae/pdfs/kabirdlist.pdf>

Key

Migrating birds are in *italic*.

(E) Wisconsin Endangered

(T) Wisconsin Threatened

SP Spring, March-May

S Summer, June-August

F Fall, September-November

W Winter, December-February

A Abundant (common and numerous)

C Common (certain to be seen in suitable habitat, not in large numbers)

O Occasional (present but not always seen)

R Rare (seen at irregular intervals)

SP S F W □

WATERFOWL

	SP	S	F	W	□
Cackling Goose	O	O	O	O	___
Canada Goose	A	C	A	C	___
Wood Duck	O	C	C	___	___
Gadwall	C	O	C	___	___
American Wigeon	C	O	C	___	___
American Black Duck	A	O	A	A	___
Mallard	A	A	A	O	___
Blue-winged Teal	C	C	O	___	___
Northern Shoveler	C	O	C	___	___
Northern Pintail	O	O	O	___	___
Green-winged Teal	C	O	C	___	___
Canvasback	O	R	O	R	___
Redhead	C	O	C	O	___
Ring-necked Duck	C	O	C	O	___
Greater Scaup	A	O	A	A	___
Lesser Scaup	O	O	O	O	___
Surf Scoter	R	___	R	R	___
Black Scoter	R	___	R	R	___
White-winged Scoter	R	___	R	R	___
Long-tailed Duck	C	___	O	C	___
Bufflehead	C	___	A	A	___
Common Goldeneye	C	___	A	A	___
Hooded Merganser	O	O	O	O	___
Common Merganser	O	___	C	C	___
Red-breasted Merganser	C	___	C	C	___
Ruddy Duck	O	O	O	O	___

GAME BIRDS

Ring-necked Pheasant	C	C	C	C	___
Wild Turkey	C	C	C	C	___

LOONS

Red-throated Loon	O	___	O	O	___
-------------------	---	-----	---	---	-----

SP S F W □

Common Loon	O	O	O	___	___
Grebe	___	___	___	___	___
Pied-billed Grebe	O	___	O	___	___
Horned Grebe	O	___	O	___	___
CORMORANTS	___	___	___	___	___
Double-crested Cormorant	C	C	C	___	___
WADING BIRDS	___	___	___	___	___
American Bittern	O	O	O	___	___
Least Bittern	R	R	___	___	___
Great Blue Heron	C	C	C	___	___
Great Egret (T)	C	C	C	___	___
Green Heron	C	C	C	___	___
VULTURES, EAGLES, HAWKS, FALCONS	___	___	___	___	___
Turkey Vulture	O	O	O	___	___
Osprey (T)	O	O	O	___	___
Bald Eagle	O	O	O	R	___
Northern Harrier	O	___	O	___	___
Sharp-shinned Hawk	O	___	O	R	___
Cooper's Hawk	O	O	O	O	___
Red-shouldered Hawk (T)	O	O	O	___	___
Red-tailed Hawk	C	C	C	C	___
Rough-legged Hawk	O	___	___	O	___
American Kestrel	C	C	C	O	___
Merlin	R	___	R	___	___
Peregrine Falcon (T)	R	___	R	R	___

RAILS, CRANES

King Rail	R	___	___	___	___
Virginia Rail	O	O	R	___	___
Sora	O	O	O	___	___
American Coot	C	C	C	___	___
Sandhill Crane	C	C	C	___	___

SHORE BIRDS

Black-bellied Plover	O	O	O	___	___
American Golden Plover	O	O	O	___	___
Semipalmated Plover	C	O	C	___	___
Piping Plover (E)	___	R	___	___	___
Killdeer	C	C	C	___	___
American Avocet	___	R	___	___	___
Greater Yellowlegs	C	O	C	___	___
Lesser Yellowlegs	C	O	C	___	___
Solitary Sandpiper	O	O	O	___	___
Willet	R	R	R	___	___
Spotted Sandpiper	C	C	C	___	___

Upland Sandpiper	___	___	___	___	___
Whimbrel	___	___	___	___	___
Ruddy Turnstone	___	___	___	___	___
Red Knot	___	___	___	___	___
Sanderling	___	___	___	___	___
Semipalmated Sandpiper	___	___	___	___	___
Least Sandpiper	___	___	___	___	___
White-rumped Sandpiper	___	___	___	___	___
Baird's Sandpiper	___	___	___	___	___
Dunlin	___	___	___	___	___
Short-billed Dowitcher	___	___	___	___	___
Long-billed Dowitcher	___	___	___	___	___
Wilson's Snipe	___	___	___	___	___
American Woodcock	___	___	___	___	___
Gull	___	___	___	___	___
Franklin's Gull	___	___	___	___	___
Bonaparte's Gull	___	___	___	___	___
Ring-billed Gull	___	___	___	___	___
Herring Gull	___	___	___	___	___
Glaucous Gull	___	___	___	___	___
Great Black-backed Gull	___	___	___	___	___
Caspian Tern (E)	___	___	___	___	___
Common Tern (E)	___	___	___	___	___
Forster's Tern (E)	___	___	___	___	___
Pigeon	___	___	___	___	___
Rock Pigeon	___	___	___	___	___
Mourning Dove	___	___	___	___	___
Cuckoo	___	___	___	___	___
Cu	___	___	___	___	___
Yellow-billed Cuckoo	___	___	___	___	___
Black-billed Cuckoo	___	___	___	___	___
OWLS, NIGHTjARS	___	___	___	___	___
Eastern Screech-Owl	___	___	___	___	___
Great Horned Owl	___	___	___	___	___
Snowy Owl	___	___	___	___	___
Barred Owl	___	___	___	___	___
Northern Saw-whet Owl	___	___	___	___	___
Common Nighthawk	___	___	___	___	___
Whip-poor-will	___	___	___	___	___
SWIFTS, HUMMINGBIRDS	___	___	___	___	___
Chimney Swift	___	___	___	___	___
Ruby-throated Hummingbird	___	___	___	___	___

	SP	S	F	W	□
NuTHATChES, CReePeRS					
Red-breasted Nuthatch	C	C	C	C	___
White-breasted Nuthatch	C	C	C	C	___
Brown Creeper	O		O		___
WReNS					
House Wren	C	C	C		___
Winter Wren	O	R	O		___
Sedge Wren		R			___
Marsh Wren	C	A			___
KINGLeTS, GNATCATCHeRS					
Golden-crowned Kinglet	C		C	R	___
Ruby-crowned Kinglet	C		C		___
Blue-gray Gnatcatcher	O	O	O		___
THRuSHeS					
Eastern Bluebird	C	C	C		___
Townsend's Solitaire				R	___
Veery	O	O	O		___
Gray-cheeked Thrush	O		O		___
Swainson's Thrush	O		O		___
Hermit Thrush	O		O		___
Wood Thrush	O	O	O		___
American Robin	C	C	C	R	___
Varied Thrush				R	___
MIMIC THRuSHeS					
Gray Catbird	C	C	C		___
Northern Mockingbird	R				___
Brown Thrasher	O	O	O		___
STARLINGS, WAX WINGS					
European Starling	C	C	C	C	___
Cedar Waxwing	O	C	C	R	___
WARBLERS					
Blue-winged Warbler	O	R			___
Golden-winged Warbler	O	R			___
Tennessee Warbler	C		C		___
Orange-crowned Warbler	O		R		___
Nashville Warbler	C		C		___
Northern Parula	O		R		___
Yellow Warbler	A	A	O		___
Chestnut-sided Warbler	C	O	C		___
Magnolia Warbler	C		C		___
Cape May Warbler	O		O		___
Black-throated Blue Warbler	R				___
Yellow-rumped Warbler	A	R	A		___

	SP	S	F	W	□
Black-throated Green Warbler	C	C	O		___
Blackburnian Warbler	O		O		___
Yellow-throated Warbler (E)	R	R			___
Pine Warbler	C	C	C		___
Prairie Warbler	R	R			___
Palm Warbler	C		C		___
Bay-breasted Warbler	O		O		___
Blackpoll Warbler	O		O		___
Black-and-white Warbler	C	O	C		___
American Redstart	C	C	C		___
Ovenbird	C	C	O		___
Northern Waterthrush	C	R	O		___
Mourning Warbler	O	O	O		___
Common Yellowthroat	C	C	C		___
Hooded Warbler (T)	O	O	O		___
Wilson's Warbler	O		O		___
Canada Warbler	O	R	O		___
TANAGeRS					
Scarlet Tanager	O	O	O		___
SPARROWS					
Eastern Towhee	C	C	O		___
American Tree Sparrow	O		O	O	___
Chipping Sparrow	C	C	O		___
Clay-colored Sparrow	C	C	C		___
Field Sparrow	C	C	C		___
Vesper Sparrow	O	O	O		___
Savannah Sparrow	C	C	C		___
Fox Sparrow	O		O		___
Song Sparrow	A	C	C	O	___
Lincoln's Sparrow	O		O		___
Swamp Sparrow	C	C	C		___
White-throated Sparrow	C		C	R	___
Harris's Sparrow	R				___
White-crowned Sparrow	O		O		___
Dark-eyed Junco	C		O	C	___
Snow Bunting	O		O		___
CARDINALS, GROSBBeAKS, BuNTINGS					
Northern Cardinal	C	C	C	C	___
Rose-breasted Grosbeak	C	C			___
Indigo Bunting	O	O			___
Dickcissel		O			___
BLACKBIRDS					
Bobolink	O	O			___

Red-winged Blackbird	
Eastern Meadowlark	
Yellow-headed Blackbird	
Common Grackle	
Brown-headed Cowbird	
Orchard Oriole	
Baltimore Oriole	
FINChES	
Purple Finch	
House Finch	
Red Crossbill	
White-winged Crossbill	
Common Redpoll	
Pine Siskin	
American Goldfinch	
Evening Grosbeak	
OLD WORLD SPARRoWS	
House Sparrow	

Brochure developed by Wisconsin Department of Natural Resources through funding from the Wisconsin State Park.

This publication is available upon request for visually impaired persons. Please contact the Wisconsin Department of Natural Resources to request an alternate format.

The Wisconsin Department of Natural Resources provides an equal opportunity in its employment, under an Affirmative Action Plan. For more information, write to Equal Opportunity Office, Wisconsin Department of Natural Resources, P.O. Box 8970, Madison, Wisconsin, D.C. 20240.



Water: Wetlands

You are here: [Water](#) » [Our Waters](#) » [Wetlands](#) » Wetlands - Status and Trends

Wetlands - Status and Trends



Draining Wetlands for Irrigation

Current Situation

The lower 48 states contained an estimated 110.1 million acres of wetlands in 2009.¹ This is an area about the size of California. In 1994, an estimated 174 million acres of wetland existed in Alaska² – covering nearly half of the state– while Hawaii had 52,000 acres as of the 1980s.³ Next to Alaska, Florida (11.4 million),⁴ Minnesota (10.6 million),⁵ Louisiana (7.8 million),⁶ and Texas (7.6 million)⁷ have the largest wetland acreage.

In the 1600s, over 220 million acres of wetlands are thought to have existed in the lower 48 states.⁸ Since then, extensive losses have occurred, and over half of our original wetlands in the lower 48 have been drained and converted to other uses.⁹ The years from the mid-1950s to the mid- 1970s were a time of major wetland loss, but since then the rate of loss has decreased.



Between 2004 and 2009, an estimated 62,300 acres of wetlands were lost in the conterminous United States.¹⁰ Various factors have contributed to the decline in the loss rate including implementation and enforcement of wetland protection measures and elimination of some incentives for wetland drainage. Public education and outreach about the value and functions of wetlands, private land initiatives, coastal monitoring and protection programs, and wetland restoration and creation actions have also helped reduce overall wetland losses.

Percentage of Wetlands Acreage Lost, 1780's-1980's



Wetland states have lost as much as 80 percent of their original wetlands. Seven states—Florida, Texas, Missouri, Kentucky, Ohio, California, and Ohio—have lost 70-80 percent of their original wetlands. Since the 1970s, the most extensive areas of wetlands have been in Louisiana, Mississippi, Arkansas, Florida, South Carolina, and North Carolina. Source: Mink and Gattuso, Wetlands: The Status and National Trends, 1990

In addition to these losses, many other wetlands have suffered degradation of functions, although calculating the magnitude of the degradation is difficult.



Siting Industrial Operations in a Wetland

These losses, as well as degradation, have greatly diminished our nation's wetlands resources; as a result, we no longer have the benefits they provided. **The increase in flood damages, drought damages, and the declining bird populations are, in part, the result of wetlands degradation and destruction.**

Wetlands have been degraded in ways that are not as obvious as direct physical destruction or degradation. Other threats have included chemical contamination, excess nutrients, and sediment from air and water. Global climate change could affect wetlands through increased air temperature; shifts in precipitation; increased frequency of storms, droughts, and floods; increased atmospheric carbon dioxide

concentration; and sea level rise. All of these impacts could affect species composition and wetland functions.



Peat Mining in a Wetland/Montana

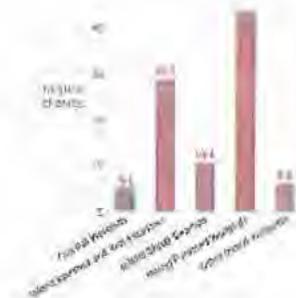
Major Causes of Wetland Loss and Degradation

Human Actions

Extent of Wetlands in the Lower 48 States



- Drainage
- Dredging and stream channelization
- Deposition of fill material
- Diking and damming
- Tilling for crop production
- Levees
- Logging
- Mining
- Construction
- Runoff
- Air and water pollutants
- Changing nutrient levels
- Releasing toxic chemicals
- Introducing nonnative species
- Grazing by domestic animals



Natural Threats

- Erosion
- Subsidence
- Sea level rise
- Droughts
- Hurricanes and other storms

Resources

- Wetlands Status and Trends Reports: The U.S. Fish and Wildlife Service publishes a variety of national, state, and regional reports to track and estimate the status and trends of wetland extent in the United States.
- National Resources Inventory: The NRI is conducted by the U.S. Department of Agriculture's Natural Resources Conservation Service, in cooperation with the Iowa State University Statistical Laboratory. The NRI is a statistical survey of land use and natural resource conditions and trends on U.S. non-Federal lands, including wetlands.

Footnotes

1. Dahl, T.E. 2011. *Status and Trends of Wetlands in the Conterminous United States 2004 to 2009*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 108 pp. <http://www.fws.gov/wetlands/Status-And-Trends-2009/index.html>.
2. Hall, Jonathan V., W.E. Frayer, and Bill O. Wilen. 1994. *Status of Alaska Wetlands*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 36 pp. <http://www.fws.gov/wetlands/Documents/Status-of-Alaska-Wetlands.pdf>. (PDF) (36 pp, 5.5 MB)
3. Dahl, T.E. 1990. *Wetlands Losses in the United States 1780's to 1980's*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 13 pp. <http://www.fws.gov/wetlands/Documents/Wetlands-Losses-in-the-United-States-1780s-to-1980s.pdf>. (PDF) (20 pp, 2.3 MB)
4. Dahl, T.E. 2005. *Florida's Wetlands: An Update on Status and Trends 1985 to 1996*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 80 pp. <http://www.fws.gov/wetlands/Documents/Floridas-Wetlands-An-Update-on-Status-and-Trends-1985-to-1996.pdf>. (PDF) (83 pp, 16.3 MB)
5. Klobier, Steven M. 2010. *Status and Trends of Wetlands in Minnesota: Wetland Quantity Baseline*. Minnesota Department of Natural Resources. Ecological and Water Resources Report, Saint Paul, MN. 28 pp. http://files.dnr.state.mn.us/eco/wetlands/wstmp_report_final_121410.pdf. (PDF) (28 pp, 1.5MB)
6. Caffey, R.H. and M. Schexnayder. 2003. "Coastal Louisiana and South Florida: A Comparative Wetland Inventory," *Interpretive Topic Series on Coastal Wetland Restoration in Louisiana*, Coastal Wetland Planning, Protection, and Restoration Act (eds.), National Sea Grant Library. 8 pp. <http://lacoast.gov/new/Data/Reports/ITS/Florida.pdf>. (PDF) (8 pp, 704K)
7. Dahl 1990.

8. *Ibid.*
9. *Ibid.*
10. Dahl 2011.

Table of Contents

Previous: Wetlands and People | Next: Wetlands Protection

Last updated on Thursday, January 24, 2013

DNR

Respites for migratory



Baltimore oriole



Black-throated blue warbler

Many valuable habitat features for migratory birds — such as forested old beach ridges, wooded wetlands and cobble beaches — may be found at Door County's Ridges Sanctuary and throughout the Balley's Harbor area.

RYAN O'CONNOR

A wood thrush, once a common but now declining forest species, sings at a stopover site in Wisconsin's Lake Michigan basin.

THOMAS SCHULTZ

Saving
Great Lakes
stopover
sites.

birds



Eastern bluebird



Rose-breasted grosbeak

Kim Groeles and Sumner Matteson

How different it is to observe a silent wood thrush in fall at Manitowoc County's Point Beach State Forest! During spring, one cannot help but be transfixed by the wood thrush's flute-like, ethereal *ee-oh-lay, ee-oh-lay* — a triumphant melody from a songbird newly returned from wintering in the Neotropics. Now, thanks to the technological advances in tracking small animals, we can follow the migratory routes of this forest denizen as it migrates to and from the shores of Lake Michigan.

Researchers use a small, 1.5-gram device called a light level geolocator that captures and measures the intensity of visible light every minute and allows them to determine latitude and longitude coordinates. They now not only know how far a wood thrush migrates

(233-271 kilometers per day in spring), but also the number and approximate duration of visits to, and relative locations of, "stopover sites," where the bird briefly stops to refuel before continuing its migration.

Every spring and fall, tens of mil-

lions of migrating birds sweep through the Great Lakes region and stop at a variety of sites on their way to breeding grounds as far north as Greenland and the Arctic Ocean and wintering grounds as far south as Argentina's Tierra del Fuego. These stopover sites provide birds with critical food and shelter en route. Loss of stopover habitats poses an ongoing threat to the health and stability of migratory bird populations in the Great Lakes region.

Wisconsin Stopover Initiative takes wing

For decades, reported declines in migratory bird populations have resulted in studies focused primarily on breeding and, to a lesser extent, wintering bird populations. Little serious attention had been given to identifying, prioritizing and protecting migratory bird stopover sites.

Many ornithologists believe that migration may be a part of the life cycle in which birds are most vulnerable. During migration, birds are under physiological stress and mortality may be quite high. For one group of migrants, the wood warblers, mortality rates during migration may be 15 times higher than in breeding and wintering periods, with adult rates as high as 85 percent for migrating black-throated blue warblers. Similar rates might also be true for the wood thrush and other

forest-dependent migratory songbirds.

The Wisconsin Stopover Initiative (WISI), launched in 2005, aims to place protection of migratory stopover sites, particularly along the Great Lakes, in the forefront of conservation. Founded by the Department of Natural Resources (DNR) and The Nature Conservancy (TNC) with funding from the Natural Resources Foundation of Wisconsin and State Wildlife Grants, WISI's goals are to protect 30,000 acres (about 25 percent of total coastal zone acreage) of critical stopover habitat in the Lake Michigan basin and 6,000 acres (about 5 percent of total coastal zone acreage) in the Lake Superior basin over the next decade.

To meet this challenge, the Department of Natural Resources depends upon a myriad of partners — including federal, state and local agencies as well as landowners, conservation organizations, private organizations and businesses — to accomplish the following four key steps:

1. Identify known priority migratory bird concentration sites;
2. Characterize important habitat features of stopover sites;
3. Map the known sites and the priority habitat features in order to pinpoint priority areas; and
4. Apply appropriate conservation measures, such as land acquisitions or habitat restoration, to protect the priority sites.

One size doesn't fit all

Migratory birds require an array of sites between wintering and breeding areas to survive, including sites not often thought of as having conservation value. Ornithologists recognize these different types of sites and creatively categorize them as Fire Escapes, Convenience Stores and Full-service Hotels.

Fire Escapes are sites such as a city park or a fragmented forest on an island in Lake Michigan that may receive less use because they are resource-poor, yet they are vital during times of stress as places for migrants to seek shelter from predators or storms.

Convenience Stores are areas with intermediate amounts of resources, typically larger in size than a Fire Escape, such as a county park. These sites are used occasionally or regularly and allow migrants to replenish



Angie Curtis (left) of Ozaukee Washington Land Trust and Andrew Struck of Ozaukee County Planning Department consider creating a migratory bird preserve at the former Squires Country Club as advised by DNR staff Sumner Matteson (far right), Kim Grveles (not shown), and Dale Katsma (second from right) in October 2007.



A fall scene at Harrington Beach State Park, a Convenience Store stopover site, known to be frequented by songbirds, shorebirds, raptors, waterfowl and waterbirds during spring and fall migration.

enough energy stores to continue on to their next stop.

Full-service Hotels are extensive, intact areas that are rich in resources and contain a diversity of habitat types that provide abundant food, water and shelter to large numbers of birds on a consistent basis. Examples of Full-service Hotels include a state or national park, national wildlife refuge or state wildlife area. All three types of stopover sites must be protected if we are to establish a network of sites that spans the Great Lakes region and beyond.

Recognizing the urgency of establishing a network of protected sites, the Department of Natural Resources invited local wildlife professionals, birders and other experts to attend workshops in 2006 to identify migratory stopover sites, which they knew well. These experts drew site boundaries on quadrangle maps and provided details about the habitats, surrounding land uses and migratory bird uses at 223 migratory bird sites. The data, combined with the literature and expert opinion, were

used to construct spatial Geographic Information System (GIS) stopover habitat models that predict where migratory birds are likely to concentrate in each basin, thus helping to fill in gaps in our collective knowledge of Wisconsin's stopover sites.

We produced GIS habitat models for three bird groups — landbirds (songbirds and other perching birds), waterfowl/waterbirds and shorebirds — in each Great Lakes basin in Wisconsin. One important finding was that the Lake Michigan basin has more sites and a larger area where action is needed to preserve stopover habitats than the Lake Superior basin.

Parishes are key to success

As urban development expands in coastal areas, public land becomes increasingly important for providing migrating birds places to stop, rest and refuel. Although some publicly owned lands in the Great Lakes basins support high concentrations of migratory birds during spring and fall, these properties

GREAT PLACES FOR VIEWING MIGRATORY BIRDS



LAKE MICHIGAN BASIN

- Peninsula State Park contains extensive forests, including shoreline conifers, rocky outcroppings and openings located on a peninsula jutting into Green Bay. Look for raptors and songbirds; also diving ducks and waterbirds along the shore.
- Bailey's Harbor Area includes Mud Lake State Natural Area, Ridges Sanctuary and Toft Point. This area has highly diverse upland habitats, shorelines, wetlands and shallow bays of Lake Michigan with cobblestone beaches. Look for songbirds and waterfowl.
- Bay Beach Wildlife Sanctuary has ponds, flooded fields in spring, forest and shrubby woodlands that make great stopover sites. This is a great place for all birds, especially songbirds and shorebirds.
- Point Beach State Forest has intact old beach ridges and swales with hardwoods, swamp areas and Lake Michigan shoreline. All types of migratory birds may be observed, especially songbirds and shorebirds.
- Harrington Beach State Park consists of Great Lakes open beaches, forested bluffs and a large inland lake surrounded by limestone ledges with white cedars. Songbirds are abundant in some years and diving ducks may be seen just off the shore.
- Forest Beach Migratory Preserve has a variety of wooded habitats including oak savanna, upland and lowland shrubs, mature hardwoods, open-grown conifers with some grassland and

wetland areas. Songbirds, raptors and shorebirds may be observed.

● Schlitz Audubon Nature Center contains a diversity of habitats including wooded bluff, wooded ravine, restored prairie, ponds, Great Lakes beach and an old field. Look for songbirds and waterbirds.

● Wind Point is a small parcel of land that juts out into the lake with a wooded ravine extending back from the lake. Visit to see all types of birds, especially waterbirds and songbirds.

LAKE SUPERIOR BASIN

- St. Louis River Estuary has many high quality habitats including extensive emergent marsh, shrub swamp, wet meadow and coniferous forests composed of boreal-associated species. Thousands of waterbirds, waterfowl and songbirds plus hundreds of roosting turkey vultures may be found here.
- Wisconsin Point is a long, coastal barrier sand spit including several miles of open sand beach and dunes, small interdunal wetlands, and a white and red pine forest. Heavy concentrations of songbirds, raptors, waterfowl, waterbirds and shorebirds may be observed.
- Apostle Islands National Lakeshore consists of islands in Lake Superior with diverse habitats including unfragmented forests, boreal forest, wetlands, upland shrubs, wilderness, old growth and sandscapes. This is a great place to find all migratory birds, especially songbirds and raptors.

may be degraded by invasive species that displace native plants migratory birds depend on for food and cover. Stopover habitat quality may also decline due to habitat fragmentation, a lack of vertical or horizontal vegetation structure affecting food and cover availability, and an inadequate surface water depth and/or quality.

For WISI to effectively protect, manage and maintain quality stopover habitats, partnerships are key, including TNC—the DNR's first stopover partner—and our primary funding source, the Natural Resources Foundation of Wisconsin. The stopover project represents the collaborative efforts of seven TNC state chapters, Audubon chapters, the Wildlife Habitat Council, Canadian partner organizations and many other organizations. Since 2003, TNC has taken the lead in identifying, protecting and restoring stopover sites in fast-developing areas of the Great Lakes region, beginning with sites on Lake Erie. The Nature Conservancy's Dr. David Ewert helped frame the stopover issue for the Department of Natural Resources and encouraged us to develop the models that we now use to assist land trusts, agency personnel and others.

Since 2006, WISI has formed partnerships with local land trusts, watershed groups, citizens and property managers to implement a strategic stopover plan. We are beginning to see the protection of migratory bird stopover sites become a conservation priority on the Great Lakes and are well on our way to achieving our protection goals by working with many agencies and organizations. Protection includes land acquisitions/easements; stewardship activities such as habitat restoration on public and private lands; recommendations on wind energy and communication tower sitings; application of bird diversion techniques on tall structures; and community planning and zoning.

Land trusts recognize the importance of conserving critical stopover habitats along the Great Lakes shores because of increasing recreational and development pressures affecting landscapes that interest them. For example, in 2007 the Ozaukee Washington Land Trust (OWLT) expressed an

interest in restoring a golf course to provide stopover habitat for shorebirds (see sidebar).

Now called the Forest Beach Migratory Preserve, this innovative stopover site provides valuable habitat on an important migratory bird corridor known as the Lake Michigan Flyway, a link between Canada and the Northwest Territories and Central and South America for many shorebirds, flycatchers, vireos, swallows, thrushes, warblers, sparrows and other birds. Rapidly declining species, many with globally important breeding populations in Wisconsin, such as the golden-winged warbler, will likely benefit from this restoration.

There also is a growing interest among governmental and non-governmental organizations in establishing stopover sites. The Forest Beach Migratory Preserve has generated interest among counties along Lake Michigan, not only because of the intrinsic conservation values but because there are potential economic rewards from birders willing to seek out and explore a Great Lakes bird preserve.

The Stopover Initiative in action

Mark Martin of the DNR's State Natural Areas program has embraced the Stopover Initiative and is involved with two major efforts to protect and restore stopover habitat along Lake Michigan. Using our stopover habitat models and known priority site data, Martin is currently working with the Door County Land Trust, The Ridges Sanctuary, and TNC to protect more than 1,500 acres of stopover habitat along Door County's coast through land acquisition using U.S. Fish and Wildlife Coastal Wetland and Knowles-Nelson Stewardship funds.

"The importance of these properties," Martin commented, "is they include critical habitats, such as mixed hardwood forests, lowland forest, and coastal wetlands, for tens of thousands of migratory birds every spring and fall." Martin also asserts that land protection efforts will provide habitat for nesting birds including 17 species of wood warblers as well as for rare species such as the dwarf lake iris and Hine's emerald dragonfly. "These sites will protect natural communities, will help maintain water quality, and will provide land for education and research, and for the public to enjoy," Martin said.



CLINT FARLINGER

The Nature Conservancy is protecting 88 acres at its Mink River site in Door County.



JOEL TRICK, U.S. FISH AND WILDLIFE SERVICE

Bay-breasted warbler



THOMAS SCHULTZ

White-throated sparrow

Martin is also involved with a DNR restoration project that is working with many partners to remove nonnative phragmites (giant reed grass) along 118 miles of Lake Michigan shoreline and 3,600 acres of coastal wetlands in six counties. Nonnative phragmites replaces native vegetation and provides little or no food or shelter for most wetland-dependent wildlife, including migratory birds.

In Manitowoc County, at Martin's request, WISI drafted management recommendations for master planning of the Two Creeks Buried Forest State Natural Area. The master plan of this Lake Michigan property will provide a 22-acre stopover site in an otherwise open agricultural landscape that has little woody cover available for wood thrushes and other species.

In Door County, TNC is completing the protection of 88 acres at their Mink River preserve through the use of Great Lakes Restoration Initiative and Knowles-Nelson Stewardship funds. These acres were targeted because they hold high value habitat for migratory land and wetland associated birds. As with the lands being protected with the U.S. Fish and Wildlife Coastal Wetland funds, these lands will also protect habitat for a variety of other species.

Wisconsin DNR's Environmental Review Program (ER) champions stopover habitat protection and worked with WISI to develop guidelines for locating communication towers and wind turbines in order to reduce bird collisions.

Most fatalities of migrants at communication towers occur because migrato-

ry birds become disoriented by certain lighting conditions on tall (taller than 200 meters) towers while migrating at night. Once confused by the light, they fly into guy wires that support the tower rather than colliding with the tower.

Recent studies reveal that mortality can be significantly reduced if towers are less than 200 meters in height, do not have guy wires, and are unlit, or, if taller than 200 meters, are marked with strobe rather than solid lighting. Environmental Review Program guidance incorporates results from these studies as well as federal guidelines to promote responsible placement of communication towers and wind turbines in Wisconsin.

Private lands are a very important part of a network of stopover sites, especially along Lake Michigan, where much of the coast is owned and managed by private individuals and businesses. Many of these properties contain stopover attributes (e.g. forest cover, emergent marsh, lowland shrubs, etc.) determined to be of high or very high priority for migratory birds during either spring, fall, or both. For those properties adjacent to or near managed properties where birds already concentrate, improved backyard habitat will increase the amount of shoreline habitat available. When backyard management occurs in isolated situations, even a small amount of habitat may serve as a Fire Escape, providing vital respite for migratory birds that need to rest before making the next leg of their journey.

Through a variety of promotional events, WISI is encouraging and equipping private landowners with tools and knowledge to enhance their properties for the benefit of migratory birds. For example, WISI, the Western Great Lakes Bird and Bat Observatory (WGLBBO), and many other partners host an annual spring celebration of International Migratory Bird Day at the Forest Beach Migratory Preserve. WISI and the WGLBBO will be hosting a workshop for private landowners on October 8 called, "Grosbeaks Galore: Birds on Your Landscape." Learn landscaping techniques to attract migratory birds to appropriate habitat, food and water on your property. To register for the workshop contact the author at kim.grveles@wisconsin.gov.

Looking toward the future, it is only by working collaboratively and energetically, with the vision of an interconnected network of Great Lakes stopover



With the planting last year of 20,000 trees and shrubs, once manicured golf course fairways were transformed into a variety of woody habitats suitable for migratory songbirds at the new Forest Beach Migratory Preserve in Ozaukee County.

SUMNER MATTESON

sites uppermost in our minds, that we will save for posterity the landscapes needed by long-distance migratory birds such as the wood thrush and scores of other bird species. Together, we can secure the resting places they need on their often perilous migrations, and ensure our own enjoyment in their return.

Kim Grveles and Sumner Matteson are DNR avian ecologists.

FOREST BEACH MIGRATORY PRESERVE

Expansive, high quality, pristine habitats are the typical targets sought by conservation organizations for protection. Thinking outside the box, Angle Curtis and Shawn Graf of the Ozaukee Washington Land Trust (OWLT) presented the idea of protecting a most unusual site — a golf course — to add to their collection of preserves.

Formerly known as Squires Country Club in northeastern Ozaukee County, the site consisted of mowed fairways and a few water holes sandwiched between two hardwood forested corridors near Lake Michigan's shore. OWLT recognized the potential to restore the water holes for migratory shorebird habitat and were considering converting the upland fairways to prairie grasslands. At the very least, acquisition of this site would improve water quality by eliminating the application of more than six tons of fertilizers and chemicals annually and the need to pump 12 million gallons of water from local wells for irrigation every year to maintain the golf course.

After evaluating the site with the Wisconsin Stopover Initiative habitat models, Kim Grveles, Sumner Matteson, and DNR wildlife manager Dale Katsma visited the golf course in October 2007 to assess its potential as a migratory bird preserve. We encouraged OWLT to focus on restoring the fairways for migratory songbirds and affirmed their decision to convert ponds to shorebird stopover habitat. After purchasing the site in 2008, OWLT renamed it Forest Beach Migratory Preserve, the first preserve of its kind consisting of 116 acres of newly planted hardwoods, shrublands, savanna, grasslands and constructed wetland ponds and ephemeral pools.

"This was a real opportunity," said Graf, "because this is one of the last remaining 100 plus acre sites not developed on Lake Michigan. It is really a pleasure and rewarding that we're making (the preserve) happen."

To read more about Forest Beach Migratory Preserve, visit the OWLT website at owl.org/visit-our-preserves/forest-beach-migratory-preserve

2004 PGA Championship



The **2004 PGA Championship** was the 86th [PGA Championship](#), played August 12–15 at the Straits Course of the [Whistling Straits](#) complex in [Haven, Wisconsin](#) (postal address [Kohler](#)).^[1] The purse was \$6.25 million and the winner's share was \$1.125 million.

[Vijay Singh](#), the [1998](#) champion, earned his third and final [major](#) title in a three-hole aggregate playoff, defeating [Justin Leonard](#) and [Chris DiMarco](#).^[2] At the time Singh, age 41, was third in the [world rankings](#),^[3] the win moved him to #2 and he ascended to the top spot three weeks later, displacing [Tiger Woods](#).^[4]

It was the first major championship at the expansive Straits Course, designed by [Pete Dye](#) and opened in 1998,^[5] which allowed high attendance and was highly profitable for the [PGA of America](#). It set records with over 94,400 tickets sold and an overall attendance of 320,000 for the week.^[6] The overall economic impact was \$76.9 million, shattering the previous record of \$50.4 million in [2002](#), and nearly doubling that of [2003](#).^[7]

The PGA Championship returned just six years later, in [2010](#), displacing the more confined [Sahalee Country Club](#) near [Seattle](#),^{[8][9][10][11]} which hosted in 1998, Singh's first major win. The admittance at Sahalee in 1998 was capped at 25,000 per day by the PGA of America.^[12] In early 2005, its chief executive officer, Jim Awtrey, cited the proximity to the [2010 Winter Olympics](#) in [Vancouver](#) as the main reason for the retraction, and that Sahalee was targeted for 2012 to 2015 for another PGA Championship.^{[8][10]} Whistling Straits was awarded the 2010 event days later.^[13] The PGA of America has yet to commit to a return to Sahalee before 2020, or any other venue in the [West](#).

https://en.m.wikipedia.org/wiki/2004_PGA_Championship

Submitted by



Golf Courses' Effects on the Environment

[Text 3NOTES](#)

Project finished!

Thanks for the support, guys! Feel free to look around, but just be aware that there will be no more updating for this blog.

Thanks again for all the love!

[Link 3NOTES](#)

[Reclaimed water usage on golf courses](#)

[Link 2NOTES](#)

["Water-Thirsty Golf Courses Need to Go Green" on NPR](#)

[Text 4NOTES](#)

Water Usage on Golf Courses!

You know what's coming, don't you? Yep, visualization!

Think of the lush green grass of the golf course. Now guesstimate how much water it takes each day to maintain that quality.

Did you guess an average of 312,000 gallons a day? And millions for the courses in Palm Springs? Wow, you're good at guessing. To give you a better idea of what that means, those millions of gallons used at Palm Springs equal the amount a family of four would use in four years.

Four years!

Where does all this water come from? Don't think about the ocean; the salinity level is too high for turfgrass to tolerate. Instead, think about my blog post on aquatic environments. Yeah, rivers and lakes act as sources of irrigation water.

So you can already tell that this isn't exactly environmentally friendly. But what are the alternatives?

The simplest option is to reduce the amount of water used. It means letting go of the idea that golf courses have to be green, and allowing for brown patches of grass on the green or a salt-and-pepper look. But has anyone ever found that browner grass negatively affected their golfing ability? Anyone who does is making excuses.

Another option is to use reclaimed water. This is pretty much what it sounds like: water is used, then reclaimed, treated, and used again. Reclaimed water is usually treated sewage, made suitable for irrigation. It's recycling, but for water! The benefit of this is the reduction of amount of clean water used, especially from aquatic systems.



The above two alternatives are direct ways to affect the amount of water used. There are also ways to indirectly influence the amount of water needed by golf courses, such as avoiding overseeding and planting drought-resistant grass.

Letting the greens go brown is a big step for golf course managements, but an important one that they should take as soon as possible. The fate of aquatic ecosystems rest in their hands.

[Link 3NOTES](#)
[How Green Is Golf?](#)

A quick, easy to read article on golfing and environmentalism by John Barton.

[Quote 1NOTES](#)

Golf Digest points out, for example, that an incredible 41 percent of golfers polled believe that global warming is a myth.

—

[Water-Thirsty Golf Courses Need to Go Green](#) on NPR

wince

[Link 1NOTES](#)
[Learn about how fertilizers and pesticides affect water quality!](#)

[Photo 2NOTES](#)



[Zoom](#)

Buffer zone surrounding a lake.

Text 4NOTES

Runoff, Buffers, and Wetlands

In my earlier post about fertilizers I talked about runoff, and hinted at it in my pesticides post. This post is going to be about this “runoff” and why it’s so important in discussions about golf courses and aquatic ecosystems.

Runoff means exactly what it sounds like. It’s basically the excess water that flows downhill, usually into streams and ponds. Of course, this doesn’t just happen in golf courses. It happens everywhere, but the important areas to look at are lawns, golf courses, and other landscaped and chemically-managed areas.

The problem is this: say the groundskeeper notices the green is looking a little lackluster. Without checking the weather, he/she fertilizes the grass, but soon afterwards, it starts pouring.

What happens to the fertilizer?

Since it hasn’t had a chance to fully penetrate the soil in that short amount of time between application and downpour, there is fertilizer sitting on the surface. The rain at first is absorbed by the soil, but as it continues raining, the soil reaches its limit and cannot continue the uptake of water. At this point, any further precipitation will be runoff, and the water flowing at the surface will pick up the fertilizer and carry it downhill, eventually dumping it into a larger body of water.

Aquatic ecosystems are extremely delicate, and the organisms that live there are not very tolerant of extreme changes. With runoff comes extreme change. The increased amounts of nitrogen, phosphorus, and potassium pollute the water and are detrimental to these ecosystems. See my previous post to learn why we should work hard in saving these habitats.

In order to prevent runoff from running away, golf courses leave a buffer zone between the fairway and the water, or create wetlands. The purpose of buffers and wetlands is to absorb the runoff or accumulate it in a safe area before it can reach the water. Buffers are a wide strip of land that absorb the runoff and filter it through the soil. This way, the fertilizer or other chemical doesn’t disrupt the aquatic environment nor leach into the groundwater. Wetlands are areas that are permanently wet and collect the runoff before it enters the stream. The benefit of this is that it provides the management a chance to treat the water before it does harm.

While not all golf courses have these, it is an important addition in an area that uses high concentrations of chemicals. I hope that they all begin adding it to their policies.

Text

Why are aquatic ecosystems important?

This post is to just really quickly tell you about why I believe bodies of water such as ponds, lakes, and especially streams are important.

On the food chain, there are primary producers (those that make their own food), primary consumers (who



eat the primary producers), secondary consumers (who eat the primary consumers), tertiary consumers, and possibly quaternary consumers. Keep this in mind.

In aquatic ecosystems, there are large amounts of cyanobacteria, algae, and other photosynthesizers which act as primary producers. Besides being responsible for most of the oxygen we breathe, they act as food for everyone else on the food chain.

A few rungs higher up on the ladder are fishes, which are indirectly dependent on these primary producers. These fishes act as food for animals outside of the water, such as birds, mammals, etc.

Also, aquatic organisms are responsible for keeping the water clear, eating the excess algae and decomposing organic matter that settles on the bottom. In streams, this is important because in some areas, the streams are the source of water for humans.

So looking at what aquatic organisms do, it is apparent that a disruption in the aquatic ecosystem has a huge effect. If it happens on a large scale, the atmosphere's oxygen content would decrease drastically. On a smaller scale, the diversity of other surrounding ecosystems would be affected due to lack of food, and the water quality would be impacted, which could affect humans and prevent them from having drinkable water.

Please help to preserve our aquatic ecosystems, and the rest of the world as well!

What is this blog about?



For my final project in my Ecology class, I delve into the world of golf courses to learn more about the benefits and detriments brought about by their maintenance.

People don't usually think of it, but golf courses have a significant effect on our environment. With the amount of water and chemicals needed to maintain the facility, it is important to be aware of the importance of golf courses in the context of our environment.

Please continue reading to learn more about what I've learned and am learning while researching for my project.

All information is based on my own research, and was not endorsed by Mirimichi.

INTERESTING AND INFORMATIVE LINKS:

[Find out more about Mirimichi!](#)

[Find out more about Audubon International, the organization that certifies eco-friendly golf courses!](#)

[Visit here to find eco-friendly golf courses, learn about the negative effects of golf courses on the environment, and ways they can try to improve!](#)

[Visit this site for all you've ever wanted to know about pesticides and more. Be sure to check out the golf!](#)



[section!](#)

Load more posts...

12

[To Tumblr, Love PixelUnion](#)

Never miss a post!

greengolfing

Golf Courses' Effects on the Environment

Home

Who We Are

Our Programs

Issues and News

Join / Give

Calendar

Wetland Directory

Protecting Wetlands

Wetlands of Wisconsin

Restoring Wetlands

Resources and Links

Search Our Site

Land Use and Wetlands

Understanding the Wetland Permit Process

Though wetland laws grant state and federal agencies the final authority to approve or deny projects with wetland impacts, as the first point of contact for most development proposals local governments play a critical role in determining what projects advance for regulatory review. Local land use decision makers can help community supported projects get built more quickly, with less state and federal intervention, by steering landowners away from projects that require wetland permits. To do so, you will need to understand the following permit basics:

- >> [What wetlands are regulated?](#)
- >> [What activities are regulated?](#)
- >> [When are wetland permits approved or denied?](#)
- >> [Does shoreland-wetland zoning adequately protect wetlands?](#)
- >> [Do constructed \(mitigated\) wetlands adequately replace filled wetlands?](#)
- >> [Is it true that any wetland can be filled as long as one is restored nearby?](#)
- >> [Federal and state regulatory contact information](#)



Bull Frog

Thanks for photos provided by Melinda Bailey, Treva Breuch, Bob Hay, Stephen Lang, A.B. Sheldon, Pam Strohl, Alice Thompson, the WI DNR, and members and friends of WWA. Please do not use without written permission.

Website ©1999, 2002
Wisconsin Wetlands Association
Website managed by
Design by [Creative Commons](#)

What wetlands are regulated? Wisconsin law requires authorization by the Wisconsin Department of Natural Resources (WDNR) for all wetland fill activities, regardless of wetland size or location. Federal law requires permits from the U.S. Army Corps of Engineers (Corps) for construction activities in wetlands adjacent or hydrologically connected to lakes, rivers, and streams.

What activities are regulated? Permits are required for the discharge of "dredged or fill" material into a wetland, and for major wetland disturbance, such as a pipeline or sewer construction. Fill includes materials such as asphalt, concrete, soil, sand, gravel, and even wood chips.



Materials classified as wetland "fill."
Photos by Kyle Mugvera

When are wetland permits approved or denied? Under both state and federal law, permits may only be granted for **unavoidable** wetland impacts that will not cause a significant adverse impact to **wetland functions**. Permit staff rely on the following information in their review:

- a. A **wetland delineation** report to confirm the presence and boundaries of wetlands, and a **mitigation assessment** to describe and rate the wetland quality and **natural functions**. To be accepted, these reports must be completed by a qualified wetland consultant using procedures specified in state and federal rules.
- b. An **alternatives analysis** describing how the developer designed the project to first avoid, and then minimize wetland impacts. Alternate sites, smaller projects, and reconfigured site designs are all considered viable alternatives, even if the changes reduce profits. Agencies look for the **least environmentally damaging practicable alternative** to meet the **basic project purpose**.

Does shoreland-wetland zoning adequately protect wetlands? In short, no, but it does help landowners avoid **mapped** wetlands within the shoreland zone. Required by the state and administered by the counties, shoreland-wetland zoning sets minimum standards for permitted and prohibited uses in shoreland wetlands. However, shoreland-wetland zoning fails to provide effective local wetland protection in two ways: 1) not all wetlands in the shoreland zone appear on Wisconsin Wetland Inventory maps, and 2) many wetlands fall outside the shoreland zone. Some counties exceed the minimums by requiring setbacks to all wetlands within the shoreland zone or all wetlands regardless of location. Door County, for example, requires a 35-foot setback for all shoreland and inland wetlands.

Is it true that any wetland can be filled as long as one is restored nearby? Definitely not. The practice of restoring wetlands in one location to compensate for wetland destruction elsewhere (a practice known as wetland mitigation) is only accepted to compensate for *unavoidable* wetland impacts.

Do constructed (mitigated) wetlands adequately replace filled wetlands? Typically not. It's rarely a fair trade to destroy wetlands in one location and restore them in another. Reasons why include:

1. Wetland benefits are site-specific. When a wetland is filled, associated benefits such as water purification, flood retention, and wildlife habitat are lost from that site forever.
2. What takes thousands of years to develop cannot be recreated in one or two years. Many constructed wetlands do not achieve the same degree of biological diversity and ecosystem functions found in natural wetlands. In some cases, the projects fail and no wetlands are established.
3. Mitigation decreases the diversity of wetland community types. Many wetland types are difficult to recreate (e.g., wooded wetlands), so the restored wetlands are frequently a different type (e.g., marshes) than those destroyed. As a result, certain wetland types are lost in greater proportion than others.
4. Mitigation often results in the destruction of wetlands and an increase in impervious surface in urban areas (where wetland functions may be needed most) and the construction or restoration of wetlands in rural areas (where wetlands and wetland function may already be plentiful).

For an in-depth analysis that discusses gaps in the effectiveness of the wetland mitigation program, [click here](#) for a report produced by the National Academy of Sciences (2001).

Permit Questions?

Each county has a WDNR Water Management Specialist and Corps District Engineer assigned for project review and questions. If you have a current or upcoming proposal with wetland impacts, you should involve the appropriate WDNR and Corps staff person early in the project design and planning process.

Wisconsin Department of Natural Resources Water Management Specialist contact information is available at: dnr.wis.gov/waterways/about_us/county_contacts.html.

U.S. Army Corps of Engineers District Engineer contact information is available at: www.mvp.usace.army.mil/regulatory/default.asp?pageid=691.

Additional information on the wetland permit process can be found on WWA's [Protecting Wetlands webpages](#).



[Back to Introduction](#)



Health Effects of 30 Commonly Used Pesticides

	Health Effects						
	Cancer	Endocrine Disruption	Reproductive Effects	Neurotoxicity	Kidney/Liver Damage	Sensitizer/Irritant	Birth Defects
Herbicides							
2,4-D*	X ⁴	X ¹⁰	X ⁷	X ⁸	X ⁵	X ¹	X ¹¹
Benfluralin					X ¹	X ¹	
Bensulide				X ²	X ¹	X ²	
Clopyralid			X ⁷			X ²	X ⁷
Dicamba*			X ¹	X ²	X ²	X ¹	X ¹
Diquat Dibromide			X ¹²		X ¹¹	X ¹	
Dithiopyr					X ³	X ¹	
Fluazipop-p-butyl			X ¹		X ¹		X ¹
Glyphosate*	X ¹²	X ⁸	X ¹		X ⁵	X ¹	
Imazapyr					X ⁷	X ²	
Isoxaben	X ³				X ²		
MCPA		X ⁶	X ²	X ²	X ¹¹	X ¹	
Mecoprop (MCP) [†]	Possible ³	X ⁶	X ²	X ¹	X ⁹	X ¹	X ¹
Pelargonic Acid*						X ¹	
Pendimethalin*	Possible ²	X ⁶	X ¹			X ²	
Triclopyr			X ⁷		X ⁹	X ¹	X ⁷
Trifluralin*	Possible ³	X ⁶	X ¹		X ²	X ¹	
Insecticides							
Acephate	Possible ³	X ⁶	X ¹¹	X ⁹		X ²	
Bifenthrin ^{††}	Possible ³	Suspected ^{6,10}		X ⁸		X ¹	X ⁹
Carbaryl	X ³	X ¹⁰	X ⁸	X ¹	X ¹¹	X ¹¹	X ⁷
Fipronil	Possible ³	X ⁶	X ⁸	X ⁸	X ⁶	X ⁶	
Imidacloprid ‡			X ⁷		X ²		X ⁷
Malathion*	Possible ¹	X ¹⁰	X ¹¹	X ⁹	X ²	X ⁷	X ²
Permethrin ^{††}	X ³	Suspected ^{6,10}	X ^{1,7}	X ^{9,7}	X ⁹	X ¹	
Trichlorfon	X ²	X ⁵	X ¹¹	X ²	X ¹		X ²
Fungicides							
Azoxystrobin					X ²	X ²	
Myclobutanil		Probable ⁶	X ²		X ²		
Propiconazole	Possible ¹	X ⁶	X ²		X ¹	X ¹	
Sulfur						X ¹	
Thiophanate methyl	X ³	X ¹	X ¹	Suspected ¹	X ¹	X ²	X ¹
Ziram	Suggestive ³	Suspected ⁶		X ²	X ²	X ²	
Totals:	16	17	21	14	25	26	12

Pesticides

*These pesticides are among the top 10 most heavily used pesticides in the home and garden sector from 2006-2007, according to the latest sales and usage data available from EPA (2011), available at http://www.epa.gov/opp00001/pestsales/07pestsales/market_estimates2007.pdf.

† EPA lists all synthetic pyrethroids under the same category. While all synthetic pyrethroids have similar toxicological profiles, some may be more or less toxic in certain categories than others. See Beyond Pesticides' synthetic pyrethroid fact sheet at bit.ly/TLBuP8 for additional information.

‡ Imidacloprid is a systemic insecticide in the neonicotinoid chemical class, which is linked to bee decline.

Description

Most toxicity determinations based on interpretations and conclusions of studies by university, government, or organization databases. Empty cells may refer to either insufficient data or if the chemical is considered relatively non-toxic based on currently available data.

The list of 30 commonly used lawn chemicals is based on information provided by the General Accounting Office 1990 Report, "Lawn Care Pesticides: Risks Remain Uncertain While Prohibited Safety Claims Continue," U.S. Environmental Protection Agency (EPA) National Pesticide Survey (1990), Farm Chemicals Handbook (1989), The National Home and Garden Pesticide Use Survey by Research Triangle Institute, NC (1992), multiple state reports, current EPA Environmental Impact Statements, and Risk Assessments, EPA national sales and usage data, best-selling products at Lowe's and Home Depot, and Beyond Pesticides' information requests.

For more information on hazards associated with pesticides, please see Beyond Pesticides' *Gateway on Pesticide Hazards and Safe Pest Management* at www.beyondpesticides.org/gateway. For questions and other inquiries, please contact our office at 202-543-5450, email info@beyondpesticides.org or visit us on the web at www.beyondpesticides.org.

Citations

1. U.S. EPA. Office of Pesticide Program *Reregistration Eligibility Decisions (REDs), Interim REDs (IREDs), and RED factsheets*. <http://www.epa.gov/pesticides/reregistration/>.
2. National Library of Medicine, TOXNET, *Hazardous Substances Database*, <http://toxnet.nlm.nih.gov/>.
3. U.S. EPA. 2012. Office of Pesticide Programs, *Chemicals Evaluated for Carcinogenic Potential*. http://npic.orst.edu/chemicals_evaluated.pdf.
4. California Environmental Protection Agency. *Proposition 65: Chemicals Known to the State to Cause Cancer or Reproductive Toxicity*. Office of Environmental Health Hazard Assessment. http://www.oehha.org/prop65/prop65_list/files/P65single052413.pdf.
5. The Pesticide Management Education Program at Cornell University. *Pesticide Active Ingredient Information*. <http://pmep.cce.cornell.edu/profiles/index.html>.
6. The Endocrine Disruption Exchange. 2011. *List of Potential Endocrine Disruptors*. <http://www.endocrinedisruption.com/endocrine.TEDXList.overview.php>.
7. Northwest Coalition for Alternatives to Pesticides (NCAP), *Pesticide Factsheets*. <http://www.pesticide.org/get-the-facts/pesticide-factsheets>.
8. Beyond Pesticides *ChemWatch Factsheets*, <http://www.beyondpesticides.org/pesticides/factsheets/index.htm>.
9. U.S. EPA. *Chronic (Non-Cancer) Toxicity Data for Chemicals Listed Under EPCRA Section 313*. Toxic Release Inventory Program. http://www.epa.gov/tri/trichemicals/hazardinfo/hazard_chronic_non-cancer95.pdf.
10. European Union Commission on the Environment. *List of 146 substances with endocrine disruption classifications, Annex 13*. http://ec.europa.eu/environment/endocrine/strategy/substances_en.htm#report2.
11. Extension Toxicology Network (EXTOXNET) *Pesticide Information Profiles*. <http://extoxnet.orst.edu/ghindex.html>.
12. International Agency for Research on Cancer, World Health Organization (IARC) category 2A, the agent (mixture) is probably carcinogenic to humans based on sufficient evidence of carcinogenicity in laboratory animal studies. <http://monographs.iarc.fr/ENG/Classification/index.php>.

Water: Pollution Prevention & Control

You are here: [Water](#) » [Pollution Control](#)

Pollution Control

Water pollution prevention and control measures are critical to improving water quality and reducing the need for costly wastewater and drinking water treatment. Because water pollution can come from many different sources, a variety of pollution prevention and control measures are needed.

Green Infrastructure / Low Impact Development

Green infrastructure and low impact development approaches and techniques help manage water and water pollutants at the source, preventing or reducing the impact of development on water and water quality. Learn about these cost-effective, sustainable, and environmentally friendly approaches to wet weather management.

Impaired Waters and Total Maximum Daily Loads

States, territories, and tribes must protect water bodies and to address water bodies that do not meet water quality standards (i.e., impaired waters). Find information on regulations, guidance, and technical resources relating to impaired waters and TMDLs.

NPDES Permit Program

EPA's national Pollutant Discharge Elimination System (NPDES) permit program plays an important role in minimizing the wastes and pollution load released into receiving bodies. Find basic information on the major features and elements of the NPDES permit program.

Polluted Runoff (Nonpoint Source Pollution)

Polluted runoff is caused by rainfall and snowmelt moving over and through the ground that, picks up and carries with it natural and human-made pollutants, depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. Find information on managing nonpoint source pollution.

Sediments

Sediments are fragmented materials that originate from weathering and erosion of rocks or unconsolidated deposits and are transported by, suspended in, or deposited by water.

- [Contaminated Sediments](#)
- [Suspended and Bedded Sediments](#)

Source Water Protection

Find information about the efforts of public water systems, communities, resource managers and the public to protect the lakes, rivers, aquifers, and other waterbodies that provide our drinking water.

Stormwater

Stormwater runoff is generated when rain and snowmelt do not soak into the ground but flow over land or impervious surfaces, accumulating pollutants that could adversely affect water quality. This page provides technical and regulatory information about the NPDES storm water program.

Vessel Sewage Discharges

Sewage discharge from commercial and recreational boats poses a hazard to human health and the ecosystem. Find information about vessel sewage discharge and learn what you can do to help curb the problem.

Wastewater Programs

EPA's Office of Wastewater Management (OWM) oversees a range of programs contributing to the well-being of the nation's waters and watersheds. Learn about OWM programs that promote compliance with the requirements of the Clean Water Act through effective and responsible water use, treatment, disposal, and management and by encouraging the protection and restoration of our watersheds.

Watershed Management

Our individual actions can directly affect the watersheds we live in. Discover ways you can help protect our water resources.

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [Redacted] Manitowish

Representing: [Redacted] New North WI 54221

Address: [Redacted]

[Redacted] Green Bay WI 54307

Phone: 920 54307

E-mail: [Redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,

- Fold this sheet and mail stamped sheet to the printed address on the back; or,
- Send email comments to:
DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Overall Impact of economic & environmental impacts

Additional sheets are included: Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

Draft Environmental Impact Statement Scoping Comment Sheet
Kohler Golf Course, Town of Wilson, Sheboygan Co

MAKE A VERBAL COMMENT AT THE MEETING? YES X NO

[Redacted Name]

/family

Address: [Redacted]

Sheboygan, WI 53081

Phone: [Redacted]

E-mail: [Redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

- (1.) Estimate impact of golf course irrigation on quantity of available ground water available to surrounding community, Town of Wilson. Danger of aquifer depletion. Conduct hydrological research/studies.
- (2.) Estimate impact of golf course maintenance in form of usage of herbicides, pesticides and chemical fertilizer on ground water quality in surrounding area and potential for leeching/run off into Lake Michigan and Black River.
- (3.) Conduct cost/benefit analysis of trade-off between potential public gain in terms of job creation, tax base expansion, and collateral economic stimulus to surrounding businesses vs. irreparable damage to natural environment and public loss of 4 acres of parkland, traffic congestion and destruction of Native American burial sites and related archeological treasures.

Additional sheets are included: Yes No

both primary data from existing Kohler
& developments such as "Whistling Straits" and "Black
Walt Run" along with secondary data on golf course
environmental, hydrologic, economic and quality of life
to quantify estimates of costs/benefits and likely
impact. Make sure EIS is grounded in data to
greatest extent possible.

(5) Consider impact on wildlife, forest, dunes, wetlands, etc
especially from perspective of irreversibility of any
primary or collateral negative environmental impacts.

(6) Shield decision process of DNR from political
considerations given current political, pro-business
composition of Wisconsin State Government. Make
decisions/render conclusions based on DNR mission
Statement to protect Wisconsin natural resources and
manage prudently.

Mr. Jay Schiefelbein
DNR
2984 Shawano Ave.
Green Bay, WI. 54313-6727
July 22, 2015

Sir,

I am a taxpayer from Sheboygan, who is very concerned about the proposed Kohler golf course in the Town of Wilson adjacent to the Kohler-Andrae State Park. If the project is approved and part of Kohler-Andrae State Park is used for private business use, the golf course will have a devastating affect on the region; and natural areas around the proposed project won't exist. Trying to control chemical and fertilizer use and 100,000 people at a golf contest with surrounding natural areas, dunes, and wetlands, is going to be next to impossible. Protected habitat is going to suffer. The golf course idea is not a good fit for this site, and is completely incongruous for this region.

It was stated that the golf course would be good for business. This is questionable. We are currently in the midst of one of greatest mass extinctions in the history of our planet. The forces driving the extinction are not letting up. The forces are human over population and development.

Saving 247 acres is not a solution to the worldwide problem of human over population and habitat loss, of course. But, instead, saving and protecting the 247 undeveloped acres means that this land wasn't added to strain that already exists for natural systems.

The State, Sheboygan County, and concerned citizens should get together to purchase the 247 acres before it is damaged. Saving this land as a natural area will benefit migratory birds, local property owners (from pesticides and herbicides etc.), and native plants and animals.

Sincerely,

[Redacted signature block]

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: *Sheboygan County Economic Development Corporation*

Address: [REDACTED]
Sheboygan, WI ~~53081~~ 53081

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or,*

- Fold this sheet and mail stamped sheet to the printed address on the back; *or,*
- Send email comments to:
DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Economic Impact

Actions taken by Kohler to mitigate impact to neighbors

Additional sheets are included: Yes No

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES ___ NO

Name: [REDACTED]

Representing: _____

Address: [REDACTED]

Phone: [REDACTED]

E-mail: [REDACTED]

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

The length of time it takes to grow a stand of woods like that should be considered. A Dazer generations can be good stewards of the land preserving areas like Kohlers for future. One individual should not be able to destroy that land. No land sweep can offset the loss

If Kohler is such a good Steward of the land why not remove invasive plants now so permit required. By own admission, invasives choking off native plants

Additional sheets are included: ___ Yes ___ No



July 20, 2015

Via Certified Mail

Jay Schiefelbein
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313-6727

***Re: Proposed Kohler Golf Course, Town of Wilson,
Sheboygan WI***

Dear Mr. Schiefelbein:

Our family's cottage at [REDACTED] is about 700 feet south of the proposed 16th fairway and our access to the cottage is through the entrance to Kohler-Andrae State Park. We are the "private parcel" on the materials provided before the UW-Sheboygan forum on July 14. I would like to address just two of the shortcomings of the most recent plan, the impact on water availability and the location of the entrance to the proposed course.

An insurance fund would not compensate people if the water runs out as it did for some property owners near Whistling Straights. My family often entertains at our cottage – if the water runs out when we or any of our neighbors to the north of the proposed course have a house full of guests, what good is an insurance policy? How will campers or day visitors to Kohler-Andrae State Park be compensated if there is no running water? As you know, "showers, flush toilet and laundry facilities are available in the family campground" (per the Kohler-Andrae/DNR web-site).

Insurance claims periods are often long and insurance funds themselves can run dry. Would it take a month to process a claim and then dig a new well? Will the insurance fund or Kohler pay for us and our guests to stay at the American Club, for each day or part of a day when we have no water? If the course is going to use wells, rather than water straight from the lake which was a plan mentioned by Kohler representatives at a meeting last year, the hydrology must be investigated

thoroughly and relief provided to people with shallow wells before Kohler builds his course. The public needs an unconditional opinion from a licensed hydrologist that residents' water source will not be interrupted – and there must be recourse against Kohler himself if the wells nevertheless run dry.

Here is another quote from your web-site:

“Water resources are the foundation for Wisconsin’s economy, environment and quality of life. Managing, conserving and restoring them for the benefit of Wisconsin citizens now and in the future is a big job, and one that DNR staff share with local governments, citizens and businesses.”

As to the entrance, entering off County V/12th Street at a spot where there are no driveways and no public hiking trails that would be disrupted is far better than coming through the park. The busy times for golfers are the exact times when the park is most busy. The park was at full capacity over the week-end of July 4th. Imagine what it will be like if and when Kohler lands a Major, his stated goal. The U.S. Open is in June, and the PGA in August. How are hundreds of thousands of spectators going to get into the course, and what will that do to traffic on roads used by campers at Kohler-Andrae and used by my family and guests to get to our cottage?

We were guaranteed access to our property by the DNR when it moved the entrance to the park from the south and closed and then destroyed the old V Road east of the “new” entrance to the park, which had been our public access. We cannot be made to wait in lines created by golf professionals or tournament spectators – that is not what we agreed. The entrance should be moved to a spot along the V Road (12th Street) that will have as little impact on any hiking trails as possible. If there is nowhere to put the entrance that does not dissect hiking trails, which seems unlikely, let Kohler build an underpass or overpass for any hikers to get past his driveway, or use stop signs and caution signs where the trail crosses his driveway. It appears that the entrance off 12th Street could easily be south of the current parking lot and trail head(s). Or, north of the parking lot for that matter. A quick visual drive-by will confirm that this is plausible and is better than tying up the park entrance that my family and our guests use for the access to our cottage, and obviously better for the public using Kohler-Andrae State Park – who as you know pay a fee to do so.

Jay Schiefelbein
July 20, 2015
Page 3 of 3

Focusing on these two points does not reflect a lack of concern for the opinions of, as I recall, two professional ornithologists, a geologist, a hydraulics engineer, various people with environmental credentials, and all the homeowners/taxpayers from Black River that were voiced at UW-Sheboygan on July 14, and in other venues, much less the other deleterious impacts that a golf course would have on the Black River forest and surrounding DNR-owned wilderness areas and wildlife refuges.

Many thanks,



EBM: ms
cc: Gov. Scott Walker
Andrew Savagian

P.s. The foregoing comments were submitted electronically, and thus this is a confirming copy.

change.org
Friends of The Black River Forest

Recipient: Wisconsin Department of Natural Resources, Scott Gunderson, and Lavane Hessler

Letter: Greetings,

We are asking the Wisconsin Department of Natural Resources to DENY the Kohler Company's request for an easement across heavily used public recreational lands which are part of the Kohler-Andrae State Park. We ask the DNR to DENY the Kohler Company's request to build a private maintenance shed on over 12 acres of public land. The DNR must tell the Kohler Company they can NOT destroy wetlands, bulldoze rare dunes along the Lake Michigan shoreline, clear cut over 125 acres of forest and use public lands for a private, for-profit, Golf course. The DNR must NOT set a precedent of stealing land from Wisconsin residents and giving to the highest bidder. We are requesting the Wisconsin DNR to PROTECT OUR ENVIRONMENT AND PRESERVE WISCONSIN'S PUBLIC LANDS.

Comments

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2014-07-01	In France, everyone has access to nature. We walk the miles and miles of forest there every year. Here we have to beg to keep the tiniest parcel of pristine paradise. Everything has to be developed and generate profits here. But then we ask why our children have no zest for life. They are deprived from what makes life worth living. The artificial world means nothing to them. The natural world is priceless. The Kohlers can't find happiness in their golf greens or green bills. They need to BE GREEN not GREED !!!
[REDACTED]	sheboygan, WI	2014-07-01	It would be insane to destroy this woods/wetlands/lakefront. It's the worst possible place for a golf course.
[REDACTED]	Sheboygan, WI	2014-07-01	<p>The Wisconsin DNR must not allow a precedent to be set in allowing an easement to a privately owned golf course and a maintenance building to be built on over 12 acres of State owned lands which are for public use and a part of a Wisconsin State Park. The easement would go across a navigable stream and sensitive wetland areas. This land has been a part of the Wisconsin State Park system since 1965. The Kohler Company gifted this land with Protective Clauses to: 1. Preserve the natural beauty of a unique area along the westerly shore of Lake Michigan. 2. Provide the people of the State of Wisconsin with an interesting and naturally beautiful recreational area. 3. Recognize the contributions to the conservation of Wisconsin's natural resources made by John Michael Kohler and his family. By accepting this gift, the State of Wisconsin agreed the property would become a part of the State Park and used for public recreational purposes.</p> <p>I continue to recognize the contributions to the conservation of Wisconsin's natural resources made by John Michael Kohler and his family. I ask that the Wisconsin DNR does the same.</p>
[REDACTED]	Sheboygan, WI	2014-07-01	I regularly this portion of the park as do many others. If there must be a golf course and an access road to it, it needs to be to the south of a well-used path (incidentally near a frog pond); but the proposed course is not in a good location, because of the proximity to an impaired river, impaired water quality in Lake Michigan, and it would destroy a significant corridor for wildlife, among other undesirable factors.
[REDACTED]	Sheboygan, WI	2014-07-01	This is pristine forest, has natural wetland, dunes and Lake Michigan shoreline for everyone to enjoy. I'm concerned about the negative impact the golf course will have on the above as well as the residential water supply, tranquility and affordable recreation for everyone from this area.
[REDACTED]	Sheboygan, WI	2014-07-01	It will significantly and negatively impact the quality of life that we enjoy in Black River. We live in Black River to enjoy the trees and nature generally and we do not want that kind of traffic.
[REDACTED]	Green Bay, WI	2014-07-01	Do you understand that definition of the word "public?"
[REDACTED]	sheboygan, WI	2014-07-01	The woods are so beautiful and pristine and to cut them down for one more unnecessary golf course for Kohler is just criminal. I also strongly object to Kohler being allowed not only an access through wetlands and state park land, but area to build an equipment shed to hold golf cart. He plans on taking 12 acres of state park land away from the people of Wisconsin for his ego-building golf course.

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2014-07-01	This is public land and should remain public land for use by the public. Private enterprise should use private land. Public land should not be hijacked for the convenience of a very small percentage of people, most from outside the area, many from outside the state. Motorized vehicles are not currently allowed on the parcel and should not be allowed - motor vehicle use is contrary to the intent of this sort of park and wildlife space, and severely interferes with the experience this sort of park is supposed to offer the user. If this easement is allowed, where does WDNR draw the line next and for whom?
[REDACTED]	Edgerton, WI	2014-07-01	The land in question should be considered a National Treasure! We have enough golf courses and I believe the Kohler Company/Family has enough money!
[REDACTED]	Madison, WI	2014-07-01	Wisconsin parks are for everyone! Protect this park. There are more than sufficient golf facilities already. This park is a gem I enjoyed as a child!
[REDACTED]	Brookfield, WI	2014-07-01	It is unacceptable for the DNR to even consider this. Public lands should remain PUBLIC! They are not there to enhance private business!
[REDACTED]	Tucson, AZ	2014-07-01	The State Land in question is heavily used by walkers, runners, birders, equestrians, and cyclists. The Kohler request will devastate the area and its beautiful woods, fields and wetlands.
[REDACTED]	Washburn, WI	2014-07-01	Wisconsin State Parks are not for sale!
[REDACTED]	sheboygan, WI	2014-07-01	enough already. mr. kohler, jr., has enough land tied up in golf courses in sheboygan county. this newest escapade is nothing short of bragging rights and greed. it is reprehensible and poor ecological stewardship to grant permission to tear up pristine forest, wetlands and lakefront for yet another golf course which is usable only about 40% of the year by an elitist economic class to line the pockets of a few.
[REDACTED]	Silver Spring, MD	2014-07-01	Growing up in Sheboygan County in the 1980s and 1990s, I saw a lot of land despoiled and bulldozed over in the name of "progress." The Black River Forest is one of the last ecosystems of its kind in east-central Wisconsin. It should stay intact: no golf courses, no houses, no retail, no other development.
[REDACTED]	East Lansing, MI	2014-07-02	Everybody can enjoy this beautiful property where only a few the golf course. This is a another case where the wealthy gets what they want over what the people want!
[REDACTED]	La Crosse, WI	2014-07-02	Preserving Wisconsin's Public Lands
[REDACTED]	Sheboygan, WI	2014-07-02	I hate to see this pristine area destroyed. More importantly, it is totally WRONG to give public park property to a private entity. That would be setting a very bad precedent for the future of WI.
[REDACTED]	Plymouth, WI	2014-07-02	I use the State Parks in Wisconsin all the time.....we visit Kohlsr Andrae many times throughout the year and would hate to see such a beautiful park altered in any way. Please deny the request from Kohler Co. We need to save what is left of our state parks, not destroy them.
[REDACTED]	Whitefish Bay, WI	2014-07-02	This is important to me because I care about Lake Michigan water quality. Wisconsin's water quality has been allowed to degrade in recent years. We need to act to protect one of this country's most important sources of fresh water.
[REDACTED]	Oshkosh, WI	2014-07-02	I lived in this neighborhood and loved the area for hiking. This is a wonderful habitat for plants and animals. That will be destroyed.
[REDACTED]	Sheboygan, WI	2014-07-02	State land should not be sold to the highest bidder! The people's parks are for everyone to enjoy!

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2014-07-02	We don't need any of this negative impact, especially when the Riverdale Golf Course is just 2 miles away from this new proposed site. Please stop the destruction of our environment.
[REDACTED]	Chippewa Falls, WI	2014-07-02	State parks should not be the gateway to an ecological disaster such as a golf course.
[REDACTED]	Ripon, WI	2014-07-02	This is wrong, I am totally against this. Big money shouldnt rule the DNR. Keep the land for the general public not just golfers.
[REDACTED]	Milwaukee, WI	2014-07-02	I use to live in Sheboygan and I have been to that state park many times. I would never want to see it clear cut for something as lame as a golf course for the rich people to laugh and throw money around. Its about time we start becoming one with our planet earth and less like parasites. I'm sure our children would like to enjoy these lands like we did as kids.
[REDACTED]	Milwaukee, WI	2014-07-02	A large portion of Sheboygan's tourist appeal is based on it's natural lakefront and forest beauty. If we're just a resort city, we're the same as every other tourist location in Wisconsin. Keep SOMETHING original about this place and do the right thing. PS: how many golf courses do we reaaaally need? Come on, now.
[REDACTED]	Fond du Lac, WI	2014-07-02	We must preserve trees and natural areas for the future. Trees provide oxygen and balance in nature. People need natural spaces for healing and getting in touch with the earth. We do not need more development. Leave public natural areas for people and animals to enjoy.
[REDACTED]	Madison, MS	2014-07-02	Our family loves visiting this park! What a shame to even contemplate changing one of nature's most lovely sites.
[REDACTED]	Wausau, WI	2014-07-02	We are in greater need of natural areas than we are in need of more golf courses, especially as the assault on our environment increases.
[REDACTED]	Fond du Lac, WI	2014-07-02	Public land is public. Tired of the government agencies working to support corporations for profit and do not do the job they were established to do .. DNR .. protect nature. EPA protect nature .. well do it .. and quit the corporate take over of our wild areas .
[REDACTED]	Sheboygan, WI	2014-07-02	Federal funds have been used to maintain this area and its use by a private concern for profit should not be allowed.
[REDACTED]	Baileys Harbor, WI	2014-07-02	We cannot allow private, for profit, business access to publicly owned land. This is a state forest area that must be preserved! You must protect the pristine land that has been put into the state's trust for future generations to enjoy.
[REDACTED]	Schaumburg, IL	2014-07-02	I love this area. It's beautiful and should stay that way. Job creation for a golf course is NOT SIGNIFICANT.
[REDACTED]	Fox Point, WI	2014-07-02	The area to be developed is vital bird habitat and is major migratory bird stopover site; use as a golf course would destroy much of this habitat and violate the Town of Owen's Comprehensive Plan.
[REDACTED]	Sheboygan, WI	2014-07-02	It is a beautiful park and meant for everyone, not just the rich. The wetlands should not be destroyed by the greedy.
[REDACTED]	Howards Grove, WI	2014-07-02	wetlands important to environment
[REDACTED]	Sheboygan, WI	2014-07-02	Whistling Straits, north of Sheboygan, has had a negative affect on the surrounding ground water in the Town of Mosel.
[REDACTED]	Stevens Point, WI	2014-07-02	I grew up in Sheboygan, lived there for over 30 years, and frequented Kohler-Andrae Park. My family still lives there, so I visit often. Sheboygan County has PLENTY of golf courses! Big ones, little ones, extravagant ones, simple ones, famous ones... LEAVE THE PARK ALONE!!! PLEASE!!!

Name	Location	Date	Comment
[REDACTED]	Manitowoc, WI	2014-07-02	The park should be for everyone.
[REDACTED] ne	Sheboygan, WI	2014-07-02	Public Park Land must be preserved and not compromised. This is for the benefit of Private vs. Public interests. Kohler does many wonderful things for the community and the state, but should strive to find a solution that does not infringe upon Public Parks.
[REDACTED]	Milwaukee, WI	2014-07-02	State Parks are for all people, not to afford profit to a company.
[REDACTED]	North Chicago, IL	2014-07-02	As with many residents of IL Wisconsin is a common vacation spot for my outdoor activities due to its natural and undisturbed landscape.
[REDACTED]	sheboygan, WI	2014-07-02	I have a college degree in biology, so I have a reasonable understanding of the need to protect the biodiversity in a fragile ecosystem. The area of concern combines a forest adjacent to natural dunes and wetlands, all of which create an environment for microorganisms, insects, local and migratory birds, mammals, and plant life. These are interdependent on each other and can be severely distressed by deforesting this area, filling in it's fragile wetlands, draining the surface and groundwater, and inundating the area with pesticides, HERBicides, and fertilizers. Creation of a golf course is not appropriate land stewardship of the Kohler forest and the adjacent state park.
[REDACTED]	Springfield, IL	2014-07-02	I enjoy coming up to Sheboygan and visiting the lke and natural areas. There is no need for another golf course, especially one that destroys wetlands and pollutes the ground waters with chemicals. I live on a waterway that this has happened to and there are a lot of cancer cases among my neighbors and pets.
[REDACTED]	Madison, WI	2014-07-02	I used to live on the Lake just north of the property in question. To have a place where you can stand and not see or hear or smell civilization is a precious thing that should be valued beyond price. The Kohler Company has not been a good environmental partner in the past. Why would they begin now?
[REDACTED]	Sheboygan, WI	2014-07-02	The ecosystem and the environment should be important to everyone. These State Lands are a community treasure and should not be exploited for private profit.
[REDACTED]	Stoughton, WI	2014-07-02	These lands are for everyone to enjoy, not so a few can profit. Once lost the beauty will never return.
[REDACTED]	Provo, UT	2014-07-02	I grew up there and my family greatly enjoys going there to enjoy the outdoors.
[REDACTED]	Galena, IL	2014-07-02	Have you been to this state park? Pristine land such as this needs to be saved for future generations as well as the wildlife which reside here.
[REDACTED]	Sheboygan, WI	2014-07-03	I essentially grew up walking these woods. They mean more to A LOT of people out there than just any random strip of beauty. These woods, dunes, and beaches are gems amongst Wisconsin's amazing land. Please leave this spot alone!
[REDACTED]	Milwaukee, WI	2014-07-03	Any natural areas left in the state should be protected...period. Enough with development and destruction of habitats.
[REDACTED]	Sheboygan, WI	2014-07-03	No! Don't take away some of the natural beauty left here, there are enough golf courses!
[REDACTED]	Sheboygan, WI	2014-07-03	We do not need more golf courses in Sheboygan but we need preserved natural beauty.
[REDACTED]	Sheboygan, WI	2014-07-03	This is a moral issue. We do not have the right to steal this environment from all future generations. It is our moral obligation to restrain our actions that impact the pristine areas that remain.
[REDACTED]	Sheboygan, WI	2014-07-03	I don't want this land destroyed by a company looking to make a quick buck.

Name	Location	Date	Comment
[REDACTED]	Sheboygan Falls, WI	2014-07-03	I care about the environment and feel that we have more than enough golf courses in Sheboygan County. Kohler Co. already owns to lake front golf courses and 2 riverfront golf courses. These golf courses are too expensive for most residents of Sheboygan County to use. The four premium golf courses are not at capacity for usage. This development would be redundant and harmful.
[REDACTED]	Sheboygan, WI	2014-07-03	Kohler does not need another golf course. There are enough in the area. Stay off public land.
[REDACTED]	Plymouth, WI	2014-07-03	We do not need another golf course.
[REDACTED]	Chicago, IL	2014-07-03	Keep WI's nature beautiful
[REDACTED]	Sheboygan, WI	2014-07-03	This golf course will be destroying land that will have an effect on the environment of our Town of Wilson. Land use must fit into the Comprehensive Plan of Wilson which this does not. We have a Dept of Natural of Natural Resources which is trying to figure out how to give Herbert Kohler access to his land so he can contaminate our resources. This is an example of the 1% using the resources of a community for private profit. Wisconsinites have to out a stop to the politicization of this DNR.
[REDACTED]	Sheboygan, WI	2014-07-03	Kohler Andrae State Park is one of Sheboygan County's greatest assets and it would be a shame to ruin it with a golf course.
[REDACTED]	Sheboygan, WI	2014-07-03	I lived in the woods near Indian Mound Park and Riverdale Golf Course. We lived there to be in the woods and the quiet and the wildlife. It is a low traffic area where we could walk and bike. To bulldoze the wooded area to create another golf course is foolish. Kohler Co. has plenty of land near Whistling Straights for at least one more golf course. They ruined the view there for homeowners. Don't let them do it again.
[REDACTED]	Howards Grove, WI	2014-07-03	obviously, you're not a bowler.
[REDACTED]	Milwaukee, WI	2014-07-03	I am a hunter and it is a tradition in my family to hunt. This destroys the environment
[REDACTED]	Howards Grove, WI	2014-07-03	Haven't enough land been cleared away. Animals have a right to keep their home too.
[REDACTED]	Sheboygan, WI	2014-07-03	This is an area that many people enjoy. Not to mention Mr. Kohler needs to learn that he cannot have whatever he wants whenever he wants it! I'm really tired of him taking what he wants all the time.
[REDACTED]	Sheboygan, WI	2014-07-03	Will destroy a great nature retreat. this area has lots of family homes for people as well as nature. it will be forever ruined
[REDACTED]	Belgium, WI	2014-07-03	Environmental integrity; primacy of natural resources vs. profit
[REDACTED]	Sheboygan, WI	2014-07-03	We'll lose not only a precious walk for people but green space for our animals. It will change car traffic adding pollution as well.
[REDACTED]	Plymouth, WI	2014-07-03	We need more natural habitat, not more golf courses.
[REDACTED]	La Grange Park,, IL	2014-07-03	It is our responsibility to preserve natural areas for future generations. We don't need more golf courses that create vast amounts of chemical run off. This is not in alignment with a healthy ecosystem, one which we all benefit from. Leave public natural areas as intended....for the public. The land is not for a certain few to suit their monetary needs (wants).
[REDACTED]	Grand Haven, MI	2014-07-03	It is important to preserve all state and national parks.
[REDACTED]	Sheboygan, WI	2014-07-03	The intrinsic value of nature can not be appropriately compensated, we do not need anymore golf courses or privatized sections of river and land that the public is not capable of accessing.

Name	Location	Date	Comment
[REDACTED]	Madison, WI	2014-07-03	Our public lands must be open to all - not just people who can pay for commercial projects. The job of the DNR is to protect our environment!
[REDACTED]	Sheboygan Falls, WI	2014-07-03	Wisconsin has some of the best nature trails and hiking areas - why should they be ruined for the wealthy and elite golfers. Leave the land alone!
[REDACTED]	Whitefish Bay, WI	2014-07-03	I have gone to these lands since I was a little kid for camping and exploring. There is no need to turn it into a private golf course where there are plenty around the area to use. Please maintain the lands and allow future generations to enjoy the natural beauty.
[REDACTED]	Appleton, WI	2014-07-03	We need to preserve our environment for ALL to enjoy! That is why this has been a State Park for many years!
[REDACTED]	kohler, WI	2014-07-03	Preservation of wetlands is important.
[REDACTED]	Sheboygan, WI	2014-07-03	Park lands are precious and should be preserved for future generations. There are many endangered plants and animals that depend on the limited habitats that remain in this area. The proposed golf course project will destroy these lands and further endanger many species.
[REDACTED]	Sheboygan, WI	2014-07-03	I ride my bike along this route daily. I know that such a golf course will bring money into the community and also widen the gap between the elite and the common man... but do we really need to continue with that? Nature is for the entire community to enjoy. You will be destroying a vast ecosystem that has been established for many years. As you will be adding seasonal revenue, you will be taking away from the beauty that remains constant through out the year, changing with the seasons. It is a shame to me that we would want to take something away from the community that only a small percentage of people (most who are not even from this community... like chicago and milwaukee) would be able to participate in, when we could just leave things the way they have been. You can't bring back the nature we take away. Read the giving tree. Get some perspective. Thanks for your time.
[REDACTED]	Sheboygan, WI	2014-07-03	We have many golf courses already but our wild and preserved land is dwindling. It's a matter of priorities.
[REDACTED]	Sheboygan, WI	2014-07-03	We treasure our beautiful state park, and want to preserve its pristine state. Mr. Kohler has enough golf courses in this county.
[REDACTED]	Marshfield, WI	2014-07-03	I was born and raised in Sheboygan. It's still my home. My folks took our entire family in the summer and I've brought my children there as well.
[REDACTED]	Sheboygan, WI	2014-07-03	A State Park's integrity should not be threatened by a developer. Kohler-Andrea State Park must be kept whole.
[REDACTED]	Chicago, IL	2014-07-03	I will be returning to WI upon retirement (working in IL). And, I firmly believe Kohler has plenty of land to accommodate the golf course. Starting doing for one and you start the slippery slide!
[REDACTED]	St. Croix Falls, WI	2014-07-03	This is the slow nicking and scratching of our public lands which eventually leads to a major infection
[REDACTED]	Sheboygan, WI	2014-07-03	Town of Wilson resident concerned about environmental impact of proposed golf course

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2014-07-03	<p>This is not a "thing" to trifle with but a living, breathing, and beautiful biome:</p> <p>English 285: Literature of Nature Writing Assignment</p> <p>Kohler Andre State Park Lake Michigan Paper, by Alizée Desmoulin</p> <p>I finally arrive to a place where I can stop and leave the car to continue on foot in this mysterious land. It is so still here, with only a slight breeze to sway the trees and move the clouds in a calm deep blue sky. There are towering white pines all around, and the wind through their needles sounds like some rare and precious music. Birch trees grace the landscape with their stark white trunks. I begin walking on a trail made out of wood slats that winds its way through the shifting dunes bordering the lake.</p> <p>Surrounding me on all sides are red pines with their scarlet bark matching the red squirrels that subsist on the cones. Beech grow to towering heights while at the base of the trunks grow the brown flowered beech drops. In the depths of the thickets I find the hollows left by sleeping white tailed deer. Green flowered euphorbia grow in clearings while woodland club mosses are so abundant beneath the fir tree canopy they make a thick, lush carpet composed of shining, ground pine, and ground cedar species.</p> <p>Before continuing, I notice a clump of lovely light brown toadstool mushrooms growing at the base of a pine tree and so I stop and sit down to identify the species. On either side of the path grow an assortment of shrubs and seedlings: serviceberry bushes and two types of juniper. The common juniper is large and forms a nice-looking mound. The creeping juniper grows close to the ground, as though it were crawling on hands and knees. At this time of year in the month of September, the junipers are laden with berries that give off a sweet pungent smell, while the trees are changing color and losing their leaves. I stop sitting and move on to discover woodpeckers in the treetops busily chiseling away at the bark. I hear the sharp strident alarm call of the robin as I approach, who is probably warning me to keep my distance. The scolding call of the shy and secretive blue jay also emanates from above. Their call is so wild, so sweet. I am examining the lichens found all over the bark of the pine trees when the wind picks up, sending one of the pinecones falling right near my feet. I wonder, is this a mystical message for me to move on?</p> <p>And so I do, along the trail that leads me further into the dune region. I leave behind a thick carpet of moss, the brambles of raspberry bushes, and the woodland birds. I embark upon a windswept land of mostly grasses. All different types of wild grass species grow here, with a few sturdy wildflowers that attract some bumblebees and dune wasps. Milkweed plants grow here and there, with monarch butterflies flitting among them, on their way to the south for their annual migration. In the distance, I see a quaking aspen grove, where some perched crows are making quite a racket. In the grove at the base of the trees are large ant nests, with the workers busily going about the day's tasks. Walking further still, I find the predator of the ants, the ant lion, who makes his home in the most barren region of the dunes. The area without vegetation lends itself beautifully to his traps, small pits dug in the sand that the ants fall into. Hearing waves, I continue on the path, through wormwood weeds and coarse dune grasses to the top of a hill flanked on both sides by cottonwood trees. Down I go, on the other side, where there is a beach of sand, with some beautifully colored rocks. Towards the bottom of the dune, the vegetation starts back up again in this moist area. Here grow willows, cottonwoods, and an exquisite dune grass of a light pastel blue. Finally I arrive at the beach itself, where gentle calming waves lap at the surface, with only slight flecks of white showing at their crests. The sound is so calm, so peaceful; it is like a lullaby. On the beach, shells of zebra mussels are scattered. Driftwood, washed up upon the beach from some distant shore, is strewn about. In the shallows of this magical lake are rocks of every color of the rainbow. Tiny little fish flit in the sunlit shadows. Algae drift about in the waves, having lost their anchoring holdfasts. Further out, the water gets deeper, until one hits the sandbar, where freshwater crayfish crawl along in the shallow, sunlit water at the bottom. Back upon the shore, small birds with spindly legs dart to and fro, as if trying to avoid the waves. Along the shore, in the lake, and in the air are Canadian geese whose call is a herald of autumn. The harsh call of the seagulls mixes in as they scuttle the wind far above, but whose feathers line the beach. The sun rises above the distant horizon, as though it came from the lake itself, whose distant shore one cannot see. Flying just above the water are fast mysterious terns. Along the shore flit flies, beetles, and ladybugs. Upon leaving this lake, as one of the largest in the world, I finally understand how, on first sight, an observer could confuse this incredible body of water with an ocean or some inland sea, although one taste of the water or smell of the air, would reveal its true identity, by lacking the sharp tangy quality of saltwater and thus confirming that it is a freshwater lake. On the way back to the car I am treated once more, in a similar fashion as my departure into the dunes a short while ago, by the cicadas singing in the cottonwood trees and the grasshoppers and crickets of the dunes, as well as the receding lullaby of the waves lapping along the shore.</p>

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2014-07-03	To maintain the beauty of our quiet neighborhood and to save the natural home of our wildlife.
[REDACTED]	Kohler, WI	2014-07-03	Purchasing a home in Black River this summer.
[REDACTED]	Savage, MN	2014-07-03	There are plenty of other places to put a golf course, not within a delicate ecosystem that can be irreparably damaged by only small-scale changes. And public protected land is for public use, not to be sold to private holders to do as they please.
[REDACTED]	Sheboygan, WI	2014-07-03	I frequent Kohler Andrea Park and want to see its natural beauty preserved
[REDACTED]	Sheboygan, WI	2014-07-03	We don't need another golf course. We need forest and unspoiled land to appreciate and enjoy nature.
[REDACTED]	Shorewood, WI	2014-07-03	Golf can only be enjoyed by a few. Forests can be enjoyed by everyone for generations. Also, oxygen. I'd rather breathe than have another gold course (fun fact: there are already 505 golf courses in the state of Wisconsin.) Leave the forest alone.
[REDACTED]	Galena, IL	2014-07-03	This land is for all people -- not only golfers.
[REDACTED]	Sheboygan, WI	2014-07-03	The ability for the public to access public land is important. It is also important that there are some areas of the state set aside to retain the native plants and landscapes of the region. Kohler Andrae is not a huge state park, and we do not need to lose any more of it.
[REDACTED]	Winneconne, WI	2014-07-03	Too many fertilizers and chemicals too close to the lake! Would not be allowed in Minnesota.
[REDACTED]	Black River Falls, WI	2014-07-03	the environment should not need protection but this day and age we are finding that it truly does.
[REDACTED]	Sheboygan, WI	2014-07-03	My family has owned our property on Wahgouly Road since the 1930s. We have always loved Black River for its peace, quiet and exceptional natural beauty. The Black River woods, marsh, dunes and beach are irreplaceable natural resources and to destroy them for the profit and pleasure of a privileged few is unacceptable.
[REDACTED]	Jefferson, WI	2014-07-03	Public lands are for the PUBLIC...and doesn't Kohler have enough damned golf courses already?
[REDACTED]	Madison, WI	2014-07-03	This is publicly owned protected land to be used by the public, not to be sold to a private entity for exclusive use. This would set a dangerous precedence.
[REDACTED]	Prairie du Sac, WI	2014-07-03	We have capitulated to the state our local control, our sand is being sent elsewhere and may have an adverse effect on our groundwater in the future as it was the "filtration" system..and we cannot continue to bend backwards for corporate run rule in our state.
[REDACTED]	Evanston, IL	2014-07-03	It's a beautiful, natural area; rare and unique. Kohler has its own interests in mind, not the community's wishes or the environment's needs. This is my favorite place in the world and it breaks my heart to think of it dwindling so swiftly and thoughtlessly.
[REDACTED]	Kiel, WI, WI	2014-07-03	"Environmental protection doesn't happen in a vacuum. You can't separate the impact on the environment from the impact on our families and communities." - Jim Clyburn
[REDACTED]	Woodstock, IL	2014-07-03	I grew up in Sheboygan, LOVE camping at Kohler Andre (Terry Andre) and I would hate to see a golf course and road easement!
[REDACTED]	Milwaukee, WI	2014-07-03	We must preserve these rare and ecological valuable resources.
[REDACTED]	Sheboygan, WI	2014-07-03	We have to protect our environment, wetlands and dunes

Name	Location	Date	Comment
[REDACTED]	Milwaukee, WI	2014-07-03	The very idea of state parks is the preservation of nature in its raw state. Don't touch it. There are millions of golf courses.
[REDACTED]	Milwaukee, WI	2014-07-03	I grew up on these lands, and its a place i look forward to visiting when I come home to see family. Environmental consistency is so important.
[REDACTED]	Monticello, MN	2014-07-03	I grew up in this area
[REDACTED]	Santiago, Chile	2014-07-03	WE need to preserve the dunes and the forest. NO MORE GOLF COURSES!
[REDACTED]	Sheboygan, WI	2014-07-03	This park belongs to all people. The trails (which I helped build) are used for horse people, skiers, bikers, and just people who want to commune with nature and enjoy a peaceful time. This plan must not be allowed!
[REDACTED]	Waldo, WV	2014-07-03	you can't take away land that belongs to the people!
[REDACTED]	Sheboygan, WI	2014-07-03	How much beautiful park lands do we have left? What are we leaving for our children? Golf courses????? How shameful. Shame on you Kohler!
[REDACTED]	Wauwatosa, WI	2014-07-03	Our state parks are sacred land.
[REDACTED]	Sheboygan, WI	2014-07-03	I have walked and ridden horses in these woods since the 60's, the pileated woodpecker etc. need ground cover to protect their habitat...http://dnr.wi.gov/topic/shorelandzoning/documents/nrcsbiotechnote.pdf http://fyi.uwex.edu/southeastfox/files/2013/01/woodlands.pdf >
[REDACTED]	Milwaukee, WI	2014-07-03	I strongly believe in the value of public spaces. I am proud of Wisconsin's parks, forests, & other natural places.
[REDACTED]	Sheboygan, WI	2014-07-03	We complain about the rain forest being destroyed, but then cut down our forests, which is stupid.
[REDACTED]	Sheboygan, WI	2014-07-03	I love wildlife and everything that goes with it. Sheboygan is proud to have this as part of our city. I was so disappointed that they were thinking of ruining something that we can NEVER get back for, yet, another, gulf course. I appreciate what that area has, I go for walks a couple of times a week there. PLEASE, I beg of you, deny this! We do not need another golf course!
[REDACTED]	Sheboygan, WI	2014-07-03	To maintain the natural beauty of the area and a natural habitat for the wildlife.
[REDACTED]	sheboygan, WI	2014-07-03	For Gods sake STOP taking the fun of camping,hiking and wildlife for an other golf course!
[REDACTED]	chandler, AZ	2014-07-03	Kohler has done a ton of positive things for wi. as a former resident I know this. however this is poor judgment on their part to destroy a part of what made them who they are today. they don't need another golf course.
[REDACTED]	Sheboygan, WI	2014-07-03	This land is so valuable because it allows people to enjoy nature inside the city. We have enough golf courses. Leave the Kohler-Andrae State Park alone.
[REDACTED]	Hayward, WI	2014-07-04	Grew up in Sheboygan, know the area well and have family there
[REDACTED]	Eureka, CA	2014-07-04	These are places I value
[REDACTED]	sheboygan, WI	2014-07-04	I see I misunderstood the mandate of the DNR. I thought it was meant to sustain and preserve nature. Obviously not. It exists to sustain and lift up the struggling few among us, those most beset by hardship and lack of funds. People like Herb Kohler. DNR really stands for Developers Nicely Rewarded.
[REDACTED]	Stevens Point, WI	2014-07-04	I grew up in Sheboygan, and there are already multiple golf courses, at least 3 surrounding the immediate area. I love riding my bike through the park so much that I would hate to see it ruined for yet another course and road

Name	Location	Date	Comment
[REDACTED]	Oshkosh, WI	2014-07-04	I grew up loving the natural beauty Sheboygan offers and that such a highly regarded company would attempt such a deplorable act of blatant greed is unfathomable. This CANNOT happen!!
[REDACTED]	La Crosse, WI	2014-07-04	I grew up riding and walking Terry Andre State Park, later known as Kohler Andre. If given this easement, I don't suppose I could walk or bike through the course or grounds? As I have for over twenty years. This petition also doesn't touch on the thousands of pounds of chemicals and fertilizers that do seep into Lake Michigan via golf courses. Put simply: The idea of public land being given over to a billionaire corporation for further profit generation is wrong.
[REDACTED]	Sheboygan, WI	2014-07-04	I am one of the residents of the area. We ride bikes ,walk, jog,ride horseback,walk our dogs and bird watch on these trails among grasslands,through hardwood swamp, pine forest, a bridge crossing small stream.The trails are just west of the Black River. Our trails are so lovely . The easement being proposed would destroy the essence of the area. Each and every piece of this trail system is important to us . None , I repeat, none must be lost to roads or buildings.I am one of the volunteers who devotes hours through the year to maintain the trails
[REDACTED]	Sheboygan, WI	2014-07-04	Without a balance of nature there can be no life, or golf .
[REDACTED]	Sheboygan, WI	2014-07-04	It would be a shame to have another golf course on Lake Michigan. We don't need more lakefront taken away by Kohler Co. This is a family park right in our own backyard.
[REDACTED]	Elkhart Lake, WI	2014-07-04	too much of our pristine and natural spaces are being raped for greedy financial gain.
[REDACTED]	sheboygan, WI	2014-07-04	this park is important for the environment and the people of sheboygan. sheboygan is great because of these places.
[REDACTED]	Austin, TX	2014-07-04	The principle is simple. Public land is for public use, not private use.
[REDACTED]	Los Angeles, CA	2014-07-04	We come to Terry Andrae Park as often as we can. The DNR needs to do their job and protect the land and the people of the state of Wisconsin, not one private person that is going to destroy these woods for the sake of pure greed. DNR- protect the wetlands, protect the animals- DO YOUR JOB!
[REDACTED]	New York, NY	2014-07-04	I grew up adjacent to K-A state park, next to those very lands now in dispute. My childhood memories are filled with the natural beauty of Wisconsin dunes, forest, and wetlands, and were important in shaping the person I have become. They should be remain protected and available to all of the children who have yet to learn the importance of nature, the beauty of wildlife, and the fragility of our ecosystem.
[REDACTED]	cordova, TN	2014-07-04	Beautiful public land that needs to remain public. If we do not stand together we will fall separately. Our government is out of control and being controlled by major money players.
[REDACTED]	Sheboygan, WI	2014-07-04	I grew up in this area and have spent and continue to spend time in the wonderful and precious areas of forest and shoreline we have. We need to protect these precious places.
[REDACTED]	Sheboygan, WI	2014-07-04	I live 2 blocks away from the proposed golf course site. I moved here because I like the forest and the wild life not golf courses.
[REDACTED] lin	Spencer, WI	2014-07-04	Because public lands belong to the people. They should be available for everyone's use and preserved for the best interests of the citizens of this state.
[REDACTED]	Tucson, AZ	2014-07-04	I grew up in Wisconsin and the Black River Forest has always been a favorite place. Such a great forest and so close to Lake Michigan. It would be very unfortunate to see a golf course developed here.

Name	Location	Date	Comment
[REDACTED]	new orleans, LA	2014-07-04	This beautiful forest in which I've walked for 76 of my 86 years should remain undisturbed for my children and my (hoped for) grandchildren to cherish.
[REDACTED]	wauwatosa, WI	2014-07-04	Pristine land demolished for exclusive golf club? That's hilarious. You have a lot of nerve to even ask.
[REDACTED]	Rockton, IL	2014-07-04	Grew up in Sheboygan.
[REDACTED]	West Bend, WI	2014-07-04	This is an irreplaceable resource. No mitigation process could duplicate what would be lost. The DNR must think hard about whether its mandate is truly to protect our natural heritage or to promote business at the expense of the environment. What would Aldo do?
[REDACTED]	Independence, WI	2014-07-04	This land belongs to the people of the state to use and the DNR to protect in the interest of the people, not the Corporations that will profit from it. Seriously, a golf course? This would do nothing to enhance the lives of the majority in the State of Wisconsin. Do the people who work at the DNR forget who is funding the paychecks? Or are they on the take to and getting kick backs or future job offers from the company? DNR do what your were hired for and that is to protect our public lands from being stolen all for the sake of profit.
[REDACTED]	Springfield, OR	2014-07-04	I grew up in Sheboygan from the age of 7 to 19. The dune park system south of Sheboygan is an important and rare natural resource for the lake Michigan coast, and one that holds many great memories for me. To allow Kohler to modify this landscape would be an appalling use of a protected natural landscape.
[REDACTED]	Albuquerque, NM	2014-07-04	I grew up near these woods and my folks still live in the area. Keep the lands beautiful and natural. Selling them to the highest bidder ruins the world around us.
[REDACTED]	Sheboygan, WI	2014-07-04	Beautiful, irreplaceable land should remain in its natural state.
[REDACTED]	Brandon, MS	2014-07-04	The DNR's job is to protect our natural resources, not to sell out to the highest bidder. Come on DNR-DO YOUR JOB!
[REDACTED]	jackson, WY	2014-07-04	This is one of the most beautiful areas in Sheboygan County. To allow this project to move forward would be a huge loss not only for the environment but for future generations as well.
[REDACTED]	Chicago, IL	2014-07-04	We need to protect our land for future generations and not let profit get in the way
[REDACTED]	SheboyganRoadS, WI	2014-07-04	Destruction of this habitat is UNTHINKABLE!! The pollutants from fertilizer and pesticides will further foul Lake Michigan and the Black River. Irrigation of golf course has impact on water table (neighboring wells). Residents do NOT want a golf course and associated traffic. Economic impetus is highly overstated.
[REDACTED]	Kewaskum, WI	2014-07-05	nature first!!!!!!!
[REDACTED]	Fox Point, WI	2014-07-05	Conservation.
[REDACTED]	Fox Point, WI	2014-07-05	Conservation.
[REDACTED]	Green Bay, WI	2014-07-05	This land should be for everyone's enjoyment, not for someone's profit
[REDACTED]	Sheboygan, WI	2014-07-05	Devastation of natural forest environment and wildlife. Removing public free access to the beach and hiking trails. This will cause major traffic problems. I don't believe that there will be any economic benefit from this private business. We already have Riverdale Golf Course just 2 miles away from Kohler's proposed site. WE DON'T NEED ANOTHER GOLF COURSE IN THIS AREA. Please put a stop to destruction of State Park land.

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2014-07-05	I grew up in this area and at one time knew every trail and dune like the back of my hand. Have not been there for a long time but I know in my heart that this area is very precious and unique. It must be protected from so called progress and preserved in it's state forever. I understood and accepted the restrictions put in place years ago to protect this area. I have also witnessed the other side of the coin having worked for kohler Co. in hospitality for 7 years, many times at golf events. It seems ridiculous that another high priced golf course could benefit this area more than the extraordinary landscape already provides. For future generations, please reconsider, gratefully yours, Janet Sly
[REDACTED]	Glenbeulah, WI	2014-07-05	We frequently visit this area. The proposed development will irrevocably damage the fragile ecosystem that exists there. There are plenty other areas for a nice golf course. There are few places like the area in question.
[REDACTED]	St. Germain, WI	2014-07-05	This would be a very bad precedent and would open the door to further exploitation of publicly held lands. Not to mention laying waste to this local area.
[REDACTED]	Sheboygan, WI	2014-07-05	Kohler-Andrae State Park is my favorite place on earth!
[REDACTED]	Cleveland, WI	2014-07-05	Every body always wants to destroy nature.
[REDACTED]	Cascade, WI	2014-07-05	We have to save the land that was meant to be enjoyed by all from those who want to let only a few enjoy it.
[REDACTED]	SHEBOYGAN, WI	2014-07-05	It's important that we protect our original natural beauty of nature. If we allow one company to destroy this beauty, how long will it take for other's to destroy other natural parks? Please deny their request!!
[REDACTED]	Shorewood, WI	2014-07-05	Preserve public land and natural spaces
[REDACTED]	Hixton, WI	2014-07-05	Our land is sacred.
[REDACTED]	Kaukauna, WI	2014-07-05	Public lands should benefit all citizens. Not just wealthy campaign donors.
[REDACTED]	Roscoe, IL	2014-07-05	We vacation in this area and want to see the natural beauty and wildlife protected.
[REDACTED]	Sheboygan, WI	2014-07-05	As a leading conservationist in both Wisconsin and Minnesota over the last several decades, I would be remiss not to sign this petition.
[REDACTED]	Sheboygan, WI	2014-07-05	We do NOT need another golf course in Sheboygan!
[REDACTED]	Oshkosh, WI	2014-07-05	I believe all creatures have a purpose on this earth..just as we do.
[REDACTED]	Green Bay, WI	2014-07-05	We need to protect ALL our state lands. We can not afford to lose any of our state lands.
[REDACTED]	Atlantic Mine, MI	2014-07-05	Once it's gone, it's gone!
[REDACTED]	Yorkville, IL	2014-07-06	The very charter of the DNR is to evaluate those impacts on state park land it manages as the public trustee. I fear the Wisconsin DNR has not considered the precedent that would be set if the easement is granted.
[REDACTED]	Sheboygan, WI	2014-07-06	Common sense conservation!
[REDACTED]	Sheboygan Falls, WI	2014-07-06	We don't need another golf course that's only going to provide seasonal jobs and most people aren't going to be able to afford. A lot more people will benefit from leaving the land the way it is.

Name	Location	Date	Comment
[REDACTED]	Sheboygan Falls, WI	2014-07-06	I have frequented this park for my entire life. Some of my earliest memories were had on the beaches here. I have had amazing camping times with friends and family, some of whom I see once a year, some of whom I will never see again. I even learned to drive in this park. It is a part of my life and my home. On top of that, this is the nicest beachfront in all of Sheboygan county and one of the nicest state parks I have ever been to. Please do not turn it into a rich man's playground.
[REDACTED]	Oviedo, FL	2014-07-06	Living in Florida I see what is happening to golf courses. They aren't profitable and owners want to get the community to buy and run the golf course or want to use it for other purposes. Protect the precious land. I am a Wisconsin native.
[REDACTED]	Fishers, IN	2014-07-06	Destroying on park lands for profit is unwarranted and unwanted.
[REDACTED]	Couderay, WI	2014-07-06	To save our waterways from Disaster! To save our "MOTHER-Earth!" For Our Younger & future generations!
[REDACTED]	Green Bay, WI	2014-07-06	Most assuredly the Kohler Co has the means and hopefully the better judgment to find land for their golf course that wouldn't require clearcutting or changing the nature of its environment. Plus I like trees and Lake Michigan more than I like golf.
[REDACTED]	Wauwatosa, WI	2014-07-06	We have enough golf courses in the world, and need to hold onto as much unspoiled nature as we can.
[REDACTED]	Sheboygan, WI	2014-07-06	Please help protect the environment in this area.
[REDACTED]	Minneapolis, MN	2014-07-06	I'm Native American and I'd like to preserve as much environment that's left at all possible.
[REDACTED]	MADISON, WI	2014-07-06	Wisconsin's public lands belong to all of the people. Clear cutting a forest to make it a private golf course is not benefiting the public.
[REDACTED]	Monona, WI	2014-07-06	State Park Land must never be turned over to private enterprise. This land belongs to all the people and to the wildlife living on that land.
[REDACTED]	Madison, WI	2014-07-06	I believe we have enough golf courses and not enough natural environments for wildlife and preserving water quality. Golf courses use tons of fertilizers that we don't need in our ecosystems and waterways.
[REDACTED]	Shoshone, CA	2014-07-06	Its
[REDACTED]	Oostburg, WI	2014-07-06	I hike along the lake from Oostburg to Kohler Andrae every day (have for 15 years). I value the remaining sacred haven for wildlife, old growth pines, ferns, mosses, deer, owls, foxes, occasional badger, migrating birds, loons. Why would anyone in his right mind destroy this gift of nature for a gold course? Greed!
[REDACTED]	Sheboygan, WI	2014-07-06	Nature can't be replaced. We need nature because we can't live without it. We exist only because of nature. I'm a tree hugger!
[REDACTED]	Sheboygan, WI	2014-07-06	prevent irreparable harm to an area I love so much I moved here.
[REDACTED]	Chicago, IL	2014-07-06	Kohler should show environmental leadership. This area is a jewel and should not be sacrificed to a golf course
[REDACTED]	Green Bay, WI	2014-07-06	I lived in Sheboygan for 24 years. My grandchildren still live there. Kohler-Andre Park has provided a place of beauty and wonder, and opportunity for family bonding far out of proportion to its size. Any shrinkage (especially for company profits) would be an irreversible tragedy.
[REDACTED]	Sheboygan, WI	2014-07-06	This property is full of wildlife and nature. A golf course would ruin everything, and destroy habitats of the plants and animals that live in the forest. If Kohler wants a golf course on 12th street so bad he can just buy out Riverdale.

Name	Location	Date	Comment
[REDACTED]	Appleton, WI	2014-07-06	Because we don't need another golf course! This is nature, and nature needs to be kept that way!
[REDACTED]	Washburn, WI	2014-07-07	The Kohler Andrea State Park belongs to all of us and must be preserved & protected from private, for profit development
[REDACTED]	Casco, WI	2014-07-07	Public lands are to be enjoyed by ALL...not just the privileged few!!
[REDACTED]	Sheboygan, WI	2014-07-07	To protect the environment.
[REDACTED]	Pardeeville, WI	2014-07-07	Keep Wisconsin green!
[REDACTED]	Winneconne, WI	2014-07-07	State land was set aside to give all residents access to the natural wonders of this state. A for profit company does not/should not have access to public land for private use.
[REDACTED]	Green Bay, WI	2014-07-07	It's a waste of money and it's completely unnecessary to plow down 200+ acres of woodland for a golf course, especially being a third. . If they build this golf course a nice chunk of our very important natural woodland will be destroyed.
[REDACTED]	Madison, WI	2014-07-07	We need more forests and wetlands, not golf courses.
[REDACTED]	Madison, WI	2014-07-07	As a child I went there every summer for a big family reunion - one of my most important connections to the universe!
[REDACTED]	sheboygan, WI	2014-07-07	we need to protect our wild life.
[REDACTED]	Sheboygan, WI	2014-07-07	because nature is a beautiful thing..once you destroy it you cannot get it back..its not worth kohlers profits..profits especially that really do not affect us but the kohler co. and family
[REDACTED]	Elkhart Lake, WI	2014-07-07	There are enough golf courses around this area. Herbie has enough money. Just leave this natural beauty/resource alone!
[REDACTED]	Sheboygan, WI	2014-07-07	This is our state and our public land. It is not meant to garner massive profits for a private corporation .
[REDACTED]	Brown Deer, WI	2014-07-07	Rich Golfers should not be the only people to enjoy this land.
[REDACTED]	Liberty Twp., OH	2014-07-07	This area is an absolute rare gem of beautiful untouched nature. Please leave it alone for all to enjoy the beauty it beholds. It is like no other place on earth and is a very special place to humans and other living things as well.
[REDACTED]	Sheboygan, WI	2014-07-07	Sheboygan county is where we purchased property less than a year ago because of its serenity and natural beauty. Who would ever have believed that the DNR would allow the taking of preserved public land for development when, at the same time, they do not allow ANY change to be made to the shoreline by individuals with less than 100 feet of shoreline!
[REDACTED]	Mequon, WI	2014-07-07	It could be precedent setting.
[REDACTED]	Sheboygan Falls, WI	2014-07-07	Public parks are meant for the public. We have camped at Terry Andrae State Park for many years. Our kids grew up playing with their friends there. We have enough golf courses here in Sheboygan. This is the only State Campground/Park that we have!!!! Keep it a park!!!
[REDACTED]	Sheboygan, WI	2014-07-07	We need to keep what precious wetlands and forests we have, we do NOT need another golf course or to line a mans pockets.
[REDACTED]	Sandston, VA	2014-07-07	I love the Virginia State parks and have camped at almost every park in my state. I have friends in Sheboygan who enjoy this park and it would be a shame to destroy this cherished property for a golf course.
[REDACTED]	Chicago, IL	2014-07-07	Keep Wilson, WI beautiful!
[REDACTED]	Oostburg, WI	2014-07-07	Protect the wetlands and forest for flora, fauna, and for recreational use
[REDACTED]	Sheboygan, WI	2014-07-07	Public State lands are not for private profit use.

Name	Location	Date	Comment
[REDACTED]	New Berlin, WI	2014-07-07	We are the voice for nature.
[REDACTED]	Sheboygan, WI	2014-07-08	I believe our State parks should be preserved for the enjoyment of the public.
[REDACTED]	Carlsbad, CA	2014-07-08	Kohler ran roughshod over the Town of Mosel board and the DNR when building Whistling Straits. Don't let this happen again! Rules need to apply equally to everyone. The Kohler Company seems to believe that they play by "different" rules than anyone else. This needs to be a big NO.
[REDACTED]	Chicago, IL	2014-07-08	I have been camping at Kohler-Andrae State Park for years and do not want to see any part of it destroyed.
[REDACTED]	Green Bay, WI	2014-07-08	The vast majority of land in Wisconsin is privately owned and developed in some manner. It is vital that we do not lose any of the small percentage of land in the public trust for private gain.
[REDACTED]	Sheboygan, WI	2014-07-08	I am a heavy user of our State, County, and Local Parks in addition to being an avid power walker and hiker in general. Over the course of 30 years I have seen the impact both positive and negative development can have on the environment. Once the trees are cleared, the access roads built, and the people, noise, and associated businesses start to appear, the environment will never be the same. This planned development by the Kohler Company is, in my opinion, unnecessary and will affect the direct and surrounding areas in negative and irreversible ways.
[REDACTED]	sheboygan, WI	2014-07-08	Live in area. Want wildlife and campground saved
[REDACTED]	Chicago, IL	2014-07-08	Our family and friends have camped at Kohler Andre for decades because of its beauty and the care given to the pristine. We camp rather than take fancy vacations because we respect the earth and its resources and support the states' care for these lands. The building of a golf course would be a rape of this land and set a disgraceful precedent of privatization.
[REDACTED]	madison, WA	2014-07-08	The ecology of this land should not be stripped away for a golf course!
[REDACTED]	Hill Point, WI	2014-07-08	Simple-I have been going there since I was a little girl. Took my kids there countless times when they were growing up- Now I am a 60 year old grandmother and want my grandchildren to have what we had.
[REDACTED]	Sheyboygan, WI	2014-07-08	Don't want my well to dry up, don't believe in using state lands for private development, don't want more traffic etc in the area
[REDACTED]	Madison, WI	2014-07-08	Too many golf courses sucking up water and fertilizer at the expense of our natural areas.
[REDACTED]	Madison, WI	2014-07-08	I love visiting Kohler-Andrae shoreline, dunes and trails. Keep the K-A State Park intact and protected. No for-profit golf course
[REDACTED]	Fort Atkinson, WI	2014-07-08	It is not in our State's interest, only Kohler's.
[REDACTED]	Sheboygan, WI	2014-07-08	Our family has used this wonderful piece of neighboring property for hiking skiing and birding for over 40 years. This land should remain the property of the people of WI for their continued use.
[REDACTED]	Sheboygan, WI	2014-07-08	We have enough golf courses in the area. We don't need to destroy this beautiful park that families and people enjoy. It's time to stop destroying our nature!
[REDACTED]	Superior, WI	2014-07-08	Hasn't this or similar proposals been looked at for years and been found wanting?
[REDACTED]	Sheboygan, WV	2014-07-08	Although I am sure the course would do very well and make a lot of money and create jobs it is not worth losing all the land.

Name	Location	Date	Comment
[REDACTED]	Fox Point, WI	2014-07-08	Kohler-Andrea Park is SE Wisconsin's crown jewel on LK Michigan's shore. Our family has purchased State Park stickers for & enjoyed K-A for over 30 years. We take friends and family there who stand astounded at its beauty. DENY the Kohler Co., Golfing interests, and all wishing to tarnish and destroy this singular asset access to and use of any square inch of the Park. It is a public treasure that must remain so - for its CU PUBLIC USE ONLY.
[REDACTED]	Sheboygan, WI	2014-07-08	<p>The environmental consequences of developing a golf course on land that is titled "Forest Preserve State Wildlife Refuge" on Wisconsin Dept. of Natural Resources (WDNR) publications (PUB PR-1510 2011) and has likewise been posted on the Kohler Company property for many years, a designation that I believe was established as part of the terms when the Kohler Company deeded the land to the State of Wisconsin, must certainly be in conflict with the Charter/Mission Statement of WDNR. Allowing State Park land to be used to access the land that will be compromised by a private golf course is even more debasing and precedent setting.</p> <p>There are two topics that are not directly addressed in this petition although directly related to WDNR jurisdiction that must be evaluated and will likely have severe consequences to both the environment and the local residents of the Town of Wilson:</p> <p>1)Any substance, including insecticide, herbicide, fertilizer, or spills or other contaminants will potentially enter groundwater/surface water including the very sensitive Black River watershed, Lake Michigan and shallow sand-point wells. Deer ticks carrying Lyme bacteria (personal experience from my local residence) and mosquitoes are abundant in the Black River area. Control of these insects on a golf course of this nature (and vicinity) will be imperative.</p> <p>2)Maintenance of a golf course will require an enormous amount of water for irrigation. Data for Midwest golf course water requirements indicate that hundreds of thousands of gallons of water a day are necessary for irrigation, particularly during the dry months of the year. The proposed water resource for the golf course is the Silurian Niagara aquifer that flows from west to east in this area and is used extensively in the Town of Wilson to supply hundreds of residents immediate adjacent to the proposed course. The high capacity wells that would be needed to supply irrigation water for the proposed course will very likely draw down and depress the water supply for the residential wells, particularly during dry or drought periods. This could have serious and costly consequences. The Kohler Company water requirement and projection specifications included in their application for a Conditional Use Permit for the proposed course appear to be grossly underestimating the necessary demand.</p> <p>Finally, the consequences from the development of a competition class golf course to the community of Wilson Township, the people and environment, are many. The local drawbacks, harm, and disservice overwhelmingly outweigh the benefits. This is a community of people that enjoy living within the natural beauty of the setting, the serenity, the peace, and the wildlife.</p>
[REDACTED]	Cedarburg, WI	2014-07-08	Lake Michigan shoreline would endangered; protect and preserve WI public lands.
[REDACTED]	Evanston, IL	2014-07-08	Kohler State Park was a gift from the Kohlers to the public for the public. it is a treasure and should not be impaired for private use.
[REDACTED]	DePere, WI	2014-07-08	Please address the long-term effects of your decision. My father worked hard to save the environment for me. I want to do the same for my children. Please oppose the request for the easement! Preserve our public lands!

Name	Location	Date	Comment
[REDACTED]	sheboygan, WI	2014-07-08	Enough with the golfing. Protect our environment and wildlife. KOHLER has enough income!!
[REDACTED]	Sheboygan, WI	2014-07-08	I am a huge outdoors person and have used these lands in the past, I pay taxes to the state to maintain this state park and I will vote and encourage others to vote against anyone who supports the destruction of these lands!
[REDACTED]	Casco, WI	2014-07-08	I Grew Up In Black River And Want To See The Land Stay As Beautiful As It Is!!!!
[REDACTED]	Sheboygan, WI	2014-07-08	I feel that preserving this land is very important to the protect the wetlands and the dunes for future generations, and also ensure that animals keep their homes. Just because someone has money does not give them the right to destroy public land. It is about time someone stands up to Mr. Kohler and tell him despite his wealth he is not going to get his way this time.
[REDACTED]	Muskegon, MI	2014-07-09	This is an area that a family member enjoys very much! And if it means that much to him, then it means that much to me as well!
[REDACTED]	Sheboygan, WI	2014-07-09	Dont need no more golf courses, and especially at the expense of nature
[REDACTED]	Rhineland, WI	2014-07-09	In addition to the reasons pointed out in the petition there are two others. Number one: because of the fertilizers, pesticides and herbicides used to maintain golf courses, they are one of the biggest sources of water pollution in this country. Number two: the younger generations "coming of age" are not turning to golf for recreation like previous generations. Many public and private golf courses are going out of business. "They" would be "playing/pitching" to an audience that is diminishing at a rapid rate. What a shame to destroy the pristine forest for that.
[REDACTED]	Peoria Heights, IL	2014-07-09	I have spent a lot of time enjoying the state lands in Wisconsin - especially in the Penokee Hills area.
[REDACTED]	Kiel, WI	2014-07-09	This is one of the very few places left where one can take ones horse for a safe, leisurely ride and in a beautiful setting to top it all. And it's nice to see so many people walking with their dogs and kids enjoying the trails. It would be a shame to take this all away and turn it into something none of us or the other people using the trails will ever be able to afford to use.
[REDACTED]	Chicago, IL	2014-07-09	I am from Sheboygan county and go there on vacation. I would hate for the beauty of it's naturalness be compromised for another seasonal private enterprise.
[REDACTED]	milwaukee, WI	2014-07-09	Those dunes are my only childhood memory i still have.
[REDACTED]	Warner Robins, GA	2014-07-09	I come from wisconsin originally and go home twice to three times a year and we visit these parks and forests and dont want to see them destroyed
[REDACTED]	Manitowoc, WI	2014-07-09	Mr Kohler can take his golf course and find a place to put it where he is not taking over our state parks. I lived in Cleveland when his course went up just south of there. Poor planning for access as well as disrupting small communities all for his own profit.
[REDACTED]	Prescott Valley, AZ	2014-07-09	This is a public land trust that needs to be preserved. Let the Kohler Co find other land to build on.
[REDACTED]	Sheb, WI	2014-07-09	There is huge potential for polluting the lake and surrounding land.
[REDACTED]	Weston, WI	2014-07-09	We need to keep our public property public and preserve the wildlife that is there home..it is these places that make Wisconsin special..take that away and we might as well be Illinois! Its a slap in the face to even consider having to sign a petition for this at all!
[REDACTED]	Kaukauna, WI	2014-07-09	Don't sell off state land for another golf course.

Name	Location	Date	Comment
[REDACTED]	Kaukauna, WI	2014-07-09	The DNR should not allow public park land to be used for a private venture, especially one the proposes to destroy an ecologically important area.
[REDACTED]	Costburg, WI	2014-07-09	Natural habitat is becoming scarce. We should save it where we can.
[REDACTED]	sheboygan, WI	2014-07-09	it would be a shame to ruin that beautiful park and we do not need or want another golf course.
[REDACTED]	sheboygan, IL	2014-07-09	I love this park and it belongs to the people, not Mr. Kohler.
[REDACTED]	Darlington, WI	2014-07-09	We need to protect what is left of our nature areas, especially ones along nationally significant areas, such as Lake Michigan shoreline.
[REDACTED]	Green Lake, WI	2014-07-09	This land is an important migratory corridor along Lake Michigan. We do NOT need more golf courses. We need more GREEN spaces. We share the beautiful shoreline with more than just golfers--and more than just people. We share the land with birds, animals, plants, insects, and hikers, birders, hunters, school groups. We need GREEN SPACES not gold greens.
[REDACTED]	Chilton, WI	2014-07-09	I trail ride on State Park land and feel that every natural resource is important to save for the public and children of the future... not for the ultra rich to get their kicks on and make more money from.
[REDACTED]	Fort Atkinson, WI	2014-07-09	I am for conservation, for the birds and wildlife. There is societal, environmental and economic value in preserving contiguous tracts of pristine habitat. I am SO TIRED of big money and a small percentage of our wealthy citizens controlling the destiny of our natural resources. Wisconsin needs to start caring again for the environment and the values of the average citizen not just the wealthy elite who have bought all the politicians responsible for moving this proposal forward. By and large who are the people who golf? The wealthy minority. Digusting! Sadly, I feel little hope our voices will even be heard given the secretary for the DNR was hand-picked by Governor Walker. He and his cronies have no respect for our environment. They are guided by greed, money and the narrow-minded short-sightedness that goes with it. Wake up! THERE IS ECONOMIC VALUE IN PRESERVING OUR NATURAL RESOURCES.
[REDACTED]	Wauwatosa, WI	2014-07-09	This would set a dangerous precedent. The WDNR is trusted to act in the best interest of the public and protect our precious natural resources. Handing land over to the Kohler Company is a violation of that trust. The DNR must deny this request.
[REDACTED]	Waupaca, WI	2014-07-09	To preserve this beautiful area for nature!
[REDACTED]	Sheboygan, WI	2014-07-09	I still walk those beautiful trails especially the Towering Pines Plantation. Do not steal this natural beauty that is open for all of us. Many times I walked that trail grieving my husband who also loved it. The natural beauty brought me serenity.
[REDACTED]	Sheboygan, WI	2014-07-09	It's a rare ecosystem. We have enough golf courses for the 1%.
[REDACTED]	La Crosse, WI	2014-07-09	I am a former Sheboygan resident. It makes me cry to learn this strikingly beautiful nature area may turn into another golf course. Preserve our environment for future generations!
[REDACTED]	Sheboygan, WI	2014-07-09	The reason we built our home in this area was because of the treasured natural aspects of this area - the trees, many types of wildlife, the wetlands, and the natural beauty and serenity. We go to the state park almost daily, we visit the conservancy often. We do not need another golf course - there is one within walking distance. This is a non-replaceable natural resource that should remain as such.

Name	Location	Date	Comment
[REDACTED]	Cascade, WI	2014-07-09	Kohler Andre state park has some of the only pristine dune habitat in Wisconsin! There are rare species found there and no where else in Wisconsin. Kohler company should not destroy this for yet another golf course. They have plenty of land. They can use that and not destroy a state park!
[REDACTED]	Appleton, WI	2014-07-09	this property was bought for the enjoyment of Wisconsin residents and shouldn't fall into private property
[REDACTED]	Sheboygan, WI	2014-07-09	It would be a travesty to sacrifice the usefulness of the 75 acre portion of the Kohler Andre Park known as the "Black River Trails" to the development of the service center of the "Private for Profit" development of a golf course.
[REDACTED]	East Troy, WI	2014-07-10	The last thing WI needs is another golf course. What we DO need is more protection for wild places and wildlife!!
[REDACTED]	Sheboygan, WI	2014-07-10	Destroying a state park for private profit is not what the DNR is supposed to do.
[REDACTED]	Adell, WI	2014-07-10	This state has to preserve its natural beauty and wildlife, not allow big corporations profit off of it.
[REDACTED]	Clintonville, WI	2014-07-10	Migratory birds need this important food and rest stop. Golf courses don't provide either. Remember Wisconsin families and their needs. The wealthy have plenty of golfing options.
[REDACTED]	Salt Lake City, UT	2014-07-10	I love Trees and hate Golf
[REDACTED]	Sheboygan, WI	2014-07-10	Mr. Kohler can go build this course somewhere else and leave this beautiful wooded area in its natural state. Better yet, he can just donate the land to the Glacial Conservancy and let all of us enjoy it as compared to the very few who can afford to pay several hundred dollars to play golf. Also, the pesticides, herbicides and fertilizers used will ultimately end up in the already impaired Black River and then Lake Michigan. That is NOT being a good steward of our natural resources. Bulldozing a forest to plant grass for fairways and greens just doesn't make sense to me!
[REDACTED]	Chicago, IL	2014-07-10	There is no need for another golf course in the world for rich people. Conserving still natural land is important.
[REDACTED]	sheboygan, WI	2014-07-10	Its beautiful the way it is. Somethings are better left untouched. We do not need another golf course in the area that only a few people will , or can afford to use. We can all enjoy nature.
[REDACTED]	Phoenix, AZ	2014-07-11	Still own a home in Sheboygan. It is a beautiful area - don't ruin the natural resources we have for such a terrible use!
[REDACTED]	Plymouth, WI	2014-07-11	If someone does not stop the destruction of our woods/forests there will soon be nothing but buildings and blacktop. Where will the animals live?
[REDACTED]	Colorado Springs, CO	2014-07-11	I used to live right down the street and am well aware of the ecological ramifications if any development should occur
[REDACTED]	Chicago, IL	2014-07-11	We camp at Kohler Andrae State Park almost every summer. The park's slender strip along Lake Michigan should not be cut with an easement for the private venture.
[REDACTED]	Suamico, WI	2014-07-11	As President of the Wild Ones Green Bay Chapter, I am very concerned with the native plants that will be destroyed by this easement for a golf course. With four courses already in this county, I do not believe it is appropriate to take State Park land to put in another, and destroy valuable habitat - this is the EXACT opposite of what the DNR is all about. Please stop this NOW!
[REDACTED]	Sheboygan, WI	2014-07-11	because I want to preserve the beauty and Mr. kohler already has 2 golf courses in the area which I believe is enough!

Name	Location	Date	Comment
[REDACTED]	Bloomington, IL	2014-07-11	I love coming up to this party and respect it too much to have it destroyed and turned into a golf course.
[REDACTED]	Randolph Twp, NJ	2014-07-11	I camp at this park frequently and we can't let Kohler ruin it for everyone.
[REDACTED]	Ionia, MI	2014-07-11	we don't need any more golf courses! we need our parks!
[REDACTED]	Madison, WI	2014-07-11	High interest in birds and bird migration. Opposed to just another golf course for those who can afford it at the expense of those who enjoy simpler and less costly pleasures.
[REDACTED]	stony brook, NY	2014-07-11	Kohler can go elsewhere, leave the park alone!
[REDACTED]	Sheboygan, WI	2014-07-11	Live near the area and disapprove of the idea!
[REDACTED]	Cluj-Napoca, Romania	2014-07-12	I grew up playing in this park and camped here as a boy scout. Don't ruin it .
[REDACTED]	Medford, WI	2014-07-12	Habitat loss is the main issue many bird and other wildlife species face. Destruction of this valuable habitat, especially with its location along Lake Michigan, would be detrimental to many bird species, including migratory birds.
[REDACTED]	Sheboygan, WI	2014-07-12	We need to preserve habitat not destroy it for profit!!
[REDACTED]	Ashland, WI	2014-07-12	The proposed course is just a mile or two from my childhood home. I have dear memories of this land. Kohler would be a hero if he located the golf course on a closed landfill, or a "brownfields" property; destroying a natural area for an artificial and polluting purpose is ignorant and wrong.
[REDACTED]	durham, NC	2014-07-12	man does not live by development alone.-
[REDACTED]	La Grange Park, IL	2014-07-13	It is important and necessary to protect nature and eco systems. To do something like this for personal gain alone is just plain wrong!
[REDACTED]	LaGrange, IL	2014-07-13	After vacationing for many years in Sheboygan, enjoying the beauty of the environment, I hope that the issue will be settled on behalf of the environment.
[REDACTED]	Racine, WI	2014-07-13	I grew up in Sheboygan. We went to the park many times as a kid to ride bikes, hike, or walk on the beach. My parents still live in town, and walk in the park at least once a day with their dogs. It is such a beautiful, peaceful, and relaxing place. Turning part of it into a golf course will destroy that atmosphere. It will also destroy the natural vegetation and animals who live and grow there. It would be a shame to allow a for-profit company decide how to use land that has been a part of Sheboygan County's history for so long. Please don't allow Kohler to build a golf course there.
[REDACTED]	Sheboygan, WI	2014-07-13	This isn't just idle land. It is used and enjoyed by many. People walk on it, ride bikes on it, and ride horses on it. How can there be any justification for giving it away? It is public land that is used and loved by the public and it should remain public.
[REDACTED]	Cedarburg, WI	2014-07-14	State park land should not be used for private development
[REDACTED]	MILWAUKEE, WI	2014-07-14	It's for the public not for the profits of companies
[REDACTED]	Whitewater, WI	2014-07-14	We cannot allow the destruction of public lands at all, let alone for private profit. Tell the DNR STOP RIGHT NOW!!!!
[REDACTED]	Valders, WI	2014-07-14	We need to keep our public state lands separate and not destroyed for private profit. We need to keep our protected areas protected
[REDACTED]	Marshfield, WI	2014-07-14	I live in WI & grew up visiting a grandma in Sheboygan.
[REDACTED]	Viroqua, WI	2014-07-14	We need to do a better job of protecting our precious Wisconsin environment!
[REDACTED]	Sheboygan, WI	2014-07-14	I believe that Sheboygan County does not need another golf course. Especially not one that will destroy the natural beauty of the area.

Name	Location	Date	Comment
[REDACTED]	Ringle, WI	2014-07-14	Don't balance the budget by selling our public lands. Once they are gone they will never come back for future generations to enjoy.
[REDACTED]	Waukesha, WI	2014-07-14	The DNR should be doing their job and not cow towing to big industry.
[REDACTED]	Sheboygan Falls, WI	2014-07-14	To preserve environmental habitat for wildlife & future generations public use & need..
[REDACTED]	Valders, WI	2014-07-14	Doesnt Herb have enough space to hit is little white balls? Do we have to turn all of Sheboygan into a golf course?
[REDACTED]	FOND DU LAC, WI	2014-07-14	My family has been in Sheboygan for over 150 years, and we do not want to see our protected lands destroyed.
[REDACTED]	Kiel, WI	2014-07-14	I do not believe we need another golf course in the area, but also understand Kohler's right to develop land that is theirs. HOWEVER, the "rounding out" of their property by effectively taking public lands for use with their private venture is not up to them alone. We, the public, have rights to approve or deny such use of public lands. The land easements on these public lands were for a different purpose than the current concept of a golf course. If Kohler wants to build a golf course, then I feel it should be limited entirely to their own deeded property and not involve the public (state) land easement, which was originally granted to Kohler for a purpose that was completely compatible and aligned with the state wildlife park.
[REDACTED]	sheboygan, WI	2014-07-14	They have two in Sheboygan county already. Its time to stop giving greedy people more ways to fill there pockets.
[REDACTED]	Racine, WI	2014-07-14	I am sure they can find a site for a golf course without taking out a beautiful forest. If not then people can drive to another golf course, as I'm sure they have been for a long time now.
[REDACTED]	Sheboygan, WI	2014-07-14	Money can't buy happiness, but it surely can buy golf courses.....but at what expense! Wis. DNR, please protect this land.
[REDACTED]	Eagan, MN	2014-07-14	Find some other way to generate revenue. This is not an appropriate use of state resources.
[REDACTED]	Fond du Lac, WI	2014-07-14	They don't make any more land and what we have should be preserved
[REDACTED]	Sheboygan, WI	2014-07-14	It is just wrong period.
[REDACTED]	Milwaukee, WI	2014-07-14	I would be very upset to see this precedent set!!
[REDACTED]	Southampton, NJ	2014-07-14	More land needs to be preserved, not destroyed for the almighty dollar. Golf? How about getting your exercise hiking in the parks and preservation areas?
[REDACTED]	plymouth, WI	2014-07-14	it would RUIN what Black River is all about. Beautiful undecimated forest.
[REDACTED]	Baraboo, WI	2014-07-14	Keep this pristine land for public use and not to the highest bidder.
[REDACTED]	Milwaukee, WI	2014-07-14	Public land belongs to the public
[REDACTED]	Sheboygan, WI	2014-07-14	I bicycle in that area all summer and love the scenary and wildlife. Don't disturb it!
[REDACTED]	fremont, WI	2014-07-14	Stauy out of the Forest, Kohler! This is beautiful land and habitat for animals. NO golf course necessary!
[REDACTED]	Madison, WI	2014-07-14	Hard to believe our state officials are going to allow a golf course in our stet park. The whole park belongs to the people of WI not just those who can afford a round of golf at Kohler. This is outrageous!
[REDACTED]	Janesville, WI	2014-07-14	Can't see cutting down a forest for a golf course, thats wrong.
[REDACTED]	Monona, WI	2014-07-14	This irreversible destruction would be intolerable.

Name	Location	Date	Comment
[REDACTED]	Campbellsport, WI	2014-07-14	We need to protect this beautiful area and not turn over to yet another golf course in the area.
[REDACTED]	Sheboygan, WI	2014-07-14	There has been no study if amphibians exist that require protection. What about destruction of Trilliums? I thought those were protected ?What a way to disrupt at migration route when you displace native plant food sources for deer, birds, reptiles, and amphibians. This is beautiful land,t
[REDACTED]	manitowoc, WI	2014-07-14	Because I care about preserving natural areas for all the citizens. Kohler already has a golf course!
[REDACTED]	Marshfield, WI	2014-07-14	I live in Wisconsin because of the variety of beautiful wildlife, forest and water resources, clean air and water ... not because of golf courses. Do we need another one? At the expense of the destruction of this priceless, pristine area? It seems very clear that any potential financial gain is far, far outweighed by the destruction of resources that can never be replaced.
[REDACTED]	Wausau, WI	2014-07-14	This plan would not be in the best interest of the environment.
[REDACTED]	Delafield, WI	2014-07-14	There are more than enough golf courses in the area and we need to keep public lands public.
[REDACTED]	menomonie, WI	2014-07-14	One cannot preserve nature if it is destroyed to create human determined playgrounds. We have no shortage of golf courses, but we do have a shortage of natural lands.
[REDACTED]	Sheboygan, WI	2014-07-14	We need to take care to preserve the public lands we have and they shouldn't be co-opted by commercial entities.
[REDACTED]	Elkhorn, WI	2014-07-14	because we need forest land NOT golf courses for executives to play on!
[REDACTED]	ashland, WI	2014-07-14	There are plenty of golf courses without selling our few public spaces for development. Leave our natural spaces alone.
[REDACTED]	Mayville, WI	2014-07-14	If we keep destroying all these natural resources, soon there won't be anything left.
[REDACTED]	Fox Point, WI	2014-07-14	We don't need to destroy wetlands so another golf course can get built.
[REDACTED]	Waukesha, WI	2014-07-14	I camp at KA every year. Golf greens are pesticide and fertilizer intensive and should not be in a pristine wildlife area. Parks are for all, not restrictive access to the privileged few,
[REDACTED]	Sheboygan, WI	2014-07-14	Love the beauty of the Park and surroundings. Don't want the dunes and forest ruined because of greedy Mr Kohler. He has enough golf courses in the area already.
[REDACTED]	Sheboygan, WI	2014-07-14	Kohler has enough money, and enough golf courses. This land must be preserved!
[REDACTED]	Monona, WI	2014-07-14	We are degrading our environment piece by piece....death by a thousand cuts. We are losing the very qualities that make our state such a good place to live, raise a family, and appreciate nature. Balancing the benefits, the golf course is but one more cut, one we do not need.
[REDACTED]	Green Bay, WI	2014-07-14	Public forests cannot returned to their natural state after they have been developed. They need to remain forests. The earth needs forests, simply for renewing oxygen, etc. We need them for enjoyment of their beauty. The rain must have a space to sink into the soil to replenish the underground water aquaphor. A building standing on it cannot do that. It only contributes to heating up our atmosphere. Deny use of public State lands for private development.

Name	Location	Date	Comment
[REDACTED] h	Rhineland, WI	2014-07-14	I own property in the area and so much of the lake is cut off from the public or is developed for commercial uses. A site in near pristine condition is rare and should be preserved; not turned into yet another golf course with limited access.
[REDACTED]	Waukesha, WI	2014-07-14	Despot Kohler's positive impact in our state, I believe it is vital to preserve the natural resources that we still have.
[REDACTED]	Sheboygan, WI	2014-07-14	The forests have been a beautiful wonder to me since I grew up in Wisconsin, and think it a crime to even imagine to destroy such natural splendor for a golf course.
[REDACTED]	Shorewood, WI	2014-07-14	I frequent Kohler Andre often to enjoy the beautiful lakefront, dunes and trails. I would hate to see any of this threatened by an encroaching golf course.
[REDACTED]	fitchburg, WI	2014-07-14	fertilizer, pesticide run off into the water system as well? NOOO! leave the forest!!!!
[REDACTED]	milwaukee, WI	2014-07-14	I am proud of the Wisconsin State Parks and the availability for everyone to enjoy them. I think having a private party owning and operating part of this land will limit the use to a select few. I don't see this as a positive improvement.
[REDACTED]	Racine, WI	2014-07-14	Rusty Malkemes These are designated state lands for all WI citizens to use and enjoy. By selling this to a private company it will limit who can use this. It would be short term gain for a long time loss.
[REDACTED]	sheboygan, WI	2014-07-14	The Kohler name will be much more respected for preserving and protecting Nature than for destroying the preserve for the pleasure of an elite few. -- a Sheboyganite
[REDACTED]	Plymouth, WI	2014-07-14	This area is one of the most beautiful places on earth. Letting the Kohler Company use it to build yet another golf course is wrong on all levels and will only benefit the Kohlers.
[REDACTED]	Hudson, WI	2014-07-14	The Kohlers have done a lot of good for the state. This however does not seem like the best use of OUR land/resources.
[REDACTED]	Shelbyville, KY	2014-07-14	Keep Wisconsin clean and green. Don't submit to corporate greed.
[REDACTED]	Baraboo, WI	2014-07-14	There some parts of Wisconsin that should not be for sale!
[REDACTED]	New Lisbon, WI	2014-07-14	If Kohler contributed to Walker's campaign then he'll make sure the DNR gives Kohler what they want.
[REDACTED]	Eau Claire, WI	2014-07-14	We have enough largesse to corporations already.
[REDACTED]	North Fond du Lac, WI	2014-07-14	This is dismaying -- the Wisconsin DNR was created to protect the interests of all Wisconsinites -- not the affluent few.
[REDACTED]	Manitowoc, WI	2014-07-14	Everyday more public land is being destroyed, upsetting nature in so many ways. We need to save what is left of our natural habitat!
[REDACTED]	Stevens Point, WI	2014-07-14	I am a user of Wisconsin public lands. Kohler already has a golf course, and I can't afford to use it. They can afford other land for a shed.
[REDACTED]	south Milwaukee, WI	2014-07-14	Leave our state parks alone! Public land is NOT fair game for a golf course, even if our governor IS a sell out corporate whore.
[REDACTED]	Wisconsin Rapids, WI	2014-07-14	This is my son's legacy. Don't allow others to destroy what is not their personal property!!!
[REDACTED]	sheboygan, WI	2014-07-14	It must be apparent to anyone who likes the outdoors, why this is important to me.
[REDACTED]	Porterfield, WI	2014-07-14	Golf is not as important as Wisconsin's natural legacy!

Name	Location	Date	Comment
[REDACTED]	Racineq, WI	2014-07-14	Protect our public lands.
[REDACTED]	Appleton, WI	2014-07-14	I'm glad you folks are fighting for this rare and beautiful tract of land. Golf is dying all over the country, but Kohler has to build another course for what? To feed his ego?
[REDACTED]	South Bend, IN	2014-07-14	Build the golf course in the nearest city.
[REDACTED]	Cable, WI	2014-07-14	It's a beautiful forest, and I'm sick and tired of corpoations imposing their will on us.
[REDACTED]	Wausau, WI	2014-07-14	golf is recreation, nature is not
[REDACTED]	Sheboygan, WI	2014-07-14	We don't NEED any more golf courses for the one percent.
[REDACTED]	Sheboygan, WI	2014-07-14	Sheboygans are quality is already poor and by cutting down more trees it will only make it worse also this area is very much loved by Sheboygan residents to destroy it for a golf course is just absurd There are enough golf courses and few state parks along the Lake Michigan shoreline. I am honestly surprised that this is even being considered
[REDACTED]	St. Paul, MN, MN	2014-07-14	I spend a lot of time in Wisconsin and have friends and family there. Our ecosystem does not stay confined within "state borders". We need to be doing more to protect wild lands, rather than developing them and changing landscapes for profit!
[REDACTED]	racine, WI	2014-07-14	The DNR doesn't seem to work for the people. Who ever offers them the most money. This is the way it seemed to work for the WE energies power plant. Who is really responsible for the Molybdenum in the water?
[REDACTED]	Rhineland, WI	2014-07-14	Our public lands(national, state and county parks and forests) have been set aside for the recreational use of the general public. These lands must be protected.
[REDACTED]	Elkhart Lake, WI	2014-07-14	critical bird migration flyway. Use of golf course pesticide will destroy insect food source for migrating as well as nesting birds.
[REDACTED]	Wausau, WI	2014-07-14	We have so little public land of this quality preserved relative to private holdings and developed lands. Demand for such public lands for quiet recreation and to experience and study natural areas, their flora and fauna is high. We must not compromise what has been set aside.
[REDACTED]	Hingham, WI	2014-07-14	We need to keep our Natural Resources and not always focus on "MONEY"!
[REDACTED]	Fredonia, WI	2014-07-14	Keep State lands in it natural state.
[REDACTED]	Mount Calvary, WI	2014-07-15	This state park is one of my favorites. It has preserved the sand dunes of Lake Michigan, that are all but gone from the rest of the Wisconsin shoreline. It does this while allowing access to a gorgeous natural setting for people of all walks life to enjoy together. A golf course is the opposite of this progressive mentality. Building a pesticide-intensive golf course right next to one of the most beautiful state parks in Wisconsin harms the ecosystem and the quality of the state park for those of us who cannot afford a golf course membership at Kohler. I urge the DNR to deny this development so that future children can have the same joy and knowledge of conservation that I experienced at Kohler Andrae State Park.
[REDACTED]	Kenosha, WI	2014-07-15	State park land, like federal park land, must be protected for the enjoyment of all not a few
[REDACTED]	Green Bay, WI	2014-07-15	Just what is he public interest in a golf course vs an arboreal delight of watershed and animal habitat?

Name	Location	Date	Comment
[REDACTED]	KRAKOW, WI	2014-07-15	As a long-time resident of Wisconsin, it is my opinion that this is NOT what the DNR is supposed to do - pandering to the likes of campaign-rich politicians who feel they need to return the favor of heavy donations by allowing the destruction of lands held in Public Trust.
[REDACTED]	Oconomowoc, WI	2014-07-15	How many golf courses does one company need? Perhaps leaving some natural resources for future generations should be given more consideration. There could shave 12 acres off that size course.
[REDACTED]	Milwaukee, WI	2014-07-15	Public lands belong to ALL Wisconsinites-not just the ones with money and power!
[REDACTED]	Manitowoc, WI	2014-07-15	because I am an outdoorsman and we already have more gold courses than we have public hunting and pristine forest lands for public use
[REDACTED]	Larsen, WI	2014-07-15	There is only so much public land. Once it is gone to the developer it is gone forever as a natural resource. We need to think of the sustainability of this planet.
[REDACTED]	Madison, WI	2014-07-15	Come on! Enough already with all the golf courses! 4 for Kohler is already plenty!
[REDACTED]		2014-07-15	I believe it is very important to protect the environment and no person or institution should be given a carte blanche to use it for their own benefit.
[REDACTED]	Monona, WI	2014-07-15	[REDACTED] your golf course.
[REDACTED]	Woodlake, CA	2014-07-15	I grew up in Sheboygan. I visit often. I can't imagine the destruction of state lands...
[REDACTED]	Tampa, FL	2014-07-15	Wisconsin is a beautiful state grew up there
[REDACTED]	Sheboygan, WI	2014-07-15	I care about the land
[REDACTED]	Oostburg, WI	2014-07-15	I am sure the project will be of the highest quality, as are all Kohler projects, but allowing public lands to be used for private profit sets a dangerous precedent.
[REDACTED]	Plymouth, WI	2014-07-15	Don't limit access to land meant for everyone to benefit profit for a few.
[REDACTED]	Sheboygan, WI	2014-07-15	Look, this place nurtures contemplation and it assails cynicism; let's take care of our community.
[REDACTED]	Athens, WI	2014-07-15	I was born and raised in that area near Terry Andrea. It's so beautiful! Also, Golf as a sport is dropping in interest at rapid rates. Kohler has plenty of courses. No need for another at expense of the public.
[REDACTED]	Stoughton, WI	2014-07-15	Because Golf Courses are horrific wastes of space and natural resources that only support the smallest of populations even remotely capable of affording their use. We don't need another goddamn golf course. Wisconsin, at one point in time, was a world leader in the area of natural conservation. We as a state are abandoning that so that, again, a limited population can abuse the land for their own selfish purpose.
[REDACTED]	Oshkosh, WI	2014-07-15	We need to protect what we can!!
[REDACTED]	HARTLAND, WI	2014-07-15	This land is irreplaceable. the idea that we would even consider destroying it for profit and private use only is a travesty.
[REDACTED]	New London, WI	2014-07-15	Our public lands belong to all the people of our state, not just the elite. Please do not let big money influence another decision that robs our citizens of another precious resource.
[REDACTED]	Oconomowoc, WI	2014-07-15	Already too many golf courses. Let us keep our natural WI beauty!
[REDACTED]	milwaukee, WI	2014-07-15	Do we really need another golf course? Not everyone can afford to golf, but we can all take a walk in the woods and enjoy nature.

Name	Location	Date	Comment
[REDACTED]	COTTAGE GROVE, WI	2014-07-15	The Kohler Andrea State Park belongs to all of us and must be preserved. There is no reason to destroy such a beautiful area.
[REDACTED]	Campbellsport, WI	2014-07-15	DNR should not allow anyone to nibble away at public state lands.
[REDACTED]	Middleton, WI	2014-07-15	We need to protect wetlands, shoreline, forest and all public lands for future generations.
[REDACTED]	sheboygan, WI	2014-07-15	it involves the destruction of a pristine lake shore forest for the construction of a golf course.
[REDACTED]	Bozeman, MT	2014-07-15	I grew up in Sheboygan right on the lake in Black River and beautiful lake front property is too rare to destroy by turning it into a golf course!!!!
[REDACTED]	Sheboygan, WI	2014-07-15	a golf course should never replace a natural habitat for wildlife.
[REDACTED]	Eau Claire, WI	2014-07-15	Public lands need to be preserved for the PUBLIC, both present and future!
[REDACTED]	Mt Horeb, WI	2014-07-15	This is outrageous. Kohler can find some other place.
[REDACTED]	Bayfield, WI	2014-07-15	The Kohler Andrea State Park belongs to all the citizens of Wisconsin- not just developers.
[REDACTED]	Madison, WI	2014-07-15	First of all, there are enough golf courses already and secondly, leave the wild life alone! Once it's gone, it's gone!
[REDACTED]	Milwaukee, WI	2014-07-15	This is win/lose. Kohler Co. makes \$, WI loses.
[REDACTED]	milwaukee, WI	2014-07-15	Protect our parks!
[REDACTED]	Verona, WI	2014-07-15	Need to save nature
[REDACTED]	McFarland, WI	2014-07-15	I love golf and am all for it, but we shouldn't be giving the public's land to private corp to make money. If they want to send monthly checks to every WI resident for use of the land... then sure go for it, but until that day.... DENY
[REDACTED]	Milwaukee, WI	2014-07-15	I have been to Kohler Andre many times, it is an amazing place. Future generations deserve to grow up and enjoy the beauty of our natural areas. How many places like this have been sacrificed to build golf courses? Is profit all that matters?
[REDACTED]	Janesville, WI	2014-07-15	I don't want public lands to disappear!
[REDACTED]	La Crosse, WI	2014-07-15	If we do not protect the natural environment around us, our entire quality of living will diminish. We talk about thinking of the children, and if we continue to eradicate natural lands and pave them over, what will be left in our children's lifetime? Enough is enough.
[REDACTED]	South Range, WI	2014-07-15	Sheboygan Falls, WI is my birthplace.
[REDACTED]	Madison, WI	2014-07-15	Will big businesses also be willing to shell out money to buy us a new planet Earth? Without trees to replenish oxygen, we humans would cease to breathe. Alive trees= alive humans.
[REDACTED]	Sparta, WI	2014-07-15	This is PUBLIC land set aside for everyone's enjoyment. The use of it for a private company is theft, pure and simple. Keep the area pristine and protect the environment as well as we can. It's vanishing far too quickly and can't be replaced.
[REDACTED]	Appleton, WI	2014-07-15	this is land for families to enjoy, not the 1% who play on high end golf courses.

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2014-07-15	clear cutting the Black River pristine forest, defacing the natural sand dunes and Lake Michigan shoreline, polluting the Black River and it's fragile wetlands, taking away an important wildlife and migratory wildlife corridor, taking away public state land zoned P1 (for public recreational use), endangering the residents health and welfare via polluted well water as well as destroying our beautiful, peaceful community just to implant a private use golf course is enironmentally irresponsible, morally and ethically WRONG. Everything about the Kohler golf course proposal violates the Town of Wilson's 20 year comprehensive plan. The Town of Wilson leaders, the Wisconsin DNR have been given the responsibility to protect the environment and the people of this township. I trust that you will make the right decision and that is to deny the building of the Kohler Company golf course. Otherwise, it will certainly be the saddest day in the history of the Town of Wilson and it will never, ever be the same.
[REDACTED]	Eau Claire, WI	2014-07-15	Above all, we must safeguard our environment above private interest.
[REDACTED]	Menasha, WI	2014-07-15	There's enough gold course in this state! Leave Terry Andre alone!
[REDACTED]	Sheboygan Falls, WI	2014-07-15	There are so few natural lands left where one can go to enjoy the beauty of a once pristine land. I also would like to see more public access via hiking trails in such places so it can be appreciated by even more people. The forest is a beautiful place and it shouldn't cost people anything to enjoy.
[REDACTED]	Kenosha, WI	2014-07-15	Wisconsin public forests were intended to be preserved for the use and enjoyment of it's homo sapient citizens, not the corporate ones!
[REDACTED]	Eau Claire, WI	2014-07-15	Keep developers out of public lands
[REDACTED]	Eau Claire, WI	2014-07-15	I enjoy Wisconsin for the beauty, I live here for the same reason.
[REDACTED]	Waukesha, WI	2014-07-15	Wisconsin's known for its landscape and wilderness... not golf courses.
[REDACTED]	Sheboygan, WI	2014-07-15	I use and enjoy this land daily. The area is already overpopulated and the added traffic/people would ruin the existing way of life for current residents.
[REDACTED]	Montello, WI	2014-07-15	I've been to this area. It is so beautiful. It would be a shame to develop it.
[REDACTED]	mosinee, WI	2014-07-15	We need to keep our natural woodland natural!!
[REDACTED]	Menasha, WI	2014-07-15	I am originally from Sheboygan Falls,,,,,2 miles from Kohler.....stoll have family there. This is too close to home!
[REDACTED]	Denver, CO	2014-07-15	When I was younger my friends and I spent many hours in these beautiful woods. I would hate to see them destroyed.
[REDACTED]	Nichols, WI	2014-07-15	I can't even fill in a part of the swamp on my land and they will let a corporation fill in wetlands! They work for the people not the corporations!
[REDACTED]	Green Bay, WI	2014-07-15	Not for Kohler's private used,it's public state land!!
[REDACTED]	Milwaukee, WI	2014-07-15	This area is vital to clean air and water.
[REDACTED]	Milwaukee, WI	2014-07-16	State land is not for sale!
[REDACTED]	Kenosha, WI	2014-07-16	There are plenty of world class golf courses in the area (owned by Kohler). These beautiful woods and dunes belong to the people and need to be preserved.
[REDACTED]	Sparta, WI	2014-07-16	Profit is NOT the bottom line!
[REDACTED]	White Bear Lake, MN	2014-07-16	Save my hometown from environmental destruction for personal profit
[REDACTED]	Wauwatosa, WI	2014-07-16	Once this land is given away, we can never get it back.
[REDACTED]	Milwaukee, WI	2014-07-16	Wisconsin is known for its lush, NATURAL beauty, available to everyone -- not for some orchestrated, manufactured golf course available only to the wealthiest few.

Name	Location	Date	Comment
[REDACTED]	Ellison Bay, WI	2014-07-16	It is a quality landscape and there is no NEED for another golf course in the area!
[REDACTED]	Manitowoc, WI	2014-07-16	<p>I agree with the masses, I have used the area quite a bit myself and find it a relaxing and beautiful escape from the hustle and bustle of the city, and to have it destroyed by a greedy corporation who wants to create YET another golf course for the rich folks to come and enjoy; the same rich folks who are too good for our restaurants, theaters, local merchants, and most of the rest of the community. They will come in their fast cars and act like they own the world, with little a care for what goes on around them. The huge parcel of beautiful lakeshore land that is now there for anyone to use - rich, or regular folks alike will now be forbidden for anyone to enter without paying a steep price. They already have a perfectly good golf course just a few miles North in the Haven area - there is no need for another extravagant golf course so close to the other one, and you can bet it will be packaged with Kohler hotels and Kohler restaurants and anything else they can do to keep the money flowing into their own pockets and away from the community.</p> <p>As the song says, "And the sign says you have to have a membership card to get inside. No you can't watch now, you can't eat - you're not supposed to be here...."</p>
[REDACTED]	Menomonee Falls, WI	2014-07-16	Save the environment!!!
[REDACTED]	Plymouth, WI	2014-07-16	<p>The Wisconsin Dept of Natural Resources was created to protect the natural resources of the state of Wisconsin for all residents. This purpose is stated again and again in the articles of the Wisconsin Natural Resources magazine which I have been a long time subscriber.</p> <p>The DNR's sale of an easement to the Black River Forest violated the purpose of this department. Further actions by the DNR to accommodate the Kohler Company to develop this property at the expense of all of the citizens of the state of Wisconsin for the benefit of a few is not acceptable.</p> <p>I urge you to oppose the sale of any state of Wisconsin to the Kohler company or anyone else for that matter.</p>
[REDACTED]	Oconomowoc, WI	2014-07-16	I feel we must protect as much Public Park Land as possible. We won't find any more to replace it once it's developed.
[REDACTED]	Eau Claire, WI	2014-07-16	Let's make sustainable choices.
[REDACTED]	Sheboygan, WI	2014-07-16	We love to walk the trails, look at the wildlife and enjoy nature by Lake Michigan. There are already two Golf courses here owned by Kohler. Don't let them take our public park!!
[REDACTED]	Madison, WI	2014-07-16	I live in Wisconsin and prize its natural beauty
[REDACTED]	Abbotsford, WI	2014-07-16	I feel they should find other land to use, they don't need to take away from forest or public lands for a golf course
[REDACTED]	Appleton, WI	2014-07-16	125 acres of forest? Yeah, no!
[REDACTED]	Pardeeville, WI	2014-07-16	Protecting our environment is more important than a golf course.
[REDACTED]	Milwaukee, WI	2014-07-16	Let's keep woodlands in the public sector for all for use. I love to hike in the woods, identify plants, bird watch and listen to the wind in the trees. Protect our public lands.
[REDACTED]	Stevens Point, WI	2014-07-16	<p>Wisconsin forests are gifts of nature, we have plenty of golf courses, especially in that area.</p> <p>Sheboygan has family history on my husband's side.</p>
[REDACTED]	delafield, WI	2014-07-16	[REDACTED] golf

Name	Location	Date	Comment
[REDACTED]	Wisconsin, WI	2014-07-16	Preserve Public Lands for all!
[REDACTED]	Madison, WI	2014-07-16	There are plenty of underutilized golf courses now. Forests take a century or more to replace. Let's keep the prime forests we have!
[REDACTED]	nekoosa, WI	2014-07-16	it is incredible that the DNR needs public input on something so anti-environment..If Kohler is not denied this assault on OUR land,then the DNR needs new people in charge that obey their charge to PROTECT OUR LAND!
[REDACTED]	Sheboygan, WI	2014-07-16	Because I'm an outdoor enthusiast who relies on public land for cost free hobbies for my daughter and I.
[REDACTED]	Lake Nebagamon, WI	2014-07-16	Birds!!!
[REDACTED]	West Bend, WI	2014-07-16	These are public recreational lands and should remain as such. No private interest should receive any favors to use this land.
[REDACTED]	Sheboygan, WI	2014-07-16	Compromising natural habitat for monetary gain is un-necessary.
[REDACTED]	Madison, WI	2014-07-16	Why is this even on the table as a possibility? Public land. Public use. Not for corporate playgrounds!
[REDACTED]	Madison, WI	2014-07-16	Public land should not be used for private development. Diminishing pristine areas hurt wildlife, ecosystems, watersheds, and ultimately quality of life and commerce. Reclaiming landfills and agricultural land seems to be a better long term solution.
[REDACTED]	Madison, WI	2014-07-16	Pristine ecosystems like this one should NOT be altered by lucrative means and to benefit a private company.
[REDACTED]	Boulder, CO	2014-07-16	Used to live in Sheboygan. Feel strongly about the preservation of public lands.
[REDACTED]	milwaukee, WI	2014-07-16	wisconsin NEEDS its parks and nature preserves!!!! NOT another damn golf course!!
[REDACTED]	Elkhorn, WI	2014-07-16	This is our families favorite spot. It is a rare gem in Wisconsin for the public to actually included forest, sand dunes, and 2 miles of white sandy beach for the public. Please sign.
[REDACTED]	Pine River, WI	2014-07-16	The Kohler company is known for not caring about the environment. Just look at their beef lots and the chemicals they use and feed their cattle and at the same time saying they are chemical free. What a joke it is all about the money.
[REDACTED]	Fort Atkinson, WI	2014-07-16	The request for 12 acres is excessive. Build up-not out folks.
[REDACTED]	Waterloo, WI	2014-07-16	I'm so sick of corporations only caring about money and not about people and the environment. This profit over people attitude is going to lead to the destruction of humankind. Read The Lorax people; were heading in that same direction.
[REDACTED]	Rice Lake, WI	2014-07-16	I moved to this state because of its natural beauty. Between fracing and everything going on. I won't be here much longer. Leave it alone. Quit destroying what God gave us.
[REDACTED]	Minocqua, WI	2014-07-16	Kohler is a private corporation and these are pristine public lands for use of all WI citizens. Please do not allow them to build anything including new roads in this lovely State Park. Thank you for your attention to this matter.
[REDACTED]	plymouth, WI	2014-07-16	because I own this piece of public land too. I am a tax payer.
[REDACTED]	Madison, WI	2014-07-16	As a Wisconsin resident and someone who regularly visits public recreational lands, I want the DNR to conserve and not destroy our natural heritage.
[REDACTED]	Milwaukee, WI	2014-07-16	This area is near and dear to my heart as I visited and partly grew up here. A golf course would be a terrible raping of this beautiful land.

Name	Location	Date	Comment
[REDACTED]	Fall Creek, WI	2014-07-16	It is the height of arrogance and greed to deprive the beauty of Wisconsin forest and wetlands as well as wild life who inhabit such for profit. Enough!
[REDACTED]	Madison, WI	2014-07-16	Golf courses may be nice but the preservation of dwindling wild lands and forest is far more important to the people of WI which DNR serves.
[REDACTED]	Milwaukee, WI	2014-07-16	I love this area. It is gorgeous as is and needs to be protected. I drive an hour from Milwaukee to come to Kohler Andrae. I feel this land is one of few in this area that is still considered a pristine natural area. Please don't destroy it.
[REDACTED]	hayward, WI	2014-07-16	Our ecosystem should come before our economy not at its cost.
[REDACTED]	Chetek, WI	2014-07-16	I do not feel that our PUBLIC lands should be used for any reason other than what they were intended for that being Public recreation
[REDACTED]	McFarland, WI	2014-07-16	Our state parks are treasures to be preserved for everyone and not compromised for the benefit of a few.
[REDACTED]	Chilton, WI	2014-07-16	Once it's gone, it cannot be replaced.
[REDACTED]	Denmark, WI	2014-07-16	Love Wisconsin Outdoors and would hate to see more and more disappear
[REDACTED]	Hudson, WI	2014-07-16	When a natural area is destroyed it can not be replaced. There are enough golf courses! This is public land!
[REDACTED]	madison, WI	2014-07-16	Public lands are just that: public. There are too many easements permitted to access for a few and restrict that access to the public. Please continue open availability to our shores.
[REDACTED]	Milwaukee, WI	2014-07-16	I have an appreciation for Wisconsin's forests and believe that we need to protect these natural treasures of our state.
[REDACTED]	Sheboygan, WI	2014-07-16	State lands should be available to the public and to preserve wildlife not for the benefit of private profit.
[REDACTED]	Germany	2014-07-16	How many Golf courses will it take to satisfy Herb Kohler's ego? Sheboygan/Haven have two already plus other ones of lesser quality! If people don't come and golf on existing ones, what makes you think they'll come for another one built on Lake Michigan's pristine coastline? Perhaps, Mr Kohler could invest his money into Detroit or elsewhere? I think Lake Michigan's shoreline should remain as Nature intended it to be!
[REDACTED]	Hudson, WI	2014-07-16	I live in Wisconsin, and love its gorgeous forests and parks. It is time to stop the criminal exploitation of these pristine lands by corporations.
[REDACTED]	Eau Claire, WI	2014-07-16	We need to preserve as much natural land as possible. It is not being made anymore. Also, it will not be available for the public to enjoy. Tourism is also affected. The DNR's job is to protect this land for all.
[REDACTED]	Hartland, WI	2014-07-16	Kohler-Andrae has always been a very special place to me. Kohler has enough golf courses!
[REDACTED]	Sauk City, WI	2014-07-16	This is important to me for preserving the beauty of this forest and dunes and the environmental health of the Black River. Respectfully, Don Pellett
[REDACTED]	Providence, RI	2014-07-16	This land is environmentally-sensitive, unsuitable for development for golf. No allowances for Kohler and its money.
[REDACTED]	Horicon, WI	2014-07-16	This means the loss of public state lands. Once this happens, it sets up a precedent for future sale of state lands for private benefit.
[REDACTED]	Milwaukee, WI	2014-07-16	I'm not a fan of "golf course greed" at the expense of a precious wildlife location!

Name	Location	Date	Comment
[REDACTED]	Eau Claire, WI	2014-07-16	We do not need another golf course for the few. We need to save our public lands for the many.
[REDACTED]	Wausau, WI	2014-07-16	Places like this should be protected from private use i.e. creating another golf course! Kohler can establish one on property they purchase from Other than public lands.
[REDACTED]	colton, CA	2014-07-16	corporate destruction of the environment is always a problem.
[REDACTED]	Madison, WI	2014-07-16	Preserving our natural resources is of utmost importance.
[REDACTED]	Mequon, WI	2014-07-16	I am a business owner. I attract new employees to this state because of the high quality of life. That starts with Wisconsin's long tradition of respecting the environment. You can golf anywhere in the country. Black River Forest is a place where can you take kids to watch the raptor migration.
[REDACTED]	Neenah, WI	2014-07-16	Private companies should NOT be given state lands for profit.
[REDACTED]	Wausau, WI	2014-07-16	WI has, hopefully, not gotten as bad as Michigan and will not take public land for something so frivolous as a golf course!
[REDACTED]	Sheboygan, WI	2014-07-16	I live here and I refer deer over golf balls in my back yard its what I pay taxes for!!!!
[REDACTED]	Janesville, WI	2014-07-16	I believe that we as human BEings need to take care of our planet and not let these big corporations do whatever they please anymore! We have the right to enjoy our Mother Earth. These trees and plants have consciousness and there is no reason to kill them just to give someone else wealth. Thank you for keeping the Sheboygan Forest in it's natural, pristine state.
[REDACTED]	Delafield, WI	2014-07-16	Although the Kohler company has done wonderful things in the past, I can't imagine why they would feel their proposed plan would not have an adverse effect on the irreplaceable beauty of our lakefront. It would destroy, change forever and eliminate the ability for all to enjoy. The DNR's job is to protect and preserve, not to be swayed by money and special interests Please put "common sense" back in the decisions you've been entrusted to make. Thank-you for making the right choice.
[REDACTED]	Sister Bay, WI	2014-07-16	Golf courses add dangerous chemicals to our water tables
[REDACTED]	Sturgeon Bay, WI	2014-07-16	Our lakes and streams need buffers from land use practices like this. Golf courses are high maintenance and nutrient rich, having one near water is reckless. Sure, there may be initial profit to be had (for a lucky few) but once the shoreline environment degrades, so will the appeal of the course. You'll be left with a nasty shoreline, a ugly golf course, and the community suffering for it.
[REDACTED]	Plymouth, WI	2014-07-16	The DNR must not allow a private company the use of public lands for profit. If allowed, it will set a precedent that will carry over to other public lands, that the present governor will exploit.
[REDACTED]	Sheboygan, WI	2014-07-16	Kohler Company can build another golf course in some other country where they have shipped our jobs to, this land is too beautiful and is needed for our wildlife, not for golfers. Kohler Company has enough land that they destroyed in the past and for what? We might need jobs here and if that is the case start moving our jobs back from China and all the other countries, The land is natural and is meant to stay here, please deny their proposal.

Name	Location	Date	Comment
[REDACTED]	Hortonville, WI	2014-07-16	Luxury golf courses cater to a small elite percentage of the population. If there weren't already some alternatives--as in no other golf courses or none owned and operated by the petitioner, Kohler Company... but they do and there are. The entire petition however is trumped by an extremely sensitive environmental area, ecosystem and geologically unique area that will be impacted by humans, pesticides and herbicides, changes in run off patterns, and many more deleterious variables if approved. They are not a hardship case, there isn't a need, we shouldn't sacrifice protection of the uniqueness of this site for commerce and we should not cater to the privileged few. Please deny this request, enough safeguards cannot be put into place otherwise. Thank you for your time and consideration.
[REDACTED]	Sheboygan Falls, WI	2014-07-16	Save a natural part of the Lakeshore!
[REDACTED]	Monona, WI	2014-07-16	I grew up on Wisconsin's "east coast". I want the beauty of it to be enjoyed by all Wisconsin citizens long after I'm gone!
[REDACTED]	Sheboygan, WI	2014-07-16	I am very concerned about how drawing millions of gallons of water to maintain a golf course would affect our water table and wells.
[REDACTED]	Appleton, WI	2014-07-16	The forest should remain intact and never be sold or given to any company, to be razed and used for profit. Kohler can purchase private land if they really need another golf course. Kohler should do something to help feed and house the poor, instead of another outrageous \$300. per round golf course!
[REDACTED]	Elkhart Lake, WI	2014-07-16	Bird migration depends on this flyway of natural habitat
[REDACTED]	Milwaukee, WI	2014-07-16	I grew up in Black River.
[REDACTED]	Sturgeon Bay, WI	2014-07-16	Public lands must not be sold. They are for the people to use, our grandchildren to us. It is our future, our legacy. Don't sell it; protect it.
[REDACTED]	Appleton, WI	2014-07-17	We enjoy hiking!
[REDACTED]	Sturgeon Bay, WI	2014-07-17	Here in Wisconsin and elsewhere far too many acres of wetlands have been filled and destroyed.
[REDACTED]	Milwaukee, WI	2014-07-17	very sad...leave the natural beauty of some things alone for God sakes!!!!
[REDACTED]	DE PERE, WI	2014-07-17	poooooo
[REDACTED]	Madison, WI	2014-07-17	I love Kohler items. However, I will boycott Kohler now. I am sending all my friends some info to boycott Kohler.
[REDACTED]	Sturgeon Bay, WI	2014-07-17	We need to protect the resources that we still have
[REDACTED]	Sheboygan, WI	2014-07-17	I don't want a golf course built behind my house and ruin the beautiful woods I grew up playing in.
[REDACTED]	Racine, WI	2014-07-17	We need to keep pristine areas pristine, the wildlife by the lake needs this land too.
[REDACTED]	Madison, WI	2014-07-17	I grew up in Sheboygan County and we spent a lot of time at Lake Michigan at Terry Andrea State Park. We still vacation in Sheb Co. and spend time on Lake Michigan. More Lake Michigan shoreline should be preserved. Kohler doesn't need to make another golf course, he's got three already!
[REDACTED]	Rhineland, WI	2014-07-17	The public lands are for everyone to enjoy, not for the pleasure of a private corporation. Our state must protect its most precious asset, the public state lands, wetlands and waters that our forefathers set aside to preserve for generations to come.
[REDACTED]	Madison, WI	2014-07-17	I love visiting the Kohler-Andrae state park and believe it should be kept for the public to enjoy its natural environment

Name	Location	Date	Comment
[REDACTED]	Menasha, WI	2014-07-17	Don't we have enough golf courses? Enough playgrounds for the rich? What happens when it's all gone? Not everything has the value of only money. Your job is to PROTECT the environment, not sell it out to the highest bidder.
[REDACTED]	Plymouth, WI	2014-07-17	The DNR would never consider allowing this for any p"Walker loyal republican" they will allow it. Its just wrong, and smells of dirty politics.
[REDACTED]	Fredonia, WI	2014-07-17	When I was in my late and mid teens I found myself in some very dangerous and destructive places. The forestlands really helped me straighten out my life, and I owe it this. Kids today need this to stay as it is.
[REDACTED]	Oshkosh, WI	2014-07-17	There ALREADY IS a golf course along the lakeshore!!!!!! a 2nd one is NOT needed!!!
[REDACTED]	Appleton, WI	2014-07-17	This is state land and should be kept for the use and benefit of state citizens. It should not be sold to developers.
[REDACTED]	West Allis, WI	2014-07-17	Because a state park with a natural community is a lot more difficult to replace than a golf course which is only going to see about four and half months of use per year, versus a state park which can actually bring in money throught the year. Think about it, don't we already have enough golf courses as it is? Better yet, why doesn't the Kohler Company set up shop in more economically depressed areas of Wisconsin?
[REDACTED]	Milwaukee, WI	2014-07-17	Look at the picture! Does 't that say it all?
[REDACTED]	Sheboygan, WI	2014-07-17	Eagles live here! This land is a beautiful piece of ecological diversity- it is irreplaceable, as are the critters that reside here!
[REDACTED]	Sheboygan, WI	2014-07-17	I often walk through those woods and observe the wildlife in the area with my friends and family.
[REDACTED]	Colgate, WI	2014-07-17	I believe it is important to protect our state parks and other public land from private development. Give an inch and the developers will take a mile if they are given the chance.
[REDACTED]	Lake Tomahawk, WI	2014-07-17	Our state lands belong to everyone in Wisconsin.
[REDACTED]	Appleton, WI	2014-07-17	This is completely ridiculous.
[REDACTED]	Rhineland, WI	2014-07-17	It is important to deny Kohler the use of public lands, but also to deny their ability to destroy dunes and wetlands that abut Lake Michigan.
[REDACTED]	Kohler, WI	2014-07-17	The Kohler Co doesn't need another golf course that pollutes the land and water and natural species will be driven out. This land is what people think of when they think of Coastal Wisconsin. The public uses this land and respects it, the Kohler company will then only allow it's private members and exclusive list of people access. This was a GIFT to the state.... you don't ask for a gift back.
[REDACTED]	Newton, WI	2014-07-17	Sustainability incorporates the economy, society, AND the environment. Build a golf course somewhere that won't destroy one of the last old-growth forests that is essential to threatened bird species survival.
[REDACTED]	Oshkosh, WI	2014-07-17	My love for nature and the beauty of Wisconsin has made me join the Wild Ones org and to do what I can to preserve natural beauty.
[REDACTED]	Racine, WI	2014-07-18	We need to stop the destruction of our forests so our furry and feathered friends will be around for our grand and great grand kids
[REDACTED]	Sheboygan, WI	2014-07-18	To preserve this natural resource, AS IS, for future generations. Also, to preserver our water purity!

Name	Location	Date	Comment
[REDACTED]	Brookfield, WI	2014-07-18	I am very concerned we are making financial decisions which will negatively impact all of us in the future. The gains of a few private citizens is taking away from the many who keep losing their rights and public property. If and when we need to call on these lands, they will no longer be available. A lot goes on while we sleep.
[REDACTED]	Oshkosh, WI	2014-07-18	I hike in many of the state parks. There is enough land that has been developed. Keep green spaces green.
[REDACTED]	Sheboygan, WI	2014-07-18	Kohler-Andrae State Park is a beautiful place that many people in Sheboygan area love to frequent, and it a wonderful attraction and place for travellers and campers to visit. It would be a shame to loose what little natural beauty Sheboygan has left to offer into a gulf course. We already have gulf courses in the area and there is no need to build another in place of our park.
[REDACTED]	Appleton, WI	2014-07-18	Because the real beauty and pristine treasure that is Wisconsin public should not be "developed" and the land should not be altered, changed, or otherwise ruined for a private, for-profit golf course. That is, in short, unconsonable
[REDACTED]	Lancaster, WI	2014-07-18	Not only should our public State lands NOT be used for private profit, but a golf course is a very UN-natural use of outdoor land and should not be supported/promoted by the DNR.
[REDACTED]	Milwaukee, WI	2014-07-18	I do not believe in selling/leasing public lands. We need to be putting more land into conservancy and for public use.
[REDACTED]	West Allis, WI	2014-07-18	State Parks should remain parks, not developed for for-profit commercial use.
[REDACTED]	Baraboo, WI	2014-07-18	Seriously -- Should the Kohler Company be granted the use for profit of public lands would be the worst kind of coordination between the government and a powerful company to the detriment of the people of Wisconsin and our precious environment.
[REDACTED]	Stevens Point, WI	2014-07-19	Public land is not there to be abused by corporate [REDACTED]
[REDACTED]	Madison, WI	2014-07-19	Public State Lands are a legacy for all generations. Roads, sheds, golf courses with chemicals freely used to maintain greens do not belong in this protected area.
[REDACTED]	Green Bay, WI	2014-07-19	Stop the privatization of public lands.
[REDACTED]	Sheboygan, WI	2014-07-19	Saving the wetlands and shorelines of our state are far more important in the long view than making money in the short-term view.
[REDACTED]	Sheboygan, WI	2014-07-19	There is little enough wild (or at least somewhat wild) land. No state park land should be given or sold for such a project.
[REDACTED]	Sheboygan, WI	2014-07-19	Sheboygan County has plenty of golf courses, and this land is beautiful forest. To take away this natural environment to build another golf course just sickens me.
[REDACTED]	Sturgeon Bay, WI	2014-07-19	Kohler's a good company, but no one can be allowed to use public lands for profit NOR to damage a forest.
[REDACTED]	Madison, WI	2014-07-19	Golf courses require lots of water and chemical maintenance. Water shortages could be a huge issue in the future and the quality of ground water is compromised by run off from golf courses.
[REDACTED]	Milwaukee, WI	2014-07-19	This pristine stretch of beach and woods is a refuge for wildlife and people. If the rich and famous want to gold, they can go to Whistling Straits and Black Wolf Run. Unbelievable that Kohler would try to do this!!!!

Name	Location	Date	Comment
[REDACTED]	Hubertus, WI	2014-07-19	I want this to remain forest and not a golf course. Public lands should be open to the public for hiking and recreating. I don't golf. I hike and value open lands and breathing fresh air and preserving habitat! I think those should also be the aims of the WDNR!
[REDACTED]	Sun Prairie, WI	2014-07-19	Please do not forsake the public trust (yet again) and give special considerations to a private, for-profit company. The Kohler project in no way promotes the greater good. The road and maintenance building, with the inevitable security fence, utility lines, and lighting, will disrupt the beauty and habitat of this park. Tell Kohler that they cannot destroy state parkland for private profit.
[REDACTED]	Olathe, KS	2014-07-19	I grew up in Black River. I have wonderful memories of this piece of land flanking Lake Michigan. Please keep it the way it is now. Kohler Co. Doesn't need another golf course in the Sheboygan metro. I would be very sad if this land turned into another golf course.
[REDACTED] herty	La Farge, WI	2014-07-19	We count on the Wisconsin Department of Natural Resources to do the right thing when it comes to protecting and preserving our environment and natural resources ... our land, our water, our wildlife ... from the encroachment of Big Business and Big Money. Who will stand for the rights of the land if the DNR will not? I plead with you to do the right thing, refuse to allow the pristine beauty of this Wisconsin public land to be turned into a golf course, and deny the Kohler Company's proposal. Thank you.
[REDACTED]	Waukesha, WI	2014-07-19	Kohler must have enough land that it owns on which to build a golf course. Leave what's natural, nature for all of us to enjoy, not just those who can pay the fees!
[REDACTED]	Madison, WI	2014-07-19	I have family in Sheboygan. Also, corporate interests should not trump public use of state lands. Environmentally, it's important to preserve this area.
[REDACTED]	Girard, PA	2014-07-19	Trees are beautiful to look at
[REDACTED]	McFarland, WI	2014-07-19	Private corporations should not be able to profit from the lands which belong to all taxpayers!
[REDACTED]	Sheboygan, WI	2014-07-19	We are not going to have any space for wildlife.
[REDACTED]	Madison, WI	2014-07-19	We do not need another golf course for the few. We need to protect the last remaining natural areas.
[REDACTED]	Madison, WI	2014-07-20	This is a beautiful space that our family and many others enjoy year after year. Don't ruin it, especially so some rich people can golf. Golf courses and all their toxic chemicals are horrible for the environment.
[REDACTED]	Oconomowoc, WI	2014-07-20	Public land is a sacred gift to all citizens. These lands should not be used for private profit.
[REDACTED]	La Crosse, WI	2014-07-20	Public lands are to be held in trust and protected for the public good.
[REDACTED]	Milwaukee, WI	2014-07-20	Why build a NEW golf course, when Kohler could just simply take up an older course and revamp it to make it better. It'll encourage businesses to stay and might help employment around the existing golf course. We don't need more golf courses in Wisconsin, we need more jobs. More than just golf course jobs. Keep the forest, re-do an existing golf course, and rebuild the infrastructure of the employment market.

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2014-07-20	My husband and I use this area to hike and renew our spirits, and to enjoy the many unique wildflowers and birds found there. It is a magical place. Few such truly wild ecosystems are left along the lake shore, and should be preserved, not "improved" by yet more development. I expect the Wisconsin State DNR to do its duty and protect and preserve these irreplaceable wetlands, forest, and dunes for us and our future citizens, as is its sworn responsibility. Money and power or politics should not be the determining factor in this decision. There are plenty of other places to build a golf course, but a nature area like this cannot be replaced in a lifetime. The DNR must keep the people of Wisconsin's trust in its integrity, protect its public lands, and deny the Kohler Co.'s request.
[REDACTED]	Butternut, WI	2014-07-20	All public lands represent a legacy for the future - and cannot be replaced once they have been forfeited to for-profit companies.
[REDACTED]	Pt Wash, WI	2014-07-21	there are enough golf courses in sheboygan county what's next? a cafo in a state park?
[REDACTED]	Sheboygan, WI	2014-07-21	Our family has been going to this beautiful park for 30 years. Please DENY the easement request for a golf course and preserve Kohler-Andrae State Park land for PUBLIC use as it was intended to be utilized!
[REDACTED]	Chicago, IL	2014-07-22	I grew up visiting this area, where my mother grew up. Shame on Kohler, the founder would be rolling in his grave at the mere suggestion of taking back his gift to people & nature I'd imagine. It is an area of very unique beauty that should be preserved & enjoyed by everyone.
[REDACTED]	Mequon, WI	2014-07-22	There are few Beech and Sugar Maple left. They are found mostly along the shores of Lake Michigan and considered a rare woodland. This woodland once was the main plant community from Sheboygan to Racine. Does the environment mean so little?
[REDACTED]	Fish Creek, WI	2014-07-23	My husband and I lived in Sheboygan County for 15 years. We remember the beauty of that area and its importance to the ecosystem. Relatively few people golf whereas most of us benefit from keeping the land as it is.
[REDACTED]	Milwaukee, WI	2014-07-23	We have enough golf courses & need to protect the natural landscape from too much commercial encroachment.
[REDACTED]	Sheboygan, WI	2014-07-24	Because we don't need another golf course! We need protected forestland which we are in limited supply of
[REDACTED]	La Crosse, WI	2014-07-24	This is a place where I grew up. It's important to keep the State Park instead of a golf course.
[REDACTED]	Oostburg, WI	2014-07-24	They are now going against every ideal they promoted when they originally donated this land.
[REDACTED]	sheboygan, WI	2014-07-24	Grew up in Black River Do not destroy the memories of so many
[REDACTED]	Sheboygan, WI	2014-07-24	It's right down the road from my house.
[REDACTED]	Elkhart Lake, WI	2014-07-24	we are loosing enough precious land to development, leave this land to the wildlife, they have lost enough to homes, why must they lose to a golf course, very sad
[REDACTED]	Ann Arbor, MI	2014-07-24	I grew up in Sheboygan and have walked along the dune boardwalk in Terry Kohler Andre State Park countless times. The Great Lakes Lakeshore is an irreplaceable part of the American landscape and deserves protection.
[REDACTED]	Sheboygan, WI	2014-07-24	Because Mr. Kohler doesn't need to make more money by destroying beautiful natural habitats.
[REDACTED]	Fond du Lac, WI	2014-07-24	The Kohler-Andrae area is one of my favorite places on the planet and I support any and all efforts to maintain this beautiful landscape!

Name	Location	Date	Comment
[REDACTED]	Oostburg, WI	2014-07-25	I ride horses and I think it's ridiculous that they want another golf course there are plenty around this area. They do not need to ruin the environment just for another stupid golf course.
[REDACTED]	New Lisbon, WI	2014-07-27	What gives a corporation the right to take public lands for their private use? Corporations are NOT people!!!
[REDACTED]	Cleveland, WI	2014-07-27	Golf courses are not environmentally friendly
[REDACTED]	Frankfort, MI	2014-07-27	Using public land for private gain is an unthinkable precedent--in this time when we have so little of natural surroundings left to us. DON'T DO IT--I'LL DISLIKE ANYTHING KOHLER FROM NOW ON IF THIS PLAN ISN'T ABANDONED
[REDACTED]	Milwaukee, WI	2014-07-28	Preserving nature preserves life.
[REDACTED]	Elkhardt Lake, WI	2014-07-28	We need the eco system to remain uninterrupted. The animals and birds that frequent the wet lands along Lake Michigan in the Terre Andre Park need that land. Humans have taken too much from the animals and birds and we need to preserve those lands that are left. We do not need another golf course for the Kohl Family to build their pockets and kill off those animals that depend on that property to live.
[REDACTED]	Sheboygan, WI	2014-07-29	I do not want my Black River trails taken away from all of us.
[REDACTED]	Cedarburg, WI	2014-07-29	I'm a tree 'hugger'
[REDACTED]	Sheboygan, WI	2014-07-30	We need to preserve what is untouched.
[REDACTED]	Sheboygan, WI	2014-08-04	I am strongly opposed to the idea of public land (land which we, the people of Wisconsin pay annually to use) would be divided down the middle to accommodate a golf course that will in no way be of use to the vast majority of Wisconsinites. This land needs to be preserved for the greater good of us ALL.
[REDACTED]	Neenah, WI	2014-08-06	I grew up marveling at the beauty held within this land.
[REDACTED]	Minneapolis, MN	2014-08-07	There are enough golf courses. Not even the tiniest plant or insect should be displaced for frivolous reasons.
[REDACTED]	Fitchburg, WI	2014-08-08	Rare undeveloped acreage on Lake Michigan should be protected.
[REDACTED]	Madison, WI	2014-08-09	Enough is enough. There is already too much destruction lately of Wisconsin's pristine waters, beautiful parks, and wetlands. These places are for wildlife to flourish and for people to enjoy, not for developers' profits.
[REDACTED]	Madison, WI	2014-08-09	I have a granddaughter. I want her to have this beauty...
[REDACTED]	South Beloit, IL	2014-08-10	Wow! I'll make sure I never do any business with Kohler. If they do get their greedy hands on it 5 billion an acre + 100 million in taxes per year for first 50 years. Also, \$2000 paid directly to every WI tax payer for 20 years. Sounds like a bargain to me.
[REDACTED]	Lodi, WI	2014-08-10	Golf courses are another example of places for the rich to pay and play. Let's keep places for the rest of us, including the denizens of the woods, to play for free. That's how it is supposed to be!
[REDACTED]	Madison, WI	2014-08-10	No matter what type or state any piece of public land is in, the state government simply CANNOT give it away for private development and profit. In what way is the public good served by enriching a few at the expense of allowing the land to be used and enjoyed by all? Beyond that, a golf course requires a tremendous expenditure of resources and pollutants to maintain. This will affect the surrounding land as well. It makes no sense to introduce pollutants into the Black River Forest. It is impossible to justify diminishing the public's stake in the land, polluting that very same land, and enriching a select few, all at the public's expense.

Name	Location	Date	Comment
[REDACTED]	Visalia, CA	2014-08-10	Find an abandoned industrial site to build a golf course. The area was preserved for a reason, so it can be enjoyed in it's natural state.
[REDACTED]	Madison, WI	2014-08-12	We must protect the environment! It cannot stand up for itself so it is on us to stand up for it and protect it from further destruction.
[REDACTED]	Stevens Point, WI	2014-08-12	This is absolutely ridiculous. Environmental corridors are crucial habitat for the survival of many species. I don't care who wants to play golf there, that is not okay.
[REDACTED]	Chula Vista, CA	2014-08-12	Private corporations need to back off.
[REDACTED]	Milwaukee, WI	2014-08-13	Preserve the terms of the gift
[REDACTED]	Oregon, WI	2014-08-15	Because a state park is infinitely more fun, more valuable, more interesting, more intricate and more beautiful than a golf course. Also the loss of habitat would be devastating.
[REDACTED]	Sheboygan, WI	2014-08-17	Against 20 year town plan
[REDACTED]	East Lansing, MI	2014-08-20	Wisconsin is a beautiful state enjoyed by many out-of-staters. To give precious lands and easements over to private development is short sighted. Land owners in the area need strength in numbers for their voice to be heard.
[REDACTED]	Reno, NV	2014-08-20	I spent many summers in this area as a boy and would hate to see an area that has so beautifully recovered from previous logging cleared for a golf course. Forests and wetlands act as filters for water; golf courses promote runoff of all sorts of toxic materials. Please preserve the area as is.
[REDACTED]	Sheboygan, WI	2014-08-20	Because destroying beautiful public land to turn around and keep us out to make a large profit is wrong in so many ways. This should not be allowed to happen!
[REDACTED]	West Bend, WI	2014-08-25	My daughter and grandson live in Sheboygan county. We love to take the time to hike and learn. It's time to stop developing land and leave the environment in its natural state for all to enjoy.
[REDACTED]	Seattle, WA	2014-08-27	My family vacationed at Terre Andre State Park when I was a child, from 1956-1965, and it is a treasured part of our family history. Our current four generations rediscovered this beautiful natural area again in 2008 and we now vacation there every summer. It is very rare to find such beautiful pristine natural land on the lake front, and the lack of development is one big reason why it is so special to us.
[REDACTED]	Sheboygan, WI	2014-08-31	We need to preserve this pristine piece of land. There are enough golf courses in the area. Please seek land elsewhere. Please get in on the green movement, Kohler.
[REDACTED]	Elm Grove, WI	2014-08-31	We don't need another golf course - we need to preserve our lake front!
[REDACTED]	Sheboygan, WI	2014-09-15	Wildlife, nature's beauty, undisturbed land, natural habitats, nature trails. no traffic and events...keep the land as it is meant to be.
[REDACTED]	Milwaukee, WI	2014-09-24	We have enough golf courses.
[REDACTED]	Milwaukee, WI	2014-09-24	[REDACTED] t kohler
[REDACTED]	Milwaukee, WI	2014-09-24	Building a golf course for private profit is not a reason to destroy Wisconsin State Forests. Sign this petition if you agree!
[REDACTED]	Milwaukee, WI	2014-09-24	State Parks are an asset to Wisconsin. They should not be developed.
[REDACTED]	Mequon, WI	2014-09-24	I am signing this because terry andrae is a beautiful part of Wisconsin that should not be destroyed.
[REDACTED]	Blaine, WA	2014-09-24	I feel that the trees & the Wisconsin forest land is to be enjoyed & cherished not destroyed for profit or menial gains

Name	Location	Date	Comment
[REDACTED]	Milwaukee, WI	2014-09-24	DON'T TAKE AWAY OUR NATURAL PLAYGROUND!!!
[REDACTED]	milwaukee, WI	2014-09-25	forests are wonderful. make the golf course on a landfill or something
[REDACTED]	Milwaukee, WI	2014-09-25	Enough already!
[REDACTED]	glendale, WI	2014-09-25	I love this beautiful park and would like to bring my kids there to camp someday.
[REDACTED]	La Farge, WI	2014-09-25	This park deserves the protection it was originally granted!
[REDACTED]	Milwaukee, WI	2014-09-25	I grew up going to Kohler-Andre and would like my kids to be able to do the same.
[REDACTED]	Antigo, WI, WI	2014-09-26	We don't need more golf courses in Wisconsin. The forests should be preserved for the wildlife and beauty of the Wisconsin land, DNR should be protecting it!
[REDACTED]	Cedarburg, WI	2014-09-26	I care
[REDACTED]	Milwaukee, WI	2014-09-26	State Parks are cool. Golf is the best way to spoil a good walk.
[REDACTED]	Blaine, WA	2014-09-27	Some beautiful pristine areas must be preserved for the public.
[REDACTED]	Minneapolis, MN	2014-09-28	We can't afford to lose any more critical habitat. Especially for such a shallow purpose as this.
[REDACTED]	Sheboygan, WI	2014-10-18	I'm signing because we need to save this beautiful place of nature. One of the best views I see when I go to my parents house!
[REDACTED]	Sheboygan, WI	2014-11-14	I believe that the natural beauty and the inhabitants of the State Forest next to this golf course will be compromised. Like other money making Kohler projects in Sheboygan County and surrounding areas, it has been shown that the Kohler Company has and will destroy animals and habitat to further their 5 star properties.
[REDACTED]	De Soto, IL	2014-12-14	I love camping at Kohler Andre....I would love to see it's natural beauty preserved! There are already plenty of golf courses around Sheboygan.
[REDACTED]	Madison, WI	2015-01-14	I'm tired of the grifters profiteering off public-owned and shared resources!
[REDACTED]	Carmichael, CA	2015-02-13	The Wisconsin DNR must deny Kohler Company the use of public State lands for their private profit. The role of the WDNR is to protect the environment...not work for developers.
[REDACTED]	Hayward, WI	2015-03-16	We need unspoiled land, not golf courses.
[REDACTED]	Whitelaw, WI	2015-03-17	Our state parks are treasures to preserve, for the history, for the native species, for the future. There are plenty of other places to build "natural LOOKING" golf courses.
[REDACTED]	Madison, WI	2015-03-19	wisconsin public lands are something to be cherished and passed down. Not sold off or privatized.
[REDACTED]	Elm Grove, WI	2015-03-25	Wisconsin does not need another golf course, it needs the wetlands and other habitats to protect the species that call this place home.
[REDACTED]	Brookfield, WI	2015-03-25	If I encounter another playing field for the wealthy rather than for the indigenous animals and their habitats, I will run for government and reverse all golf courses to wet lands.
[REDACTED]	Greenfield, WI	2015-03-25	I think this precious area needs to be safeguarded for all. Sorry golfers-not just you.
[REDACTED]	Sheboygan, WI	2015-03-27	I'm signing because of water, pollution, access to park/golf course issues, and I really don't want a view like the Whistling Straits golf course view replacing the woods view

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2015-04-06	Jobs? There are plenty of places to build in the county of Sheboygan, but very few forested areas remain. It's a shame some people immediately prioritize development over conservation.
[REDACTED]	Sheboygan, WI	2015-04-10	Will the Kohler company ever feel they have enough money? Greed is NOT good and neither is Herb Kohler. The earth belongs to everyone not just psychopathic German bullies who lack empathy because it's in their genes.
[REDACTED]	Valparaiso, IN	2015-04-11	Selling out public land is wrong. We have the same issue on our side of the lake at the Indiana Dunes State Park and out DNR.
[REDACTED]	Valparaiso, IN	2015-04-11	There seems to be a trend of assault on public lands, from this to the Indiana Dunes State Park to the conversion of a park for children turned into a golf course in Benton Harbor, Michigan. There will be no more public lands if this continues.
[REDACTED]	Sheboygan, WI	2015-04-16	Corporate desire for profit should not outweigh public or environmental good. Their profit does not outweigh adverse impact. Please deny their use of state land for their private purpose.
[REDACTED]	Sheboygan, WI	2015-04-17	Another golf course that will be priced beyond what the locals would pay for golf.
[REDACTED]	West Bend, WI	2015-04-17	I love WI state land! Don't destroy it for greedy money from a Kohler golf course.
[REDACTED]	Brookfield, IL	2015-04-17	Enough exploitation of our natural habitats for corporate interests. There is no need for another recreational area to be dedicated to people who need to shape the natural world to suit short term pleasure for the few with little regard for the value of public lands for the public as well as other living beings.
[REDACTED]	Milwaukee, WI	2015-04-18	Stealing Wisconsin's legacy from future generations is sheer greed. Protecting public land and our environment are proud Wisconsin traditions.
[REDACTED]	New Berlin, WI	2015-04-18	Wisconsin Public Lands are our heritage. We owe it to our grandchildren to preserve these protected areas. Once they are gone, they are gone forever. It is an abomination to consider yet another highly polluting, environmentally destructive golf course!
[REDACTED]	Sheboygan, WI	2015-04-19	I'm signing this petition as an effort to preserve a natural habitat for vegetation and animals as well as an attempt to prevent contamination of Lake Michigan from run off by the proposed golf course.
[REDACTED]	Sheboygan, WI	2015-04-20	the land was donated for conservation
[REDACTED]	Lansing, MI	2015-04-20	This forest is too beautiful to become yet another golf course! Save the forest!!
[REDACTED]	Janesville, WI	2015-04-23	I have lived, hunted, and worked in Wisconsin for 45 years. Some of those were in your neck of the woods, and I still have family that is there. Stop the Corporate Fascism of giving away our Public Lands to the Elite.
[REDACTED]	Oshkosh, WI	2015-04-24	I have loved this area and to see it destroyed by development for the chosen few is a desecration.
[REDACTED]	Madison, WI	2015-04-25	We don't need another golf course. We do need habitat protection for wetland, shoreline species. Please say NO.
[REDACTED]	Pomona, MO	2015-05-01	I lived alongside and spent many hundreds of hours on this beautiful land before it was "forbidden." From 1966 to 2007, its natural beauty fed my soul. To deny that to future generations simply because of corporate greed is unconscionable.
[REDACTED]	Springdale, AR	2015-05-01	I GREW UP ROUND THERE !! DO NOT DESTROY THIS LAND !! THE PARK IS NOT ONLY IN MY MEMORIES .. BUT STILL LIVES IN SO MANY... PRESERVE.. NOT DESTROY !!!!

Name	Location	Date	Comment
[REDACTED]	Appleton, WI	2015-05-02	This is attempted theft via tax deductions. We live in a Kleptocracy.
[REDACTED]	Sheboygan, WI	2015-05-05	There is no reason Sheboygan needs another golf course and in the process destroy the natural habitat for the water ways and animals.
[REDACTED]	Sheboygan, WI	2015-05-06	I ride my horse in this area! Plus the destruction of natural habitat is priceless!!
[REDACTED]	Grafton, WI	2015-05-06	because [REDACTED] Koehler.
[REDACTED]	Oshkosh, WI	2015-05-06	I grew up in that area. It is priceless natural land.
[REDACTED]	Oakfield, WI	2015-05-06	I'm signing this petition because Wisconsin has a strong & beautiful tradition with it's state parks! Don't ruin it!
[REDACTED]	Oshkosh, WI	2015-05-06	I grew up in Sheboygan and spent many days at the park.
[REDACTED]	Sheboygan, WI	2015-05-06	WE LOVE WE HAVE ALWAYS LOVED HIKING IN THAT AREA AND HOPE MR KOHLER DOES NOT DESTROY ANY OR ALL PARTS OF THIS AREA FOR A ONE SEASON A YEAR USE ONLY BY THOSE WEALTHY ENOUGH TO AFFORD IT. THESE PEOPLE HAVE MORE THAN ENOUGH PLACES TO GOLF OR SPEND THEIR MONEY. WE 99% HAVE ONLY A LIMITED AMOUNT OF OPEN PUBLIC LANDS WHERE WE AND OUR FAMILIES CAN ENJOY NATURE SAFELY ALL YEAR ROUND. MUCH OF OUR PUBLIC LANDS ARE OPEN TO HUNTING SEASONS SEVERAL MONTHS AND ARE NOT THE SAFEST PLACE TO TAKE YOUR FAMILY FOR A NATURE EXPERIENCE (SUCH AS THE KETTLES).
[REDACTED]	Fredonia, WI	2015-05-06	Conservation means to leave nature be!! Kolher has enough money to buy private property for their private use!!
[REDACTED]	Fond du Lac, WI	2015-05-07	public lands should not be used for the profit of private industry
[REDACTED]	McFarland, WI	2015-06-11	The proposal is to take this land away from the citizens of Wisconsin so that a select few people can golf there. Golf courses are heavy users of pesticides, herbicides and water. All for the benefit of an elite few people who can afford to golf there. This is not a good deal for the average citizen or the environment.
[REDACTED]	Berlin, Germany	2015-06-19	Please leave the area to the people, the plants and the animals in their habitat!!!
[REDACTED]	Manitowoc, WI	2015-06-19	Golfers have enough areas to play.
[REDACTED]	Cedarburg, WI	2015-06-19	privatizing public lands keeps the public OUT
[REDACTED]	Green Bay, WI	2015-06-19	This land should not be made into a golf course. Kohler Co. has 4 golf courses on their land already. Shame on them ... the family needs to leave this public for the world to enjoy.
[REDACTED]	Sheboygan, WI	2015-06-19	I remember running into people who told me about this, while my boyfriend and I were painting outside in evergreen park.
[REDACTED]	South San Francisco, CA	2015-06-19	i grew up on Timberlake Road in this very area playing in the woods appreciating the animals, the beauty of the colors, the peacefulness of the woods. Please deny this!
[REDACTED]	Saint Croix Falls, WI	2015-06-19	We need to save land for our wildlife
[REDACTED]	Eden Prairie, MN	2015-06-20	I believe park lands should remain protected for future generations.
[REDACTED]	Grand Haven, MI	2015-06-22	I know a lot about the Kohler company. My grandfather worked in your town and knew the Kohler who swallowed poison. Nature walks are better for depression than golf courses ever will be.
[REDACTED]	Union Mills, IN	2015-06-24	This land belongs to the citizens of Wisconsin. Honestly, they can buy their own land on the private market. We the people need to keep our public land.

Name	Location	Date	Comment
[REDACTED]	Sheboygan, WI	2015-06-24	Why should he be allowed to take state land away from the public
[REDACTED]	Sheboygan Falls, WI	2015-06-24	While Kohler Co. has given a lot to the community, it doesn't give them the right to take something in return, especially for profit when Herbert's net worth has doubled into the billions in the in last 5 years since the passing of the 2010 UAW 833 labor contract which has taken away the ability to earn a liveable wage for anyone hired after that time.
[REDACTED]	Calumet City, IL	2015-06-25	Kohler and the Wisconsin DNR should redevelop blighted areas first not public lands.
[REDACTED]	Sheboygan, WI	2015-06-25	We need to preserve the nature we have left. There is enough deforestation and habitat being destroyed as it is. A protected park offers far more for the community and the environment than another golf course will. The DNR "protects" without a problem when it comes to handing out fines; it shouldn't be a question that they should be stopping this unfortunate situation from becoming reality.
[REDACTED]	Cedar Grove, WI	2015-06-25	Keep the land natural.
[REDACTED]	Sheboygan, WI	2015-06-25	I like to keep Terry Andrea park pristine and natural as it is now without all the people on a golf course.
[REDACTED]	Sheboygan, WI	2015-06-26	Do not take away what is natural and beautiful for the benefit of merely making profit for a few when it profits all right now as it is!
[REDACTED]	Sheboygan, WI	2015-06-26	we don't need another golf course! We need to keep the wildlife.
[REDACTED]	Sheboygan, WI	2015-06-26	We need to preserve our natural resources
[REDACTED]	Sheboygan, WI	2015-06-27	I believe we have enough golf courses and nature is not appreciated enough.
[REDACTED]	Greenbush, WI	2015-06-28	Keep the land for the people not KOHLER.
[REDACTED]	Sheboygan, WI	2015-06-30	State land is important to me. I enjoy it weekly

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: My WIFE & MYSELF

Address: [REDACTED]

SHEBOYGAN, WI 53081

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

- 1.) HOW CAN 25 MILLION GALLONS OF WATER NOT ADVERSELY AFFECT LOCAL WELLS
- 2.) WHY IS KOHLER ALLOWED TO HAVE SEPTIC SYSTEM LOCAL RESIDENTS ARE ON CITY OF SHEBOYGAN SEWER
- 3.) WETLAND DESTROYED
- 4.) HOLES 9, 17, 18 APPEAR TO BE ON SAND DUNES
- 5.) PARR LAND TAKEN FOR PRIVATE PROFIT

Additional sheets are included: Yes No

Jay Schiefelbein
Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313-6727

To Whom It May Concern

My wife and I would never be described as activists for or against any cause. That is not to say we don't have strong opinions about them. However as we continue to read the comments about the proposed golf course, which appears to be driven by a few very vocal opponents of it, we felt compelled to write you with our comments. Therefore, we say build the golf course; it will be an asset to Sheboygan as well as the Town of Wilson.

We have lived in our present house in the Town of Wilson for 43 years within 2 blocks of Riverdale golf course. Obviously many of the talking points about watering, wells and chemicals etc. that are used against the proposed course have been going on at Riverdale long before we moved into the area. To the best of my knowledge Riverdale has not created major problems for the surrounding homes.

While the Friends of Black River talk about the impact of cutting down trees, I have not seen anything in all the material we have received from them about the severe problem that exists with the invasive Japanese Barberry, which is being left uncontrolled in many areas along the lake. This invasive species problem, which has an impact on wildlife, would be addressed as a result of building a golf course.

The Friends of Black River state that allowing the golf course out there will result in destruction of the sand dunes along the lake, which I believe Kohler has already addressed as part of their plan. Interestingly enough in an article in the Sheboygan Press on July 11, 2015 entitled "**Great Lakes bounce back from low water levels**", it reads "the resurging waters mean relief for commercial shipping and recreational activities, but they also have contributed to erosion that poses a threat to beaches and shore line properties...". The quote simply points out that natural events create and solve many of these conditions all the time.

Our take on a recent mailing from The Friends of Black River, is that many of these complaints really add up to, they are not happy with change.

████████████████████

July 20-15

DEAR MR. Schiefelbein

I AM WRITING IN REGARDS TO THE KOHLER GOLF COURSE DOWN ALONG LAKE MICHIGAN. VOTING FOR THIS WOULD BE A BIG LOSS OF BEAUTIFUL TREES, AND A GREAT LOSS OF WILD LIFE THAT LIVE THERE. THEY WOULD HAVE NO PLACE TO GO. AND LET ME TELL YOU, THERE IS A LOT OF THEM. I SHOULD KNOW BECAUSE I ONLY LIVE A COUPLE BLOCKS FROM THERE. THINK IT OVER OF THE DAMAGE IT WOULD DO TO LAKE MICH. AND WELLS AROUND THERE. ALSO, THE WETLANDS. IT WOULD HURT THE PEOPLE WHO LIVE AROUND THERE. ALL THE CHEMICALS THAT WOULD BE USED TO KEEP THE GRASS GREEN. I JUST CANT SEE PUTTING A GOLF COURSE THERE. WHAT GETS ME IS WHY THAT PLACE WHEN THERE OTHER PLACES. THE ONLY THING I CAN THINK OF IS MONEY. THOSE KIND OF PEOPLE NEVER GET ENOUGH. OUR WILD IS GOING DOWN AS IT IS AND THE BEAUTIFUL TREES THAT GROW THERE. IT WOULD BE A SHAME. PLEASE GIVE THIS GREAT THOUGHT AND KEEP THAT PIECE OF LAND AS IS. I VOTE AGAINST IT.

Sheboygan Wis.

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: Self

Address: [REDACTED]

Sheboygan, WI 53081

Phone: [REDACTED]

E-mail: [REDACTED]

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,

• Fold this sheet and mail stamped sheet to the printed address on the back; or,

• Send email comments to:

DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

- Precise composition of all toxins, pesticides and fertilizer
- Expected times of applications of above
- setback distances from Lake Michigan and Black River
- Respect for Indian burial grounds
- Effects of wetland draining/filling
- Effects of forest cutting on wildlife
- Realistic amount of water to be drawn from wells

Additional sheets are included: Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

AGAINST

DNR Hearing statement, July 14, 2015, at UW-Sheboygan Fine Arts Theatre

I am [REDACTED] and my address since 1976 is [REDACTED] two hundred yards from Lake Michigan on a wooded acre, in the eastern part of the Town of Wilson long known informally as Black River, after the river which cuts off most of the wooded area adjoining the lake from the rest of the town. It flows directly through the Kohler Andrae State Park, adjoins the proposed Kohler golf course, and then through the Balzer Wilderness Park. This park was bequeathed to the Town of Wilson on the strict conditions that it have that name and that its condition as wilderness land be strictly respected. In the 1990s I served as Chair of the Town of Wilson Park and Forestry Commission at the time of that bequest. I also participated on a tour sponsored by the DNR, as I recall, for public officials in order to inspect various methods dairy farms were using to prevent polluting runoff from cows. Then Senator Cal Potter was also on that tour. The Black River, also flows through or past two other Town Conservancies, one of which borders several homes, before flowing into lake Michigan south of the Power Plant. At that time it was designated a Priority Watershed. At present Black River water is classified as impaired. As you know, the likelihood of runoff of toxic chemicals from golf course fertilizer and pesticides into the Black River and Lake Michigan is a chief concern of many present here today.

The proposed golf course, is virtually at lake level. Regardless of the absence of complaints elsewhere, and in spite of any promises to contain the runoff of toxins from the unidentified chemicals likely to be used on this proposed course, it is inevitable that they would leach into Lake Michigan directly and by way of the Black

River indirectly. The DNR and the Town of Wilson should deny the permits required for this proposed development.

As for lake Michigan, I am familiar with the Lake Michigan shoreline from the Indiana Dunes to Marinette, and especially with four state parks along it; also with the Ridges in Door County, which has swales like those in the Kohler Woods, and with Fisher Creek and the Point Creek natural areas. Regarding Point Creek, I chaired the meetings of the Sheboygan Area Land Trust—now Glacial Lakes Conservancy-- at the time it acquired and transferred it to Manitowoc County-- a condition of a grant from U.S. Coastal Management. Other grants attaining the purchase price of 1.9 million dollars came from the Nelson/Knowles Stewardship Fund, the West Foundation, and private donations. The GLC is committed to perpetual preservation of lands generally remaining in the hands of willing private owners. As a founding member of the Conservancy I serve on the Management Committee overseeing Point Creek.

Leaving aside most other objection to the development of the Kohler Woods as a golf course, including a threat to the extraordinary peace and quiet of my community, I see this plan as destructive of part of the remnant forest along the lake which goes south almost to Port Washington, and which is the dominant characteristic of the place I know and love.

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: _____

Representing: _____

Address: _____

Phone: _____

E-mail: _____

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,

- Fold this sheet and mail stamped sheet to the printed address on the back; or,
- Send email comments to:
DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

I was at this meeting nobody said anything that would convince me any other way but to go ahead and make a golf course on the property that is owned By Mr Kohler.

Thank You

[Redacted Name]

town

of Holland resident [Redacted Address]

Costburg WI 53070

Additional sheets are included: Yes No

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? __YES__ NO

Name: [redacted]

Representing: _____

Address: [redacted]

Sheboygan, WI

Phone: [redacted]

E-mail: [redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Before Tented forest was officially announced, someone was taking samples of insects found in Kohler's woods. This person stated there were many more insects than he thought there would be. If Kohler has not already submitted the results of that study to you, you could request it or ask that they do another one for your records if the former is no longer available.

I appreciate and thank you for all the effort you put into your job. I was overwhelmed by all the areas you need to address - after writing 4 pages, only used what I thought no one else would state.

[redacted]

Additional sheets are included: ___ Yes ___ No

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: [REDACTED]

Address: [REDACTED]

~~Sheboygan~~ Sheboygan, WI 53081

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

1. Timberlake, being such a quiet subdivision, I'm very concerned about noise, like lawn mower fleets running early in the morning & 2 years of construction noise

2. The beach. We have already been told by Kohler Security that during winter we have to walk on the ice at the waters edge. People should always be able to walk on the beach.

3. I'm concerned about the drainage plan, we have a low lot with an exposed basement & it has never been a problem but with the golf course water may flow to our lot & pond may over-flow

Additional sheets are included: X Yes No

4. Pesticides and fertilizers will run off not only to our drinking supply, but also to Lake Michigan, Black River, and the neighboring State park. The chemical run off will effect this ecosystem. This includes many animals like birds, ect.
5. I am also against taking land from the State park.
6. The No-Build option is the best option for the local ecosystem and nearby residents as well as any visitors who use the State park.

My name is [REDACTED]

My Family has owned property on the beach ¼ mile north of the proposed golf course since my grandfather bought it in 1927.

I'm a geologist with a masters degree from Colorado School of Mines. I have 37 years of experience, mostly in the field of petroleum so I have some knowledge in the science of fluids moving through rock which is the nature of the two concerns that I'm presenting to the Planning Commission.

1) Water requirements for irrigation of a golf course are considerable. Within the Kohler permit request there is information from a consultant that says 16.5 million gallons of water per year will be needed for operations of the course, about 45,000 per day annualized which is equivalent to the use by 226 houses using 200 gallons per day. That immediately raised a red flag to me as I hope it did to the Commission. The course will be opened April thru November, 8 months and the vast majority of water used is for irrigation which is in the dry months of July thru September, maybe October. That is approximately 100 days... so that is 160,000 gal/day or 800 residences. I believe that is an underestimation. A generalized estimation of the water requirements to irrigate a golf course can be calculated by estimating the acres of fairways, greens, tees and practice area which in this case, is somewhere between 70 to 90 plus acres then calculating how many gallons of water it takes to cover that area with 1 inch of water a week which is a conservative amount. Using 80 acres at 1 inch / week converts to about 320,000 gal/day ...twice the Kohler estimate (16 vs 32 million gallons over 100 days or roughly per year) or 1600 houses. This is roughly an average year consumption, what if we have a dry spell of a drought like 1988. The 320,000 estimate could double and the residents' usage will increase significantly from 200 gal/day, likely to 2000 gal /day.

The reason this is important is that Kohler plans to use the Silurian Dolomite aquifer that is the main supplier of water wells for most of the residents within the township, particularly immediately west of the Kohler property (300 homes in Lake Park subdivision) and north (many 100s of homes including Timberlake). The potential for severe drawdown of these residential wells needs to be studied.

I heard what sounded like a drill rig while walking Timberlake Road and the Trails Park the first week of July. I believe it is **imperative** that the Planning Commission have an unbiased representative that understands the well testing process on-site as well(s) are being tested and DNR should be required to not just get the test data from Kohler, they should be on-site as well. If these wells have been tested without unbiased observers then they should be tested again while observers are present. Then this data should be posted so that it is available to everyone! This will help avoid discrepancies and disputes in the future should the permit be approved. If it is not already a requirement of high capacity wells like these, I believe the Township should require that the future production data for these wells be metered and made

available to the public. I have a question to the Commission... Before any permit is issued, can the residents of the Township be apprised of these reasonable and responsible requests particularly for the well test data???

2) I have a 2nd concern with respect to water. Deer ticks are prevalent in the Black River area. I had Lyme Disease about 10 years ago that came from my property. The prevalence has increased over the past 5 plus years. Mosquitos are horrid. I assume that pest control will be necessary on a five star course such as this one. And herbicide and fertilize will be routinely used. This concerns me because these chemicals will likely be in the surface water runoff which inters the Black River watershed and will also percolate down through the very porous sand that is at the surface and underlies all of the Kohler property. Both of these drain into Lake Michigan which should concern us all. The sand I mention is also the source of potable water for those of us with sandpoint wells, as does my property. This sand borders the lake and is charged with water, in part, by the Black River. The potential introduction of chemicals into this unconfined aquifer is a very disturbing prospect. None of us want to be drinking or bathing in contaminated water or upsetting the already stressed/compromised ecosystem of Lake Michigan and the Black River watershed. I believe that it is imperative that an environmental assessment that reviews the chemicals to be used and their impact and breakdown characteristics be implemented before any permit is issued...there is no going back after permits are issued and chemicals are used.

I do hope the leadership of the Township abides by the established, well-defined and I thought, statutory 20 Year Plan that was implemented 7 years ago that appears to be counter to many aspects of this proposed golf course.

I am willing to assist the Planning Commission and the Township Board if I can be of any help. My name, phone number and email address are on the Registration Slip.

Any questions from the Commission?

[REDACTED]

Comments post 7-16-2014 Planning Commission Meeting (and after Stantec/Kohler environmental report)

Stantec Report states that 190,000 gpd of water is average irrigation use for other Kohler golf courses. These courses don't have a sand substrate underlying the whole course. Unless Kohler uses clay liners or some other technique to reduce percolation, the average daily use will be considerably greater particularly during dry year. Over a million gallons per day may be a more realistic estimate. Consider also that the chemicals used will readily move into the groundwater table and further migrate with greater amounts if irrigation water applied.

Consider reading the following copied article about golf course irrigation requirements in the Midwest.

http://www.cybergolf.com/golf_news/johnny_walker_asks_how_much_water_does_a_golf_course_use_for_irrigation



Johnny Walker asks, 'How much water does a golf course use for irrigation?'

By: Jeffrey D. Brauer

Water demand is a factor of climate, turf acreage, evapotranspiration (ET), turf type, and agronomic and soil characteristics.

A parcel of 120 turf acres allows comfortable play and isn't burdensome to mow. One hundred and sixty acres is only necessary within housing developments requiring wall-to-wall irrigation. Courses in desert regions and those participating in the Audubon Cooperative Sanctuary System program are limited to 90 acres of intensively irrigated turf. With desert and un-irrigated rough, 90 acres is feasible, but with woods or prairie causing lost golf balls, it is less practical.

ET (a single measure of turf water loss from evaporation and plant transpiration) also determines water need. ET rates are different for different turfs, but yield surprisingly similar results across most of the country, typically averaging about 0.125 – 0.25 inches daily in Northern climates, and average 0.15 – 0.3 in the South during growing months, or 1.0-1.5 inches weekly and maximum demand reaches 1.75 – 2.0 inches weekly.

Most irrigation systems provide for slightly above-average demand, accepting some risk in droughts, since turf can survive without full replacement of ET. Cost increases dramatically beyond most budgets if designed for the worst possible drought, and water may not be available anyway.

We calculate average and maximum water demand for the golf course, using average ET and rainfall to calculate Average Demand, and Maximum Demand assuming ET at historical levels, and no summer rainfall. A sample calculation for the Midwest is in the table below.

IRRIGATION DEMAND for Des Moines, IOWA

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>
Month	Rain Ave. In	ET	Deficit or Surplus	Typ Req. In/Wk	Turf Acre	Ave. Daily Gallons	Max. Daily Gallon
Jan	1.17	0	1.17	0	130	1320	0
Feb	1.06	0	1.06	0	130	0	0
Mar	2.08	-0.57	1.51	0.114	130	59280	81510
Apr	2.62	-2.01	<u>0.61</u>	0.402	130	209040	287430
May	4.16	-4.1	<u>0.06</u>	0.82	130	426400	586300
June	4.94	-5.92	<u>-0.98</u>	1.184	130	615680	846560
July	3.55	-7.03	<u>-3.48</u>	1.406	130	731120	1005290
Aug	3.71	-6.06	<u>-2.35</u>	1.212	130	630240	866580
Sept	3.18	-3.83	<u>-0.65</u>	0.766	130	398320	547690
Oct	1.99	-2.05	<u>-0.06</u>	0.41	130	213200	293150
Nov	1.8	-0.53	1.27	0.106	130	55120	75790
Dec	1.1	0	1.1	0	130	0	0
	31.36	-32.1	-0.74		130		

Column D shows months requiring supplemental irrigation with underlines.

Column F shows average weekly demands, likely having these characteristics:

With typical spacing of 70-80 feet, this course will require 1,300-1,500 sprinklers to cover the 130 acres of turf (about 11 heads per acre, plus specialty heads).

We anticipate minimal watering from March to May and November, and varying degrees of irrigation in other summer months. However, the irrigation system must be designed to meet peak, providing about 1.5 inches per week, corresponding to the average maximum demand in July.

Typical run time is about 8 hours (from 8 PM to 4PM, to allow early mowing) and a

Pumping capacity is at least 1,800 gallons per minute (GPM), which allows running 16 -18 irrigation stations (usually made up of two 40-55 GPM sprinklers) at a time to finish the schedule.

A computerized control system and weather station would calculate actual ET, and apply about 90 percent of that, since in Iowa, you can expect that it will rain soon enough to help you catch up.

Total water usage in Des Moines, Iowa, should be about 30 million to 35 million gallons in an average year, if the superintendent applies water only to the turf need.

My name is [REDACTED]

My Family has owned property on the beach ¼ mile north of the proposed golf course since my grandfather bought it in 1927.

I'm a geologist with a masters degree from Colorado School of Mines. I have 37 years of experience, mostly in the field of petroleum so I have some knowledge in the science of fluids moving through rock which is the nature of the two concerns that I'm presenting to the Planning Commission.

1) Water requirements for irrigation of a golf course are considerable. Within the Kohler permit request there is information from a consultant that says 16.5 million gallons of water per year will be needed for operations of the course, about 45,000 per day annualized which is equivalent to the use by 226 houses using 200 gallons per day. That immediately raised a red flag to me as I hope it did to the Commission. The course will be opened April thru November, 8 months and the vast majority of water used is for irrigation which is in the dry months of July thru September, maybe October. That is approximately 100 days... so that is 160,000 gal/day or 800 residences. I believe that is an underestimation. A generalized estimation of the water requirements to irrigate a golf course can be calculated by estimating the acres of fairways, greens, tees and practice area which in this case, is somewhere between 70 to 90 plus acres then calculating how many gallons of water it takes to cover that area with 1 inch of water a week which is a conservative amount. Using 80 acres at 1 inch / week converts to about 320,000 gal/day ...twice the Kohler estimate (16 vs 32 million gallons over 100 days or roughly per year) or 1600 houses. This is roughly and average year consumption, what if we have a dry spell of a drought like 1988. The 320,000 estimate could double and the residents' usage will increase significantly from 200 gal/day, likely to 2000 gal /day.

The reason this is important is that Kohler plans to use the Silurian Dolomite aquifer that is the main supplier of water wells for most of the residents within the township, particularly immediately west of the Kohler property (300 homes in Lake Park subdivision) and north (many 100s of homes including Timberlake). The potential for severe drawdown of these residential wells needs to be studied.

I heard what sounded like a drill rig while walking Timberlake Road and the Trails Park the first week of July. I believe it is imperative that the Planning Commission have an unbiased representative that understands the well testing process on-site as well(s) are being tested and DNR should be required to not just get the test data from Kohler, they should be on-site as well. If these wells have been tested without unbiased observers then they should be tested again while observers are present. Then this data should be posted so that it is available to everyone! This will help avoid discrepancies and disputes in the future should the permit be approved. If it is not already a requirement of high capacity wells like these, I believe the Township should require that the future production data for these wells be metered and made

available to the public. I have a question to the Commission... Before any permit is issued, can the residents of the Township be apprised of these reasonable and responsible requests particularly for the well test data???

2) I have a 2nd concern with respect to water. Deer ticks are prevalent in the Black River area. I had Lyme Disease about 10 years ago that came from my property. The prevalence has increased over the past 5 plus years. Mosquitos are horrid. I assume that pest control will be necessary on a five star course such as this one. And herbicide and fertilize will be routinely used. This concerns me because these chemicals will likely be in the surface water runoff which inters the Black River watershed and will also percolate down through the very porous sand that is at the surface and underlies all of the Kohler property. Both of these drain into Lake Michigan which should concern us all. The sand I mention is also the source of potable water for those of us with sandpoint wells, as does my property. This sand borders the lake and is charged with water, in part, by the Black River. The potential introduction of chemicals into this unconfined aquifer is a very disturbing prospect. None of us want to be drinking or bathing in contaminated water or upsetting the already stressed/compromised ecosystem of Lake Michigan and the Black River watershed. I believe that it is imperative that an environmental assessment that reviews the chemicals to be used and their impact and breakdown characteristics be implemented before any permit is issued...there is no going back after permits are issued and chemicals are used.

I do hope the leadership of the Township abides by the established, well-defined and I thought, statutory 20 Year Plan that was implemented 7 years ago that appears to be counter to many aspects of this proposed golf course.

I am willing to assist the Planning Commission and the Township Board if I can be of any help. My name, phone number and email address are on the Registration Slip.

Any questions from the Commission?

[REDACTED]

Comments post 7-16-2014 Planning Commission Meeting (and after Stantec/Kohler environmental report)

Stantec Report states that 190,000 gpd of water is average irrigation use for other Kohler golf courses. These courses don't have a sand substrate underlying the whole course. Unless Kohler uses clay liners or some other technique to reduce percolation, the average daily use will be considerably greater particularly during dry year. Over a million gallons per day may be a more realistic estimate. Consider also that the chemicals used will readily move into the groundwater table and further migrate with greater amounts if irrigation water applied.

Steelhead trout spawn in Bluffs River every fall.
Consider reading the following copied article about golf course irrigation requirements in the Midwest.

http://www.cybergolf.com/golf_news/johnny_walker_asks_how_much_water_does_a_golf_course_use_for_irrigation



Johnny Walker asks, 'How much water does a golf course use for irrigation?'

By: [Jeffrey D. Brauer](#)

Water demand is a factor of climate, turf acreage, evapotranspiration (ET), turf type, and agronomic and soil characteristics.

A parcel of 120 turf acres allows comfortable play and isn't burdensome to mow. One hundred and sixty acres is only necessary within housing developments requiring wall-to-wall irrigation. Courses in desert regions and those participating in the Audubon Cooperative Sanctuary System program are limited to 90 acres of intensively irrigated turf. With desert and un-irrigated rough, 90 acres is feasible, but with woods or prairie causing lost golf balls, it is less practical.

ET (a single measure of turf water loss from evaporation and plant transpiration) also determines water need. ET rates are different for different turfs, but yield surprisingly similar results across most of the country, typically averaging about 0.125 – 0.25 inches daily in Northern climates, and average 0.15 – 0.3 in the South during growing months, or 1.0-1.5 inches weekly and maximum demand reaches 1.75 – 2.0 inches weekly.

Most irrigation systems provide for slightly above-average demand, accepting some risk in droughts, since turf can survive without full replacement of ET. Cost increases dramatically beyond most budgets if designed for the worst possible drought, and water may not be available anyway.

We calculate average and maximum water demand for the golf course, using average ET and rainfall to calculate Average Demand, and Maximum Demand assuming ET at historical levels, and no summer rainfall. A sample calculation for the Midwest is in the table below.

IRRIGATION DEMAND for Des Moines, IOWA

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>
Month	Rain Ave. In	ET	Deficit or Surplus	Typ Req. In/Wk	Turf Acre	Ave. Daily Gallons	Max. Daily Gallon
Jan	1.17	0	1.17	0	130	1320	0
Feb	1.06	0	1.06	0	130	0	0
Mar	2.08	-0.57	1.51	0.114	130	59280	81510
Apr	2.62	-2.01	<u>0.61</u>	0.402	130	209040	287430
May	4.16	-4.1	<u>0.06</u>	0.82	130	426400	586300
June	4.94	-5.92	<u>-0.98</u>	1.184	130	615680	846560
July	3.55	-7.03	<u>-3.48</u>	1.406	130	731120	1005290
Aug	3.71	-6.06	<u>-2.35</u>	1.212	130	630240	866580
Sept	3.18	-3.83	<u>-0.65</u>	0.766	130	398320	547690
Oct	1.99	-2.05	<u>-0.06</u>	0.41	130	213200	293150
Nov	1.8	-0.53	1.27	0.106	130	55120	75790
Dec	1.1	0	1.1	0	130	0	0
	31.36	-32.1	-0.74		130		

Column D shows months requiring supplemental irrigation with underlines.

Column F shows average weekly demands, likely having these characteristics:

With typical spacing of 70-80 feet, this course will require 1,300-1,500 sprinklers to cover the 130 acres of turf (about 11 heads per acre, plus specialty heads).

We anticipate minimal watering from March to May and November, and varying degrees of irrigation in other summer months. However, the irrigation system must be designed to meet peak, providing about 1.5 inches per week, corresponding to the average maximum demand in July.

Typical run time is about 8 hours (from 8 PM to 4PM, to allow early mowing) and a

Pumping capacity is at least 1,800 gallons per minute (GPM), which allows running 16 -18 irrigation stations (usually made up of two 40-55 GPM sprinklers) at a time to finish the schedule.

A computerized control system and weather station would calculate actual ET, and apply about 90 percent of that, since in Iowa, you can expect that it will rain soon enough to help you catch up.

Total water usage in Des Moines, Iowa, should be about 30 million to 35 million gallons in an average year, if the superintendent applies water only to the turf need.

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [Redacted]

Representing: Resident of Wilson
Township

Address: [Redacted]

Sheboygan, WI

Phone: [Redacted]

E-mail: [Redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

- 1) Groundwater source - I turned in a written note to Jay Schiefelbusch
- 2) Contamination of groundwater

Additional sheets are included: Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

Kohler Woods Testimony
July 14, 2015

Thanks to the DNR and Destination Kohler for this opportunity to express our concerns.

We have heard about the benefits the Kohler presence has on Sheboygan County. Two of the actions by the Kohler family which are most relevant to the current discussion are the extension of Terre Andrea State Park to the Kohler Andrea State Park and the building of Whistling Straits. These two ventures clearly have benefited the area. I have personally enjoyed many of these benefits and am grateful to the Kohler family for providing them.

However, there are at least 10 ways that the current proposal is **not** an extension of these noteworthy accomplishments, but might instead result in a step backwards:

1. Building the golf course would destroy extensive natural habitat.
2. Rather than building on an abandoned military base, this project would decimate a pristine forest.
3. Unlike the previous gift of land to the state park the proposed golf course would actually *reduce* the amount of public land.
4. Traffic through the park, including the bridge crossing Black River at the entrance, currently a popular stopping point for many walkers, runners, and cyclists, would be disruptive. This includes logging trucks and heavy equipment for construction and traffic in support of the golfing and dining activities after completion.
5. The need for large amounts of water to maintain a world class golf course could result in a drawdown on the water available to nearby residents. This could be especially problematic if the area faced drought years like those now facing other parts of the country.
6. While the area around Whistling Straits is largely agricultural with relatively few homes and wells, the proposed golf course is in the proximity of many more homes and wells.
7. Whistling Straits is buffered on the west by considerable additional land, the proposed gulf course is tightly enclosed by park lands and residences with no room to support the activities associated with major events.
8. The application of large quantities of herbicides, pesticides, and fertilizers to maintain the artificial environment might pose a threat to the water quality of the aquifer.
9. Unlike Whistling Straits the proposed golf course is upstream from numerous residences (including my own) as well as the Arthur Jerving Conservancy, the Town of Wilson Balzer-Schmitt Wilderness Park, and other natural areas. Runoff could affect the wildlife regularly seen there, such as trout, wood ducks, and eagles.
10. Runoff might also contribute to the pollution of Lake Michigan, which has already has dead spots. This might prove detrimental to Sheboygan's Lake Michigan recreational and charter fishing.

-Over --

If you go to the end of the road just a short distance from the entry to the proposed golf course to the parking lot you will find a sign which reads as follows:

“Kohler Dunes State Natural Area. Please stay on the cordwalk to protect this unique area.” Clearly the sign informs us that the building of a golf course in this place should never happen.

I urge those directing the use of the land to follow in the footsteps of conservationists like John Michael Kohler, Arthur Jerving, Robert E. Balzer, and Ruth Balzer Schmitt, in working with the State of Wisconsin – like the sign at the Kohler Dunes says – ***to stay on the path to protect this unique area.***

[REDACTED]

[REDACTED]

Sheboygan, Wisconsin 53081



DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [Redacted]

Representing: Globetrotta Productions

Address: [Redacted]

Sheboygan, WI

Phone: [Redacted]

E-mail: [Redacted]

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or*,
• Fold this sheet and mail stamped sheet to the printed address on the back; *or*,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

- 1. Aquifer being tapped
- 2. Water quality regarding radium & treatment plans

Additional sheets are included: Yes No

CONCERNS BROUGHT TO DNR on July 14, 2015

1. Please do not allow use of State Park land for private profit.
2. The artesian test wells drilled should be capped immediately if flooding endangers native wildflowers, endangered thistles, insects, or mammals in the immediate area. This is especially important if the quality of the untreated water has high levels of contaminants (see concern #3).
3. The next concern I have is that the golf course will be using an immense amount of water for irrigation, perhaps too much. The effects of this water use will depend on which aquifer is chosen. My advice on water use comes with the experience of having been the Administrator of the Water Use Program for the State of Minnesota for 10 years. The Kohler Company's shallow test wells have apparently shown too much effect on wetlands. The Kohler Environmental Impact Report submitted to DNR states that they intend instead to "pump from the bedrock aquifer" (Section 2.2.2). My first question would be "which bedrock aquifer?" This should be public information. The uppermost bedrock aquifer is the same dolomite that stretches to Door County. Having formerly worked for Sam VanderGalien (Kohler's drilling company), I'm pretty sure they have chosen to instead tap the Deep Sandstone aquifer. I would like to explain probable consequences of selecting the deep sandstone aquifer.

The Deep Sandstone aquifer is seldom used in Sheboygan County due to the expense of reaching it and the generally poor quality of the water. For a cross section depicting the relative thicknesses of these aquifer choices and the relative water quality based on dissolved solids of these aquifer choices, see USGS Atlas HA 731 which I co-authored (1998). An excerpt is attached. There is a huge sea of saline water, heavier in weight than normal groundwater, underlying the eastern shore of Wisconsin and stretching to Michigan (from whence it came in Pleistocene time). First described by Ryling in 1961, the fluctuating location of this saline sea was documented by Grundl in 2000 and Trotta in 2006. Though mobile, this heavy water rests on the impermeable Precambrian surface with salinity lessening towards the top of the Deep Sandstone aquifer (as indicated in HA 731, 1998). This water may be fine for irrigation at first until even higher salinity water is drawn upward, but would require expensive treatment to make it drinkable. The Kohler test well is likely in excess of EPA guidelines for radium and strontium. Radium is a carcinogen and over 5 pC/L is considered unsafe for drinking. We don't want our residents or the tourists to be exposed to this health hazard. So please ascertain and report Kohler's plans for water treatment and disposal of treatment sludge (which is especially toxic).

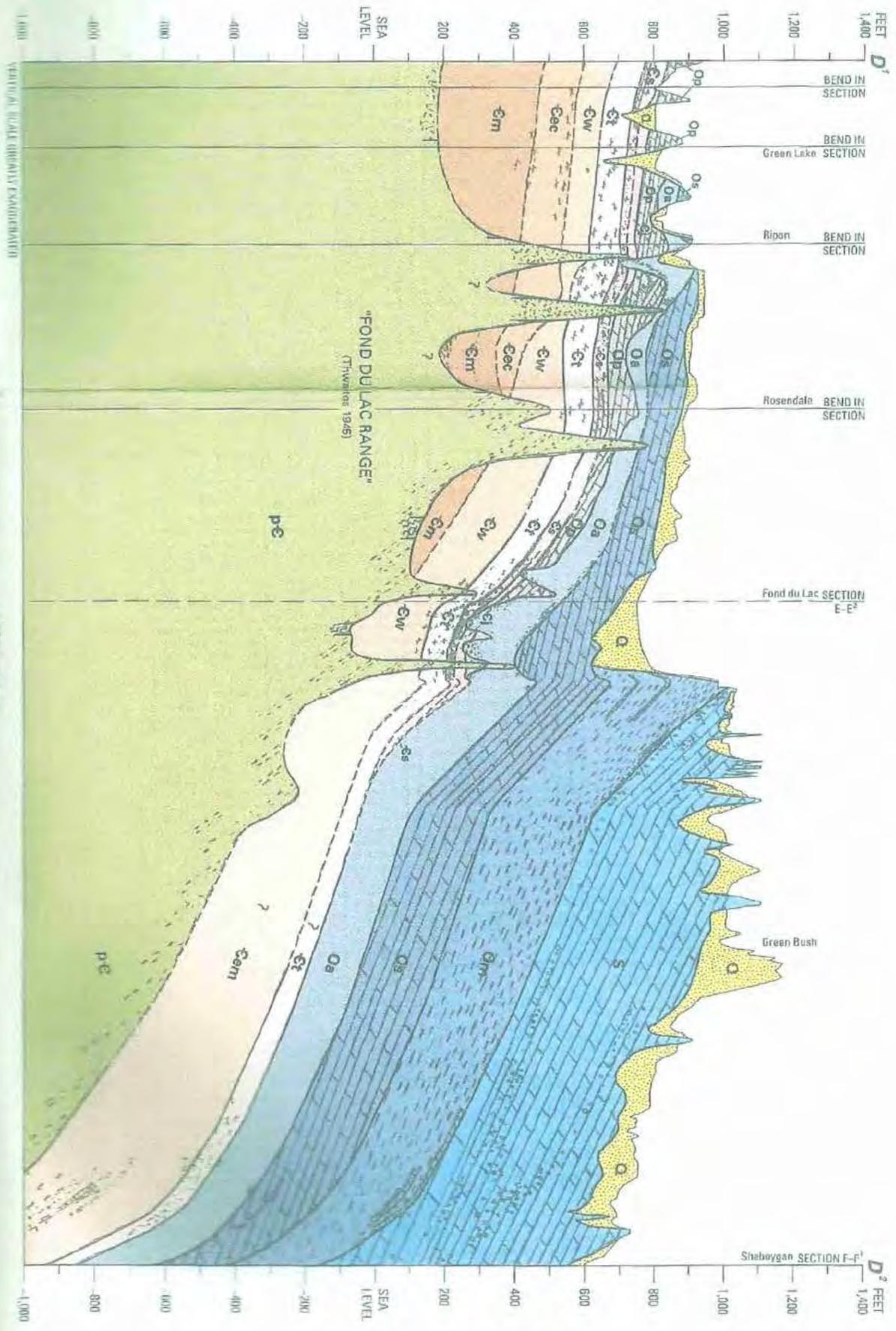
Use of this Deep Sandstone aquifer does remove most danger of well interference, however. The closest municipal well currently tapping the Deep Sandstone aquifer is probably in Fond du Lac. Sheboygan's Fountain Park fountain used to tap the Sandstone aquifer (Trotta, 2013, Stratigraphy Corner – Sheboygan's Fountain Park Well: Wisconsin Ground Water Association newsletter, Vol. 27, No. 4, p. 1).

4. There should still be concern about the **sheer volume of pumping** planned by the Kohler Company and how it may affect general flow directions in the Deep Sandstone aquifer. Please take note of the general flow directions depicted on the attached map prepared by Roger Miller (2013, Black River Area Surface and Groundwater, Miller Engineers & Scientists, 17pp.). The golf course would pump an unprecedented amount of water in Sheboygan County during the irrigation season and would likely change the direction of regional flow arrows directly towards the golf course. The effect of this "overpumping" may actually draw even worse quality saline water from deeper elevations east of the

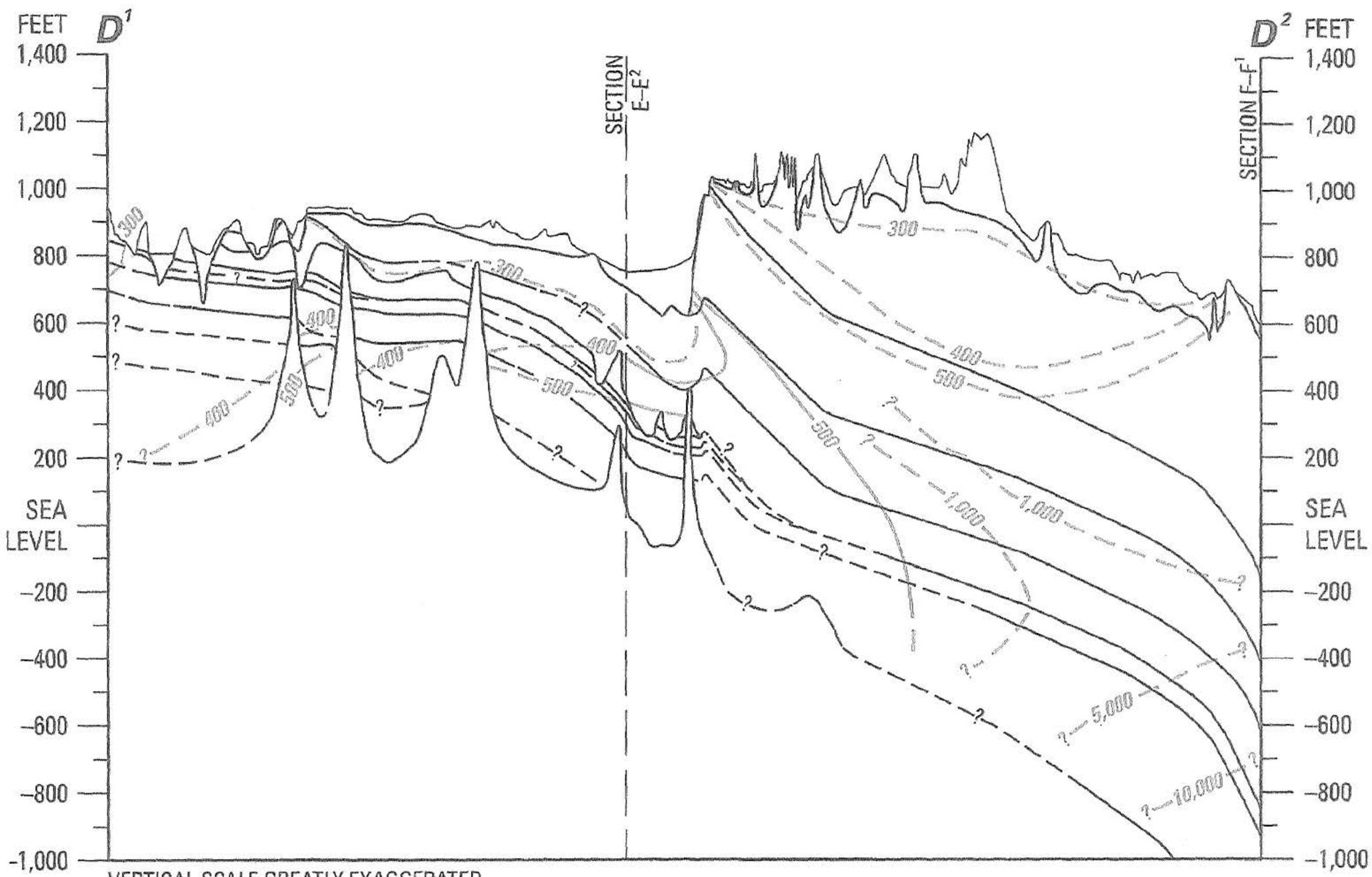
Wisconsin shoreline permanently degrading this part of the Deep Sandstone aquifer. For background on where these pockets of more highly radioactive waters lie and how they are affected by pumping centers, see published reports by Grundl (Grundl, T, 2000, Makoqueta Shale as Radium Source for the Cambro-Ordovician Aquifer in Eastern Wisconsin. Final Report, Wisconsin Department of Natural Resources. 19 pp.) and Trotta (Trotta, Lee, 2006, The Correlation Between Geology and Where Radium Occurs in Wisconsin: Wisconsin Water Association newsletter, Spring issue, pp. 13-14). A figure from my 2006 report is attached which shows the gross alpha readings of Deep Sandstone water samples generalized from the Fox Valley to Sheboygan. It shows that readings over 5 pC/L occur at Green Lake, over 10 pC/L at Ripon, and over 30 pC/L at Fond du Lac. These readings exhibit a trend of higher radium as one moves east towards the Michigan evaporites, even though there are no more reliable data points in that direction. I would estimate a water analysis from the Deep Sandstone well at the proposed golf course would show well over 40 pC/L of radium and planned pumping will draw in even worse water from east of the well.

Best regards,

[Redacted signature block]



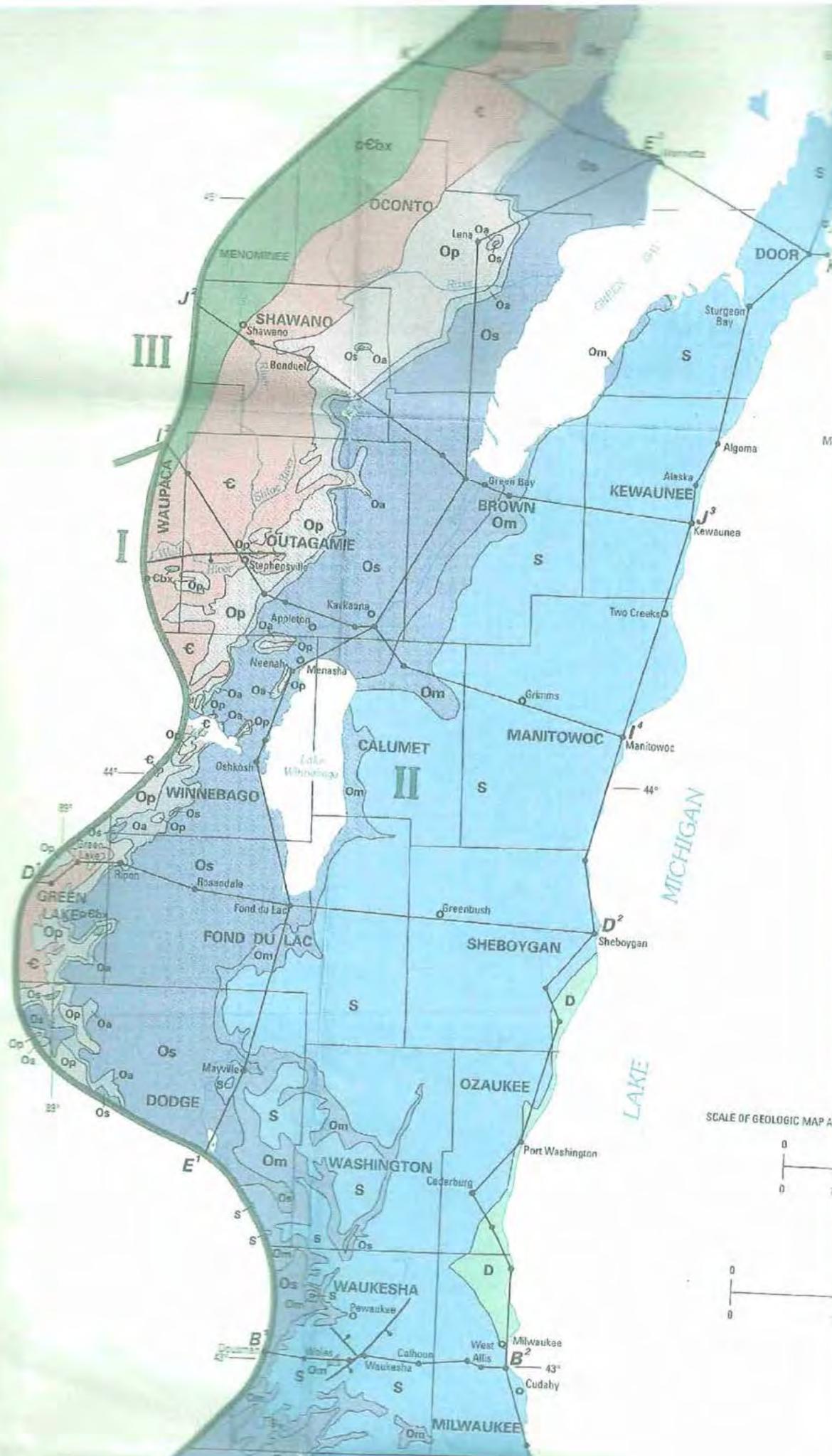
Kammerer, P.A., Trotta, L.C., Krabbenhoft, D.P., and Lidwin, R.A., 1998, Geology, ground-water flow, and dissolved-solids concentrations in ground water along hydrogeologic sections through Wisconsin aquifers: U.S. Geological Survey Hydrologic Investigations Atlas HA 731, excerpted from sheet 3 of 4 plates.



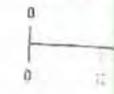
VERTICAL SCALE GREATLY EXAGGERATED

DISSOLVED-SOLIDS CONCENTRATION

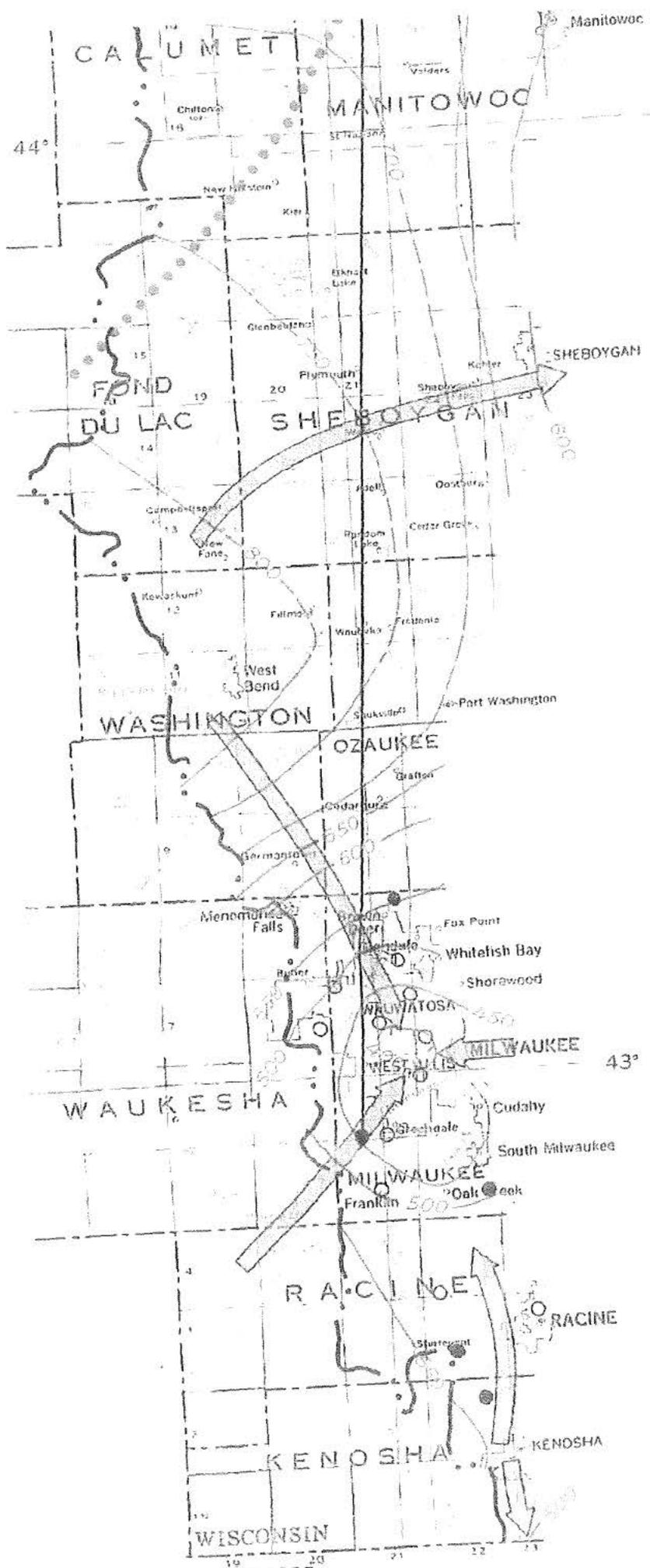
Kammerer, P.A., Trotta, L.C., Krabbenhoft, D.P., and Lidwin, R.A., 1998, Geology, ground-water flow, and dissolved-solids concentrations in ground water along hydrogeologic sections through Wisconsin aquifers: U.S. Geological Survey Hydrologic Investigations Atlas HA 731, excerpted from sheet 3 of 4 plates.



SCALE OF GEOLOGIC MAP AND



Kammerer, P. A., Trotta, L. C., Krabbenhoft, D. P., and Lidwin, R. A., 1998, Geology, ground-water flow, and dissolved-solids concentrations in ground water along hydrogeologic sections through Wisconsin aquifers: U.S. Geological Survey Hydrologic Investigations Atlas HA 731, excerpted from sheet 3 of 4 plates.



EXPLANATION
ARTESIAN SYSTEM

● Active observation well

○ Discontinued observation well

— 50' — Potentiometric contour

Showing altitude to which water will rise in wells in the sandstone aquifer as of 1968. Dashed where control is scarce. Contour interval 50 feet. Datum is mean sea level

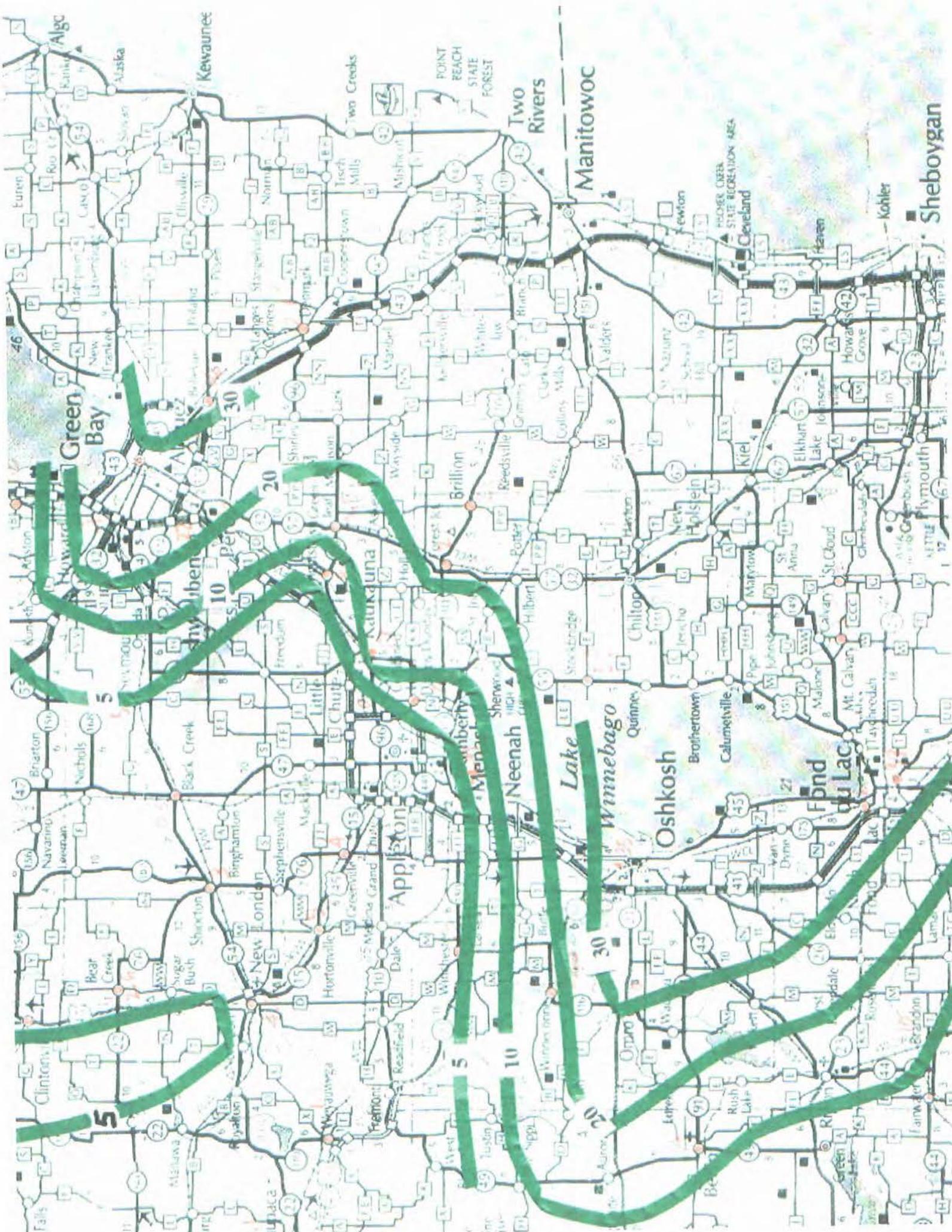
➔ Direction of ground-water movement

..... Ground-water divide

— . . . — Surface-water divide

Compiled from well records and reports of Newport (1962), Green and Hutchinson (1965), and Hutchinson (1970)

Roger Miller, 2013, Black River Area Surface and Groundwater, Miller Engineers & Scientists, 17pp.



Green Bay

Appleton

Oshkosh

Sheboygan

Manitowish

Two Rivers

Lake Winnebago

Neenah

Two Creeks

POINT BEACH STATE FOREST

PROSER CREEK STATE RECREATION AREA

Cleveland

Kohler

Plymouth

Howards Grove

Elkhart

St. Cloud

St. Calvary

Malone

Brotherstown

Calumetville

Brotherstown

Algic

Kewaunee

Alaska

Manitowish

Trotta, Lee, 2006, The Correlation Between Geology and Where Radium Occurs in Wisconsin: Wisconsin Water Association newsletter, Spring issue, pp. 13-14

* This parcel is just a few miles south of the proposed Kohler golf course. Please say NO! to this bad idea. ☺

Land Trust buys Squires golf club

Feb 22, 2009, 11:00pm CST
Pete Millard

The Ozaukee Washington Land Trust has purchased the Squires Country Club for \$2.5 million and will restore the 141-acre parcel to its natural state.

The 300-acre golf course, which is in the towns of Belgium and Port Washington in Ozaukee County, was owned by Lake Road Properties LLC, a real estate investment company owned by philanthropist and social activist Lynde Uihlein. Uihlein helped secure the land trust acquisition by purchasing 25 acres of the country club that are located in the town of Port Washington. Uihlein's company paid \$300,000 for the 25 acres.

"The parcel is contiguous with other land she owns and will be restored with the land trust's property," said Karl Dickson, a spokesman for Uihlein.

The Squires property is one of the largest remaining undeveloped parcels along Lake Michigan in Ozaukee County. It contains a variety of habitat types, including a wooded ravine, a hardwood forest, five ponds, prairies and a 160-foot sandy beach shoreline.

In addition to Uihlein's \$300,000, the trust paid for the land with endowments and is conducting a fundraising campaign to raise \$2.7 million. Part of the money raised will be used for restoration work.

"We're delighted how this played out because a private developer had an option to purchase the country club for a subdivision, but it fell apart," said Shawn Graff, executive director of the land trust.

The Squires Country Club was owned by Bruce and Bonnie Bloemer. **Bruce Bloemer said a drop in club membership and a 35 percent decline in golf greens fees over the last five years made it impossible to continue operating the golf course.**

The country club was constructed in 1930. It was expanded to an 18-hole course in the early 1970s and renamed the Squires. The Bloemers bought the course in 1993.

"We were treated very fairly by the conservation groups involved in the transaction and believe it will make a wonderful conservation project," said Bruce Bloemer.

<http://www.cityofsheboygan.com/3/story6.html>

Hi Jay,
This is the research behind my comments at the DNR hearing about the proposed Kohler golf course. Thank you!
7/10/15



Why America fell out of love with golf

By Drew Harwell March 5 , 2015

A decade ago, when the golf course was a de facto playground for the professional set and a young Californian named Tiger Woods was the world's best player, golf looked like an unassailable national undertaking, and corporate players were champing at the bit to get in.

But the business behind one of America's most slow-going, expensive and old-fashioned pastimes has rapidly begun to fall apart. TaylorMade-Adidas Golf, the world's biggest maker of golf clubs and clothes, saw sales nosedive 28 percent last year, its parent company Adidas said Thursday.

"A decline in the number of active players ... caused immense problems in the entire industry, and as a market leader, this hit us particularly hard," Adidas chief executive Herbert Hainer said on a call with analysts.

The sporting-goods giant has taken "some painful measures to restructure and stabilize" its golf division, Hainer said, including listing its slow-selling golf gear at deep discounts and postponing new launches. The coming years, Hainer had previously warned, present even more "significant negative headwinds" for the game.

It's been years since the increasingly unpopular sport of golf plunked into the rough, and the industry now is realizing that it may not be able to ever get out. All the qualities that once made it so elite and exclusive are, analysts say, now playing against it.

The game -- with its drivers, clubs, shoes and tee times -- is expensive both to prepare for and to play. It's difficult, dissuading amateurs from giving it a swing, and time-consuming, limiting how much fans can play. Even what loyalists would say are strengths -- its simplicity, its traditionalism -- can seem overly austere in an age of fitness classes, extreme races and iPhone games.

Even Jack Nicklaus, perhaps the greatest golfer in history, makes a strong argument for why new players aren't flocking to golf.

"I'd like to play a game that can take place in three hours," Nicklaus told CNN in January. "I'd quite like to play a game that I can get some reasonable gratification out of very quickly -- and something that is not going to cost me an arm and a leg."

Golf Market Stuck in Bunker as Thousands Leave the Sport

by [Lindsey Rupp](#) and [Lauren Coleman-Lochner](#)

May 22, 2014 — 11:01 PM CDT

The golf industry is in the rough.

Once the go-to activity for corporate bonding, the sport is suffering from an exodus of players, a lack of interest among millennials and the mass closure of courses. The tangled personal life of Tiger Woods, who for years was golf's biggest ambassador, also hasn't helped. All that has taken a toll on the companies that make and sell golf equipment, including Dick's Sporting Goods Inc. and Callaway Golf Co.

About 400,000 players left the sport last year, according to the National Golf Foundation. While almost 260,000 women took up golf, some 650,000 men quit. A severe winter on the East Coast worsened the situation this year by delaying the start of golfing season for many. Slow sales of clubs and other gear dragged down results for Dick's this week, sending its stock on the worst tumble since the retail chain went public in 2002.

"Golf is in a bit of a drought," said Allen Adamson, managing director at brand consulting firm Landor Associates in New York. "It's a pretty high-price sport, and leisure time is getting crunched."

Slow golf sales over the past 15 months created a glut of golf inventory at wholesale and retail outlets, forcing them to slash prices. Dick's is selling some drivers for \$99 that were priced at \$299 just 20 months ago, Chief Executive Officer Ed Stack said this week on a conference call. Golf sales missed Dick's target about \$34 million in first quarter.

"We don't feel we've found the bottom yet in the golf sales number," Stack said.

Deep Discounts?

The bleak outlook rippled through the golf industry. Shares of Callaway, a Carlsbad, California-based maker of golf clubs, tumbled 9 percent to \$7.60 on May 20. Callaway, which sells the Big Bertha driver, had delivered its own dim forecast last month. The company warned that full-year profit could come in at the low end of its previous guidance, especially if discounting is heavier than expected.

"We anticipate a heavy promotional environment while the industry works through excess inventory," CEO Chip Brewer said on a conference call in April. The company hasn't reported an annual profit since 2008.

TaylorMade, the Adidas AG-owned brand that makes clubs and golf accessories, also is suffering. The business saw a 34 percent sales drop in the first quarter, Adidas said earlier this month. Still, not all golf equipment is in decline. Overall, manufacturers' sales rose 1.2 percent last year, according to the Sports & Fitness Industry Association. While sales of golf balls fell 4.9 percent, clubs grew 4.2 percent.

Younger Generation

Though cold weather and the sluggish economy are providing temporary headwinds, a generational shift may be a bigger cause for concern. The sport is suffering the biggest decline from younger players, according to the National Golf Foundation, with 200,000 players under 35 abandoning the game last year.

"Everybody's hooked up to their handhelds, so it's social networking instead of sports," said Gerald Celente, publisher of the Trends Journal in Kingston, New York. The motivation for wannabe executives to spend hours chasing small balls no longer exists, he said.

"It's something that's associated with boom times," he said. "Most of society's not moving up, and golf is associated with moving up."

Woods, 38, helped draw younger players to the game, though his personal challenges may have reduced his influence. He divorced his wife of four years in 2010 after admitting marital infidelity and has suffered a series of injuries.

Fewer Courses

There also are fewer places to play golf these days. Only 14 new courses were built in the U.S. last year, while almost 160 shut down, the National Golf Foundation said. Last year marked the eighth straight year that more courses closed than opened.

The people sticking with the sport are playing fewer rounds than before, often opting for nine holes rather than 18. In total, U.S. golfers played 462 million rounds last year, according to Golf Datatech. That was the fewest number since 1995.

"Golf has been a crummy business for a long time," said Paul Swinand, an analyst at Morningstar Inc. in Chicago.

Golf advocates are doing their best to attract younger players, though. Some courses have even added wider holes to make the sport less intimidating, with a Golf.com story last month asking, "Could a 15-inch hole be the answer to golf's growth problem?"

Hack Golf

TaylorMade sponsored a 15-inch cup tournament last month, aiming to make the sport faster and easier. The brand also co-sponsors a website with the PGA of America with the goal of "crowdsourcing the future of golf." The site endorses Hack Golf, a movement to figure out the parts of golf that aren't fun and fix them.

Even with the decline in participation, the sport of golf may be healthier than people think, said Casey Alexander, a New York-based analyst at Gilford Securities Inc. With better weather, the number of rounds played is likely to rebound -- along with sales, he said. Growing interest in golf in Asia could also help offset a slump in the U.S.

"In Asia, golf is growing just fine," Alexander said.

Golf: No Longer a Hole in One

By Trish Donnally
March 4, 2015

The idea of building residential developments in the United States around golf courses is being rethought as demand for golf facilities continues to fade. The National Golf Foundation (NGF) reports that 2013 was the eighth-consecutive year that golf course closures outpaced openings, with 158 closures and 14 openings. Ninety-six percent of those closures were public courses. The foundation also reports that there had been an estimated drop of 600,000 golfers compared with the year before, reflecting a continuing decline in golfing since 2006. The total decline in golfers since 2006 has been roughly 4 million. Following a 40 percent growth in golf in the United States from 1986 through 2005, a period when more than 4,500 courses opened, 643 18-hole courses have closed since 2006, according to the NGF.

“Millennials do not appear to be [taking up] the game. It takes too much time and expense to play and to buy the equipment. I think we’ve reached a period where the number of people playing golf is going to continue to decline,” says Matt Powell, an analyst for SportsOneSource, a market research firm. “Older people are going to continue to play, but there will be fewer of them. With the recession, a lot of people saw their retirements, their nest eggs, diminish, so they will have to work longer. If they’re working longer, they don’t have the time to play golf, and if they’re trying to accumulate money for retirement, they probably won’t have the money to play golf.”

All of this has taken a divot out of residential developments being built around golf courses. “When developers figured out that golf courses helped them sell houses at premium prices, the rush to develop golf course communities was on,” says Ed McMahon, ULI senior fellow. “They could get 10 to 25 percent more than an exact house not next to a golf course.”

“For the first time, developers are looking for amenity options other than building golf courses. Developers drove the industry to the heights it achieved building 400-plus golf courses a year. Now, we’re closing more than we’re opening,” says Bobby Weed, a golf course architect and owner of Ponte Vedra Beach, Florida-based Bobby Weed Golf Design.

“It’s not that golf is not still valued; golf courses are overbuilt,” says Heidi Majerik, director of development for Forest City Stapleton in Denver. In fact, in 2005, at the peak of golf facility supply in the United States, there were about 16,000 total courses, including all public courses, private courses, residential developments, and resorts, according to the NGF. As of January 2014, the total U.S. supply of 18-hole golf courses was 14,565, according to the NGF. The foundation expects this market correction to continue for the next few years, predicting an annual net reduction of supply to be in the 130-to-160 range, according to an online NGF report. A large portion of these are expected to be public facilities.

Market saturation made John Reed, president and chief executive officer of Reed Development Group, which developed six golf courses in four residential communities in South Carolina’s Lowcountry in the 1990s and early 2000s, do what may be one of the biggest golfing mulligans (do-overs) ever. In 2005, while developing a fifth golf and country club community, which featured a Pete Dye course and a Tom Fazio course, Reed and his partners realized that the baby-boomer market wanted something very different.

“When you think golf and country club, you think formality and exclusivity. That’s not what the majority wants today,” says Reed. “A sense of belonging and being part of a community is very important to a large majority of the boomer market. We need to feel that we are an integral part of our community or neighborhood,” says Reed.

“We’ve become entertainers,” says Richey. “Today golf events are important, but you’ve got to have events for all the other people in the family.” Food and beverage, fitness, and wellness programs are all part of the mix, he says. “There is no lack of people who want to live on a golf course fairway where you have a million-dollar view and you don’t have to maintain it,” he says.

Many of golf’s stakeholders are advocating nine-hole golf, or “executive golf,” as it is called, for time-pressed players. Almost half of core golfers—age 6 and over, eight or more rounds a year—said that a round of four hours and 20 minutes is too long, according to a recent NGF survey. There are 4,175 stand-alone nine-hole golf facilities in the United States, or 27 percent of total supply, according to a 2014 study conducted by the NGF for the U.S. Golf Association (USGA). With the USGA’s launch of its “Play 9” campaign in July, more nine-hole courses may emerge in the future. “There is a trend: some people see a nine-hole course as having as much value as an 18-hole course,” says Richey of Toll Brothers.

Alternative uses for courses during the off-season are being planned in some cases. “In the winter, some Colorado, Minnesota, and other Snow Belt golf courses will be groomed for cross-country skiing,” says Kimberly Erusha, managing director, Green Section, for the USGA.



U.S. golf courses in steady decline

3/11/2015 - GOLF

Associated Press

ST. ANDREW'S, Scotland -- The United States is experiencing a gradual decline in the number of golf courses in the country to correct an oversupply between the 1960s and the early 2000s, according to a global report published Wednesday by the sport's governing body.

The U.S. currently has 15,372 courses, including Masters host Augusta National. But that total is down from a peak of 16,052.

The study -- titled "Golf Around The World" -- said there are 34,011 golf courses in the world, 45 percent of which are in the United States. The current total of 15,372 courses in the U.S. is down from a peak of 16,052 following a "gradual, but steady, market correction," the report said. Although there are 153 projects in various stages of development, the number of new courses being opened is at an all-time low.

The U.S.-based organization National Golf Foundation spent four years looking at the global development of the game, with funding by the R&A -- the governing body based at St. Andrew's in Scotland.

The report found that 79 percent of the world's golf courses -- ranging from pitch-and-putts to 18-hole courses -- are located in the United States, Japan, Canada, England, Australia, Germany, France, Scotland, South Africa and Sweden.

Almost 700 golf courses are under construction or in advance planning, the report said, and the sport is going to new areas, with Belarus, Azerbaijan and Georgia opening their first courses in the last two years. "It will provide a benchmark for future monitoring and enable us to identify areas of potential growth," R&A chief executive Peter Dawson said of the study.

The trend in new golf developments in Europe appears to be toward short, compact courses -- comprising six, nine or 12 holes -- that are public and family-friendly. The report said that golf remains "largely accessible," with 71 percent of the 34,011 facilities being open to the public.

DNR
2984 Shawano Ave
Green Bay WI 54313-6727

9/1/15

To the DNR,

Regarding the proposed Kohler golf course in the Town of Wilson: How can we trust that Herbert Kohler and Pete Dye will follow any plans that are submitted for the creation of this course? In these two articles they admit that Dye is a liar, their plans are not followed and that Dye's courses are improvised on the spot. How can we expect them to work around wetlands or protected areas, and prevent them from clear cutting the 247 acres?

From an article in the Milwaukee Journal Sentinel, July 25, 2015:

He has never drawn up fancy plans for a golf course, unless you count holes sketched on a napkin a fancy plan.

"He walks the course," Kohler says. "He puts a dot for a tee, a dot for the landing area and a dot for his green and that's the last time pencil hits paper."

Or, as Dye explains the process, "I never have drawn plans. I go out there and I yell at (the shapers) and scream at them and talk to them. Most of 'em come out pretty good, I guess."

Kohler loves to tell the story about when he expressly forbade Dye to cut down a stand of trees during the construction of Blackwolf Run and Dye ignored him, cut down the trees and staked out a green next to the stumps.

Kohler had a meeting that ran late and when he drove out to the course he saw, from a distance, smoke drifting above the tree line. Dye not only had cut down his precious trees, but he had piled them up and set them ablaze before heading home to Indiana.

What they did at Whistling Straits... Kohler bought a flat-as-a-pancake former military base on the edge of Lake Michigan and told Dye to build a faithful reproduction of the classic seaside links courses in Ireland and Scotland.

Dye did it by lowering the bluff some 35-40 feet, pushing the dirt inland and bringing in more than 13,000 truckloads of sand to form a jumble of soaring dunes and jagged bunkers.

"I just moved it from A to B and it really got high and it looked OK," Dye says in his typical self-effacing style. "Got it so the gallery could see and all that stuff. And so Whistling Straits got started."

From an article in the Sheboygan Press, dated August 15, 2015:

Then again, Dye has a proclivity for embellishing the truth — at least when it comes to building his acclaimed golf courses, says Kohler.

“He loves to lie,” Kohler said in a phone interview before the tournament. “Whenever he really wants something, and if I disagree, he’ll lead me in one direction with a half-truth or a no truth and when I’m not paying attention, he’ll go ahead and do what he bloody well he wanted to do.”

Despite Dye’s fibbing tendencies, Kohler has stuck with him through the construction of two courses at Blackwolf Run and two at Whistling Straits, forming a relationship that extends beyond business.

“It’s sort of a multifaceted relationship,” Kohler said. “On the one hand, I have to employ the man. On the other hand, there are aspects of the man that make him a dear friend, and in spite of the fact that he loves to lie.

As the two eye building their fifth area golf course, south of Sheboygan along Lake Michigan and just north of Kohler-Andrae State Park — a proposal that has been met with its fair share of opponents from the community and is currently awaiting the necessary permit approvals to proceed — even Dye admits he doesn’t know how it’ll turn out once, and if, they get the go-ahead to start building.

That’s the nature of his design process.

“When you build it, you fuss around and you do this and you do that,” Dye said. “Something, I don’t know what, but something will happen.”

I believe that Kohler will move on to something else if the process takes enough time. In an article about why he gave up on developing land for a golf course along a pristine coastline in Oregon called Bandon Dunes, Kohler said “the environmentalists were just too determined. We’d be messing with them for five to seven years minimum before we’d have anything.”

Thank you for your consideration,



Mr. Jay Scheifelbein
DNR
2984 Shawano Avenue
Green Bay, WI 54313-6727

Dear Mr. Scheifelbein,

Thank you for your attendance at the scoping meeting held at U.W. Sheboygan on July 14, 2015. Thank you for listening to the concerned citizens of the state of Wisconsin in regards to the proposed golf course on property owned by the Kohler Company and the four acre easement it is requesting from Kohler-Andrae State Park.

I was also in attendance at the scoping meeting and I want to add my voice to those who are vehemently opposed to this development. I have looked at the outline that we were given and would like to address several of the points.

5.1.4 Groundwater resources

It was presented at the meeting that a golf course uses many thousands of gallons of water on a daily basis for irrigation. Further, since this area is heavily forested at present, making a grass golf course would entail the use of fertilizers and herbicides. Mr. Hoekstra claimed that there would be “no run-off”; a claim that is unsubstantiated. I believe a number of people presented you with the evidence of the detrimental effects of such fertilizers and herbicides, both to the natural environment and to the citizens of the Town of Wilson, of which I am one.

5.1.7 Wetlands and mitigation

As presented on July 14, the interdunal wetlands located on this property are rare and should be protected by an agency whose mission statement includes the following

To protect and enhance our natural resources:

our air, land and water;

our wildlife, fish and forests

and the ecosystems that sustain all life.

5.1.10 Wildlife

I am requesting that the D.N.R. conduct a thorough review and count of the number of species, as well as an estimate of the number of each of those species that will lose their habitat should the golf course be permitted. There are many, many animals in this forested land. Large animals such as deer, raccoon, possum, turkeys, and coyote are present in this forest. There are many bird species (and I believe that the Wisconsin Ornithological Society spoke about some of those species being those that are in declining numbers). I personally have seen several varieties of woodpeckers and owls in these woods. Then there are the very smallest of animals-the insects: food for many animals and birds. I am concerned about even losing the vast amount of mosquitoes that this forest is home to because I know that they are food for a declining bat population.

5.1.12 Ecological landscapes and ecologically significant areas

Losing this area to a golf course would be a travesty! There are very, very few areas of undisturbed shoreline, dunes, and coastal forest in the state of Wisconsin. The amount of

deforestation and earth moving necessary to make a golf course would DESTROY this ecologically significant area. This cannot be called “minimalist” by any stretch of the imagination.

5.2.3 Jobs and economic development

This seems to be Kohler’s “trump card” so to speak. However, I would ask you, the D.N.R. to ask Kohler for verifiable data as to the number of jobs that are held by residents and tax-paying citizens at its Whistling Straits golf course. I know from my son, who worked at Whistling Straits during college that his co-workers were primarily other college students and Mexican itinerant workers (who worked at Whistling in the summer and left the area to work in Arizona or Florida in the fall and winter). I would also ask that you ask Kohler for verifiable data as to the economic benefit to Haven. Where is their economic development? I think it is Kohler that has profited, not the community in which this development is located.

5.2.6 Drinking water

I would ask you to carefully consider the information presented to you as drafted by Roger Miller when you consider the impact on our wells and drinking water.

5.2.7 Kohler-Andrae State Park

The additional roads and buildings and the destruction of natural resources would seriously detract from the refuge that the park now provides. The State Park is just that: land for all the citizens of the state. It should never be given away for private profit.

5.2.8 Other Recreation areas and public access

Mr. Hoekstra and the Kohler Company have touted this development at opening this land for “public access”. At present, I walk on the Black River Trail system that is part of Kohler Andrae State Park. Not only are these trails mine to enjoy, they are maintained by volunteers at no cost to the D.N.R. or the State of Wisconsin. I bike or walk into the park and walk through the campground. I do this at any time of day I wish. This is what I consider “public access”. I do not think I will be allowed to walk all over the golf course any time I want. I will have to pay the golf fees and golf in order to walk on this land. This is not public access in my mind. This is a for-profit business dictating who and when there is access to the land. Furthermore, I would ask the D.N.R. to look at what the Kohler Company did to the lakeshore when constructing Whistling Straits. There is absolutely NO PUBLIC ACCESS to our right as citizens of the United States of America to walk in the water along the shore of Lake Michigan because of the huge boulders that were placed INTO the lake by the Kohler Company. This should never have been permitted.

5.2.11 Archeological and historic resources

Please carefully consider the material presented to you at the scoping meeting in regards to Native American burial mounds located in this area.

Thank you for reading these concerns. Please protect and preserve our natural resources.
Sincerely,



DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: FRIENDS OF BLACK RIVER FOREST

Address: [REDACTED]
SHEBOYGAN, WI 53081

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

More Details about the use and monitoring of herbicides and pesticides that would be used on the proposed course

Additional sheets are included: Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

First, thank you for providing the opportunity to raise additional issues to be considered before you publish your environmental impact statement.

I live along the Lake Michigan shoreline and my property lies about ¼ mile south of the mouth of the Black River in the Town of Wilson. Over my 26 years here I have witnessed the degradation of the lake from the phosphorous run-off from the Black River and can no longer swim in the water in front of my house. I am on the Board of the Wisconsin Great Lakes Coalition and, while I may be supersensitive to the environmental hazards facing the Great Lakes, I believe the construction of the proposed golf course will have a profoundly negative impact on the ecology of a large area of shoreline dunes, wetlands, and wildlife. It will also negatively affect the culture of this small town that has prided itself on being a serene oasis of natural beauty.

Although I am obviously opposed to the course on many levels and for many reasons, I am writing you today specifically about the use and monitoring of herbicides and pesticides on the proposed site.

Herbicides

- The Environmental Impact Report states that there is planned use of the herbicides Triclopyr, Glyphosate, and Aminopyralid. I ask that you review their use based upon potential health effects of these and other chemicals.
- Specifically, Glyphosate has been linked to cancer, endocrine disruption, reproductive effects, kidney/liver damage and sensitivity and irritation and the International Agency for Research on Cancer recently raised the alert level for Glyphosate to “a probable carcinogen”. Sources: <http://www.beyondpesticides.org/lawn/factsheets/30health.pdf>, <http://gmoinside.org/wp-content/uploads/Journal-of-Organic-Systems-2014-Vol9-No2.pdf> <http://gmoinside.org/wp-content/uploads/Journal-of-Organic-Systems-2014-Vol9-No2.pdf>
- Aminopyralid has also been linked with severe eye irritation and “Thus, the technical product is classified in toxicity category I (DANGER), while the formulated end use product (Milestone) is classified as toxicity category IV (CAUTION).” Source: <http://www.beyondpesticides.org/infoservices/pesticidesandyou/documents/aminopyralid.pdf>
- Nitrogen rich fertilizers, such as those used on turf grass can leach into ground water causing pollution. Sandy soils, like that of the proposed golf course are particularly prone to leaching. Source: <https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=Nitrogen+Pollution+of+groundwater+Lee+Haller>
- One of the herbicides Kohler proposes to use is Triclopyr, which can pollute ground water. Considering that the course is being constructed over a shallow aquifer and on sandy soil, this concerns me. Source: <http://npic.orst.edu/factsheets/triclogen.pdf>
- The Garden Club of America, in their monograph, “The New American Golf Course”, states, *“It is important that new golf courses choose areas that are not wetlands, prime and unique farmland, endangered species habitat, or aquatic habitat that is environmentally sensitive. Degraded sites such as Superfund sites (Old Works Course) or gravel pits (Widow’s Walk Golf*

Course) can be reclaimed for golf course use.”

<https://www.gcamerica.org/index.cfm/publications/publicationdetails/pid/83>

- In The Water Encyclopedia, the authors state. “For many years, people believed that the soil and **sediment** layers deposited above an aquifer acted as a natural filter that kept many unnatural pollutants from the surface from infiltrating down to groundwater. By the 1970s, however, it became widely understood that those soil layers often did not adequately protect aquifers. Despite this realization, a significant amount of contamination already had been released to the nation’s soil and groundwater. Scientists have since realized that once an aquifer becomes polluted, it may become unusable for decades, and is often impossible to clean up quickly and inexpensively.” They go on to say, “Fertilizers and pesticides applied to crops (or, I assume, golf courses) eventually may reach underlying aquifers, particularly if the aquifer is shallow and not “protected” by an overlying layer of low permeability material, such as clay. Drinking-water wells located close to cropland sometimes are contaminated by these agricultural chemicals.” Source, The Water Encyclopedia, Science and Issues: The Pollution of Groundwater.

Pesticides

In their Environmental Impact Report, Kohler states in rather vague terms, that they will follow the latest integrated pest management practices, but they don’t elaborate on the specific pesticides that would be used, should the need arise. I hope that you will ask them for more details. As you are aware, the shoreline area is susceptible to mosquitos and black fly infestations. I’m sure that Kohler does not want their guests troubled by these insects and will probably aggressively spray to rid the area of these pests. I am concerned about what, if any, deleterious effects these chemical will have on the environment, humans living nearby and wildlife. Kohler’s courses in other parts of the county are really not bordering on a densely populated area, such as would be the case with this course.

In conclusion, I am not against Kohler; they have done much good for Sheboygan County. But I believe the price we will all pay to have another golf course, a course on this environmentally rich land, is too high. And all of this for a sport that is declining in popularity.

Thank you for your attention and the work I know you are putting into this investigation.

[REDACTED]
[REDACTED]
[REDACTED]

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [Redacted]

Representing: [Redacted]

Address: [Redacted]

Sheboygan, WI

Phone: [Redacted]

E-mail: [Redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or*,

- Fold this sheet and mail stamped sheet to the printed address on the back; *or*,
- Send email comments to:
DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Are there Indian Mounds on the 4 acres of State Park property that Kohler wants to take?

Additional sheets are included: Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? __ YES NO

Name: [REDACTED]

Representing: _____

Address: [REDACTED]
Kohler, WI 53044

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Pesticides

When we look at Lake Mendota & Monona in Wisconsin they have a struggle w/ algae blooms due to complexities of the chemicals that are added to lakes from golf courses - how is this going to manage?

How are you going to relocate the fish, the frogs - and all the other wildlife that will be impacted by this? You can't!!! It's impossible. Just don't do it.

Additional sheets are included: ___ Yes ___ No

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: 

Representing: _____

Address: 

Phone: _____

E-mail: 

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or*,
• Fold this sheet and mail stamped sheet to the printed address on the back; *or*,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

*Thanks - for holding applause & 'chatting'
That gets pretty annoying!
Unfortunate some of the speakers failed to
talk into the mikes.
I do think the water issue is a concern.

I would like an update

A successful forum.*

Additional sheets are included: Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

July 14, 2015

Dear Mr. Schiefelbein:

I am writing in regard to the Environmental Impact Statement (EIS) which the Wisconsin Department of Natural Resources is preparing for the proposed new Kohler Company golf course, in Sheboygan, Wisconsin. This letter contains a list of subjects which I hope the pending EIS will address.

1. **Destruction of part of a designated State Natural Area**, specifically, the Kohler Park Dunes Natural Area: Since Kohler Co. proposes to reclaim four acres of this natural area as an easement, I believe destruction of this rare dune environment must be investigated.
2. **Destruction of endangered species**: the endangered lake dune ecosystem is known to be home to several rare plant species, as listed on the website (see below) for the Kohler Park Dunes Natural Area. (http://dnr.wisconsin.gov/topic/land/natural_areas/natural_areas_dunes.asp)
3. **Destruction of wetlands**: Wetland areas have been identified in the proposed development zone, and the Kohler Co.'s prepared EIS concludes that not much will be missed if these areas are developed. What should be considered is, what will be lost. In this case, it seems that losses in diversity of species, wildlife habitat, human recreation use, and flood containment greatly out-weigh proposed financial gains for one company.
4. **Water quality issues which would result from fertilizer, pesticide and herbicide drain-off and seepage**: The Kohler Co. Wetland Delineation Report states that the land to be used for the proposed golf course drains into the Black River to the west, and into Lake Michigan to the east. This raises concerns about possible increased amounts of nitrate, phosphorous, and harmful chemicals entering the previously mentioned bodies of surface water, and thus local drinking water supplies. Although a deep, artesian aquifer below the proposed development site has been shown to be separated from a shallower aquifer above it by a layer of clay, seepage of harmful substances into both aquifers should still be investigated. In addition, increased contamination of surface water by the subject materials could upset the ecological balance for creatures living in the water. Oxygen depletion and an abundance of artificially-introduced nutrients would create a visible loss of water clarity, and loss of organism diversity.
5. **Water consumption**: A golf course requires copious amounts of water to maintain its lush, artificial landscape. Water drawn from Lake Michigan would not drain back into Lake Michigan because of the nature of the local watershed. If, because of this drainage issue, wells must be used as sources of water, then there is concern that the levels of liquid in underground aquifers will drop. The Black River residential area, north of the proposed golf course site, draws its drinking water from one of these aquifers. Residents do not want to face a water shortage, or possible contamination (see No. 4, Water quality, above) of their household water source.
6. **Aquatic habitat degradation**: Fertilizer and soil run-off can cause unfavorable changes in nearby underwater environments. This concern was partly covered under No.4, Water quality.

7. **Decreased quality of life for human and animal residents of the area:** Loss of access to a natural area for purposes of recreation or survival, depending on the species, may cause anxiety, depression, loss of habitat (again, depending on the species), and decreased interest in life. For humans, not having a quiet view to contemplate, or a familiar path on which to hike, will certainly cause stress. Increased vehicle traffic in the area will also drastically erode the peace currently enjoyed by people living near the proposed development. Not everybody loves golf; few local residents will appreciate an influx of golfers and the staff needed to help them support their habit.

8. **Items of concern possibly not investigated in an EIS:**
 - a. Use of proposed development area by aboriginal inhabitants or visitors to the area
 - b. Proposed sewage management, should the facility be built (septic? City sewer? On-site treatment?)
 - c. Plans for regular ground and surface water testing, should the facility be built

Thank you for your consideration of these comments.

Sincerely,

[Redacted signature]

[Redacted contact information]

July 12, 2015

Thank you for the
Opportunity to express
views on the proposed
Kohler Golf Course.

I do not feel that
enough of our average
Citizens will be able to
afford to play the golf
to warrant the desecration
of the wetlands and State Park.

Sincerely,

[REDACTED]
Sheboygan, WI

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: _____

Address: [REDACTED]

SHEBOYGAN, WI 53081

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or,*

- Fold this sheet and mail stamped sheet to the printed address on the back; *or,*
- Send email comments to:
DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

- ① USE OF STATE PARK LANDS FOR A PRIVATE, FOR PROFIT ENTERPRISE -
- ② LOSS OF WALKABLE LAKE MICHIGAN SHORELINE.
- ③ BULLDOZING OF SAND DUNES.
- ④ DEVESTATION OF A MATURE FOREST.
- ⑤ POLLUTION OF THE BLACK RIVER & LAKE MICHIGAN WATERSHED.
- ⑥ LOSS OF INDIAN BURIED GROUNDS.
- ⑦ INCREASE OF TRAFFIC AT KOHLER-ANDRAE ENTRANCE.

Additional sheets are included: Yes No

July 14

Comments To the DNR



We welcome the fact that we have finally arrived at the point where scientific facts will be respected and studied. I am a member of a group of Wilson residents, FBRF, who have tried to counter vague claims from the Kohler Company regarding the benefits of this course to Sheboygan County and secondarily the town of Wilson. We have studied for one year all the environmental areas which will be impacted by this plan. As we have exposed serious environmental and economic impact report concerns, the company addresses them in their PR by giving further vague non-specific statements on how the course will handle the issues we expose.

Two examples are:

1. stating that they will plant native grasses and embrace the land's contours (no mention of fundamentally changing the nature of all those contours or showing any specific topography plans.
2. Giving the Timberlake subdivision consisting of 24 homes a permanent access to the Lake Michigan shore.

That is 1.6 % of the households in Wilson. Apparently we should be happy to exchange our resources, native habitat, water availability and quality for the benefit of Timberlake residents. Will the Timberlake households getting lake access be allowed to walk south past the Kohler land or will they be diverted to the north along the beach that is for the exclusive use of lakeshore home owners?

We would like to be clear to the proponents of this course that this course is not about 220 undisclosed jobs, a \$7000 unvalidated benefit to each Wilson resident, or simply about thinning a forest.

It is about a developer who wishes to profit from use of OUR State land and OUR resources by destroying an entire ecosystem.

Their economic impact report is useless. No town or city, no student of development would ever accept an unverified report from a developer without seeing the input data. An Economic Impact Report is also a part of

a complete Impact study of a project on a town. (See attached article on a Complete Impact Statement). And we expect that the DNR will not be swayed until the validating data is submitted.

My concerns and the concerns of many residents are these:

1. We would like to study the completed Environmental Impact Report when the Kohler Company completes it and have time to review it before your Environmental Impact Study is complete. We would like to see scientific information on the long term impacts of destroying each element of this natural community discussed with scholarly citations.
2. We would like to know what was in the Kohler Archeological Report related to number of mounds and artifacts found. This rare site was inhabited continuously from 9800 B.C. through 1200 A.D.
3. So far the Company's understanding of the carcinogenic research (which is ongoing at the EPA on lawn chemicals and pesticides) are the comments that they follow the directions and will use less. What do they use and how much? (See the attached articles on the health risks of golf course pesticides, the effect on groundwater which comprises 30% of our drinking water, and articles on groundwater contamination). Will they submit their courses to groundwater testing? Will they offer proof that the buffer zones they say they will use will protect the toxic runoff from entering the groundwater? Surely they know that destroying interdunal and forested wetlands will change the natural grade of the land, the flow of water, affect storm water run off, destroy wetlands which filter toxic runoff from the course, and agricultural runoff, that sending nitrogen into any remaining wetlands which are typically nutrient low, will kill the organisms and create a completely different habitat. Specifically, that deforesting 60% of this land will expose the forested wetlands' vegetation and organisms to the sun which will effect significantly more than the 5 acres they claim will be affected. We would like the DNR to critically evaluate the effects of deforestation on the remaining wetlands, and speak to the effects of destroying a rare interdunal wetland system. Please address why they are so important elsewhere in Wisconsin. (See attached information on the Ridges and Two Rivers Sanctuary).

There is

a host of other issues related to water, pollution, testing of ground water at other Kohler golf course sites, excessive water use, granting of high capacity well permits which deplete the local wells. We will be presenting this information through July 24.

In conclusion, while we respect the people who do the research and the leg work on a project like this, we have serious concerns about the DNR management being biased toward the Kohler Company due to their friends in high places. We have your emails indicating that the Kohler company asked your attorney Kristin Hess to lie to the Town of Wilson Board during the Tented Forest project and say that the DNR wouldn't approve other entrances, when you would have.

We have an email stating that Whistling Straits hadn't been tested in 5 years.

We have information from Lake Floras, Oregon Police reports investigating an engineer who secretly dug 16 unauthorized test pits in a state park area with rare foliage. The town thought it was vandalism. A \$1000 bill was paid by Jay Hoekstra of the Kohler Company. They apparently wanted to know if they could build a resort there before obtaining any permits. (see attached). The reputation of a developer is important. Unfortunately, Herbert Kohler, Jr. Recently stated in an interview, "this land deserves to be a golf course." So much for being a steward of the environment.

We believe that the cumulative effects of this project on the environment, including our health and welfare must be reviewed diligently. We believe that the science behind these environmental issues cannot result in the DNR scientifically justifying the permitting of this project.

Abstract[Full text links](#) [View full text](#)

J Toxicol Environ Health B Crit Rev. 2004 Jul-Aug;7(4):267-79.

Carcinogenic and genotoxic potential of turf pesticides commonly used on golf courses.

Knopper L¹, Lean DR.

Author information

Abstract

As a result of the controversy surrounding pesticide use and animal and human health concerns, many municipalities in Canada have restricted, or are in the midst of restricting, the use of **pesticides** for cosmetic purposes. In some cases, pesticide use on golf courses is also being phased out at the municipal level. One of the dominant health effects of concern in relation to pesticide exposure is the occurrence of **cancer**. With over 1600 golf courses in Canada and between 400 and 600 new courses created each year in Canada and the United States, there appears to be increasing potential for unintentional human and animal exposure to turf **pesticides**. In light of the debate around pesticide exposure and the onset of **cancer** that has led to controversial Canadian municipal bylaws regulating pesticide use, and due to recent results of a biomonitoring study that has shown genotoxicity in a rodent species living in golf-courses, it seems timely to review the carcinogenic and genotoxic potential of commonly used golf-course **pesticides**. The purpose of this review is to present some debated epidemiological research that deals with the relationship between pesticide exposure and **cancer**, and to review and update the literature on the in vivo and in vitro mammalian carcinogenic and genotoxic potential of these **pesticides**. It is our intention to unite information from various sources so those interested specifically in the carcinogenicity and genotoxicity of **pesticides** commonly used on golf courses can refer to one comprehensive and updated resource.

Comment in

Re: Carcinogenic and genotoxic potential of turf **pesticides** commonly used on golf courses.

PMID: 15205044 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

LinkOut - more resources



Gateway on Pesticide Hazards and Safe Pest Management

[Back to the Gateway](#)

2,4-D

General Information

- [Fact Sheet: 2-4-D.pdf](#)
- [Product Names:](#)
- Chemical Class: Phenoxy herbicide
- Uses: Registered for field, fruit, and vegetable crops, turf, lawns, rights-of-way, aquatic sites, forestry applications, post-emergence broadleaf weeds, plant growth regulator in citrus
- Alternatives: [Organic agriculture](#), [Organic Lawn care](#)
- Beyond Pesticides rating: **Toxic**

Health and Environmental Effects

- Cancer: **Yes (4)**
- Endocrine Disruption: Probable (5)
- Reproductive Effects: **Yes (6)**
- Neurotoxicity: **Yes (7)**
- Kidney/Liver Damage: **Yes (7)**
- Sensitizer/ Irritant: **Yes (4)**
- Birth/Developmental **Yes (4)**
- Detected in Groundwater: **Yes (4)**
- Potential Leacher: **Yes (7)**
- Toxic to Birds: **Yes (4)**
- Toxic to Fish/Aquatic Organisms: **Yes (8)**
- Toxic to Bees: **Yes (4)**

Additional Information

- Regulatory Status:
 - [EPA Reregistration Eligibility Document \(RED\) signed \(6/2005\)](#)
 - [Beyond Pesticides' RED comments.](#)
- Supporting information:
 - [Daily News Blog entries](#) (Beyond Pesticides)
 - [Asthma, Children and Pesticides](#) (Beyond Pesticides)
 - [Children & Lawn Chemicals Don't Mix](#) (Beyond Pesticides)
 - [The Safer Choice](#) (Beyond Pesticides)
 - [NCAP 2,4-D Factsheet](#) (Northwest Coalition for Alternatives to Pesticides)
 - [Extoxnet 2,4-D Factsheet](#) (Extension Toxicology Network)
 - [PAN Pesticides Database: 2,4-D](#) (Pesticide Action Network)
- Studies:
 - [Cancer and pesticides; an overview and some results of the Italian multicenter case-control study on hematolymphopoietic malignancies](#)
Miligi, L., et al. 2006. *Annals of the New York Academy of Sciences.*
 - [Breast cancer risk in Hispanic agricultural workers in California](#)
Mills, P.K. and Yang, R. 2005. *International Journal of Occupational and Environmental Health.*
 - [Lymphohematopoietic cancers in the United Farm Workers of America \(UFW\), 1988-2001.](#) Mills PK, Yang R, Riordan D. 2005. *Cancer Causes Control.*

[EPA at Odds with Scientists on Endocrine System Effects of Weedkillers Atrazine and 2,4-D](#)
July 6, 2015

[Popular Weed Killer 2,4-D and Lice Treatment Lindane Classified as Carcinogens](#)
June 24, 2015

[Air Force Veterans Who Used Agent Orange Contaminated Aircraft May Be Compensated](#)
June 23, 2015

[Chipotle Removes Genetically Engineered Food from Its Menu](#)
April 28, 2015

[EPA's Expansion of 2,4-D Enlist Duo Challenged](#)
April 22, 2015

[Pesticide Residues on Foods Shown to Affect Sperm Quality](#)
April 1, 2015

[Common Herbicides Linked to Antibiotic Resistance](#)
March 30, 2015

[House Panel Rejects Hawai'i Bill to Impose Pesticide Buffer Zones](#)
February 23, 2015

[2,4-D and Atrazine Effects on Endangered Species Focus of Another Lawsuit](#)
February 17, 2015

[EPA Sued for Violating Endangered Species Act with Allowance of New 2,4-D/Roundup Pesticide](#)
February 13, 2015

[ALL RELATED STORIES >>](#)

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463



May 22, 2015

Mr. Jess Barley
Sr. Staff Project Manager- Hospitality
Kohler Co.
444 Highland Drive MS 201
Kohler, WI 53044

Subject: Initial Review of the April 2015 Environmental Impact Report for Proposed Golf Course –
Town of Wilson, Sheboygan Co.

Dear Mr. Barley:

Thank you for the April 2015, Environmental Impact Report (EIR) for the Proposed Golf Course – Town of Wilson, Sheboygan Co. describing Kohler's proposed 18-hole golf course development on 247 acres of Kohler-owned property between the Black River and Lake Michigan, north and east of Kohler-Andrae State Park.

The Department has completed our review of the information provided in the EIR. As we have discussed with you, the purpose of the EIR is for an applicant to provide information to help the Department fully understand the proposed project and to provide sufficient details to allow us to prepare our Draft Environmental Impact Statement (EIS).

Based on our preliminary review, program staff identified a number of areas where there are questions or where we would like additional information to better understand the proposal and potential impacts. Please note that the permitting processes required for the project may involve other information that could be beyond the scope of the EIS document.

An initial list of the topics/information requests by program area is provided below. In some cases, information for one topic area may also be needed to assess potential impacts in another topic area. We look forward to meeting with you and your consultants to discuss these topics and what additional information Kohler could provide.

Archeological/Historical (Confidential)

1. Since these reports require confidentiality, please provide completed cultural resource investigation reports when they become available under a separate cover. Please include two hard copies as well as a disc/pdf copy. Sections 3.3.4 and 4.3.4.

Natural Heritage Conservation (Confidential)

[REDACTED]

Waterways

1. Exhibits showing ordinary high water marks (OHWM) for the Black River and Lake Michigan will be needed for the EIS.
2. Indicate if work is proposed below the OHWM of the Black River or Lake Michigan. *Section 3.2.2.*
3. What types of river bank stabilization will be needed for the entrance road near the Black River? *Sections 4.1.4 & 4.2.2*
4. Provide utility layout information and indicate if utilities will be installed in/near the Black River.
5. Discuss the view corridor and describe proposed changes including tree removal along the lakeshore. Provide visual representations. Discuss Sheboygan Co. shoreland clear cutting standards. Discuss how building setback and vegetation removal will affect natural scenic beauty. *Section 4.3.5.*

Floodplain

1. Provide a revised exhibit showing all proposed golf course facilities, access roads, utilities, and bridges related to the floodplain and floodway and quantify the amount of fill proposed to be placed in the floodplain of both the Black River and Lake Michigan. *Figure 6 Floodplain Map*
2. Detailed bridge design for crossing of the Black River addressing traffic operations and capacity, hydraulics, regional flood elevation, and aquatic habitat connectivity.
3. Has any modelling of changes to the floodplain elevation been conducted using the Hydrologic Engineering Centers River Analysis System (HEC-RAS)? *Section 3.1.5.*
4. The proposed access road is in the floodway and shoreland-wetland. Analyze backwater impacts. *Section 3.1.5.*
5. The Federal Emergency Management Agency (FEMA) effective floodplain map is an unstudied A Zone. The area must be studied to determine actual floodplain elevations and floodway boundaries. This map/study should be used as a base for comparison to the proposed project. *Section 3.1.5.*
6. Provide documentation that the proposed maintenance building is outside of the floodway. If within the flood fringe, describe how the building will be built to minimum floodplain design standards. *Section 4.1.5.*
7. Provide documentation that the proposed changes to land use do not alter hydrology by increasing flows. *Section 4.1.5.*
8. Describe the wave run up elevation on Lake Michigan. Note: If the primary dune is graded down below the wave run up elevation areas west of the dune may be brought into the floodplain. *Section 3.1.5.*

Stormwater

1. Describe the storm water practices that will be used to treat roadway and golf course runoff close to the Black River and near any wetland areas where filter strips may not be feasible. *Section 4.1.6.*
2. Discuss how the golf course's nutrient management plan will prevent nutrient impacts to the Black River, which is a candidate to be listed as a 303d impaired waterway (for Phosphorus). *Section 3.1.4.*
3. Discuss the protective measures that will be used to minimize the impacts of the nutrients from the golf course entering the irrigation pond. How frequently is aquatic plant and/or algae management anticipated? Would that impact the availability to irrigate? (Many of the herbicides and algacides have mandatory waiting period before the water can be used for irrigation.) *Section 4.1.4.*
4. Provide further details about construction sequencing. Discuss when pond and building construction will occur and what staging and practices can be used to prevent erosion. *Section 2.5.1.*
5. Clarify if infiltration basins will be used for stormwater treatment. Dry detention basins are not considered storm water treatment practice. Discuss the separation distance to the high groundwater as well as the type of soils for the detention basin. *Section 2.3.8.*
6. Discuss the temporary sediment and erosion control methods that will be used in each phase and how the phases will be temporarily and permanently stabilized. Describe practices to protect wetlands and waterways on the site from sediment (TSS) during and after construction. *Section 2.5.1.*
7. Describe soil profiles in the stormwater biofiltration areas. Please provide modeling to document the water quality and quantity performance of the biofiltration features. *Section 4.1.1.*

3. Entrance road lighting plan.
4. Park and proposed golf course entrance signage and specimen trees.
5. Identification of utility corridors and substations in relation to state park features.
6. Detailed design of the proposed maintenance building and potential for impacts to the state park users.
7. Fencing and property boundary controls in relation to state park features.
8. Describe the potential impacts of any proposed replacement lands to address Land and Water Conservation Fund Act (LAWCON) conversion process for lands proposed to be taken out of public use. Note: the conversion process requires replacement lands have equal or greater size, value, and utility.
9. What are the proposed hours of operation?

Wildlife

1. Provide further analysis of existing forest habitat including an estimate of the area/number/types of trees to be removed, access for tree clearing, grading, top soiling, debris and stump removal, and any re-vegetation plan for those areas. Discuss the potential for impacts to interior forest bird nesting habitat, if it is present. Are there comparable habitat patches in the area? *Sections 3.2.1 and 4.2.1.*
2. Please provide any wildlife and migratory bird surveys conducted by Kohler or used in the EIR development. *Section 3.2.4.*
3. Discuss potential for reduction in habitat value by breaking up the large forested block and the resulting impacts to migratory birds. Describe impacts to nesting, breeding, etc. from the presence of continuous golf operations, maintenance and other activities. *Section 4.2.4.*
4. Describe how golf course irrigation ponds can provide habitat for water birds and aquatic organisms, and the potential for chemicals that may be present in the ponds to affect water quality, and usage by birds and aquatic organisms. *Section 4.2.7.*
5. Describe any alternative irrigation pond designs considered such as several smaller ponds that could avoid wetlands and have natural aquatic structures and vegetation to provide habitat for wildlife. *Section 4.2.4.*

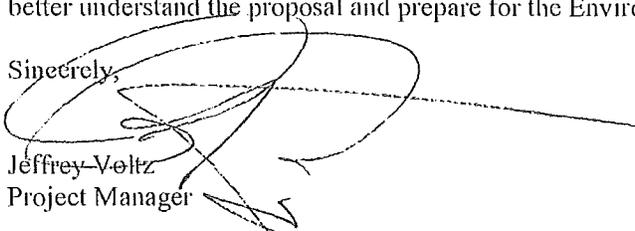
Other

1. Does any historic land use have potential for soil and groundwater contamination?
2. Describe plans for how construction traffic will access the site and potential impacts. *Section 4.1.*
3. Describe how sensitive dune formations will be protected from the potential increase in foot traffic. *Section 4.2.*

Closing

Thank you again for providing the Environmental Impact Report describing the Proposed Golf Course – Town of Wilson. I will schedule a follow-up meeting with you to discuss the information requested to help the Department better understand the proposal and prepare for the Environmental Impact Statement process.

Sincerely,



Jeffrey Voltz
Project Manager

cc: Kurt Thiede--- DNR
Eric Nitschke--- DNR
Sheboygan Co. Administrator
Chair, Town of Wilson
US Army Corps of Engineers
US Fish and Wildlife Service
National Park Service
Federal Emergency Management Agency

Toxic Fairways:

Risking Groundwater Contamination From Pesticides on Long Island Golf Courses

Attorney General of New York
New York State
Office of the Attorney General
Environmental Protection Bureau
Original Printing: July 1991
Revised: Feb. 1994, Dec. 1995

Contents

- Introduction
- Survey Methods
- Summary of Survey Results
- Other Potential Dangers of Golf Course Pesticides
- Recommendations
- Appendix

Tables

- Table 1: 52 Golf Course Responses
 - Table 2: Pesticides Used by 52 LI Golf Courses
 - Table 3: Selected Health Effects of Active Ingredients of Pesticides
 - Table 4: Pesticide Leaching Potential
-

Toxic Fairways:

Risking Groundwater Contamination From Pesticides on Long Island Golf Courses

This report examines the extent of pesticide use on Long Island golf courses and the potential for groundwater contamination and the resulting environmental harm and health risks. It includes findings from the first comprehensive survey of actual pesticide use on golf courses on Long Island. Before explaining why Long Island was chosen as the focus for this study, it is important to understand how pesticides are

used on golf courses and what dangers such use poses.

Introduction

In recent years, many Americans have asked questions about the safety of pesticides not only in our foods, but also in and around our homes and workplaces. Although pesticides permeate our everyday lives, we don't know enough about the dangers of pesticide exposure. The U. S. Environmental Protection Agency (EPA), which regulates pesticides, is currently reviewing the data on the health and environmental effects of some pesticides to decide whether these products should be continued to be used. In the meantime, thousands of pesticides still under review are freely marketed--unless the EPA decides to restrict or eliminate their use. So far, only one of the 34 most commonly used pesticides for turf and lawn care has completed this review.

The bottom line is that consumers do not know all the questions associated with pesticide use. Most important, no one has all the answers--not the manufacturers, not the EPA.

In fact, when the EPA permits a pesticide to be sold in the United States, the Agency does not decide that the product poses no environmental or health threats. The federal pesticide law, known as the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) which gives the EPA authority over pesticides, requires the EPA only to decide that the pesticide poses "no *unreasonable* risk" (emphasis added) to public health or the environment, based on its perceived economic, social and environmental costs and benefits. Before the EPA may register a pesticide and allow it onto the market, the agency must first determine that the risks are worth the benefits. But as more and more is learned about the extent of these risks--including the groundwater threat--this balancing act may tilt in the opposite direction, against the use of certain pesticides.

Unfortunately, it may be quite a while before the EPA restricts or bans certain pesticides that do pose an "unreasonable" risk. The EPA is requiring pesticide companies to supply additional data on potential risks of their products. The Agency will review the adequacy of this data as part of the pesticide re-registration process and this will most likely continue into the next century. An example of the new data requirement came in response to a 1987 petition submitted jointly by several environmental groups, the New York State Attorney General's Office and others, requesting EPA to perform tests for the neurotoxic effects (effects on the nervous system) of some pesticides. The EPA is now planning to require that pesticide manufacturers conduct such tests but it may be years before the public knows the full neurotoxic potential of pesticides now in use.

Several pesticides on the market have been identified as probable human carcinogens and some have been linked to birth defects, nervous system disorders and reproductive problems. In addition, as this report will discuss, pesticide use has the potential to threaten wildlife and contaminate natural resources. People can be exposed to pesticides in the water they drink, or through direct skin contact, inhalation or in the food they consume.

Although the risks of using pesticides to grow food crops may be worthwhile to ensure a continuing food supply, most people would agree that the benefits of pesticides used merely to produce green lawns and turf are far less. Despite the relatively limited benefits of turf and lawn care pesticides, three to six times as much pesticides are used per acre on home lawns than to grow the food we eat.⁽¹⁾As shown later in this report, golf courses on Long Island use almost four to seven times the average amount of pesticides used in agriculture, on a pound per acre basis.

In order to maintain the greens and fairways, many golf course managers apply huge amounts of pesticides following a pre-determined "recipe" of repeated applications, rather than customized treatments addressing actual problems. Many pesticides are used preventively, not in response to specific problems. Ironically, this can eventually turn into a pesticide addiction, which may require increasing amounts or different types of pesticides to produce the same results. Increased application rates further contribute to the potential threats to public health and the environment.

Who can be exposed to pesticides used on golf courses? Anyone on the golf course or nearby is at risk. Pesticide applicators, either professional contractors or golf course workers, can be exposed to these poisons during storage, mixing and application. Golfers, often playing shortly after pesticides have been applied, can be exposed directly to the pesticides on the turf, as well as to pesticide vapors and mists. People living near a golf course may be affected by sprays and dusts blown from the golf course onto their property and into their homes. Finally, pesticides applied to the turf may run off into surface waters or leach down to groundwater, which can then expose people to contaminated drinking water. These people may live far from the place where pesticides were used.

Unfortunately, neither the state or federal government require advance notification to the public of all pesticide applications, so that people can be exposed to pesticides without their knowledge.

In 1979, high levels of the pesticide aldicarb (Temik) were found in public and private drinking water wells in Suffolk County. The manufacturer provided wellhead treatment to remove the pollution. After a persistent degradation product of an herbicide called Dacthal

(chlorothal dimethyl or DCPA) was recently applied on Long Island, the chemical was detected in drinking water wells at levels 20 times above the State safe drinking water standards. In addition to Dacthal and Temik contamination, by 1988, 9 other pesticides or their degradation products had been detected in Long Island's groundwater. Two of these pesticides (chlorothalonil and Dacthal) are frequently used in turf care. Another 13 have been detected intermittently and more testing is necessary to verify their continuing presence in groundwater.⁽²⁾ Temik can no longer be used in Suffolk County. In 1988, one Dacthal manufacturer (ISK Biotech) voluntarily restricted its Dacthal products from use in Suffolk County; however, other companies have not. This restriction should be extended to all products containing Dacthal.

WHY LONG ISLAND?

The Attorney General's office decided to examine pesticide use on Long Island golf courses because pesticides pose special risks on the Island. Long Island's nearly three million people depend on groundwater as their only source of drinking water. This irreplaceable resource is vulnerable to contamination by surface-applied pesticides. Large areas of the island's groundwater lie beneath a sandy, porous surface soil layer with little organic matter to adsorb pesticides. This type of soil provides little if any barrier against contaminants reaching the groundwater.

Currently, groundwater monitoring for pesticides in Suffolk County is limited primarily to those pesticides used in agriculture. In Nassau County however, which has very little agricultural acreage, there is no comparable monitoring program for agricultural pesticides. All public drinking water supplies in New York State (including those in Long Island) must be tested regularly for the pesticides endrin, lindane, toxaphene, 2,4,5-TP, 2,4-D and methoxychlor. In Nassau and Suffolk counties, public drinking water supplies are also routinely tested for aldrin, dieldrin, DDT, chlordane, heptachlor, and heptachlor epoxide. In addition, Suffolk tests regularly for alachlor, aldicarb and several other related pesticides, EDB, endosulfan and 1,2-dichloropropane. Most of these pesticides are either no longer in use or have severely restricted uses. Apart from 2,4-D, they are not used in turf care. The EPA has recently conducted a "National Survey of Agricultural Pesticides in Groundwater" but only eight water samples were taken from Nassau County and none from Suffolk. Two of the eight samples contained residues of chlorothal dimethyl (Dacthal).

However, there is no comprehensive and targeted program for monitoring Long Island's groundwater for the vast majority of turf care pesticides used on Long Island. As a result, there is no way to determine whether contamination may have reached the aquifer in some locations.

This survey provides the first report on the extent of pesticide use in one specific area, golf courses, and also offers the first estimates of the potential for harm to the groundwater from golf course pesticides. No conclusions are drawn concerning any *present* danger to consumers of the groundwater. There is no reason to believe that any water now supplied to Long Island exceeds safe drinking water guidelines for any pesticides. The purpose here is to show the potential for damage to the groundwater resource due to long-term use of pesticides in sensitive areas, which may at some time affect the drinking water of Long Island's nearly three million people.

Although Long Island's geology and the dependence of such a large population on a single source of drinking water is unusual, groundwater quality in other areas of the state may also be jeopardized by pesticide use. Thus, the concerns raised in this report could apply to several other parts of the state where turf care pesticides are heavily used over aquifers.

Survey Methods

The Attorney General's survey of pesticides used on Long Island golf courses provides the basis for an initial evaluation of potential impacts on groundwater. In 1990, the Attorney General's office surveyed 107 private and public golf courses in Nassau and Suffolk counties (as listed in the *Glasheen 1989 Golf Course Guide for the New York City Area*) to determine the identity, amounts and patterns of use of pesticides on golf courses. After the initial mailing, follow-up mail and telephone inquiries were made to increase responses. A total of 58 surveys were returned but six responses were incomplete and unusable. (Table 1 on the next page provides a list of the 52 golf courses providing usable responses.)

TABLE 1:

TOTAL PESTICIDE USAGE BY 52 LONG ISLAND GOLF COURSES

(1989 unless indicated)

PRIVATE GOLF COURSES				PUBLIC GOLF COURSES			
MAP	GOLF COURSE	TOTAL	POUNDS	MAP	GOLF COURSE	TOTAL	POUNDS

NO.*		ACRES	APPLIED	NO.*		ACRES	APPLIED
15	Nassau Golf Course	180	2386	30	Eisenhower Park	300	1492
25	Woodcrest Club	122	2333	29	Bethpage	875	1480
21	Mill River Club	125	2299	64	Hauppague Country Club	135	1341
24	Tam O'Shanter Golf Course	169	2081	104	Montauk Downs Golf Course (1988)	254	989
88	National Golf Links	165	2070	46	Jones Beach	130	574
48	Huntington Country Club	90	2064	44	Lido Golf Course	144	490
53	Southward Ho Country Club	151	1983	83	Indian Island	157	472
4	North Hills Country Club (1988)	148	1721	62	Brentwood Country Club	110	385
6	IBM Country Club**	210	1707	56	Crab Meadow Country Club	79	377
20	Old Westbury Golf&Country Club	198	1696	13	Glen Cove Golf Course	122	345
49	Cold Springs Country Club	135	1647	78	Swan Lake Country Club	144	293
11	Engineers Country Club	122	1614	61	Hamlet Golf&Country Club	180	268
23	Muttontown Golf&Country Club	140	1611	67 Timber Point	239	192	
40	Rockaway Hunting	200	1587	82	Sandy Pond	75	177
22	Pine Hollow Country Club	160	1525	47	Peninsula Golf Course (1990)	50	172
36	Inwood Country Club	164	1446	63	Robert Moses	18	169
8	North Hempstead Country Club (1990)	110	1403	93	Poxaboque Golf Course	82	131
34	Hempstead Golf Course	120	1381	69	West Sayville	250	95
18	Brookville Country Club	116	1326	45	Merrick Rd. Park	61	88
71	St. George's Golf&Country Club	100	1176	51	Bergen Point	240	53
38	Lawrence Village Golf Course	120	1119	98	Cedars Golf Club (1990)	27	15
100	Gardiners Bay Country Club	118	1028	94	Sag Harbor Golf Course	68	0
1	Lake Success	120	857				
43	Middle Bay Country Club	120	792				
17	Cedarbrook Country Club (1990)	120	474				
90	Southampton Golf Course	130	404				

105	Blue Ridge Golf Course	32	297
86	Westhampton Country Club	120	212
102	Hay Harbor Golf Course (1990)	45	102
87	Quogue Field Club	82	93

* Corresponds to location shown on map, page 11.

** IBM Country Club reported treating 210 acres of which 60 comprised its golf course.

The Attorney General's office determined the identities and concentrations of "active" ingredients in each of the products used. The "active" ingredients are the chemicals in the product intended to kill pests. Pesticide manufacturers must identify the chemicals used as active ingredients on the product label, as well as their concentration. Since other ingredients, known as "inert" ingredients, are generally not identified, our calculations of pesticide use refer only to the active ingredient portion of the pesticides applied to the golf courses. "Inert" components are not necessarily non-toxic, nor can they be assumed to pose no threat to groundwater quality. Because their identity is treated as confidential business information by the EPA, their potential to contaminate groundwater cannot be evaluated.

Summary of Survey Results

The 52 golf courses reported using a total of approximately 200,000 pounds of bulk dry products and close to 9,000 gallons of bulk liquid formulations in one year. This included 192 different pesticide products containing 50 different active ingredients which totalled more than 50,000 pounds. (Table 2 on the next page provides the names and amounts of the active ingredients reported.)

If these 50,000 pounds were applied evenly across the total area of the 52 golf courses, it would amount to an average of 7 pounds of pesticides per acre annually. By comparison, a national average of 1.5 pounds of pesticides per acre are applied in agriculture annually.⁽³⁾ The actual rate of golf course pesticide use may be much higher than seven pounds per acre, since the playing surfaces that are treated make up only a portion of the golf courses' total acreage. A comparison of pesticide usage in agriculture and golf course maintenance which is based on the acreage actually treated with pesticides is even more alarming. Based on responses to our survey, pesticides were applied to only about 50 percent of the total acreage of Long Island golf courses. By contrast, pesticides are applied to about 62 percent of all agricultural land. Using these figures, the average golf course application rate increases to 18 pounds of pesticides per treated acre per year, about seven times the agricultural rate of 2.7 pounds per treated acre per year.⁽⁴⁾ Thus, between four and seven times as much pesticides are used on Long Island golf courses than are applied on food crops. (On the average, public golf courses used far less pesticides than private golf courses and fungicidal pesticides were far more heavily used than either herbicides or insecticides.)

By comparison, when homeowners follow the directions for various annual do-it-yourself lawn care programs, they may apply from 3.2 to 9.8 pounds of pesticide per acre annually. Thus, homeowners may apply up to 3.6 times as much pesticides as is typically used in agriculture. Even at that level, they apply less pesticides than golf courses.

TABLE 2:

PESTICIDES USED BY 52 LONG ISLAND GOLF COURSES

ACTIVE INGREDIENTS	TRADE NAMES	# OF USERS	PESTICIDES APPLIED (LBS.)
FUNGICIDES			
chlorothalonil	Daconil 2787	37	8768
anilazine	Dyrene	27	4733
iprodione	Chipco 26019	40	3491
mancozeb	Fore, Dithne, Manzate 2000DF	19	3008

propamocarb HCL	Banol	24	2219
triadimefon	Bayleton	47	1875
benomyl	Tersan 1991	32	1746
metalaxyl	Subdue	27	1427
PCNB	Turcide	10	1419
fosetyl-Al	Aliette	9	965
chloroneb	Tersan SP, Terremec SP	8	633
thiram	Spot-Trete	11	591
maneb	Tersan LSR	8	549
propiconazole	Banner	13	509
thiophanate-methyl	3336	12	330
fenarimol	Rubigan	22	174
vinclozolin	Vorlan	6	127
captan	Captan	2	28
cadmium chloride	Caddy	7	22
cycloheximide	Act-Dion T6F	1	0
TOTAL			32,614
HERBICIDES			
bensulide	Betasan	30	2174
chlorthalimethyl	Dacthal	12	1789
glyphosate	Roundup, Rodeo	12	496
2,4-D acid	Trimec	28	461
mecoprop	MCP, Mecomex	24	365
benfluralin	Balan, Team 2G	17	364
siduron	Turpersan	5	323
paclobutrazol	Scotts PCA	6	150
trifluralin	Team 2G	10	121
2,4-D amine salt	Trexsan, Trimec Bent	3	107
pendimethalin	Scotts Weed Control	4	79
dicamba	Banvel	22	71
oxadiazon	Ronstar	7	65
oryzalin	Surflan	2	54
prometon	Pramitol 25E	2	32
fenoxypop-ethyl	Acclaim	13	18
diquat	Diquat	2	17
dichlobenil	Dyclomec	2	10
2,4-Dp	Chipco Weedone	1	6
melfluidide	Embark	3	5
ethofumesate	Prograss	3	5
TOTAL			6,712
INSECTICIDES			
bendiocarb	Turcam	25	3371
trichlorfon	Dylox, Proxol 80SP	26	2793

chlorpyrifos	Dursban	42	2006
isofenfos	Oftanol	24	1739
carbaryl	Sevin	18	776
DDVP	Dursban plus	4	13
propoxur	Baygon	1	11
disulfoton	Disyston	1	2
TOTAL			10,710
TOTAL COMBINED PESTICIDES			50,035

Several of the pesticides (or their degradation products) applied on golf courses on Long Island in 1989 were then classified as probable or possible carcinogens:

Six pesticides (propoxur, DDVP, oryzalin, trifluralin, fosetyl-AI and chlorothalonil), totalling 9,932 pounds or 19.8 percent of the total active ingredients applied, were classified by the EPA as possible or probable human carcinogens.⁽⁵⁾ (Chlorothalonil is the most heavily used fungicide on Long Island golf courses and has also been detected in Long Island's groundwater.)

Another three (trichlorfon, mancozeb, maneb), totalling 6,350 pounds or 12.7 percent of the total active ingredients applied, naturally break down in the environment into various compounds including substances the EPA classifies as probable human carcinogens.

One active ingredient, Dacthal, with 1,789 pounds used or 3.6 percent of the total active ingredients applied, has been found by the EPA to be contaminated with traces of dioxin, a probable human carcinogen. (Dacthal was the second most heavily used herbicide on Long Island golf courses responding to the survey and its persistent degradation product has also been detected in Long Island's groundwater)

Five more (oxadiazon, benomyl, metalaxyl, pentachloronitrobenzene, captan) totalling 4,685 pounds or 9.4 percent of the total active ingredients applied, were being reviewed by the EPA for carcinogenicity.

Long-term, low-level exposure to many of the pesticides used by Long Island golf courses is associated with a variety of other health problems. This is the type of exposure generally resulting from drinking contaminated groundwater. According to the EPA, some of these chemicals can impair the nervous system, while others may damage the kidneys, liver, thyroid and adrenal glands, and the blood. Some cause degeneration of the testes, decreased sperm counts, reduction in weight of the uterus, and decreased birth weight. (Table 3, on the next page, lists some of the known long-term health effects associated with some of the pesticides applied on Long Island golf courses.)

Since the health risks of chronic, long-term exposure to many pesticides are not fully understood, any discussion of these effects will be incomplete. It may take many more years of research before the full range of these effects is known.

The potential for these health effects depend on whether, and how, people are exposed to these pesticides. Many of the pesticides used can contaminate the groundwater which in turn may end up as drinking water.

TABLE 3: Selected Health Effects of Active Ingredients of Pesticides Applied on Long Island Golf Courses

Active Ingredient	Potential Health Effects*
Benfluralin	Decreases red blood cell count and hemoglobin concentration
Benomyl	Causes low birth weight
Chlorpyrifos	Impairs nervous system function
Dicamba	Toxic to fetus
Diquat	Causes cataracts
Disulfoton	Impairs nervous system function;causes optic nerve degeneration

Pendimethalin	Toxic to liver
Propoxur	Impairs nervous system function
Thiophanate-methyl	Decreases sperm formation, causes hyperthyroidism
Thiram	Toxic to nervous system
Triadimefon	Decreases red blood cell count

* These are some health effects identified by the EPA that can result from sufficient oral exposure to the pesticides listed, including exposure from drinking water. Exposure to these pesticides by inhalation or direct contact and/or at higher concentrations could cause more severe health problems. (Source: Oral Reference Doses, Integrated Risk Information System, U. S. Environmental Protection Agency, 1991)

According to a 1991 report on pesticides in groundwater by the U.S. General Accounting Office, the investigative arm of Congress, at least six of the pesticides used by Long Island golf courses are already known to be capable of contaminating groundwater after normal applications following label directions. These six pesticides are: chlorothalonil, Dacthal, dicamba, 2,4-D, prometon and trifluralin. They accounted for 11,349 pounds or 22.6 percent of the pesticides used by the 52 golf courses in the survey. By 1988, the degradation products of two of these (chlorothalonil and Dacthal) had been detected in Long Island groundwater at the highest levels anywhere in the country.

Long Island's groundwater aquifers are replenished in the deep flow recharge areas. It is in these areas that precipitation infiltrates and trickles down through the soil and replenishes the Magothy and Lloyd aquifers, upon which the residents of Long Island depend for their drinking water supplies. An estimated 53 golf courses covering 7,294 acres are located within these deep flow recharge areas. Another 54 golf courses are estimated to cover 6,286 acres outside the deep flow recharge areas (see map on page 11, and map key in the Appendix). Although pesticide use by golf courses outside the recharge areas are less likely to affect the two deeper drinking water aquifers, it may contaminate the Upper Glacial aquifer which is used for both shallow private wells and even a few public supply wells.

Pesticides, like other chemicals, may vary in their potential to leach, or to migrate through soils. In the absence of groundwater monitoring studies, this potential can still be estimated. Table 4 presents estimates of this potential, based on a leachability rating system adopted by the U.S. Soil Conservation Service. The "leachability" ratings in this table consider pesticide persistence and mobility, and represent different probabilities for groundwater contamination. Pesticide applicators can use Table 4 as a guide for selecting pesticides that pose the least risk of groundwater contamination. This information can also be used to decide which pesticides should be monitored in groundwater.

The actual impact of the pesticide on groundwater is influenced by several additional factors including the type and thickness of the surface soil in the area where the pesticide is applied. As noted earlier, Long Island's soils are generally a poor barrier to contaminant migration. Long Island's vulnerability to groundwater contamination by pesticides is perhaps best illustrated by the fact that degradation products two of the pesticides (chlorothalonil and Dacthal) that are rated in Table 4 as having a "small" leaching potential have nevertheless already reached Long Island's groundwater (see discussion on page 3).

TABLE 4

Pesticide Leaching Potential

LARGE	MEDIUM	SMALL	VERY SMALL
dicamba	2,4-D amine salt	2,4-D acid	diquat
dichlobenil	bendiocarb	2,4-DP	glyphosate
ethofumesate	chloroneb	anilazine	propamocarb HCL
fenarimol	isofenfos	benfluralin	vinclozolin
metalaxyl	propiconazole	benomyl	
prometon	siduron	bensulide	
propoxur	triadimefon	captan	
trichlorfon		carbaryl	
		chlorothalonil	
		chlorpyrifos	
		Dacthol	
		disulfoton	

fosetyl-Al
iprodione
mancozed
maneb
oryzalin
oxadiazon
PCNB
pendimethalin
thiophanate-methyl
thiram
trifluralin

Source: SCS/ARS/CES Pesticide Properties Database, U.S.D.A. Soil Conservation Service, 1991

Other Potential Dangers of Golf Course Pesticides

Unfortunately, the potential adverse impacts of pesticides heavily applied on golf courses are not limited to the possibility that they may contaminate underground water supplies. People and the environment are not immune to many effects of pesticides. Millions of Americans may be sensitive to pesticides. Some of those afflicted with such reactions go to extraordinary lengths—greatly disrupting their lives—to avoid even the slightest chance of unwitting exposure. And still people continue to be poisoned by pesticides at work, at play and in the comfort of their own homes.

In addition to long-term health effects of pesticides like cancer, recently there have been various reports of people suffering immediate health problems after exposure to pesticides. In one extremely unusual case in 1982, Navy Lieutenant George Prior died two weeks after he spent three consecutive days playing golf at the Army Navy Country Club in Arlington, Virginia. His doctor, an expert forensic pathologist, reported that Prior suffered a severe reaction to chlorothalonil, a pesticide used weekly on the golf course.

In 1990, workers at Cornell University suffered attacks of vomiting, blurred vision, and headaches after the building where they were working was sprayed with an insecticide. Because of the growing number of these reports, last year New York State instituted a toll-free pesticide poisonings registry to keep track of these incidents. Pesticide poisonings must now be reported to the Department of Health's Pesticide Poisoning Registry at 1-800-322-6850.

Pesticides have also hurt the environment. Several years ago, more than 700 Brant geese were killed after absorbing diazinon from a Long Island golf course. Shortly after, New York State forbade the use of diazinon on golf courses.

Recommendations

If there is any doubt that Long Island's groundwater needs special protection, the fate of groundwater in Brooklyn and Queens is an unfortunate reminder of the consequences of inaction and neglect. All of Long Island (Brooklyn, Queens, Nassau, Suffolk) shares the same regional groundwater aquifer system. Groundwater in Brooklyn and Queens was a source of drinking water from colonial times until well into this century. Yet because the vulnerability of this resource was not understood, it was not protected from the ravages of commercial and industrial development and burgeoning population growth. For example, an underground pool of about 10 million gallons of oil and gasoline under the Greenpoint section of Brooklyn has contaminated the Upper Glacial aquifer. Today, except for the groundwater under a small section of southeastern Queens, the groundwater in Brooklyn and Queens is not used for drinking water.

Despite this sobering lesson, government has yet to address groundwater contamination by pesticides *before* it happens. Instead, pesticide contamination has been responded to—after the fact—with band-aid measures that only address the immediate problem, not its source.

Contaminated water has been replaced with bottled or tank-truck water or individual households have received drinking water filters that require ongoing maintenance. Affected public supply wells have been closed or fitted with expensive filters. Temik and Dacthal were banned for use in Suffolk County only after widespread contamination had occurred. However, such measures are no substitute for keeping groundwater clean by preventing future pesticide contamination. Yet the federal EPA, the agency with primary regulatory authority over pesticides, has made only limited prevention efforts. It has recognized that pesticide applications can jeopardize water quality and recently announced that it will take action to reduce the threat. However, the Agency has reviewed only about one-third of the studies submitted on the leaching characteristics of 16 pesticides *known* to contaminate groundwater. The EPA has determined that 40 percent of the studies are inadequate and must be supplemented or repeated. It will be years before the EPA has the full data requested in order to evaluate the threat of groundwater contamination. Until the data is complete and fully evaluated, the EPA should take interim action to prevent further groundwater contamination.

The State Legislature has already acted to protect Long Island's groundwater from some threats by ordering all landfills to close because of the danger they posed by leaking contaminants. The Legislature also enacted legislation banning certain septic tank cleaners on Long Island. But further action is needed.

To protect the public health and natural resources like Long Island's groundwater from the risks of pesticide contamination, the following measures should be taken in several areas.

Reducing Pesticide Hazards

The use of pesticides containing known or probable carcinogens for aesthetic purposes such as golf courses or lawn care should be eliminated. The risks posed by these carcinogens are not outweighed by the benefits of an aesthetically pleasing green lawn.

Pesticide users, particularly golf course management, both public and private, should consider the leachability and toxicity of pesticides they apply and avoid those with significant potential toxic effects.

Efficacy should not be the only reason for choosing a pesticide.

Groundwater quality should be monitored for pesticide contamination, particularly in groundwater recharge areas where pesticides are known to be applied in large quantities, such as Long Island golf courses.

As suggested by the GAO, the EPA should require groundwater advisories on the labels of pesticides known to cause widespread groundwater contamination.

The GAO also suggests that the EPA prohibit the use of pesticides known to leach into groundwater wherever groundwater is particularly vulnerable to pesticide contamination.

The GAO further suggests that the EPA permit only certified pesticide applicators to use those pesticides that leach into groundwater.

Minimizing Pesticide Use

All pesticide applicators, including golf course managers and homeowners, should use less toxic alternatives and "Integrated Pest Management" (IPM) practices to minimize the amounts of toxic chemicals applied.

Pesticide applicators should advise consumers that reduced or non-chemical alternatives to pesticides are available, so that consumers may choose to use such alternatives.

Full Disclosure

Pesticide labels should inform users that any pesticide use may pose potential health and environmental risks.

Pesticide labels should state clearly that registration is not a guarantee that pesticide use is free from risk.

The public should receive advance notice of pesticide applications in public buildings and places such as golf courses. Then people can make their own, informed choices about whether they want to risk exposure.

Implementing these recommendations cannot reverse past pesticide contamination. However, protection of our drinking water resources today will help ensure a continuing and safe water supply for future generations.

Endnotes:

1. Time Magazine, June 3, 1991
2. Status: Pesticide Sampling Programs, 1980-1988, Suffolk County Department of Health Services, July 1989.
3. D. Pimentel et al., "Environmental and Economic Impacts of Reducing U.S. Agricultural Pesticide Use," *Handbook of Pest Management in Agriculture*, 2nd edition, edited by David Pimentel, CRC Press, Boca Raton, Florida, 1991, page 679.
4. D. Pimentel et al., op cit.
5. As of August 1995, each of these active ingredients was still classified as a possible or probable carcinogen by EPA.
6. As mentioned earlier, one Dacthal manufacturer has voluntarily restricted its Dacthal products from use in Suffolk County. However, products containing Dacthal made by other companies or stocks purchased before the restriction took effect in 1988 can still be used in Suffolk County.
7. As of August 1995, EPA's Office of Pesticide Programs listed captan as a probable carcinogen and oxadiazon, benomyl and pentachloronitrobenzene as possible carcinogens. Metalaxyl was listed as having evidence of "noncarcinogenicity for humans."

Credits

This report was originally prepared by Environmental Scientist Patricia Primi, Chief Scientist Michael H. Sorgan, Ph.D., Assistant Attorneys General Deborah I. Volberg and James A. Sevinsky and other staff of the Environmental Protection Bureau.

Appendix

KEY TO NASSAU COUNTY GOLF COURSES					
Loc. #	Name	Town	Holes	Acres	Public/Private
1	Lake Success	Great Neck	18	120	private
2	Fresh Meadow	Great Neck	18	140	private
3	Deepdale	Manhasset	18	150	private
4	North Hills	Manhasset	18	148	private
5	Sands Point	Sands Point	18	130	private
6	IBM	Port Washington	9	60	private
7	Plandome C.C.	Plandome	18	110	private
8	North Hempstead	Port Washington	18	110	private
9	Christopher Morley Pk	North Hills	9	43	public
10	Wheatley Hills	East Williston	18	120	private
11	Engineers C.C.	Roslyn Harbor	18	122	private
12	North Shore C.C.	Glen Head	18	150	private
13	Glen Cove	Glen Cove	18	122	public
14	The Creek Club	Locust Valley	18	90	private
15	Nassau C.C.	Glen Cove	18	180	private
16	Glen Head C.C.	Glen Head	18	168	private
17	The Cedar Brook Club	Old Brookville	18	120	private
18	Brookville C.C.	Glen Head	18	116	private
19	Piping Rock Club	Locust Valley	18	178	private
20	Old Westbury	Old Westbury	27	198	private

21	Mill River Club	Oyster Bay	18	125	private
22	Pine Hollow C.C.	East Norwich	18	160	private
23	Muttontown	East Norwich	18	140	private
24	Tam O'Shanter	Brookville	18	169	private
25	Woodcrest Club	Syosset	18	122	private
26	Meadow Brook Club	Jericho	18	125	private
27	Glen Oaks	Old Westbury	27	250	private
28	Cantiague Park	Hicksville	9	42	public
29	Bethpage State Park	Farmingdale	90	875	public
30	Eisenhower Park	East Meadow	54	300	public
31	Garden City C.C.	Garden City	18	150	private
32	Garden City G.C.	Garden City	18	112	private
33	Cherry Valley	Garden City	18	143	private
34	Hempstead	Hempstead	18	120	private
35	Rockville Links	Rockville Ctr.	18	180	private
36	Inwood	Inwood	18	164	private
37	North Woodmere Park	N. Woodmere	9	50	public
38	Lawrence	Lawrence	18	120	private
39	Woodmere	Woodmere	18	110	private
40	Rockaway Hunting Club	Cedarhurst	18	200	private
41	Seawane Club	Hewlett Harbor	18	130	private
42	Bay Park	E. Rockaway	9	50	public
43	Middle Bay C.C.	Oceanside	18	120	private
44	Lido Golf Club	Lido Beach	18	144	public
45	Merrick Rd. Park	Merrick	9	61	public
46	Jones Beach State Park	Wantagh	18	130	public
47	Peninsula	Massapequa	9	50	public

KEY TO SUFFOLK COUNTY GOLF COURSES					
Loc. #	Name	Town	Holes	Acres	Public/Private
48	Huntington C.C.	Huntington	18	90	private
49	Cold Spring C.C.	Cold Sprng Hrbr	18	135	private
50	Huntington Crescent	Huntington	18	190	private
51	Bergen Point C.C.	Babylon	18	240	public
52	Cedar Beach	Babylon	9	20	public
53	Southward Ho	Bayshore	18	151	private
54	Half Hollow Hills	Dix Hills	9	41	public
55	Dix Hills	Dix Hills	9	30	public
56	Crab Meadow	Northport	18	79	public
57	Northport VA Hospital	Northport	9	28	public
58	Indian Hill	Northport	18	143	private
59	Sunken Meadow	Kings Park	27	250	public

60	Dix Hills Park	Dix Hills	9	36	public
61	The Hamlet	Commack	18	180	public
62	Brentwood C.C.	Brentwood	18	110	public
63	Robert Moses	Babylon	9	18	public
64	Hauppague	Hauppauge	18	135	public
65	Smithtown Landing	Smithtown	27	40	public
66	Colonie Hill	Hauppauge	18	90	private
67	Timber Point	Great River	27	239	public
68	Nissequogue	St. James	18	125	private
69	West Sayville	West Sayville	18	250	public
70	Island Hills C.C.	Sayville	18	110	private
71	St. Georges	Stony Brook	18	100	private
72	Heatherwood	Centereach	18	70	public
73	Harbor Hills	Port Jefferson	18	40	private
74	Bellport	Bellport	18	98	public
75	Tall Tree	Rocky Point	18	146	public
76	Spring Lake	Middle Island	27	260	public
77	Middle Island	Middle Island	27	226	public
78	Swan Lake	Manorville	18	144	public
79	Pine Hills	Manorville	18	133	public
80	Rock Hill	Manorville	18	125	private
81	Fox Hill	Baiting Hollow	18	140	private
82	Sandy Pond	Riverhead	9	75	public
83	Indian Island	Riverhead	18	157	public
84	Hampton Hills	Riverhead	18	60	private
85	L.I. Wyandanch Club	Eastport	9	63	public
86	Westhampton	Westhmpn Bch.	18	120	private
87	Quogue Field Club	Quogue	9	82	private
88	National Golf Links	Southampton	18	165	private
89	Shinnecock Hills	Southampton	18	96	private
90	Southampton	Southampton	18	130	private
91	Noyac	Sag Harbor	18	102	private
92	Bridgehampton	Bridgehampton	9	66	private
93	Poxabogue	Bridgehampton	9	82	public
94	Sag Harbor	Sag Harbor	9	68	public
95	Maidstone	East Hampton	27	120	private
96	South Fork	Amagansett	9	40	private
97	North Fork	Cutchogue	18	130	private
98	Cedars	Cutchogue	9	27	public
99	Shelter Island	Shelter Island	9	61	public
100	Gardiners Bay	Shelter Island	18	118	private
101	Islands End	Greenport	18	108	private
102	Hay Harbor	Fishers Island	9	45	private
103	Fishers Island	Fishers Island	18	130	private

104	Montauk Downs	Montauk	18	254	public
105	Blue Ridge	Medford	9	32	private
106	Gull Haven	Central Islip	9	60	private
107	Leisure Village	Ridge	9	60	private

Article 134

Technical Note #20 from *Watershed Protection Techniques*, 1(2): 73-75

Minimizing the Impact of Golf Courses on Streams

Over 13,000 golf courses now exist in the U.S. and many more will be constructed to meet the growing popularity of the sport. The construction of a new golf course has the potential to create adverse impacts on the aquatic environment. To begin with, a typical 18-hole golf course can convert as much as 100 acres of rural land into a highly "terra-formed" environment of fairways, greens, tees, sand traps, and water hazards. As such, golf courses are often an attractive part of the urban landscape. Haphazardly designed golf courses, however, can disrupt and degrade the wetlands, floodplains, riparian zones, and forests that contribute to stream quality.

A second recurring concern about golf courses are the large inputs of fertilizer, pesticides, fungicides, and other chemicals that are required to maintain vigorous and attractive greens. In many cases, chemical application rates can rival and even exceed those used in intensive agriculture. Table 1 shows a side by side comparison of chemical application rates for a coastal plain golf course and cropland in Maryland, as reported by Klein (1990).

The actual rate of fertilizer and pesticide application rates at a particular golf course can vary considerably, depending on the soil, climate, and management program. As an example, fungicides and nematicides are only lightly used in regions with cold winters, but constitute a major fraction of total pesticide applications in warmer climates. Given such intensive use of chemicals, golf courses clearly have the potential to deliver pollutants to ground and surface waters. Actual monitoring data on pollutant loads from golf courses, however, are quite scarce.

Golf courses are also intensive water consumers, particularly in drier regions of the country. This need for irrigable water can place strong demands on local groundwater and/or surface water supplies, which in turn, can cause baseflow depletion. In addition, the construction of the ubiquitous golf course water hazards can lead to downstream warming in sensitive trout streams.

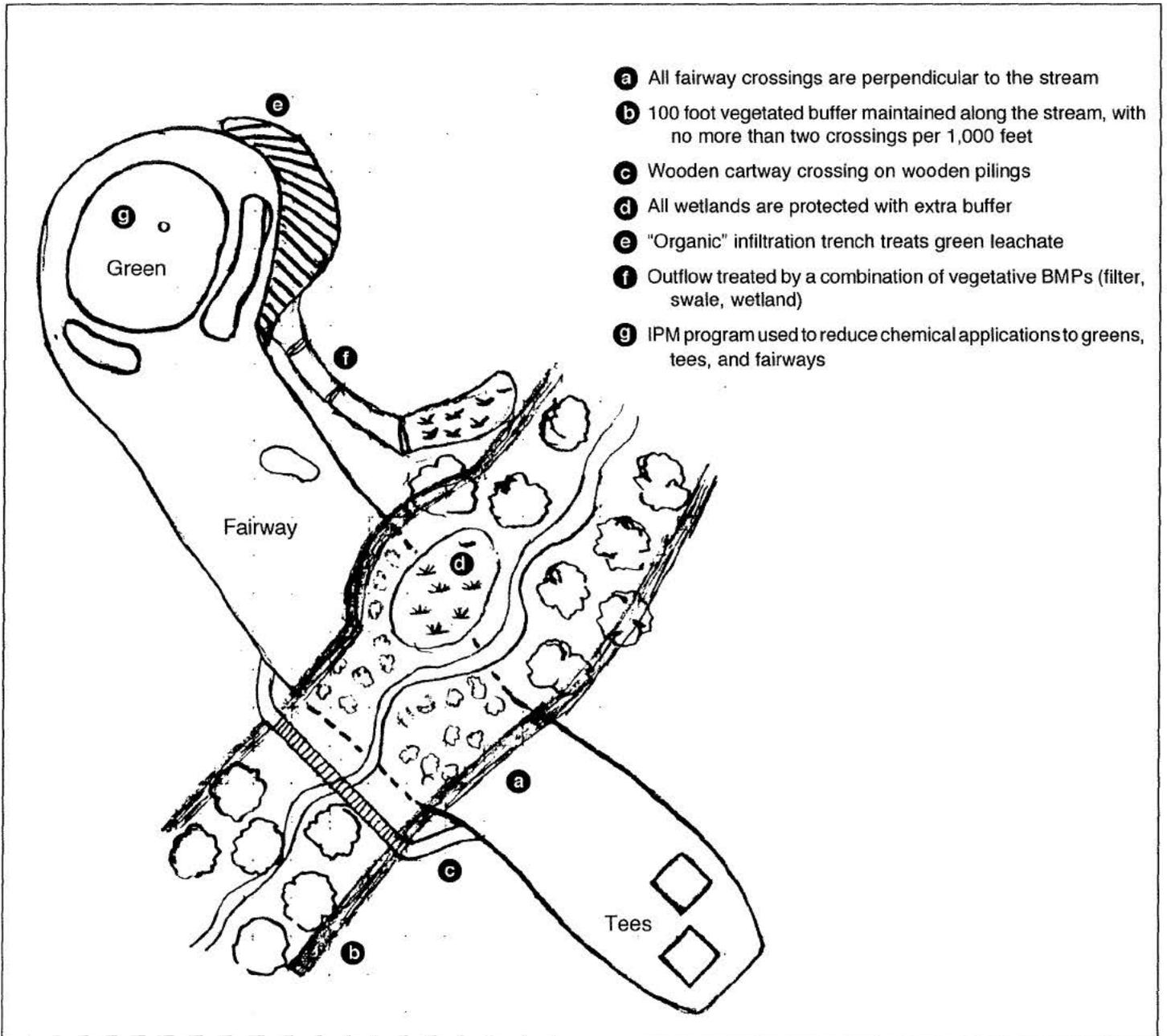
In the late 1980s, Baltimore County, Maryland was confronted with a wave of golf course development proposals and strong concerns about the possible risk they might have on their Piedmont streams. The Department of Environmental Protection and Resource Management drafted and revised a series of environmental guidelines for new golf course construction. The guidelines stress the importance of integrating the layout of the course with the natural features of the site.

For example, the guidelines require a detailed evaluation of wetlands, perennial and intermittent streams, floodplains, slopes, forest stands and habitat features at the proposed course. The course must be configured to avoid or minimize disturbance to these resource areas. In this respect, long broad fairways are a prime culprit, as they frequently cross or encroach into streams and other buffer areas.

Consequently, the guidelines devote a great deal of attention to the issue of fairway crossings (see Figure 1). For example, no more than two fairway crossings are allowed for each 1,000 feet of stream length. These crossing must be perpendicular to the stream. If forests or wetlands are present at the crossing, this zone must be managed as unplayable rough and remain undis-

Table 1: Comparative Chemical Application Rates for a Maryland Golf Course and Corn/Soybean Rotation Reported in Pounds/Acre/Year (Klein, 1990)

Chemical	Cropland	Fairway	Greens	Tees
Nitrogen	184	150	213	153
Phosphorus	80	88	44	93
Herbicides	5.8	10.4	10.2	11.4
Insecticide	1.0	2.0	2.0	2.0
Fungicide	0.0	26.9	34.9	26.9
Total Pesticides	5.8	37.3	45.1	38.3



- a** All fairway crossings are perpendicular to the stream
- b** 100 foot vegetated buffer maintained along the stream, with no more than two crossings per 1,000 feet
- c** Wooden cartway crossing on wooden pilings
- d** All wetlands are protected with extra buffer
- e** "Organic" infiltration trench treats green leachate
- f** Outflow treated by a combination of vegetative BMPs (filter, swale, wetland)
- g** IPM program used to reduce chemical applications to greens, tees, and fairways

Figure 1: Stormwater Practices for a Golf Course and Stream Crossing (Powell and Jolley, 1992)

turbed as early successional forest or wetland. Cartways and footpaths that cross the stream corridor must be narrow and constructed of timber on wooden pilings. The County guidelines also limit the extent of forest that can be cleared during construction. No more than 25% of the pre-existing forest cover may be removed during course construction.

Constructed ponds are not permitted in trout streams unless they are "zero discharge" facilities constructed in upland areas (see article 82). Best management practices emphasize treatment of greens and tees where nutrient and pesticide applications are greatest. The use of a series of vegetative filtering mechanisms such

as swales, forest buffers, sand filters, and infiltration trenches are recommended.

A common practice for greens is illustrated in Figure 2. To start with, a four-foot thick mantle of soil is required below the green's underdrain system to prevent leachate from entering groundwater. The leachate is collected in perforated pipes and routed into small depression. This depression is usually filled with layers of organic matter, sand and stone, and then landscaped. The depression acts as both a biofilter and an infiltration facility.

Excess runoff from fairways is also treated by a series of best redundant best management practices (e.g., a grass swale leading to a pocket wetland or

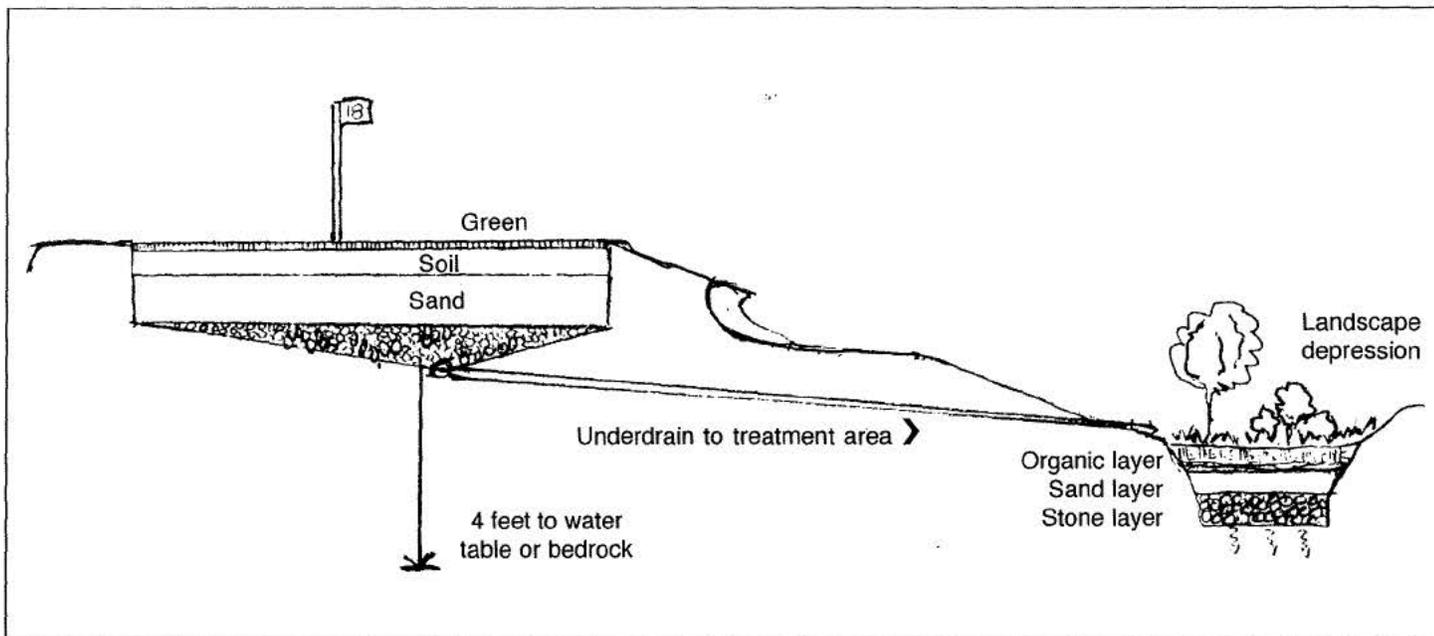


Figure 2: Schematic of a Water Quality Treatment System to Remove Pollutants From a Golf Course Green

irrigation pond that in turn overflows into a forest buffer strip).

Since golf courses are largely pervious in nature, it is not always appropriate to size stormwater practices systems for water quality treatment based on conventional water quality sizing rules (i.e., based on the amount of impervious area created at the site). Rather, it is more important to ensure proper control of each green, tee, and fairway, and to maximize the use of swales, forest buffers, and wetlands to achieve high rates of treatment.

The Baltimore County guidelines require the installation of permanent sampling wells in addition to periodic monitoring of storm runoff, groundwater, and the biological community present in golf course streams. The guidelines also recognize the importance of integrated pest management (IPM).

The golf course operator must submit an IPM plan that emphasizes the selection of drought and disease resistant turf that requires less maintenance, utilizes biological controls rather than chemicals, and carefully regulates the selection and application of pesticides. The use of slow-release fertilizers is also encouraged to minimize the leaching of nitrates into groundwater.

To date, the guidelines have been applied to seven new golf course development proposals in Baltimore County with the active cooperation from the golf design community. Preliminary storm and groundwater monitoring data from several golf courses designed under the new guidelines indicate that they appear to have little impact on water quality, with the possible exception of nitrate leaching. Additional storm monitoring data is expected at both public and private

courses over the next two years to attempt to confirm this observation.

—TRS

References

- Powell, R.O. and J.B. Jollie. 1993. *Environmental Guidelines for the Design and Maintenance of Golf Courses*. Baltimore County Dept. of Environmental Protection and Resource Management.
- Klein, Richard D. 1990. *Protecting the Aquatic Environment From the Effects of Golf Courses*. Community & Environmental Defense Assoc. Maryland Line, MD.

The Importance of Imperviousness

The emerging field of urban watershed protection often lacks a unifying theme to guide the efforts of its many participants—planners, engineers, landscape architects, scientists, and local officials. The lack of a common theme has often made it difficult to achieve a consistent result at either the individual development site or cumulatively, at the watershed scale.

In this article a unifying theme is proposed based on a physically defined unit: imperviousness. Imperviousness here is defined as the sum of roads, parking lots, sidewalks, rooftops, and other impermeable surfaces of the urban landscape. This variable can be easily measured at all scales of development, as the percentage of area that is not “green.”

Imperviousness is a very useful indicator with which to measure the impacts of land development on aquatic systems. Reviewed here is the scientific evidence that relates imperviousness to specific changes in the hydrology, habitat structure, water quality and biodiversity of aquatic systems. This research, conducted in many geographic areas, concentrating on many different variables, and employing widely different methods, has yielded a surprisingly similar conclusion: stream degradation occurs at relatively low levels of imperviousness (~10%). Most importantly, imperviousness is one of the few variables that can be explicitly quantified, managed and controlled at each stage of land development. The remainder of this article details the relationship between imperviousness and stream quality.

The Components of Imperviousness

Imperviousness represents the imprint of land development on the landscape. It is composed of two primary components: the *rooftops* under which we live, work and shop, and the *transport* system (roads, driveways, and parking lots) that we use to get from one roof to another. As it happens, the transport component now often exceeds the rooftop component in terms of total impervious area created. For example, transport-related imperviousness comprised 63 to 70% of total impervious cover at the site in 11 residential, multifamily and commercial areas where it had actually been measured (City of Olympia, 1994b). This phenomenon is observed most often in suburban areas and reflects the recent ascendancy of the automobile in both our culture and landscape. The sharp increases in per

capita vehicle ownership, trips taken, and miles travelled have forced local planners to increase the relative size of the transport component of imperviousness over the last two decades.

Traditional zoning has strongly emphasized and regulated the first component (rooftops) and largely neglected the transport component. While the rooftop component is largely fixed in zoning, the transport component is not. As an example, nearly all zoning codes set the maximum density for an area, based on dwelling units or rooftops. Thus, in a given area, no more than one single family home can be located on each acre of land, and so forth.

Thus, a wide range in impervious cover is often seen for the same zoning category. For example, impervious area associated with medium density single family homes can range from 20% to nearly 50%, depending on the layout of streets and parking. This suggests that significant opportunities exist to reduce the share of imperviousness from the transport component.

Imperviousness and Runoff

The relationship between imperviousness and runoff may be widely understood, but it is not always fully appreciated. Figure 1 illustrates the increase in the site runoff coefficient as a result of site impervious cover, developed from over 40 runoff monitoring sites across the nation. The runoff coefficient ranges from zero to one and expresses the fraction of rainfall volume that is actually converted into storm runoff volume. As can be seen, the runoff coefficient closely tracks percent impervious cover, except at low levels where soils and slope factors become more important. In practical terms, this means that the total runoff volume for a one-acre parking lot ($R_v = 0.95$) is about 16 times that produced by an undeveloped meadow ($R_v = 0.06$).

To put this in more understandable terms, consider the runoff from a one-inch rainstorm (see Table 1). The total runoff from a one-acre meadow would fill a standard size office to a depth of about two feet (218 cubic feet). By way of comparison, if that same acre was completely paved, a one-inch rainstorm would completely fill your office, as well as the *two* next to it. The peak discharge, velocity and time of concentration of stormwater runoff also exhibit a striking increase after a meadow is replaced by a parking lot (Table 1).

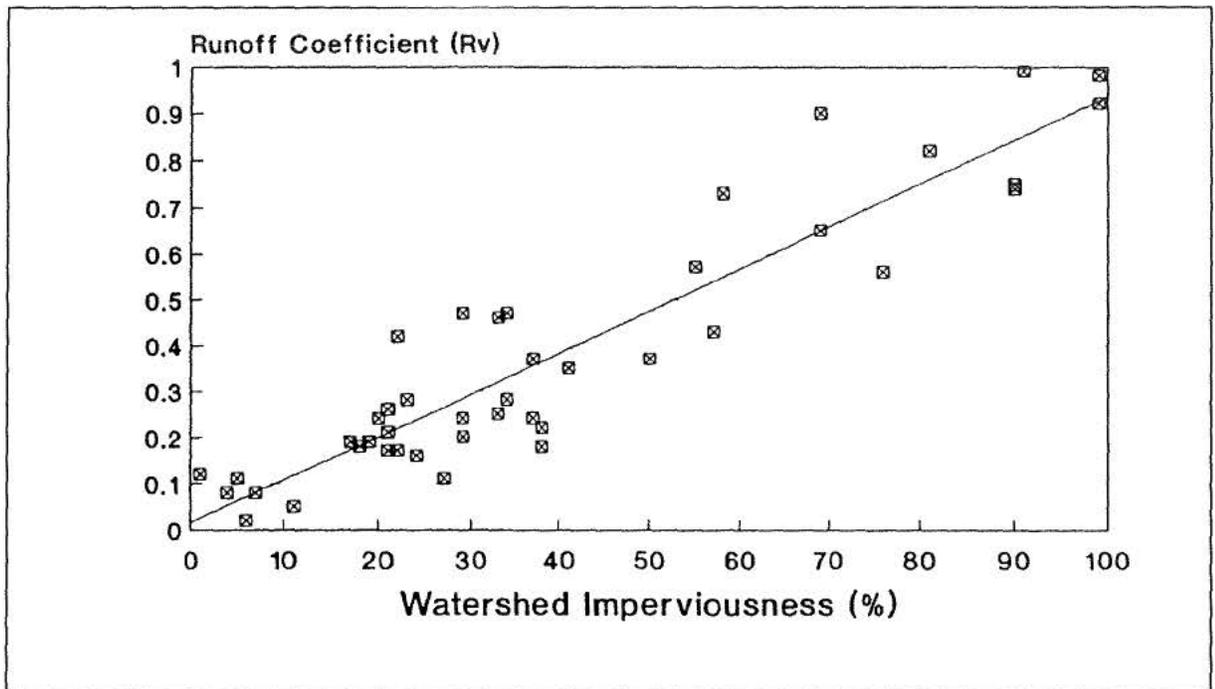


Figure 1: Watershed Imperviousness and the Storm Runoff Coefficient

Because infiltration is reduced in impervious areas, one would expect groundwater recharge to be proportionately reduced. This, in turn, should translate into lower dry weather stream flows. Actual data, however, that demonstrate this effect is rare. Indeed, Evett *et al.* (1994) could not find any statistical difference in low stream flow between urban and rural watersheds after analyzing 16 North Carolina watersheds. Simmons and Reynolds (1982) did note that dry weather flows dropped

20 to 85% after development in several urban watersheds in Long Island, New York.

It should be noted that transport-related imperviousness often exerts a greater hydrological impact than the rooftop-related imperviousness. In residential areas, runoff from rooftops can be spread out over pervious areas, such as backyards, and rooftops are not always directly connected to the storm drain system. This may allow for additional infiltration of runoff. Roads and parking lots, on the other hand, are usually directly connected to the storm drain system.

Table 1: Comparison of One Acre of Parking Lot Versus One Acre of Meadow in Good Condition

Runoff or Water Quality Parameter	Parking Lot	Meadow
Curve number (CN)	98	58
Runoff coefficient	0.95	0.06
Time of concentration (minutes)	4.8	14.4
Peak discharge rate (cfs), 2 yr., 24 hr. storm	4.3	0.4
Peak discharge rate (cfs), 100 yr. storm	12.6	3.1
Runoff volume from one-inch storm (cubic feet)	3450	218
Runoff velocity @ 2 yr. storm (feet/second)	8	1.8
Annual phosphorus load (lbs/ac./yr.)	2	0.50
Annual nitrogen load (lbs/ac./yr.)	15.4	2.0
Annual zinc load (lbs/ac./yr.)	0.30	ND

Key Assumptions:

Parking lot is 100% impervious with 3% slope, 200 feet flow length, Type 2 Storm, 2 yr. 24 hr. storm = 3.1 inches, 100 yr. storm = 8.9 inches, hydraulic radius = 0.3, concrete channel, and suburban Washington 'C' values.

Meadow is 1% impervious with 3% slope, 200 foot flow length, good vegetative condition, B soils, and earthen channel.

Imperviousness and the Shape of Streams

Confronted by more severe and more frequent floods, stream channels must respond. They typically do so by increasing their cross-sectional area to accommodate the higher flows. This is done either through widening of the stream banks, downcutting of the stream bed, or frequently, both. This phase of channel instability, in turn, triggers a cycle of streambank erosion and habitat degradation.

The critical question is at what level of development does this cycle begin? Recent research models developed in the Pacific Northwest suggest that a threshold for urban stream stability exists at about 10% imperviousness (Booth, 1991; Booth and Reinelt, 1993) (Figure 2). Watershed development beyond this threshold consistently resulted in unstable and eroding channels. The rate and severity of channel instability appears to be a function of sub-bankfull floods, whose frequency can increase by a factor of 10 even at relatively low levels of imperviousness (Hollis, 1975; Macrae and Marsalek, 1992; Schueler, 1987).

A major expression of channel instability is the loss of instream habitat structures, such as the loss of pool and riffle sequences and overhead cover, a reduction in the wetted perimeter of the stream and the like. A number of methods have been developed to measure the structure and quality of instream habitat in recent years (Galli, 1993; Gibson *et al.*, 1993; Plafkin *et al.*, 1989). Where these tools have been applied to urban streams, they have consistently demonstrated that a sharp threshold in habitat quality exists at approximately 10 to 15% imperviousness (Booth and Reinelt, 1993; Galli, 1994; Shaver *et al.*, 1995). Beyond this threshold, urban stream habitat quality is consistently classified as poor.

Imperviousness and Water Quality

Impervious surfaces collect and accumulate pollutants deposited from the atmosphere, leaked from vehicles or derived from other sources. During storms, accumulated pollutants are quickly washed off and rapidly delivered to aquatic systems.

Monitoring and modeling studies have consistently indicated that urban pollutant loads are directly related to watershed imperviousness. Indeed, imperviousness is the key predictive variable in most simulation and empirical models used to estimate pollutant loads. For example, the Simple Method assumes that pollutant loads are a direct function of watershed imperviousness (Schueler, 1987), as imperviousness is the key independent variable in the equation.

Threshold Limits for Maintaining Background Pollutant Loads

Suppose that watershed runoff drains into a lake that is phosphorus-limited. Also assume that the present background load of phosphorus from a rural land use amounts to 0.5 lbs/ac/yr. The Simple Method predicts that the post-development phosphorus load will exceed background loads once watershed imperviousness exceeds 20 to 25% (Figure 3), thereby increasing the risk of nutrient over-enrichment in the lake.

Urban phosphorus loads can be reduced when urban stormwater treatment practices are installed, such as stormwater ponds, wetlands, filters or infiltration practices. Performance monitoring data indicates that stormwater practices can reduce phosphorus loads by as much as 40 to 60%, depending on the practice selected. The impact of this pollutant reduction on the post-development phosphorus loading rate from the site is shown in Figure 3. The net effect is to raise the phosphorus threshold to about 35 to 60% imperviousness, depending on the performance of the stormwater practice installed. Therefore, even when effective practices are widely applied, a threshold of imperviousness is eventually crossed, beyond which predevelopment water quality cannot be maintained.

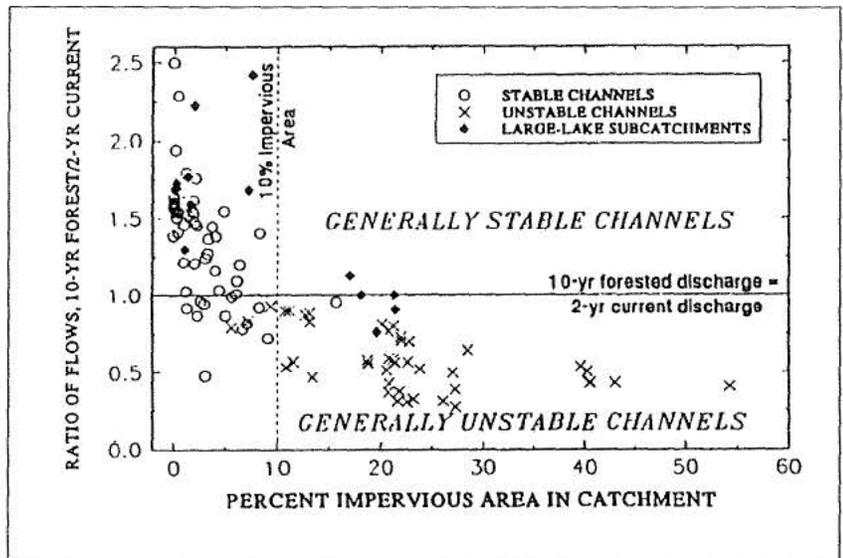


Figure 2: Channel Stability as a Function of Imperviousness (Booth and Reinelt, 1993)

Imperviousness and Stream Warming

Impervious surfaces both absorb and reflect heat. During the summer months, impervious areas can have local air and ground temperatures that are 10 to 12 degrees warmer than the fields and forests that they replace. In addition, the trees that could have provided shade to offset the effects of solar radiation are absent.

Water temperature in headwater streams is strongly influenced by local air temperatures. Galli (1991) reported that stream temperatures throughout the summer are increased in urban watersheds, and the degree of warming appears to be directly related to the impervious cover of the contributing watershed. He monitored five headwater streams in the Maryland Piedmont over a six-month period, each of which had different levels of impervious cover (Figure 4). Each of the urban streams had mean temperatures that were consistently warmer than a forested reference stream, and the size of the increase (referred to as the delta-T) was a direct function of watershed imperviousness. Other factors, such as lack of riparian cover and ponds, were also demonstrated to amplify stream warming, but the primary contributing factor appeared to be watershed impervious cover (Galli, 1991).

Imperviousness and Stream Biodiversity

The health of the aquatic ecosystem is a strong environmental indicator of watershed quality. A number of research studies have recently examined the links between imperviousness and the biological diversity in streams. Some of the key findings are summarized in Table 2.

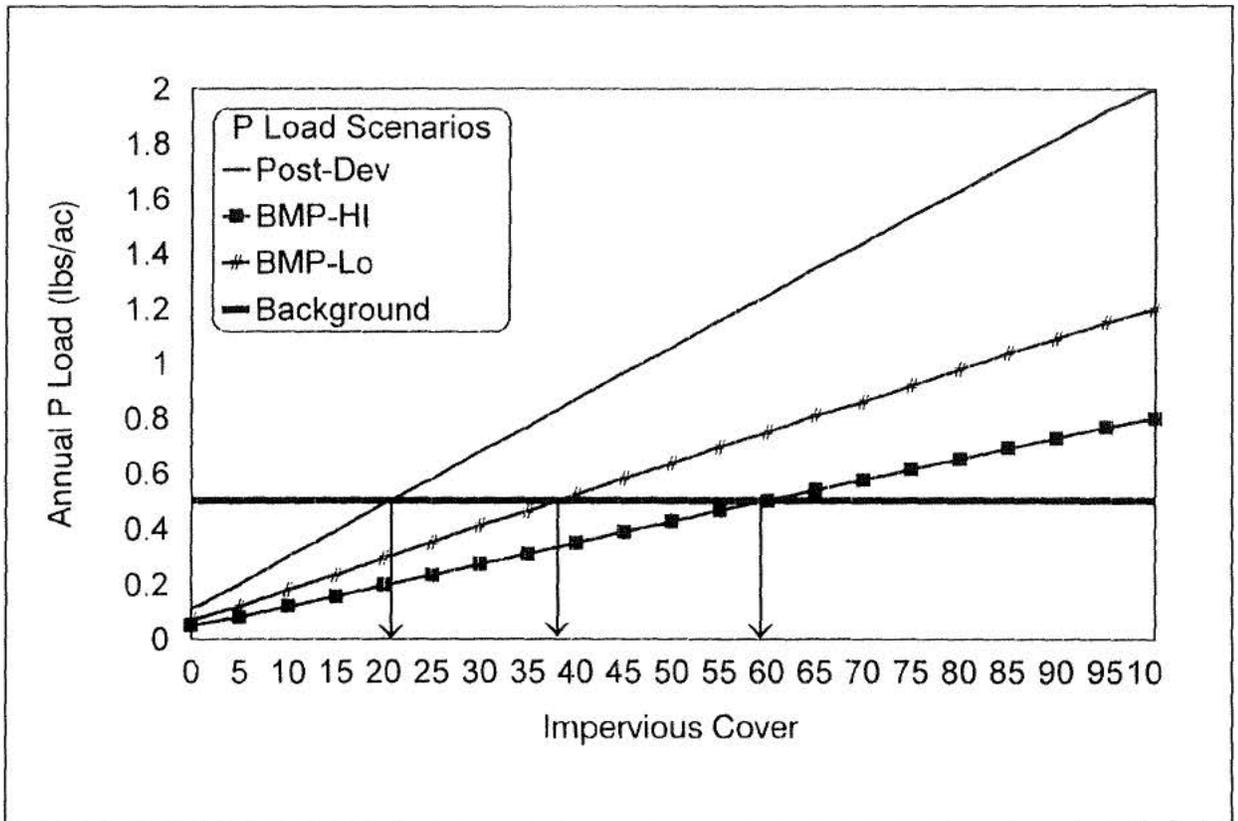
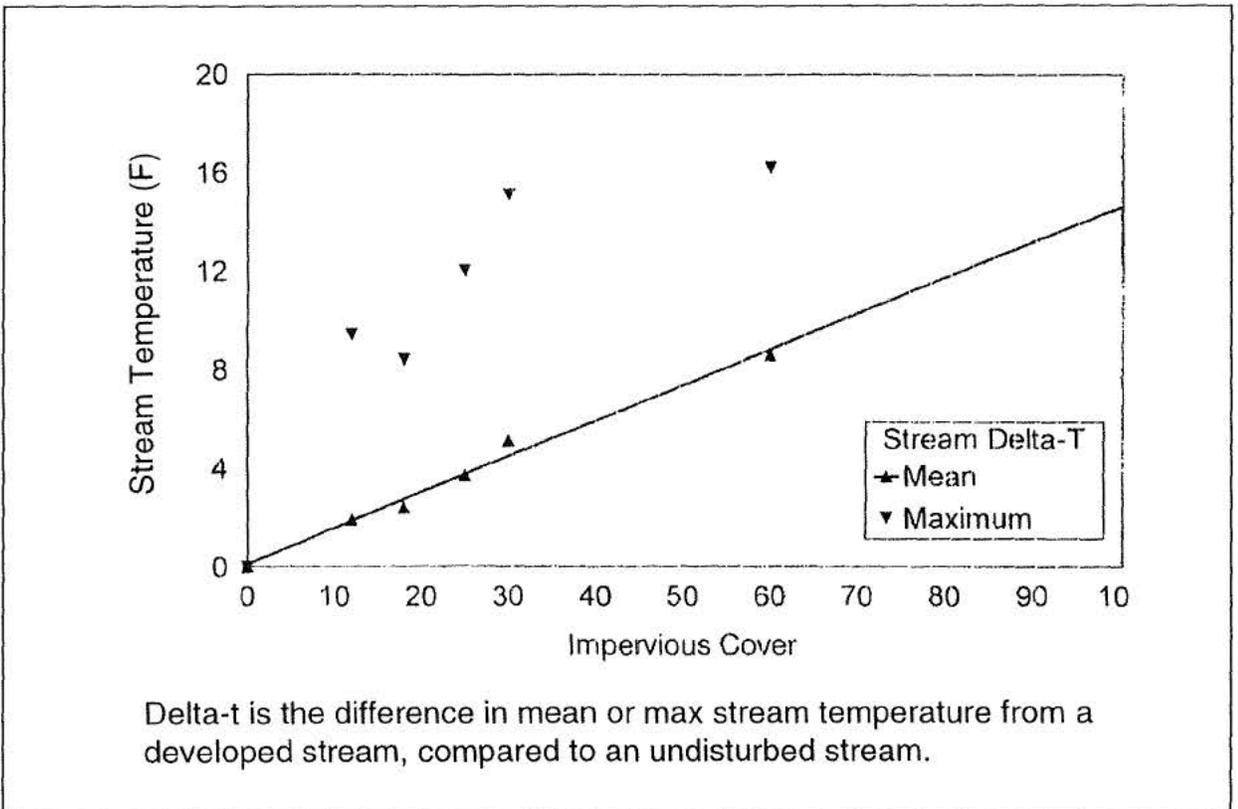


Figure 3: The Effect of Impervious Cover on Urban Phosphorus Load Under Several Scenarios, as Computed by the Simple Method



Delta-t is the difference in mean or max stream temperature from a developed stream, compared to an undisturbed stream.

Figure 4: The Effect of Impervious Cover on Stream Temperature (Galli, 1991)

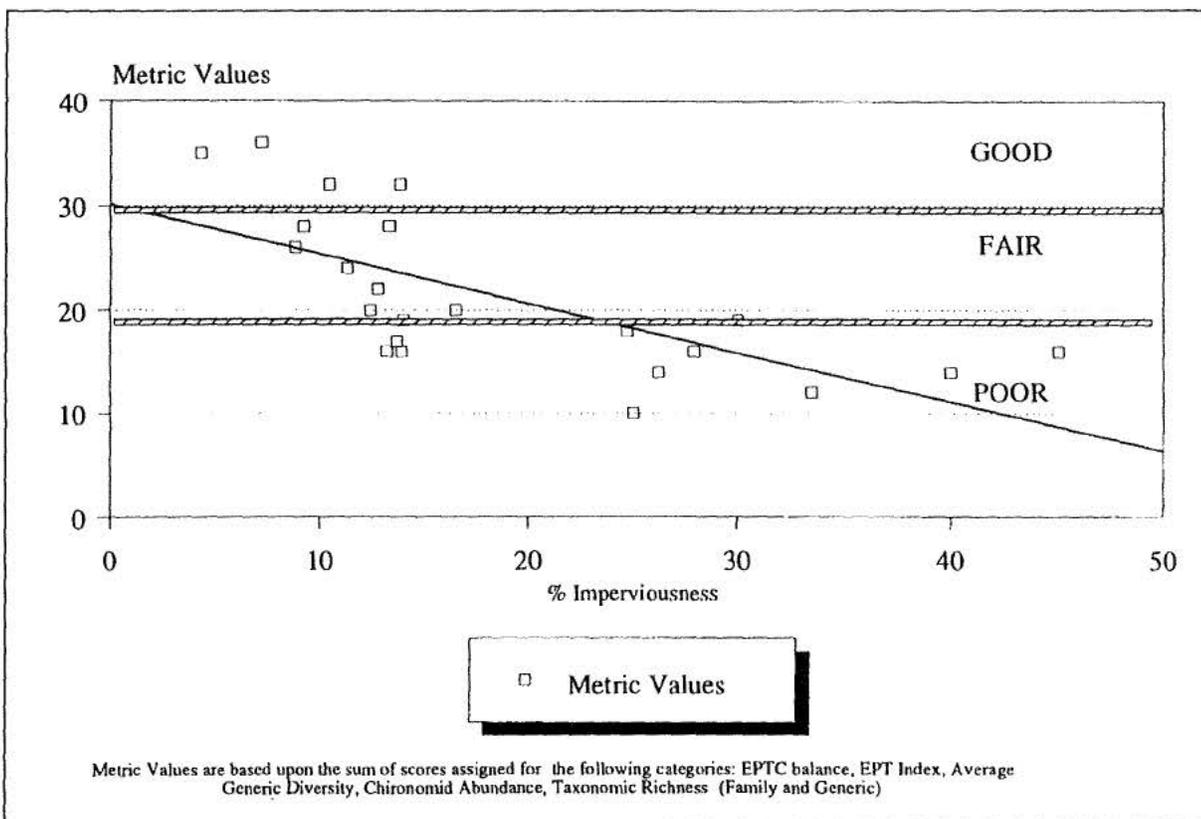


Figure 5: Impacts of Imperviousness on Macroinvertebrate Communities in the Headwater Streams of the Anacostia River (Schueler and Galli, 1992)

Aquatic Insects

The diversity, richness and composition of the aquatic insect community has frequently been used to evaluate the quality of urban streams. Not only are aquatic insects a useful environmental indicator, but they also form the base of the stream food chain in most regions of the country.

Klein (1979) was one of the first to note that macroinvertebrate diversity drops sharply in urban streams in Maryland. Diversity consistently became poor when watershed imperviousness exceeded 10 to 15%. The same basic threshold has been reported by all other research studies that have looked at macroinvertebrate diversity in urban streams (Table 2).

In each study, sensitive macroinvertebrates were replaced by ones that were more tolerant of pollution and hydrologic stress. Species such as stoneflies, mayflies, and caddisflies largely disappeared and were replaced by chironomids, tubificid worms, amphipods, and snails. Species that employ specialized feeding strategies—shredding leaf litter, grazing rock surfaces, filtering organic matter that flows by, or preying on other insects—were lost.

A typical example of the relationship between imperviousness and macroinvertebrate diversity is shown in Figure 5. The graph summarizes diversity trends for 23 sampling stations in headwater streams of the Anacostia watershed (Schueler and Galli, 1992). While good to fair

diversity was noted in all headwater streams with less than 10% impervious cover, nearly all stations with 12% or more impervious cover recorded poor diversity. The same sharp drop in macroinvertebrate diversity at around 12 to 15% impervious cover was also observed in streams in the coastal plain and piedmont of Delaware (Shaver *et al.*, 1995).

Other studies have utilized other indicators to measure the impacts of urbanization on stream insect communities. For example, Jones and Clark (1987) monitored 22 stations in Northern Virginia and concluded that aquatic insect diversity composition changed markedly after watershed population density exceeded four or more individuals per acre. This population density roughly translates to half-acre or one acre lot residential use, or perhaps 10 to 15% imperviousness.

Steedman (1988) evaluated 208 Ontario stream sites, and concluded that aquatic insect diversity shifted from fair to poor at about 35% urban land use. Since “urban land” includes both pervious and impervious cover, the actual threshold in the Ontario study may well be closer to seven to 10% imperviousness (Booth and Reinelt, 1993). Steedman also reported that urban streams with intact riparian forests had higher diversity than those that did not, for the same level of urbanization.

While the exact point at which stream insect diversity shifts from fair to poor is not known with absolute precision, it is clear that few, if any, urban streams can

Table 2: Review of Key Findings of Urban Stream Studies Examining the Relationship of Urbanization to Stream Quality

Ref.	Year	Location	Biological Parameter	Key Finding
Booth	1991	Seattle	Fish habitat/ channel stability	Channel stability and fish habitat quality declined rapidly after 10% imperv.
Galli	1994	Maryland	Brown trout	Abundance and recruitment of brown trout declines sharply at 10-15% imperv.
Benke <i>et al.</i>	1981	Atlanta	Aquatic insects	Negative relationship between number of insect species and urbanization in 21 streams
Jones and Clark	1987	Northern Virginia	Aquatic insects	Urban streams had sharply lower diversity of aquatic insects when human population density exceeded 4 persons/acre. (estimated 15-25% imperv. cover)
Limburg and Schimdt	1990	New York	Fish spawning	Resident and anadromous fish eggs and larvae declined sharply in 16 tributary streams greater than 10% imperv.
Shaver <i>et al.</i>	1994	Delaware	Aquatic insects	Insect diversity at 19 stream sites dropped sharply at 8 to 15% imperv.
Shaver <i>et al.</i>	1994	Delaware	Habitat quality	Strong relationship between insect diversity and habitat quality; majority of 53 urban streams had poor habitat
Schueler and Galli	1992	Maryland	Fish	Fish diversity declined sharply with increasing imperv., loss in diversity began at 10-12% imperv.
Schueler and Galli	1992	Maryland	Aquatic insects	Insect diversity metrics in 24 subwatersheds shifted from good to poor over 15% imperv.
Black and Veatch	1994	Maryland	Fish/insects	Fish, insect and habitat scores were all ranked as poor in 5 subwatersheds that were greater than 30% imperv.
Klein	1979	Maryland	Aquatic insects/fish	Macroinvertebrate and fish diversity declines rapidly after 10% imperv.
Luchetti and Fuersteburg	1993	Seattle	Fish	Marked shift from less tolerant coho salmon to more tolerant cutthroat trout populations noted at 10-15% imperv. at 9 sites
Steedman	1988	Ontario	Aquatic insects	Strong negative relationship between biotic integrity and increasing urban land use/ riparian condition at 209 stream sites. Degradation begins at about 10% imperv.
Pedersen and Perkins	1986	Seattle	Aquatic insects	Macroinvertebrate community shifted to chironomid, oligochaetes and amphipod species tolerant of unstable conditions.
Steward	1983	Seattle	Salmon	Marked reduction in coho salmon populations noted at 10-15% imperv. at 9 sites
Taylor	1993	Seattle	Wetland plants/ amphibians	Mean annual water fluctuation was inversely correlated to plant and amphibian density in urban wetlands. Sharp declines noted over 10% imperv.
Garie and McIntosh	1986	New Jersey	Aquatic insects	Drop in insect taxa from 13 to 4 noted in urban streams
Yoder	1991	Ohio	Aquatic insects/ fish	100% of 40 urban sites sampled had fair to very poor index of biotic integrity scores

support diverse aquatic insect communities at moderate to high levels of impervious cover (25% or more). Four different studies (Benke *et al.*, 1981; Black and Veatch, 1994; Booth, 1991; Garie and McIntosh, 1986) all failed to find aquatic insect communities with good or excellent diversity in these highly urban streams.

Fish Surveys

The abundance and diversity of the fish community can also serve as an excellent environmental indicator. Surprisingly, relatively few studies have examined the influence of imperviousness on fish communities in headwater streams. The results of one study are illustrated in Figure 6. Four similar subwatersheds in the Maryland Piedmont were sampled for the number of fish species present. As the level of watershed imperviousness increased, the number of fish species collected dropped. Two sensitive species (trout and sculpin) were lost as imperviousness increased from 10 to 12%, and four more were lost when impervious cover increased to 25%. Significantly, only two species remained in the fish community at 55% imperviousness. Sensitive species, defined as those with a strong dependence on the substrate for feeding and/or spawning, showed a more precipitous decline. Klein (1979) found a similar relationship between fish diversity and watershed impervious cover in several dozen headwater streams in the Maryland Piedmont.

Salmonid fish species (trout and salmon) and anadromous fish species appear to be most negatively impacted by impervious cover. Trout have stringent temperature and habitat requirements, and seldom are present in mid-Atlantic watersheds where imperviousness exceeds 15% (Galli, 1994). Declines in trout spawning success are evident above 10% imperviousness (Galli, 1994). In the Pacific Northwest, Luchetti and Feurstenburg (1993) seldom found sensitive coho salmon in watersheds beyond 10 or 15% imperviousness. Booth and Reinelt (1993) noted that most urban stream reaches had poor quality fish habitat when imperviousness exceeded eight to 12%.

Fish species that migrate from the ocean to spawn in freshwater creeks are also very susceptible to impacts of urbanization such as fish barriers, pollution, flow changes, and other factors. For example, Limburg and Schmidt (1990) discovered that the density of anadromous fish eggs and larvae declined sharply after a 10% imperviousness threshold was surpassed in 16 subwatersheds draining into the Hudson River.

The Influence of Imperviousness on Other Urban Water Resources

Several other studies point to the strong influence of imperviousness on other important aquatic systems such as shellfish beds and wetlands.

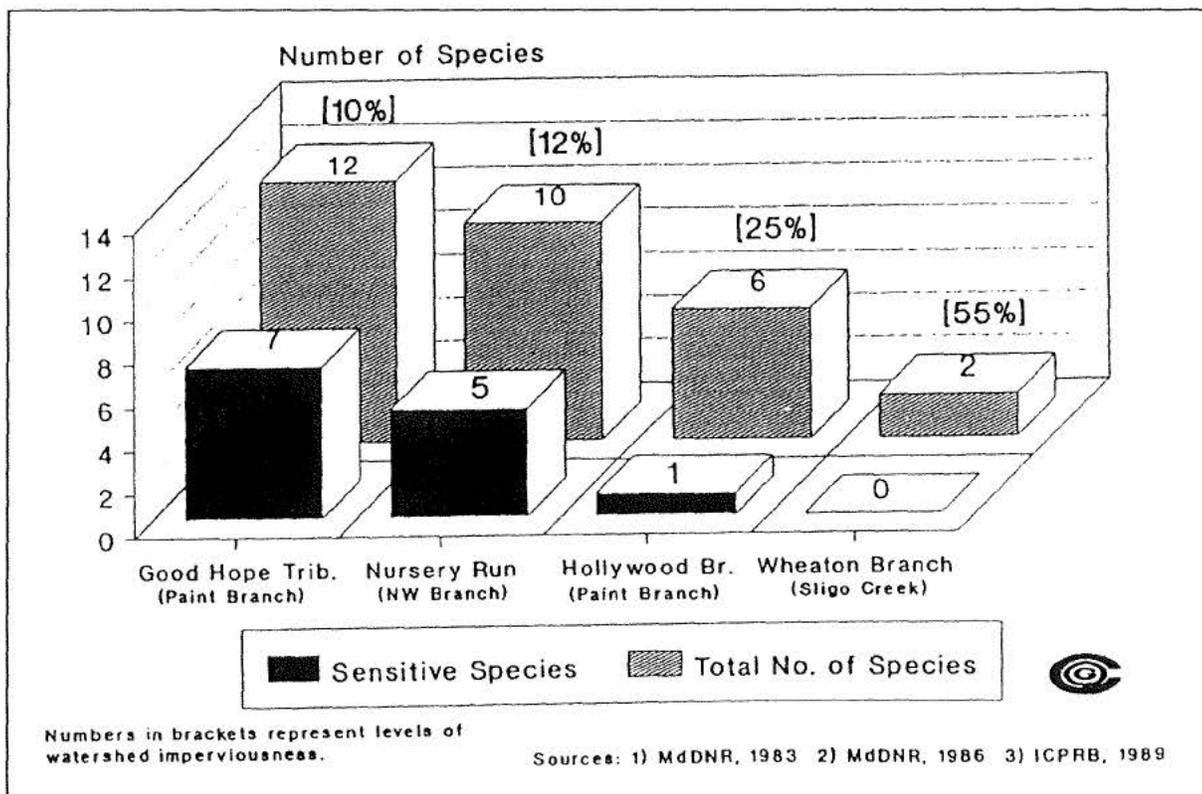


Figure 6: Fish Diversity as a Function of Watershed Imperviousness in Four Subwatersheds in the Maryland Piedmont (Schueler and Galli, 1992)

Even relatively low levels of urban development yield high levels of bacteria, derived from urban runoff or failing septic systems. These consistently high bacterial counts often result in the closure of shellfish beds in coastal waters, and it is not surprising that most closed shellfish beds are in close proximity to urban areas. Indeed, it may be difficult to prevent shellfish closure when more than one septic drain field is present per seven acres—a very low urban density (Duda and Cromartie, 1982). Although it is widely believed that urban runoff accounts for many shellfish bed closures (now that most point sources have been controlled), no systematic attempt has yet been made to relate watershed imperviousness to the extent of shellfish bed closures.

Taylor (1993) examined the effect of watershed development on 19 freshwater wetlands in King County, Washington, and concluded that the additional stormwater contributed to greater annual water level fluctuations (WLF). When the annual WLF exceeded about eight inches, the richness of both the wetland plant and amphibian community dropped sharply. This increase in WLF began to occur consistently when upstream watersheds exceeded 10 to 15% imperviousness.

Implications at the Watershed Level

The many independent lines of research reviewed here converge toward a common conclusion: that it is extremely difficult to maintain predevelopment stream quality when watershed development exceeds 10 to 15% impervious cover. What implications might this apparent threshold have for watershed planning?

Should Low Density or High Density Development be Encouraged?

At first glance, it would seem appropriate to limit watershed development to no more than 10% total impervious cover. While this approach may be wise for an individual "sensitive" watershed, it is probably not practical as a uniform standard. Only low density development would be feasible under a 10% zoning scenario, perhaps one-acre lot residential zoning, with a few widely scattered commercial clusters. At the regional scale, development would thus be spread over a much wider geographic area than it would otherwise have been. At the same time, additional impervious area (in the form of roads) would be needed to link the community together.

Paradoxically, the best way to minimize the creation of additional impervious area at the regional scale is to concentrate it in high density clusters or centers. The corresponding impervious cover in these clusters is expected to be very high (25% to 100%), making it virtually impossible to maintain predevelopment stream quality. A watershed manager must then confront the

fact that to save one stream's quality it may be necessary to degrade another.

A second troubling implication of the impervious cover/stream quality relationship involves the large expanses of urban areas that have already been densely developed. Will it be possible to fully restore stream quality in watersheds with high impervious cover? Some early watershed restoration work does suggest that biological diversity in urban streams can be partially restored, but only after extensive stormwater retrofit and habitat structures are installed. For example, fish and macroinvertebrate diversity has been partially restored in one tributary of Sligo Creek, Maryland (Galli, 1994). In other urban watersheds, however, comprehensive watershed restoration may not be feasible, due to a lack of space, feasible sites, or funding.

A Proposed Scheme for Classifying Urban Stream Quality Potential

The thresholds provide a reasonable foundation for classifying the potential stream quality in a watershed based on the ultimate amount of impervious cover. One such scheme is outlined in Table 3. It divides urban streams into three management categories based on the general relationship between impervious cover and stream quality:

1. Sensitive streams (one to 10% impervious cover)
2. Impacted streams (11 to 25% impervious cover)
3. Non-supporting streams (26 to 100% impervious cover)

The resource objective and management strategies in each stream category differ to reflect the potential stream quality that can be achieved. The most protective category are "sensitive streams" in which strict zoning, site impervious restrictions, stream buffers and stormwater practices are applied to maintain predevelopment stream quality. "Impacted streams" are above the threshold and can be expected to experience some degradation after development (i.e., less stable channels and some loss of diversity). The key resource objective for these streams is to mitigate these impacts to the greatest extent possible, using effective stormwater management practices.

The last category, "non-supporting streams," recognizes that predevelopment channel stability and biodiversity cannot be fully maintained, even when stormwater practices or retrofits are fully applied. The primary resource objective shifts to protect downstream water quality by removing urban pollutants. Efforts to protect or restore biological diversity in degraded streams are not abandoned; in some priority subwatersheds, intensive stream restoration techniques

Table 3: A Possible Scheme for Classifying and Managing for Headwater Urban Streams Based on Ultimate Imperviousness

Urban Stream Classification	Sensitive (0-10% Imperv.)	Impacted (11-25% Imperv.)	Non-supporting (26-100% Imperv.)
Channel stability	Stable	Unstable	Highly Unstable
Water quality	Good	Fair	Fair-Poor
Stream biodiversity	Good-Excellent	Fair-Good	Poor
Resource objective	Protect biodiversity and channel stability	Maintain critical elements of stream quality	Minimize downstream pollutant loads
Water quality objectives	Sediment and temperature	Nutrient and metal loads	Control bacteria
Stormwater Practice Selection Factors	Secondary environmental impacts	Removal efficiency	Removal efficiency
Land Use Controls	Watershed-wide imp. cover limits (ICLs), site ICLs	Site imp. cover limits (ICLs)	Additional infill and redevelopment encouraged
Monitoring and enforcement	GIS monitoring of imp. cover, biomonitoring	Same as "Stressed"	Pollutant load modeling
Development rights	Transferred out	None	Transferred in
Riparian buffers	Widest buffer network	Average bufferwidth	Greenways

are employed to attempt to partially restore some aspects of stream quality. In other subwatersheds, however, new development (and impervious cover) is encouraged to protect other sensitive or impacted streams.

Watershed-Based Zoning

Watershed-based zoning is based on the premise that impervious cover is a superior measure for gauging the impacts of growth, compared to population density, dwelling units or other factors. The key steps in watershed-based zoning are as follows: *First*, a community undertakes a comprehensive physical, chemical and biological monitoring program to assess the current quality of its entire inventory of streams. The data are used to identify the most sensitive stream systems and to refine impervious/stream quality relationships. *Next*, existing impervious cover is measured and mapped at the subwatershed level. Projections of future impervious cover due to forecasted growth are also made at this time.

The *third* step involves designating the future stream quality for each subwatershed based on some adaptation of the urban stream classification scheme presented earlier. The existing land use master plan is then modified to ensure that future growth (and impervious cover) is consistent with the designated stream classification for each subwatershed.

The *final* step in the watershed-based zoning process involves the adoption of specific resource objec-

tives for each stream and subwatershed. Specific policies and practices on impervious cover limits, stormwater practices, and buffers are then instituted to meet the stream resource objective, and these practices directly applied to future development projects.

Watershed-based zoning should provide managers with greater confidence that resource protection objectives can be met in future development. It also forces local governments to make hard choices about which streams will be fully protected and which will become at least partially degraded. Some environmentalists and regulators will be justifiably concerned about the streams whose quality is explicitly sacrificed under this scheme. However, the explicit stream quality decisions which are at the heart of watershed-based zoning are preferable to the uninformed and random "non-decisions" that are made every day under the present zoning system.

A Cautionary Note

While the research on impervious cover and stream quality is compelling, it is doubtful whether it can serve as the sole foundation for legally defensible zoning and regulatory actions at the current time. One key reason is that the research has not been standardized. Different investigators, for example, have used different methods to define and measure imperviousness. Second, researchers have employed a wide number of techniques to measure stream quality characteristics that are not always comparable with each other. Third, most of the studies have been confined to few ecoregions in the

country. Little research has been conducted in the Northeast, Southeast, Midwest, and semi-arid Western regions. Lastly, none of the studies has yet examined the effect of widespread application of stormwater practices on impervious cover/stream quality relationships. Until studies determine how much stormwater practices can “cheat” the impervious cover/stream quality relationship, it can be argued that structural practices alone can compensate for imperviousness effects.

On the positive side, it may be possible for a community to define the impervious cover/stream quality relationship in a short time and at relatively low cost. A suggested protocol for conducting a watershed monitoring study is presented in Table 4. The protocol emphasizes comparative sampling of a large population of urban subwatersheds of different increments of imperviousness (perhaps 20 to 50).

A rapid sampling program collects consistent data on hydrologic, morphologic, water quality, habitat and biodiversity variables within each subwatershed. For comparison purposes, series of undeveloped and undisturbed reference streams are also monitored. The sampling data are then statistically and graphically analyzed to determine the presence of imperviousness/stream quality relationships.

The protocol can be readily adapted to examine how stormwater practices can shift the stream quality/imperviousness relationship. This is done by adjusting the sampling protocol to select two groups of study subwatersheds: those that are effectively served by stormwater practices and those that are not.

Table 4: Proposed Protocol for Defining Functional Relationships Between Watershed Imperviousness and Stream Quality

■ **General study design**

A systematic evaluation of stream quality for a population of 20 to 50 small subwatersheds that have different levels of watershed imperviousness. Selected field measurements are collected to represent key hydrological, morphological, water quality, habitat and biodiversity variables within each defined subwatershed. The population of subwatershed data is then statistically analyzed to define functional relationships between stream quality and imperviousness.

■ **Defining reference streams**

Up to 5 non-urban streams in same geo-hydrological region, preferably fully forested, or at least full riparian forest coverage along same length. Free of confounding NPS sources, imperviousness less than 5%, natural channel and good habitat structure.

■ **Basic Subwatershed Variables**

Watershed area, standard definition and method to calculate imperviousness, presence/absence of stormwater practices.

■ **Selecting subwatersheds**

Drainage areas from 100 to 500 acres, known level of imperviousness and age, free of confounding sources (active construction, mining, agriculture, or point sources). Select three random non-overlapping reaches (100 feet) for summer and winter sampling of selected variables in each of five key variables groups:

1. Hydrology variables: summer dry weather flow, wetted perimeter, cross-sectional area of stream, peak annual storm flow (if gaged).
2. Channel morphology variables: channel alteration, height, angle and extent of bank erosion, substrate embeddedness, sediment deposition, substrate quality.
3. Water quality variables: summer water temperature, turbidity, total dissolved solids, substrate fouling index, EP toxicity test, wet weather bacteria, wet weather hydrocarbon.
4. Habitat Variables: pool-riffle ratio, pool frequency, depth and substrate, habitat complexity, instream cover, riffle substrate quality, riparian vegetative cover, riffle embeddedness
5. Ecological Variables: fish diversity, macroinvertebrate diversity, index of biological integrity, EPA Rapid Bioassessment Protocol, fish barriers, leaf pack processing rate.

Conclusion

Research has revealed that imperviousness is a powerful and important indicator of future stream quality and that significant degradation occurs at relatively low levels of development. The strong relationship between imperviousness and stream quality presents a serious challenge for urban watershed managers. It underscores the difficulty in maintaining urban stream quality in the face of development.

At the same time, imperviousness represents a common currency that can be measured and managed by planners, engineers and landscape architects alike. It links activities of the individual development site with its cumulative impact at the watershed scale. With further research, impervious cover can serve as an important foundation for more effective land use planning decisions.

References

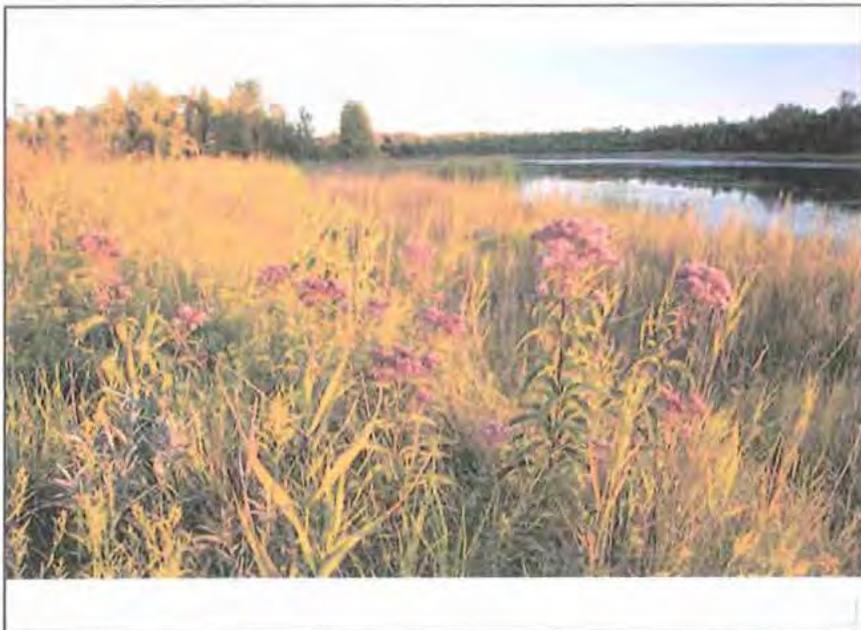
- Benke, A. E. Willeke, F. Parrish and D. Stites. 1981. *Effects of Urbanization on Stream Ecosystems*. Completion Report Project No. A-055-GA. Office of Water Research and Technology. US Dept. of Interior.
- Black and Veatch. 1994. *Longwell Branch Restoration-Feasibility Study*. Vol 1. Carroll County, MD Office of Environmental Services. 220 pp.
- Booth, D. 1991. "Urbanization and the Natural Drainage System-Impacts, Solutions and Prognoses." *Northwest Environmental Journal*. 7(1): 93-118.
- Booth, D. and L. Reinelt. 1993. "Consequences of Urbanization on Aquatic Systems: Measured Effects, Degradation Thresholds, and Corrective Strategies." pp. 545-550 in *Proceedings Watershed '93 A National Conference on Watershed Management*. March 21-24, 1993. Alexandria, Virginia.
- City of Olympia, 1994(a). *Impervious Surface Reduction Study: Technical and Policy Analysis—Final Report*. Public Works Department, Olympia, Washington. 83 pp.
- City of Olympia, 1994(b). *Impervious Surface Reduction Study*. Draft Final Report. Public Works Department. City of Olympia, Washington. 183 pp.
- Duda, A and K. Cromartie. 1982. "Coastal Pollution from Septic Tank Drain Fields." *Journal of the Environmental Engineering Division (ASCE)*. 108 (EE6).
- Evvett et al. 1994. *Effects of Urbanization and Land Use Changes on Low Stream Flow*. North Carolina Water Resources Research Institute, Report No. 284. 66 pp.
- Galli, J. 1991. *Thermal Impacts Associated With Urbanization and Stormwater Management Best Management Practices*. Metropolitan Washington Council of Governments. Maryland Department of Environment. Washington, D.C. 188 pp.
- Galli, J. 1993. *Rapid Stream Assessment Technique*. Metropolitan Washington Council of Governments. Washington, D.C.
- Galli, J. 1994. Personal communication. Department of Environmental Programs. Metropolitan Washington Council of Governments. Washington, DC.
- Garie, H and A. McIntosh. 1986. "Distribution of Benthic Macroinvertebrates in Streams Exposed to Urban Runoff." *Water Resources Bulletin* 22:447-458.
- Gibson, G., M. Barbour, J. Stribling and J. Karr. 1993. *Biological Criteria: Technical Guidance for Streams and Small Rivers*. US EPA Assessment and Watershed Protection Division, Washington, D.C.
- Hollis, G. 1975. "The Effect of Urbanization on Floods of Different Recurrence Intervals." *Water Resources Res.* 11(3): 431-435.
- Jones, R. and C. Clark. 1987. "Impact of Watershed Urbanization on Stream Insect Communities." American Water Resources Association. *Water Resources Bulletin*. 15(4)
- Klein, R. 1979. "Urbanization and Stream Quality Impairment." American Water Resources Association. *Water Resources Bulletin*. 15(4).
- Limburg, K and R. Schimdt. 1990. "Patterns of Fish Spawning in Hudson River Tributaries-Response to an Urban Gradient?" *Ecology* 71(4): 1231-1245.
- Luchetti, G and R. Fuersteburg, 1993. *Relative Fish Use in Urban and Non-Urban Streams*. Proceedings Conference on Wild Salmon. Vancouver, British Columbia.
- Macrae, C and J. Marsalek. 1992. *The Role of Stormwater in Sustainable Urban Development*. Proceedings Canadian Hydrology Symposium: 1992-Hydrology and Its Contribution to Sustainable Development, June 1992. Winnipeg, Canada.
- Pedersen, E and M. Perkins. 1986. "The Use of Benthic Invertebrate Data for Evaluating Impacts of Urban Runoff." *Hydrobiologia*. 139: 13-22.
- Plafkin, J. M. Barbour, K. Porter, S. Gross and R. Hughes. 1989. *Rapid Bioassessment Protocols for Use in Streams in Rivers: Benthic Macroinvertebrates and Fish*. USEPA Office of Water. EPA-444(440)/4-3901. Washington, D.C.
- Planning & Zoning Center, Inc. 1992. *Grand Traverse Bay Region Development Guidebook*. Lansing Michigan. 125 pp.

- Schueler, T. 1987. *Controlling Urban Runoff- A Practical Manual for Planning and Designing Urban Best Management Practices*. Metropolitan Washington Council of Governments. Washington, DC 240 pp.
- Schueler, T. and John Galli. 1992. "Environmental Impacts of Stormwater Ponds." In *Watershed Restoration SourceBook*. Anacostia Restoration Team. Metropolitan Washington Council of Governments. Washington, DC. 242 pp.
- Shaver, E., J. Maxted, G. Curtis and D. Carter. 1995. "Watershed Protection Using an Integrated Approach." In *Stormwater NPDES Related Monitoring Needs*. Engineering Foundation. American Society of Civil Engineers. Crested Butte, CO. August 7-12, 1994.
- Simmons, D and R. Reynolds. 1982. "Effects of Urbanization on Baseflow of Selected South-Shore Streams, Long Island, NY." *Water Resources Bulletin*. 18(5): 797-805.
- Steedman, R.J. 1988. "Modification and Assessment of an Index of Biotic Integrity to Quantify Stream Quality in Southern Ontario." *Canadian Journal of Fisheries and Aquatic Sciences*. 45:492-501.
- Steward, C. 1983. *Salmonid Populations in an Urban Environment—Kelsey Creek, Washington*. Masters Thesis. University of Washington.
- Taylor, B.L. 1993. *The Influences of Wetland and Watershed Morphological Characteristics and Relationships to Wetland Vegetation Communities*. Masters Thesis. Dept. of Civil Engineering. University of Washington, Seattle, WA.
- Yoder C., 1991. "The Integrated Biosurvey as a Tool for Evaluation of Aquatic Life Use Attainment and Impairment in Ohio Surface Waters." In *Biological Criteria: Research and Regulation*. 1991.

[Home](#) > [Where We Work](#) > [Regions](#) >
[North America](#) > [United States](#) > [Wisconsin](#) >
[Newsroom](#) >

**Door Peninsula Wetlands Deemed of International
Significance**

Door Peninsula Wetlands Deemed of International Significance



Baileys Harbor, Wisconsin | May 11, 2015

Door County conservation partners are pleased to
announce that the Door Peninsula Coastal Wetlands

complex has been designated a Wetland of International Importance under the Ramsar Convention, an intergovernmental treaty for protection of exemplary wetland systems around the world. The site joins Everglades National Park in Florida and Chesapeake Bay Estuary in Virginia as one of only 37 sites in the United States to achieve this designation.

A public celebration of the designation will take place on Friday, May 22, 2015, at 6:30 p.m. at the Maxwellton Braes Lodge in Baileys Harbor as part of the Door County Festival of Nature, an annual event hosted by conservation organizations and agencies in Door County.

“Here in Wisconsin, the Door Peninsula’s coastal wetlands have long been recognized as special places for nature and people,” said Nicole Van Helden, Nature Conservancy director of conservation for the Green Bay watershed. “Through the Ramsar designation, they have now been acknowledged as having significant value not only for Wisconsin but globally.”

“Wetlands in Door County and worldwide provide many benefits such as water purification, flood regulation, recreational opportunities, climate regulation and habitat for fish, birds and other wildlife,” said Katie Beilfuss, outreach programs director with the Wisconsin Wetlands Association and the keynote speaker at Friday’s celebration event. “For example, 75% of Wisconsin’s wildlife species depend on wetlands for some portion of their life cycle.”

Among the reasons cited for recognizing the international importance of the Door Peninsula Coastal Wetlands were the following:

- The site encompasses more than 22 miles of protected Lake Michigan shoreline and protects some of the most biologically diverse habitats in the region from wet forests, sedge meadows and fens to

springs, creeks and interdunal wetlands.

- The wetlands support a high diversity and abundance of characteristic as well as uncommon animals including colonial-nesting water birds, wetland-dependent breeding and neo-tropical migratory birds, Great Lakes migratory fish and numerous resident wetland-associated mammals and amphibians.
- More than 150 species of birds utilize the wetlands during the nesting season or as migratory stopover areas during the spring and fall. It's a hotspot for warblers with 23 species documented there.
- The wetlands host the largest known population and best habitat of the federally-endangered Hine's emerald dragonfly, an insect that lives in calcareous spring-fed marshes and sedge meadows overlaying dolomite bedrock.
- A substantial population of a globally rare plant, the federally-threatened dwarf lake iris, is also found there. The only place in the world that this plant grows is around the Great Lakes near the shores of Lakes Michigan and Huron in Wisconsin, Michigan and Ontario, Canada.

Located in Liberty Grove, Baileys Harbor and Gibraltar townships in Door County, the 11,443-acre Door Peninsula Coastal Wetlands complex encompasses Europe Lake, Mink River, North Bay, Mud Lake, Ephraim Swamp, Ridges Sanctuary and other important natural areas.

The land is owned by the Wisconsin Department of Natural Resources, Door County, the University of Wisconsin–Green Bay, The Nature Conservancy, Door County Land Trust, The Ridges Sanctuary, George and Sharon Cobb and Ed and Sandy Miller.

"We placed our property into conservation easement because we believe it is essential to the life of our

planet. Climate change is a fact, and this is a small effort to protect the natural world and leave a better place for our grandchildren and their children," said George Cobb.

"In thinking about what might happen to our 110 acres after we were gone, we realized we wanted to protect its natural beauty and ecological significance intact rather than subjecting it to any development or subdividing. The conservation easement offered by the Door County Land Trust gave us that protection," said Ed and Sandy Miller.

"Decades ago, conservation pioneers like Albert Fuller, Jens Jensen and Emma Toft began working to protect the unique lands, waters and wetlands of Door County," said Steve Leonard, executive director of The Ridges Sanctuary. "Later, others like George Evenson, Roy Lukes and Carl Scholz picked up where they left off. This designation is a testament to their conservation efforts and to the collaborative planning and partnership approach taken by private landowners, communities, non-profits and government today to continue the work they so passionately began more than 75 years ago."

Wisconsin's Knowles-Nelson Stewardship Program has been a key partner in protecting the Door Peninsula Coastal Wetlands. Funding has also been provided by the Great Lakes Restoration Initiative, the North American Wetland Conservation Act, National Coastal Wetland Program, Wisconsin Coastal Management Program, Lower Fox River/Green Bay Natural Resource Trustee Council and other public and private donors.

The Ramsar designation is entirely non-regulatory and does not supersede local ownership and management authority.

More information about the Door County Festival of

Nature, which takes place from May 21-24, 2015, can be found at www.ridgessanctuary.org.

The Nature Conservancy is a leading conservation organization working around the world to conserve the lands and waters on which all life depends. The Conservancy and its more than 1 million members have protected nearly 120 million acres worldwide. Visit The Nature Conservancy on the Web at www.nature.org

Copyright © 2015 The Nature Conservancy. [Terms of Use](#) | [Privacy Policy](#) | [Charitable Solicitation Disclosures](#)

The Nature Conservancy is a nonprofit, tax-exempt charitable organization (tax identification number 53-0242652) under Section 501(c)(3) of the Internal Revenue Code. Donations are tax-deductible as allowed by law.



Rare or Specialized Wetland Types on Wisconsin's Lake Michigan Coast

Wisconsin has two very rare wetland types found along Lake Michigan's coast: ridge-and-swale and interdunal.

Ridge-and-swale wetlands have dry sandy ridges alternating with wet areas called swales. As the last glacier left Wisconsin more than 10,000 years ago, the land was relieved of the glacier's weight and slowly uplifted. This incredibly rare uplifting with wave action, along with varying lake levels over time, created a series of parallel dunes along the coast. Some of the best examples have been preserved in protected bays in Door County. You can also see ridge-and-swale wetlands at Woodland Dunes Nature Center in Two Rivers. These alternating dry and wet conditions provide for a great diversity of plants and animals in a small area, with wetland plants growing just a few feet from dry forest species. Ridge-and-swale wetlands provide important habitat for the four-toed salamander, northern flying squirrel, Canada warbler, and black-billed cuckoo, as well as for many other migratory birds.



Jennifer Webster

Interdunal wetlands are low spots (or hollows) carved by high winds in sand dunes bordering the Great Lakes. These hollows are carved deep enough to reach the groundwater. This type of wetland is very rare. Interdunal wetlands provide critical habitat for many uncommon plant species and also provide resting and feeding areas for migrating and resident waterbirds.



Moonlight Bay and Connected Wetlands. This collection of wetlands, including ridge-and-swale, comprises a corridor of highly significant wetland complexes that nearly span the Door Peninsula and includes The Ridges Sanctuary, Ephraim Swamp, Toft Point State Natural Area, and Mud Lake State Natural Area. These wetlands are extremely diverse and ecologically valuable. The Ridges Sanctuary alone boasts nearly 500 plant species, including the rare and federally threatened dwarf lake iris that is unique to coastal habitats in the Great Lakes. The area also supports rare animals, including the federally endangered Hine's emerald dragonfly.



Caroline Morgan, Wisconsin Department of Natural Resources



Kohler-Andrae Dunes is home to interdunal wetland, marsh, coniferous swamp, and alder thicket. These unique wetlands and surrounding dunes provide habitat for many rare plants, some of which only occur on Great Lakes shorelines. More than 150 bird species are known to use this area. During the fall and spring, the area is frequented by a diverse collection of migratory birds, including many species of waterfowl and shorebirds. The wetlands can dry down (as in this photo) in times of lower rainfall.



Hine's emerald dragonfly

Kathryn Cook

Hine's Emerald Dragonfly

The Hine's emerald dragonfly is a very rare dragonfly found in only a few places in the world. This dragonfly has bright emerald-green eyes and a metallic green body with yellow stripes on its sides. Its body is about 2.5 inches long with a wingspan of about 3.3 inches.

In the past, Hine's emerald dragonflies were found as far south as Alabama, but today are only found in four Midwestern states, including Wisconsin. The Hine's emerald dragonfly lives in spring-fed marshes, fens, and sedge meadows overlaying dolomite bedrock. These springs are high in minerals like calcium. The greatest threat to the Hine's emerald dragonfly is loss of the rare habitats upon which it relies.

Hine's emerald dragonflies have a special relationship with crayfish. In late summer when shallow pools of water dry up, the dragonflies rely on the crayfish's burrows to keep moist.

Why save a dragonfly? Dragonflies play an important role in nature. They eat smaller flying insects, including mosquitoes, biting flies, and gnats. In its immature stage, a dragonfly is an important food source for larger aquatic animals such as fish. And they add beauty to our world.

Home

Who We Are

Our Programs

Issues and News

Join / Give

Calendar

Wetland Directory

Protecting Wetlands

Wetlands of Wisconsin

Restoring Wetlands

Resources and Links

Search Our Site

Land Use and Wetlands

Understanding the Wetland Permit Process

Though wetland laws grant state and federal agencies the final authority to approve or deny projects with wetland impacts, as the first point of contact for most development proposals local governments play a critical role in determining what projects advance for regulatory review. Local land use decision makers can help community supported projects get built more quickly, with less state and federal intervention, by steering landowners away from projects that require wetland permits. To do so, you will need to understand the following permit basics:

- >> [What wetlands are regulated?](#)
- >> [What activities are regulated?](#)
- >> [When are wetland permits approved or denied?](#)
- >> [Does shoreland-wetland zoning adequately protect wetlands?](#)
- >> [Do constructed \(mitigated\) wetlands adequately replace filled wetlands?](#)
- >> [Is it true that any wetland can be filled as long as one is restored nearby?](#)
- >> [Federal and state regulatory contact information](#)



Bull Frog

Thanks for photos provided by Melinda Bailey, Treva Breuch, Bob Hay, Stephen Lang, A.B. Sheldon, Pam Strohl, Alice Thompson, the WI DNR, and members and friends of WWA. Please do not use without written permission.

Website ©1999, 2002
Wisconsin Wetlands Association
Website managed by [WWA](#)
Design by [Lance T. Tondino](#)

What wetlands are regulated? Wisconsin law requires authorization by the Wisconsin Department of Natural Resources (WDNR) for all wetland fill activities, regardless of wetland size or location. Federal law requires permits from the U.S. Army Corps of Engineers (Corps) for construction activities in wetlands adjacent or hydrologically connected to lakes, rivers, and streams.

What activities are regulated? Permits are required for the discharge of "dredged or fill" material into a wetland, and for major wetland disturbance, such as a pipeline or sewer construction. Fill includes materials such as asphalt, concrete, soil, sand, gravel, and even wood chips.



Materials classified as wetland "fill."
Photos by Kyle Magyera

When are wetland permits approved or denied? Under both state and federal law, permits may only be granted for **unavoidable** wetland impacts that will not cause a significant adverse impact to **wetland functions**. Permit staff rely on the following information in their review:

- a. A [wetland delineation](#) report to confirm the presence and boundaries of wetlands, and a [functional assessment](#) to describe and rate the wetland quality and [natural functions](#). To be accepted, these reports must be completed by a qualified wetland consultant using procedures specified in state and federal rules.
- b. An [alternatives analysis](#) describing how the developer designed the project to first avoid, and then minimize wetland impacts. Alternate sites, smaller projects, and reconfigured site designs are all considered viable alternatives, even if the changes reduce profits. Agencies look for the **least environmentally damaging practicable alternative** to meet the **basic project purpose**.

Does shoreland-wetland zoning adequately protect wetlands? In short, no, but it does help landowners avoid **mapped** wetlands within the shoreland zone. Required by the state and administered by the counties, shoreland-wetland zoning sets minimum standards for permitted and prohibited uses in shoreland wetlands. However, shoreland-wetland zoning fails to provide effective local wetland protection in two ways: 1) not all wetlands in the shoreland zone appear on Wisconsin Wetland Inventory maps, and 2) many wetlands fall outside the shoreland zone. Some counties exceed the minimums by requiring setbacks to all wetlands within the shoreland zone or all wetlands regardless of location. Door County, for example, requires a 35-foot setback for all shoreland and inland wetlands.

Is it true that any wetland can be filled as long as one is restored nearby? Definitely not. The practice of restoring wetlands in one location to compensate for wetland destruction elsewhere (a practice known as wetland mitigation) is only accepted to compensate for *unavoidable* wetland impacts.

Do constructed (mitigated) wetlands adequately replace filled wetlands? Typically not. It's rarely a fair trade to destroy wetlands in one location and restore them in another. Reasons why include:

1. Wetland benefits are site-specific. When a wetland is filled, associated benefits such as water purification, flood retention, and wildlife habitat are lost from that site forever.
2. What takes thousands of years to develop cannot be recreated in one or two years. Many constructed wetlands do not achieve the same degree of biological diversity and ecosystem functions found in natural wetlands. In some cases, the projects fail and no wetlands are established.
3. Mitigation decreases the diversity of wetland community types. Many wetland types are difficult to recreate (e.g., wooded wetlands), so the restored wetlands are frequently a different type (e.g., marshes) than those destroyed. As a result, certain wetland types are lost in greater proportion than others.
4. Mitigation often results in the destruction of wetlands and an increase in impervious surface in urban areas (where wetland functions may be needed most) and the construction or restoration of wetlands in rural areas (where wetlands and wetland function may already be plentiful).

For an in-depth analysis that discusses gaps in the effectiveness of the wetland mitigation program, [click here](#) for a report produced by the National Academy of Sciences (2001).

Permit Questions?

Each county has a WDNR Water Management Specialist and Corps District Engineer assigned for project review and questions. If you have a current or upcoming proposal with wetland impacts, you should involve the appropriate WDNR and Corps staff person early in the project design and planning process.

Wisconsin Department of Natural Resources Water Management Specialist contact information is available at: dnr.wisconsin.gov/waterways/about_us/county_contacts.html.

U.S. Army Corps of Engineers District Engineer contact information is available at: www.mvpa.usace.army.mil/regulatory/default.asp?pageid=691.

Additional information on the wetland permit process can be found on WWA's [Protecting Wetlands webpages](#).



*How Wetlands Benefit
Your Community*



*Understanding the
Wetland Permit Process*



*Understanding and
Identifying Wetlands*



*What Can Local Governments do
to Protect and Restore Wetlands?*

[Back to Introduction](#)



Guest column: Oregon residents stopped Kohler golf course effort

Cameron La Follette 1:27 p.m. CDT May 5, 2015



(Photo: Cameron La Follette)

Kohler Co. appears to have a strategy for placing its golf courses in unspoiled and cherished areas, as Oregonians came to learn. Kohler Co. seems to be currently pursuing the same strategy in its home state.

The company in 2011 failed in an Oregon attempt to combine 625 acres of the treasured Floras Lake State Natural Area with land owned by Curry County to create a massive, 1,263-acre golf resort on Oregon's remote and beautiful south coast. Kohler Co., through Jonathan (Jay) Hoekstra, worked closely with former Curry County Commissioner George Rhodes to package the deal; the goal was to then lease the property to Kohler Co. to develop the resort.

Oregon Coast Alliance (ORCA) was one of the leaders in bringing about the defeat of this project, along with the impassioned residents of the little town of Port Orford and rural Curry County. Since then, we have watched Kohler Co.'s resort-related activities, especially in its home state of Wisconsin.

I was very interested to see that Kohler Co. is seeking to build a golf course in the Town of Wilson in Sheboygan County. The proposal looks rather similar to the company's Oregon effort — siting a golf course on pristine shoreline, seeking acreage from a state park for the development, and maneuvering to have the proposal built as planned despite environmental costs.

The Floras Lake proposal that grabbed Oregon headlines in 2011 was very unpopular with Oregonians. The Oregon Parks and Recreation Commission held several public meetings about the Floras Lake proposal. Large numbers of people from the Port Orford area turned out for these meetings. Neither coastal residents nor Oregon Coast Alliance had had any experience with Kohler Co. We learned that the company, at least in this instance, preferred to work quietly with government officials.

During this period, someone entered the park and illegally dug 16 pits with a backhoe, destroying rare plants in an unprecedented act of vandalism. The Oregon Dept. of Justice eventually determined the pits were dug by a local geologist named Geoff Garcia. At least one of his bills, for \$1,000 for "geological and aquifer investigation," was sent directly to Jonathan Hoekstra at Kohler.

Bills for the illegal pits were sent to, and paid by, golf course consultant Grant Hornbeak, who apparently had ties to Kohler Co., though Oregon DOJ was never able to pin them down precisely. (Editor's note: According to its web site, the Oregon Parks and Recreation Department concluded, "After months of review, the attorneys working in the Department of Justice's Environmental Crimes unit concluded that they didn't have enough information to pursue prosecution for damage to natural or archaeological resources.")

Herb Kohler Jr. stated in a June 10, 2012, Golf Digest interview that he was interested in Curry County because it is not far from the acclaimed Bandon Dunes golf resort 20 miles north. He apparently wanted to piggyback on the burgeoning golf economy, though it is highly controversial for many rural residents, farmers and ranchers.

Mr. Kohler said, "...when it was all said and done, the environmentalists stirred up people and they just decided they didn't want any development of any kind...the environmentalists were just too determined. We'd be messing with them for five to seven years minimum before we'd have anything."

Mr. Kohler's description was largely, but not wholly, accurate. It was "environmentalists," among others, who defeated the proposal. More importantly, it was the residents of Port Orford and rural Curry County who let it be known, loud and clear, that they would defend Floras State Natural Area and the quiet rural life they treasured. They succeeded.

ORCA hopes concerned residents in Sheboygan County can learn from our experience.

Cameron La Follette is executive director of Oregon Coast Alliance (ORCA), a land use advocacy and environmental group that works to protect the Oregon Coast.

Read or Share this story: <http://shebpr.es/1ld7oOP>



Featuring fresh takes and real-time analysis from
HuffPost's signature lineup of contributors

HOT ON THE BLOG

[Josh Radnor](#)
[David Bromwich](#)

[Caitlyn Jenner](#)
[Norman Lear](#)



Dr. Douglas Fields [Become a fan](#)
Neurobiologist and author, 'The Other Brain'

Golf Links to Parkinson's Disease?

Posted: 02/01/2013 11:28 am EST Updated: 04/03/2013 5:12 am EDT



In a [letter published](#) in the journal *Annals of Neurology*, neurologists Margaret Parrish and Robert Gardner suggest a link between Parkinson's disease and golf. Of 26 patients with Parkinson's disorder that they collected for their small study of the disease, it turned out that 19 of them lived on or within two miles of a golf course. A coincidence perhaps, given the higher probability of golf courses in communities favored by senior citizens? The data suggest otherwise: "Sixteen of the 19 patients resided down-wind of a golf course," the researchers noted. Of the other three patients with Parkinson's living up-wind of a golf course, two of them had "additional golf course exposure."

Such a small study proves nothing, but it may be an intriguing clue to tracking down the cause of this debilitating disease. Parkinson's disease results from the death of specific neurons deep in the brain, in a region called the substantia nigra. These neurons use the neurotransmitter dopamine to communicate, and when enough of them die, voluntary movement becomes halting or frozen.

One way to kill these neurons is by ingesting certain toxic substances. [MPTP](#), a contaminant in an illegal morphine-like street drug, turns unfortunate drug addicts into a Parkinson's patient overnight. For some reason, this toxic substance specifically attacks the neurons that are lost in Parkinson's disease, raising the possibility that other toxic substances in the environment might do the same thing.

[Another recent study](#) by neurologists at Washington University School of Medicine in St. Louis published in the *Journal of Neurotoxicology* documents an alarming increase in risk of Parkinson's disorder associated with welding. An astonishing 15.6 percent of 811 shipyard welders in the study developed Parkinson's disorder, compared with none in the control group of 59 union workers from the same area who had no welding exposure. (The incidence of Parkinson's disorder in the general population in the United States is approximately 0.4 percent.) The toxin responsible is manganese, a heavy metal released in welding fumes.

Manganese is also a component in sprays applied to promote healthy green turf by supporting grass growth and inhibiting fungal disease, but there are many other toxic substances used on golf courses known to cause Parkinson's disease, notably pesticides and weed killers. Paraquat, rotenone, maneb and other organophosphates have been linked to Parkinson's disease in several studies, as well as many solvents used in the sprays.

This, Parrish and Gardner suspect, is the reason for the high number of people living down-wind of golf courses developing Parkinson's, and they cite a [recent study by Samuel Goldman and colleagues](#) published in the same journal to buttress their suspicion. This study of 99 twins (to control for genetic risks for the disease) found that solvents present in the air and ground water increase the risk of Parkinson's disease; notably trichloroethylene, perchloroethylene and carbon tetrachloride. Genetic predisposition is an important factor, but a [Japanese study](#) published in *Experimental Neurobiology* in 2012 concluded that interactions between a person's genetics and environmental exposures to substances linked to Parkinson's contribute more to the risk of acquiring the disorder than does either genetic risk or exposure to environmental toxins individually.

So if you are thinking of retiring near the links, you might want to pick a plot up wind and avoid welding without a proper respirator. That same Japanese study also identified some environmental exposures that reduced the risk of Parkinson's: notably, drinking coffee and smoking. Perhaps this explains the peculiar urge for duffers to light up a stogie on the back nine. That habit, though, could cost you some other serious health-related penalty strokes.

References:

Tsuboi, Y. (2012) *Environmental-genetic interactions in the pathogenesis of Parkinson's disease*. Experimental Neurobiology, 21, 123-128.

Goldman, S.M. et al., (2012) *Solvent exposures in Parkinson disease risk in twins*. Ann. Neurol. 71, 776-784.

Racette, B.A. et al. (2012) *Increased risk of parkinsonism associated with welding exposure*. Neurotoxicology 33, 1356-61.

Parrish, M. and Gardner R.E. (2012) *Is living downwind of a golf course a risk factor for Parkinsonism?* Ann. Neurol. 72, 983-4.

For more by Dr. Douglas Fields, click [here](#).

For more on health news, click [here](#).

MORE: [Parkinson's Disease Pesticides Golf Parkinson's Research Pesticides Parkinson's Golfing Parkinsons Personal Health Gold Parkinsons Golfing Golf Parkinson's Disease Pesticides and Parkinson's Disease Golf and Parkinsons Golf and Parkinson's Disease Parkinson's Disease Research](#)

This Blogger's Books and Other Items from...

[amazon.com](#)



The Other Brain: From Dementia to Schizophrenia, How New Discoveries about the Brain Are Revolutionizing Medicine and Science
by R. Douglas Fields



Huffington Post Search

[Advertise](#) | [Log In](#) | [Make HuffPost Your Home Page](#) | [RSS](#) | [Careers](#) | [FAQ](#)

[User Agreement](#) | [Privacy](#) | [Comment Policy](#) | [About Us](#) | [About Our Ads](#) | [Contact Us](#)

Copyright ©2015 TheHuffingtonPost.com, Inc. | *The Huffington Post* is a registered trademark of TheHuffingtonPost.com, Inc. All rights reserved.

Part of AOL Lifestyle

GROUNDWATER CONTAMINATION SUSCEPTIBILITY MAP

Use of this Map:

The composite [Groundwater Contamination Susceptibility Map](#) can be used by state agencies and others when deciding where they should more closely study impacts on groundwater. Local officials can also use this in determining whether they should study their region in more detail for potential groundwater problems. The groundwater contamination susceptibility map can be combined with other planning tools such as land use maps, groundwater quality data and contamination source information to help make sound groundwater management and land use decisions.

The Groundwater Contamination Susceptibility Map of Wisconsin doesn't show areas that **will** be contaminated, or areas that **cannot** be contaminated. Whether an area will have groundwater contamination depends on the likelihood of contaminant release, the type of contaminants released and the sensitivity of the area to the contamination. In turn, the likelihood of contaminant release depends on the type and intensity of the land use and contaminant sources in an area. This map highlights areas sensitive to contamination and shows them in a generalized way.

There are many limitations in the use of this composite map. It is compiled from very generalized statewide information at a small scale, and therefore, cannot be used for any site specific purposes. For example, siting waste disposal facilities or locating an industry requires site-specific, geologic and hydrogeologic information, and can't be made based on this composite map. The Groundwater Contamination Susceptibility Map doesn't consider the individual characteristics of specific contaminants or the subsurface release of contaminants. That is, it only considers the ability of water to move from the land surface to the water table.

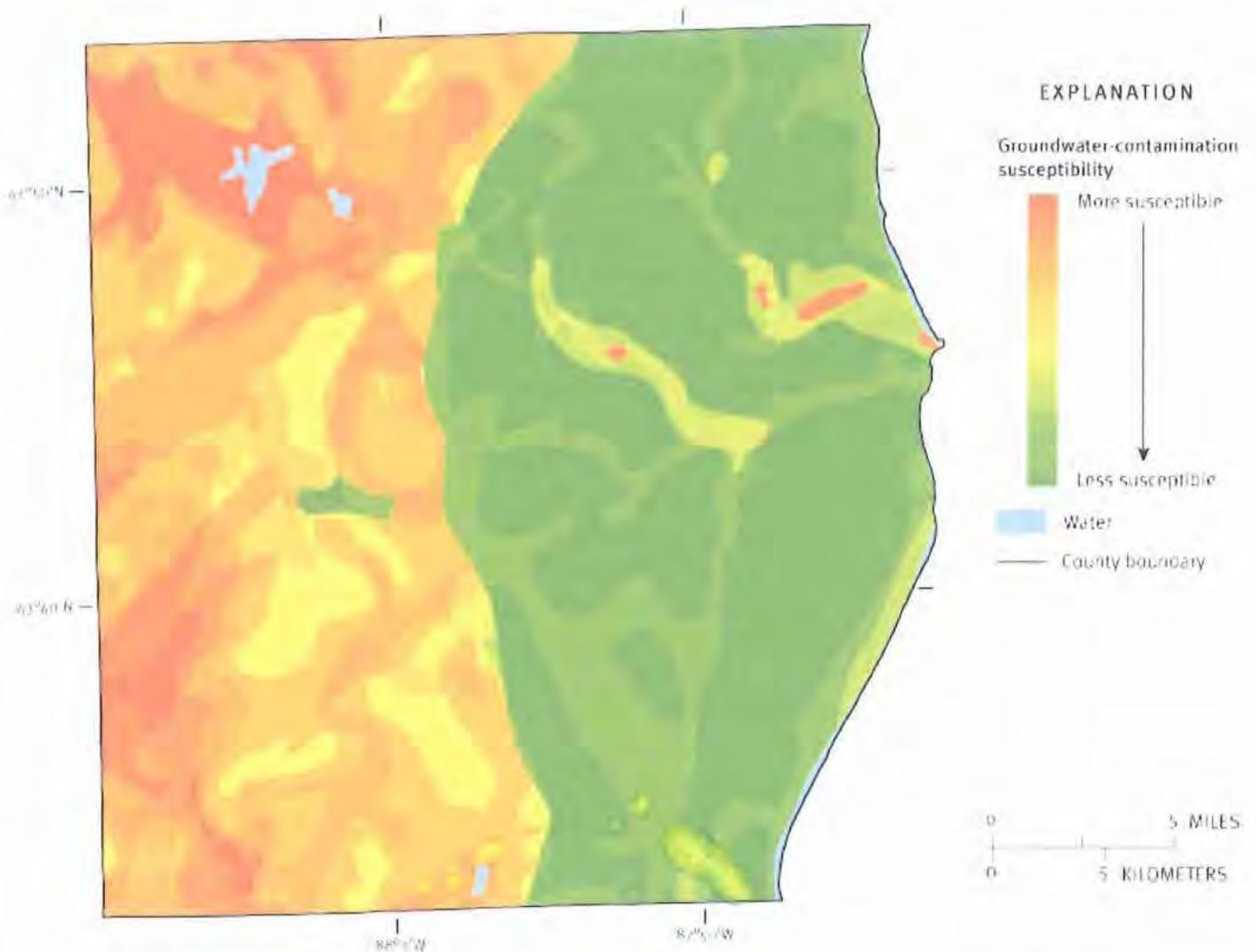
Map source: Schmidt, R.R., 1987, Groundwater contamination susceptibility map and evaluation: Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBL-WR-177-87, 27 p.

[More information about individual data layers can be found in this guidance.](#)

County data: Wisconsin Department of Natural Resources, 2004, 1:24,000 digital data, Wisconsin Transverse Mercator Projection, North American Datum of 1983 (1991 adjustment).

Lake and stream data: U.S. Geological Survey, 2003, 1:2,000,000 digital data, North American Datum of 1983.

Sheboygan County – Groundwater-Contamination Susceptibility Analysis



This groundwater-contamination susceptibility map is a composite of five resource characteristic maps, each of which was derived from generalized statewide information at small scales, and cannot be used for any site specific purposes.

Map source: Schmidt, R.R., 1982, *Groundwater contamination susceptibility map and evaluation*; Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBL-WR-177-82, 27 p.

Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007. <http://wi.water.usgs.gov/gwcomp/>

In Wisconsin, 70% of residents and 97% of communities rely on groundwater as their drinking water source. Wisconsin has abundant quantities of high-quality groundwater, but once groundwater is contaminated, it's expensive and often not technically possible to clean. Because of these factors, we need to be careful to protect our groundwater from contamination. Our activities on the land can contaminate groundwater - most contaminants originate on the land surface and filter down to the groundwater. In some cases however, groundwater can become contaminated from natural causes such as radioactivity due to the presence of radium in certain types of rocks.

"Susceptibility of Groundwater to Pollutants" is defined here as the ease with which a contaminant can be transported from the land surface to the top of the groundwater called the "water table". Many materials that overlie the groundwater offer good protection from contaminants that might be transported by infiltrating waters. The amount of protection offered by the overlying material varies, however, depending on the materials. Thus, in some areas, the

overlying soil and bedrock materials allow contaminants to reach the groundwater more easily than in other areas of the state.

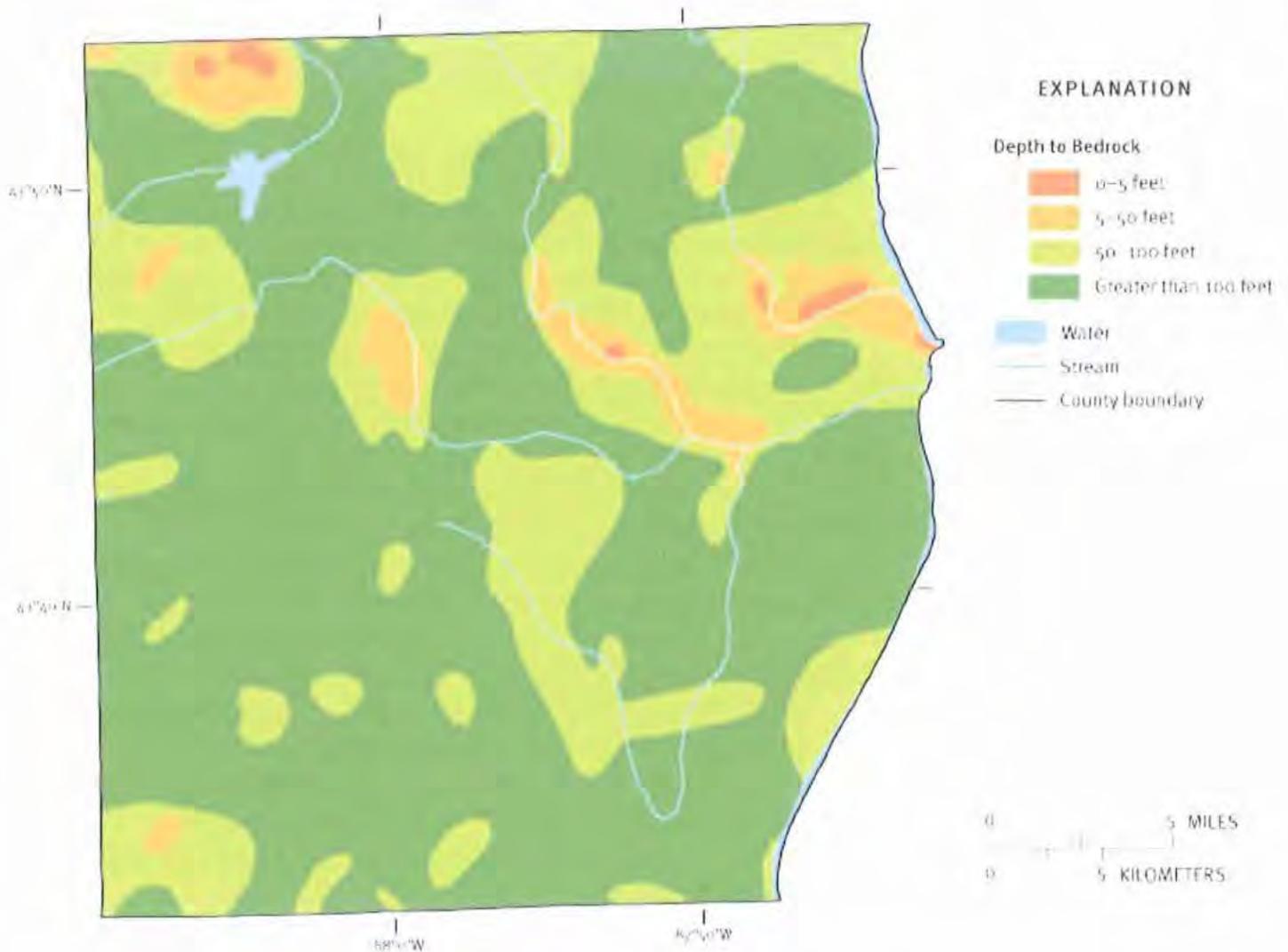
In order to identify areas sensitive to contamination, the Wisconsin Department of Natural Resources, in cooperation with the University of Wisconsin Extension, Wisconsin Geological and Natural History Survey and the USGS, has evaluated the physical resource characteristics that influence this sensitivity.

Five physical resource characteristics were identified as important in determining how easily a contaminant can be carried through overlying materials to the groundwater. These characteristics are depth to bedrock, type of bedrock, soil characteristics, depth to water table and characteristics of surficial deposits. Existing statewide maps of these five characteristics were used whenever possible. New maps were compiled when existing information wasn't already mapped. The resource characteristic maps used in this project were compiled from generalized maps at a scale of 1:250,000 or 1:500,000.

Each of the five resource characteristic maps was put into digital form using a Geographic Information Systems (GIS) program. All of the information contained in the five maps was overlaid and combined into one composite map. A numeric rating scheme developed for each map was used to score the maps and the five resource map scores were added together within GIS. The composite map shows the scores for each area – low scores represent areas that are more susceptible to contamination and high scores represent areas that are less susceptible to contamination.

The method described above is a subjective rating method; specifically an index method. An index method assigns a subjective ratings or score to physical resource characteristics of an area to develop a range of contamination susceptibility categories (ranging, in this case, from more susceptible to less susceptible). Index methods are fairly popular approaches to groundwater susceptibility, because they are quick and straightforward, and they use data that are readily available. However, the mapped distribution of susceptibility categories produced by an index method is typically fraught with uncertainty, primarily due to the subjectivity in the approach. The susceptibility categories include little quantifiable or statistical information on uncertainty and this limits their use for defensible decision making. So while susceptibility maps produced using index methods can be useful, their inherent uncertainty must be kept in mind. (National Research Council, 1993; Focazio and others, 2002).

Sheboygan County – Depth to Bedrock



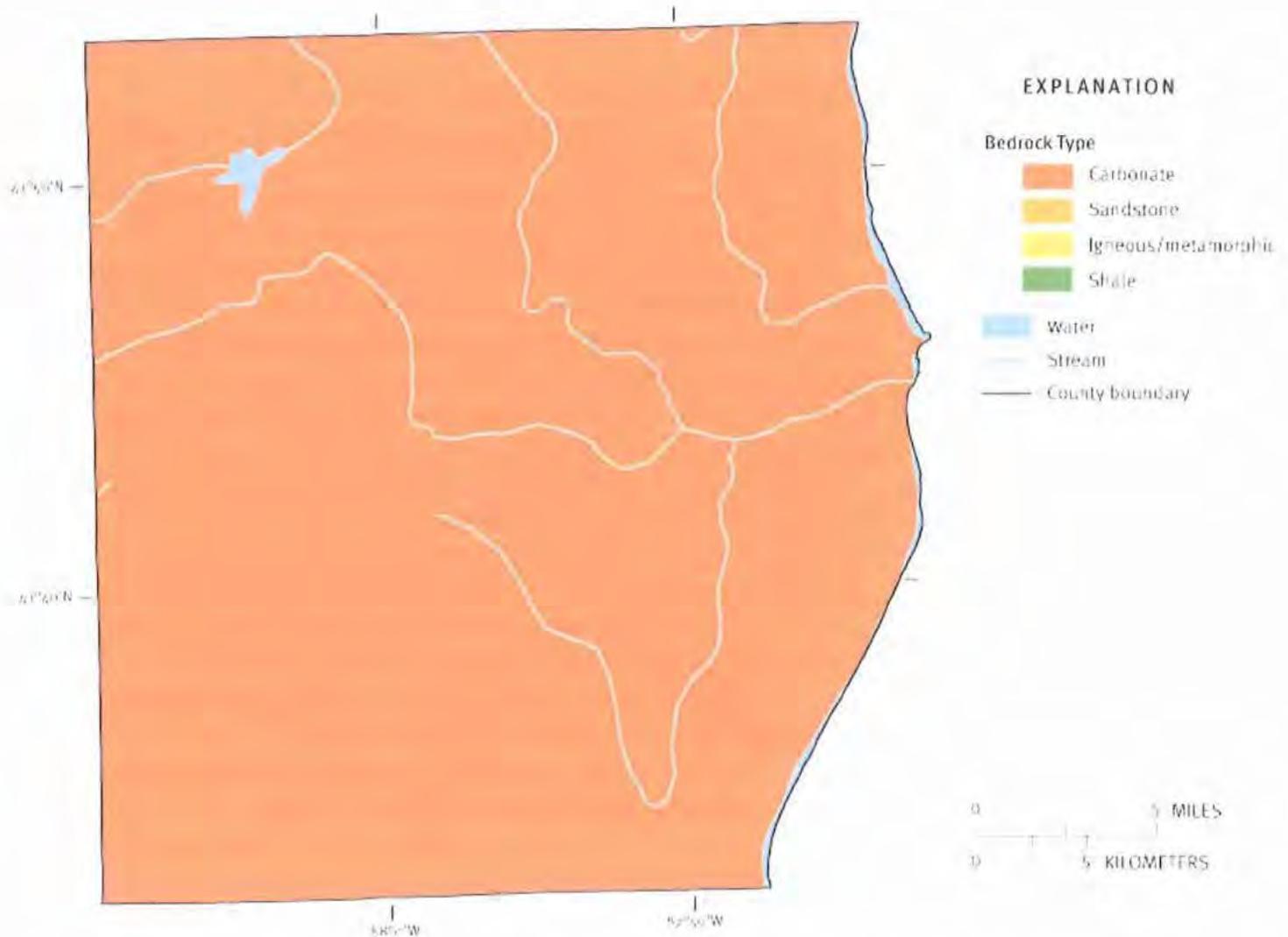
This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

Map source: Schmidt, R.R., 1987, Groundwater contamination susceptibility map and evaluation; Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 3, PUBI-WR-177-87, 27 p.

Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007, <http://wi.water.usgs.gov/gwcomp/>

The depth to bedrock indicates the amount of soil and surficial deposits that exist in an area and, therefore how important the type of bedrock is in evaluating pollution potential. Information on the depth to bedrock map is used to determine the relative weight given to the other resource characteristic maps. For example, where the bedrock surface is deep and the water table occurs above the bedrock, the type of bedrock is not considered in determining groundwater contamination susceptibility. Where the depth to bedrock is shallow (less than 50 feet below the land surface), the water table is likely to occur in the bedrock. In that case, the type of bedrock is considered because it could influence a contaminant's ability to reach the groundwater. This map identifies areas where the depth to bedrock is 0-5 feet (in at least 35% of the area), 5-50 feet, 50-100 feet and greater than 100 feet.

Sheboygan County – Bedrock Type



This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

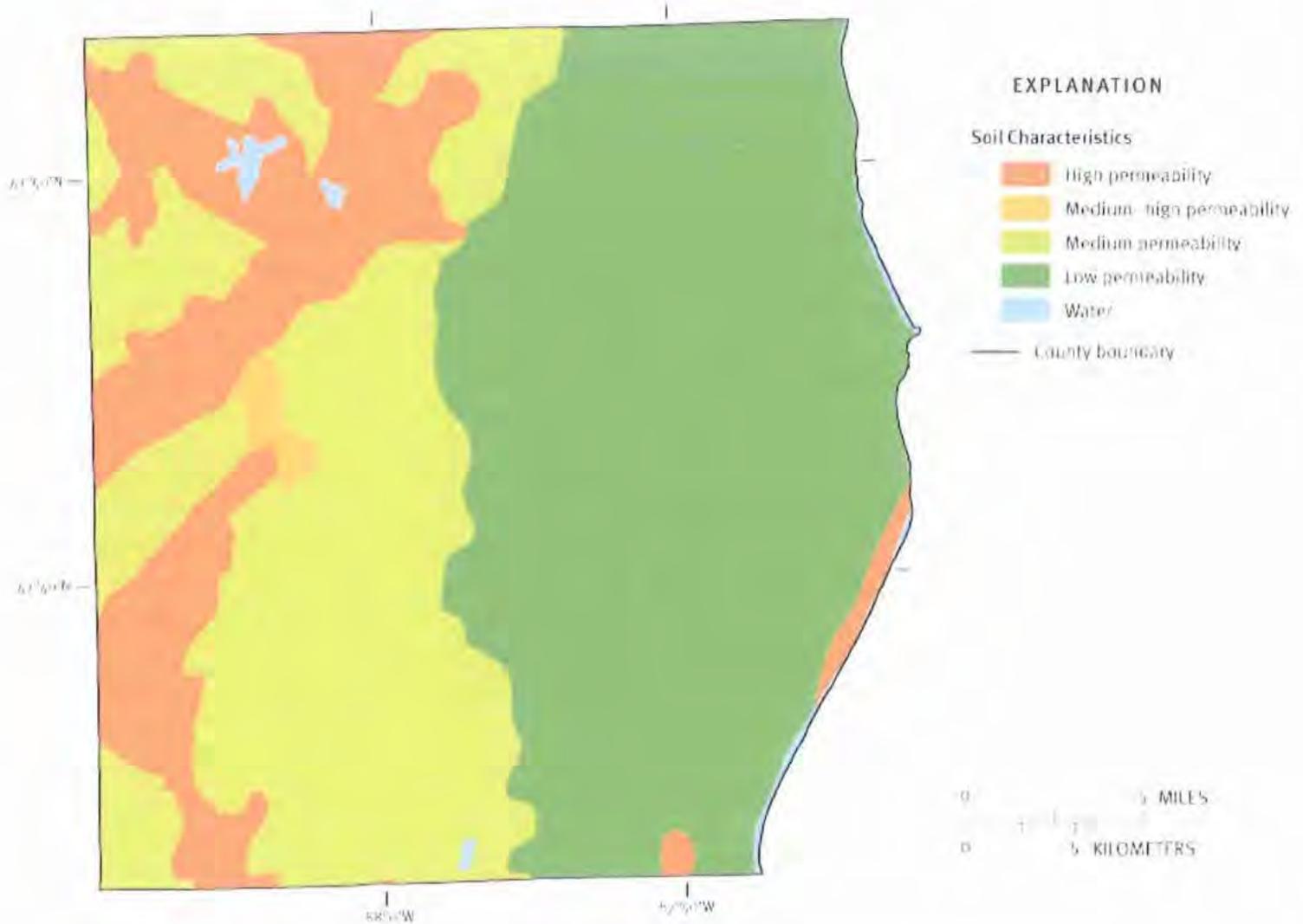
Map source: Schmidt, R.R., 1987, Groundwater contamination susceptibility map and evaluation Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 1, PUBL-WR-177-87, 27 p.

Figure created for the 'Protecting Wisconsin's Groundwater Through Comprehensive Planning' web site, 2007, <http://wi.water.usgs.gov/gwcomp/>

When bedrock is less than 50 feet from the land surface and the water table occurs in the bedrock, the type of bedrock is important in determining how easily a contaminant can reach the groundwater. Bedrock types that allow water to pass quickly through them will offer less protection from contaminants. In Wisconsin, these types of bedrock are typically limestone and dolomite which are highly fractured. Igneous and metamorphic rocks (e.g. granite) and sandstone are less fractured and offer some protection from infiltrating water which may contain contaminants. On the other hand, shale bedrock is almost impermeable, and doesn't allow water and accompanying contaminants to pass

through it as easily. The bedrock categories used for this project are carbonates, sandstone, igneous/metamorphic/volcanic, and shale.

Sheboygan County – Soil Characteristics



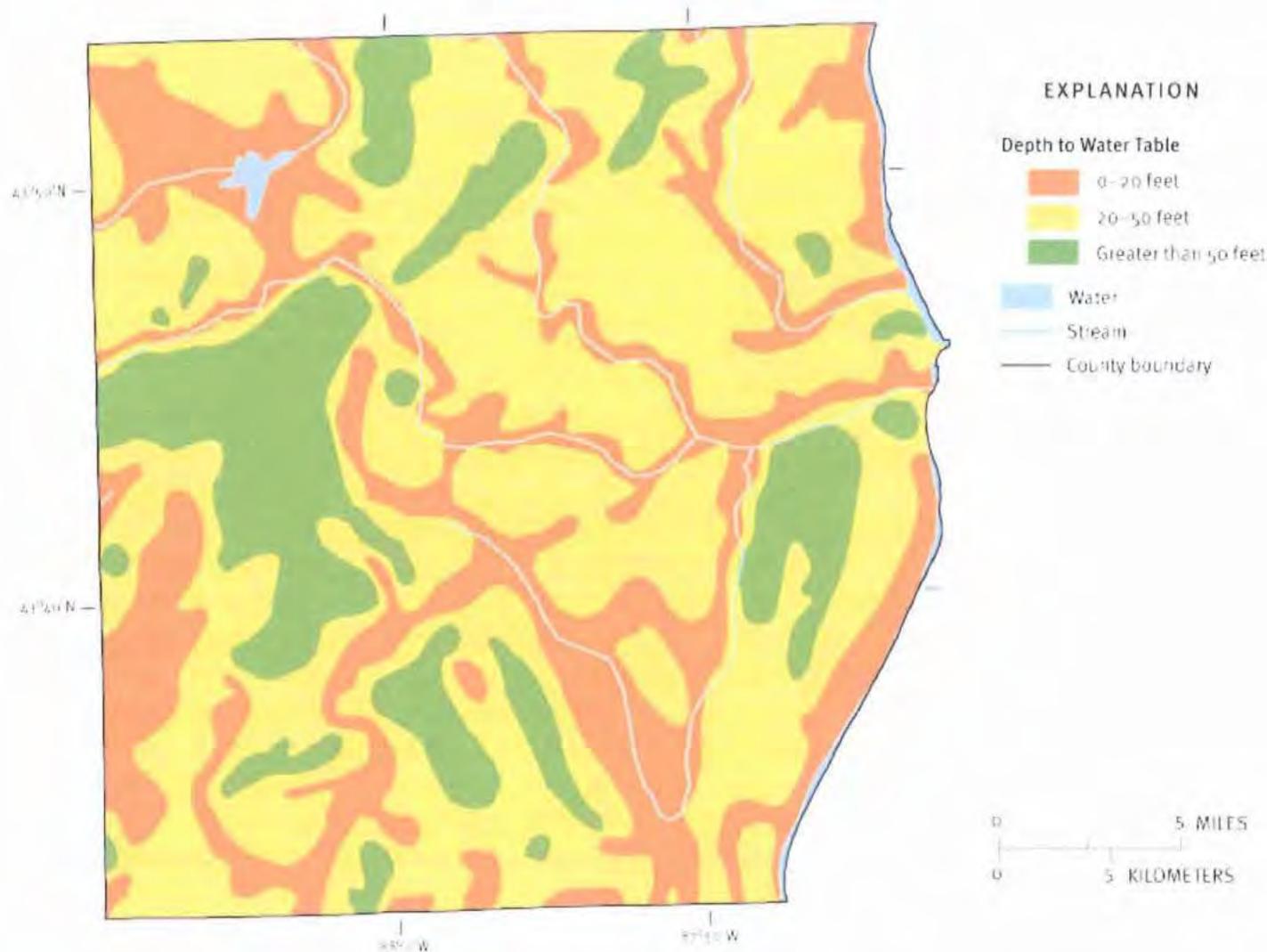
This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site specific purposes.

Map source: Schmidt, R.R., 1987. Groundwater contamination susceptibility map and evaluation. Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBI-WR-177-87, 27 p.

Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007, <http://wi.water.usgs.gov/gwcontrol/>

The top layer of materials covering most of the land in Wisconsin is the soil. The soil is defined as the unconsolidated material occurring from the land surface to five feet below the land surface. This is the first material through which water (and accompanying contaminants from the land surface) flow on their way to recharging the groundwater. The soil categories called "associations" have been rated by their ability to restrict the downward movement of water and accompanying pollutants. Important characteristics to consider are soil texture (the amount of sand, silt and clay), organic matter content, permeability and water holding capacity. The soil associations were grouped according to the following characteristics: high susceptibility (highly permeable soils with coarse texture, e.g., sand and gravel); medium/high susceptibility (permeable soils with coarse texture, e.g., sandy soils); medium susceptibility (moderately permeable soils with medium texture, e.g., loamy soils); and low susceptibility (least permeable soils with fine texture, e.g., silty and clayey soils).

Sheboygan County – Depth to Water Table



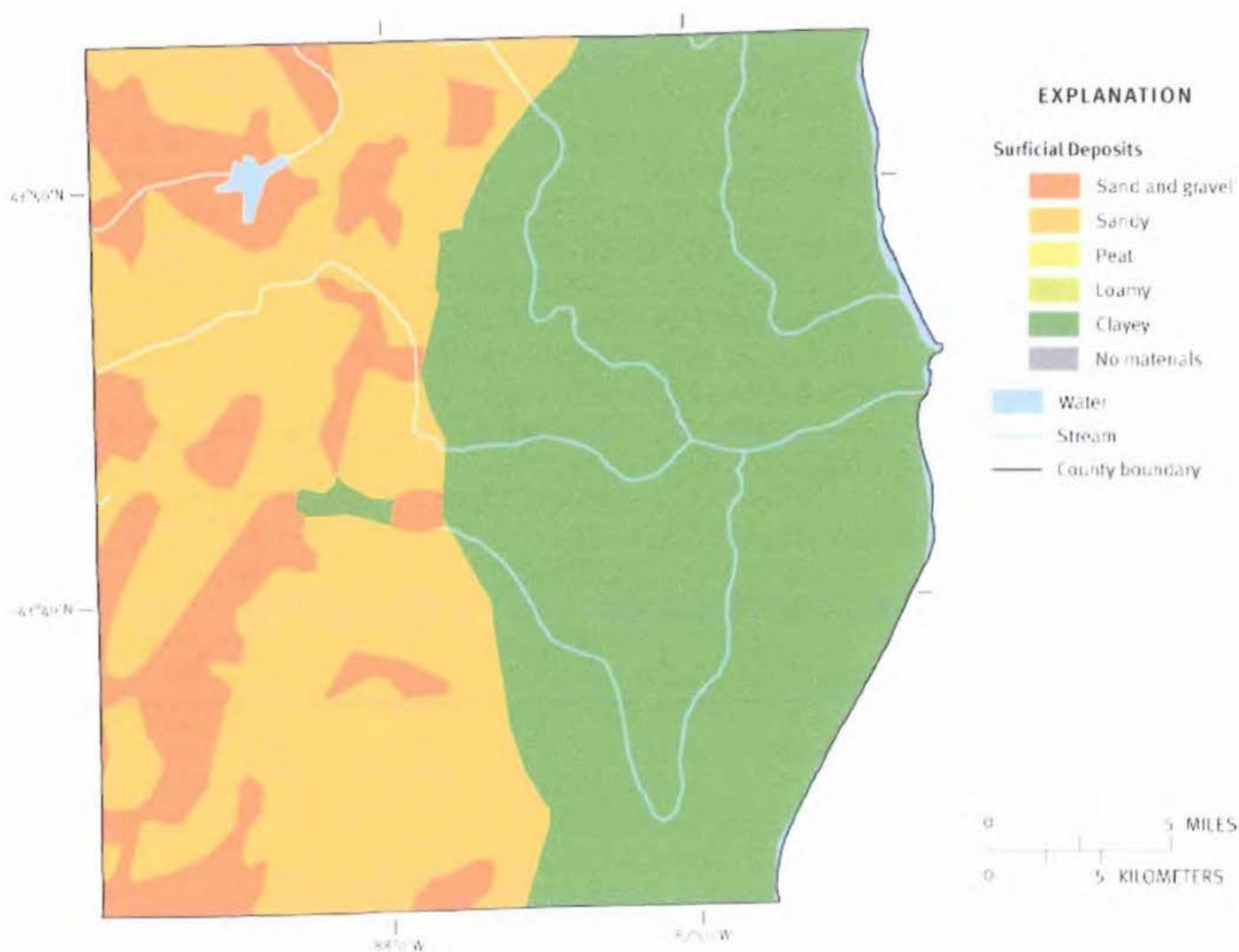
This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

Map source: Schmidt, R.R., 1987. Groundwater contamination susceptibility map and evaluation. Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBLWR 177-87, 27 p.

Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007, <http://wi.water.usgs.gov/gwcomp/>

It is important to know where the water table is when trying to determine groundwater contamination susceptibility. The closer the water table is to the land surface, the less contact contaminants have with filtering materials overlying the water table. The depth to water table is difficult to map on a statewide basis because it's almost as variable as the terrain. The information used in this mapping project identified where the water table was less than 20 feet, between 20 and 50 feet, and greater than 50 feet from the land surface.

Sheboygan County – Surficial Deposits



This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

Map source: Schmidt, R.R., 1987, Groundwater contamination susceptibility map and evaluation: Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBL-WR-177-87, 27 p.

Figure created for the 'Protecting Wisconsin's Groundwater Through Comprehensive Planning' web site, 2007, <http://wi.water.usgs.gov/gwcomp/>

Surficial deposits are unconsolidated materials lying on top of bedrock. Except for the unglaciated southwest portion of the state, most of the surficial deposits in Wisconsin were left by glaciers. These materials differ, depending on how they were deposited. Some glacial materials were deposited by melting waters, and are well sorted or have layers of both fine materials and gravelly materials. Infiltrating waters must pass through these materials en route to the groundwater. Except in areas of shallow bedrock, the surficial deposits are considered the most important factor in determining how susceptible an area is to groundwater contamination. The surficial deposits have been categorized into six groups: sand and gravel; sandy; loamy; peat; and no materials (not shown at this scale). Areas having sand and gravel deposits are considered susceptible to groundwater contamination; and areas with clayey deposits are considered less susceptible.

[return to top](#)

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: WILSON RESIDENTS

Address: [REDACTED]

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

wetland destruction
destruction of Indian mounds

Additional sheets are included: ____ Yes ____ No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

AGAINST

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? ~~YES~~ NO

Name: [redacted]

Representing: _____

Address: [redacted]
Sheboygan, WI 53081

Phone: [redacted]

E-mail: [redacted]

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,

- Fold this sheet and mail stamped sheet to the printed address on the back; or,
- Send email comments to: DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

- Well impact
- pesticides + fertilize use
- traffic (increased inability to sustain large # of vehicles)
- Impact on the banks of the Black River
- additional compromise of the already compromised Black River and Lake Michigan
- I disagree with the donation of public land to ANYONE, regardless of the amount of \$ they make

Additional sheets are included: ___ Yes ___ No

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES ~~NO~~

Name: [REDACTED]

Representing: _____

Address: [REDACTED]

Sheboygan WI 53081

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or,*

• Fold this sheet and mail stamped sheet to the printed address on the back; *or,*

• Send email comments to:

DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

We are the "little guys," up against a big company's money and lawyers, and we need help from the DNR. I beg of you, please help us to overcome this threat. Why does the DNR exist, if not for to come to the aid of the people at a time like this? The people do not want this golf course. It is being built to serve and impress people from far away, not to benefit those of us here. I am a property owner in the town of Wilson. I am afraid of the negative effects on the the area: pollution, traffic, depletion of well water, noise, and more. I don't see how a golf course can go in and not change the entire atmosphere of the area. Please help us. We need you.

Additional sheets are included: ___ Yes ___ No

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [REDACTED]

Representing: _____

Address: [REDACTED]

Phone: [REDACTED]

E-mail: [REDACTED]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; *or*,
• Fold this sheet and mail stamped sheet to the printed address on the back; *or*,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

Water for Wells
Beach Access

Additional sheets are included: Yes No

Dear Sir,

my nephew (Greg Hopkins) believes it is important to stop Kahler from building a golf course on property originally set aside as nature preserve. He lives in the area and is a member of FBRF.

Hope you keep up the good work!

[REDACTED]

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? __ YES __ NO

Name: [Redacted]

Representing: _____

Address: [Redacted]

Phone: [Redacted]

E-mail: [Redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

I believe Kohler is/will design a respectful project - sensitive to the issues stated this evening.

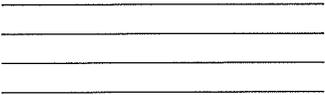
I am embarrassed by several of the comments made tonight - accusational in nature.

It is private property - I am an avid user of both Terre Andre & Black River trails... but believe Mr. Kohler has a right to do what he wants to the property he owns & pays taxes on which he

Additional sheets are included: Yes No *company to do the right thing environment & animal houses.*

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

Fold and close to mail.



Please
place
postage
stamp here

Jay Schiefelbein
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313-6727

July 14, 2015

DNR Officials,

Good evening, my name is Terry Shircel, and I reside at 6278 South 18th Street in Sheboygan/Town of Wilson. My home is approximately ½ mile west of the proposed golf course.

Naturally, when word came out that a golf course was going to be built, I had concerns. Being a former member of the Town of Wilson Plan Commission, I knew too well of what procedures the Kohler Company had to go through and what needed to be done. I also knew that any decision must be made according to the law and policies and procedures set up by the Town. There is not a question in my mind, as a homeowner and landowner, that the Kohler Company proposal to build a golf course on their property is appropriate and in the best interest of the township today, tomorrow, and in the future.

According to the facts, the Department of Natural Resources own Environmental Impact Report (conducted by engineers using scientifically based analysis and facts) concluded that:

PUBLIC ACCESS – Public access to the site would be created. It is private land. I repeat PRIVATE land. Many residents, including myself have walked the state park and this property for years. We should be thankful for being allowed to walk on somebody else's property. The Kohler Company has even set up a special easement for Timberlake residents to access to the Lake Michigan shoreline. This private land will become a PUBLIC golf course...not a private one!

WELL WATER PROTECTIONS – A well-water protection insurance plan will be in place to protect homeowners like myself. This proposed golf course protects the watershed, groundwater, and our wells. If something would go wrong, Kohler has stated, they will set up a fund insurance to protect residents as they did with Whistling Straits neighbors.

PRESERVATION OF WETLANDS – There would be a net INCREASE in wetlands protected which was a goal highlighted in the Town of Wilson's 20 Year Plan. They would remove invasive species from the area and ADD MORE plants and grasses and preserve the naturally occurring ecosystem. Kohler Company would employ BEST PRACTICES regarding pesticide and fertilizer use and control runoff...something some landowners may have not done in past years themselves! Kohler Company has adopted Leadership in Energy & Environmental Design green building standards...which it has implemented with other aspects of their business during the past several years.

TRAFFIC – The traffic concerns that some may think will congest the area will not take place. It will enhance public access to Kohler-Andrae State Park which is highly used by people around the state and from neighboring states year round. The access area has not been used by the public, only by park and maintenance staff. Under the plan, BOTH state park, golf course personnel, and public would use this entrance, traffic thus staying clear of homes to the north. **FACT -- NO PUBLIC TRAILS** will be affected by this plan.

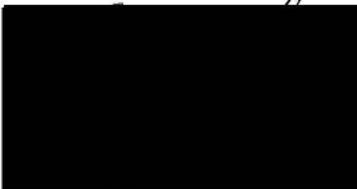
SCHOOL/EDUCATIONAL IMPACT – The local school district and your children, grandchildren, friends children, and future children will benefit from an approximate \$100,000 **INCREASE** in school funds.

ECONOMIC IMPACT– It would create hundreds of jobs...for **YOUNG** and old alike. The south side of Sheboygan needs a business where our youth can bike, walk, or drive a short distance to go to work and job-shadows, internships, etc.. It will increase the local tax base...residents complain when their property taxes go up, they are re-assessed, etc., but with an increased tax base...the burden could be lessened.

The proposed golf course will provide a multi-million local economic boost. Let's face reality. Sheboygan County's population has remained flat for the past several years and projections call for a flat-line increase/decrease for the next several years. The **ENTIRE** area will benefit from this economic development. When people come to Sheboygan/Kohler, they will spend their money not only at the golf course, but at local businesses as well. Private business owners **WILL BENEFIT** from this golf course.

It is for these reasons, that I **SUPPORT** the Kohler Company's proposed golf course in the Town of Wilson.

Sincerely,



1. I'M CONCERNED ABOUT THE USE OF STATE PARK LAND FOR PRIVATE PROFIT. I'M QUITE SURE I WOULD NOT BE ALLOWED TO USE STATE PARK LAND FOR PRIVATE PROFIT.

2. AS WE ALL KNOW THE LETTERS D. N. R. MEANS DEPT. OF NATURAL RESOURCES. I HOPE THE WIS. D. N. R. WILL KEEP THE NATURAL RESOURCES IN THE TOWN OF WILSON UNDISTURBED. IF THE KOHLER CO. PROPOSED GOLF COURSE IN THE TOWN OF WILSON IS PERMITTED TO BE BUILT, A LOT OF IRREPLACEABLE NATURAL RESOURCES WILL BE LOST FOREVER.
 - A. THE DEFORESTATION AND CHANGING OF THE TOPOGRAPHY OF 247 ACRES. THE RED HEADED WOODPECKER HAS BEEN ON THE DECLINE. HE CHOOSES DEAD TREES FOR HIS NEST. I'M SURE A LOT OF WILDLIFE WILL BE AFFECTED.
 - B. ANCIENT SAND DUNES WILL BE BULLDOZED.
 - C. I HEARD NATIVE AMERICAN INDIAN MOUNDS ARE IN THAT AREA. RELATIVES OF THE NATIVE PEOPLES WHO LIVED IN THE AREA SHOULD BE CONTACTED OF THIS. HOW WOULD YOU LIKE IT IF SOMEONE WOULD BULLDOZE YOUR RELATIVES GRAVES ALL FOR PRIVATE PROFIT?
 - D. THE CHEMICALS, PESTICIDES, HERBICIDES WILL FIND ITS WAY INTO BLACK RIVER.

E. IF WELL WATER IS USED TO WATER THE GREENS, ALL THAT WATERING IS SURE TO DRAIN OUR AQUIFER.

3. ALL THESE BAD AFFECTS AND MORE, AND FOR WHAT! SO A SMALL RICH MINORITY CAN ENJOY THEMSELVES AND FOR THE GOD OF MONEY!

4. OVER THE PAST GENERATIONS OF MAN ON THIS CONTINENT WE HAVE LOST MUCH TOO MUCH WILDERNESS AREAS FOREVER. WE ALL LIVE IN A STRESSFUL WORLD TODAY. GOING OUT INTO GOD'S CREATION, HIS FEW WILDERNESS AREAS THAT ARE LEFT, IS A GOOD WAY TO RELIEVE THE TENSION'S WE ALL LIVE WITH.

5. KOHLER'S HAVE DONE A LOT IN PRESERVING WHAT WE NOW HAVE IN KOHLER ANDRE STATE PARK. ENLARGE THE PARK EVEN MORE FOR FUTURE GENERATIONS TO ENJOY BY ADDING THIS 247 ACRE PARCEL OF LAND TO THE PARK.

6. WE HAVE MORE THAN ENOUGH GOLF COURSES IN SHEB. COUNTY ALREADY, BUT MORE AND MORE WILD AREAS KEEP DISAPPEARING UNNECESSARILY.

[REDACTED]
[REDACTED]
[REDACTED]

July 14, 2015

Jay Schiefelbein
Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313-6727

Re: Presenting my concerns regarding the proposed Kohler Golf Course in the Town of Wilson

1. High Capacity Well Use Impact on any/all Town of Wilson Wells

The DNR has access to computer software, that can determine the probability of well interference, and I urge you to thoroughly review the impact of a high capacity well in the Town of Wilson.

Currently there are no high capacity wells in our area, and Kohler's test well failed, as it showed a negative impact on the surrounding wetlands.

Records show that the well depth levels of ALL businesses/organizations, farmers, and residents do not go deeper than 400 ft. below sea level (See Exhibit 1). Kohler's high capacity well plan will "negatively impact all water well systems," as was clearly presented a year ago by Roger Miller, Engineer and Scientist. If Kohler's well is within the range of sea level to 400 ft. in depth, all constituents in Businesses/Residents in The Town of Wilson would endure severe complications for the entire time needed for restoring fully functional wells that would provide the same water quality and water pressure that our current wells provide.

Dry well inconveniences could be considered as compensatory damages, including but not limited to:

- All Businesses/Organizations, including but not limited to: schools, churches, daycare centers, restaurants, bars, mini-marts, insurance companies, etc. -see Yellow Pages lists), would very likely have to close down for the entire duration of time required for remedial measures to be effective;
- All Farms would endure water deprivation of caged farm animals, that could not be quickly or easily relocated, which could be viewed as animal cruelty. Drought to crop fields would be a loss for each and every season until remediated;
- Residents probably needing temporary relocation due to no access to quality water for drinking, cooking, toileting, bathing/showering, and/or laundry. In addition, any daily life-style disruption would also potentially result in absenteeism, tardiness, and stress-challenged performance to residents' with their careers/jobs.

To: Jay Schiefelbein, Department of Natural Resources
From: [REDACTED]
Re: Environmental Impact of the Proposed Kohler Golf Course

July 14, 2015

Page Two

High Capacity Well Use Impact on Town of Wilson Wells, Cont.

Most of Kohler's High Capacity Well data shows that Kohler annually uses millions of gallons, most of which is during the golfing season (See complete attachments [Exhibit II](#) and [Exhibit III](#)).

Studies indicate that most all Town of Wilson wells, that provide drinking quality water, will be negatively impacted, just as happened in the Town of Mosel, by Kohler's High Capacity Well use. Records show that Kohler's water consumption levels, just to keep his golf courses beautiful, are catastrophic!

Exhibit II:	2012 Whistling Straits High Capacity Wells Data Annual Totals	55,241,449
	2013 Whistling Straits High Capacity Wells Data Annual Totals	35,999,753
Exhibit III:	2012 Blackwolf Run High Capacity Wells Data Annual Totals	85,028,568
	2013 Blackwolf Run High Capacity Wells Data Annual Totals	36,436,379

If the DNR considers approving the plan for the Kohler Golf Course to move forward, studies indicate that there are other water sources available that Kohler could be required to use.

1. The City of Sheboygan draws its water from Lake Michigan. Therefore, there are no other nearby well pumpers consuming such large quantities. However, I'm not sure that Kohler would have access to Lake Michigan water without disturbing the sand dunes;
2. Drawing water at the same depth from which Fond du Lac pumps, is available in Sheboygan County. Sheboygan Fountain Park used to tap this Sandstone aquifer (Trotta, 2013). This water is considered irrigation quality; and/or
3. **Using two (2) separate well sources simultaneously** (below), so no well sources would dry up;
 - Kohler using only for his bar and restaurant, the same drinkable quality water from the well sources accessed by Town of Wilson residents' and local businesses/restaurants,' not to exceed 400 ft. below sea level ([See Exhibit I](#)); and
 - Using irrigation quality water for the golf course which could be drawn from the depths that are used by Fond du Lac, which range approximately 850'-1,000ft below sea level - ([See Exhibit I](#)). **This level would not cause anyones' wells to go dry.**

From: [REDACTED]

Re: Environmental Impact of the Proposed Kohler Golf Course

2. Impact on wetlands, Black River, and Lake Michigan

Wetlands are vital to erosion control, filtering toxins, and supporting wildlife. These and more will be irrevocably destroyed, if Kohler's plan is approved. Using pesticides and herbicides on the proposed site will severely affect the already declining numbers of Monarch butterflies and bees (pollinators).

State land surrounds the majority of the Kohler property, and I'm sure the below statistics on area species, would apply to the Kohler property also. Bulldozing this area will result in the virtual destruction of the documented habitat occupied by 33 mammal species, more than 150 bird species live in or migrate this area, and more than 400 plant species, including more than 50 different tree species. Some species are rare and unique to this area, like the rare Dune Thistle and the Beach-Dune Tiger Beetle. Sources below:

- WI Dept of Resources, Kohler-Andrae State Park "Visitor", 2013;
- <http://dnr.wi.gov/topic/parks/name/kohlerandrae/pdfs/kabirdlist.pdf>; and
- <http://dnr.wi.gov/topic/WildlifeHabitat/documents/WWAP.pdf>

Lee Trotta (Geologist) worked with the Environmental Quality Commission in Minnesota, studying wildlife corridors in an effort to not disrupt the corridors with construction. They found that interrupting pathways for indigenous species presents a danger in separating breeding populations and/or forcing new pathways. Disrupting corridors around Kohler's proposed golf course area, would separate breeding populations and/or forcing new pathways which would be closer to or cross, high speed local/county road traffic, and the high speed freeway traffic.

The runoff from herbicides, pesticides, and fertilizers for these 247 acres would kill the Lake Michigan quality for all Kohler Andrea Park visitors, in addition to polluting Black River, and all wetlands. The wetlands and Black River are already challenged by overburdening of phosphorus. We don't need more contamination.

In addition, studies indicate that building and continued maintenance of the golf course will: pollute ground water from fertilizer and pesticide run off; pollute Lake Michigan and Black River Watershed; and negatively impact all well water systems, as was clearly presented by Roger Miller, Engineer and Scientist.

Most chemicals selected for herbicides, pesticides, and fertilizers also present health risks. Studies indicate that these poisonous substances have a hugely negative impact on the environment and health. Champion level golf courses use a significant amount of these. See: [Exhibit IV](#) - Assessment of Risk to Drinking Water from Turf Pesticide Runoff; [Exhibit V](#) - Health Effects of 30 Commonly Used Pesticides; and [Exhibit VI](#) - Golf, Pesticides and Organic Practices. The Town of Wilson does not need excessive use of herbicides, pesticides and fertilizer to keep Kohler's proposed 247 acre championship golf course beautiful. The environmental and health impact will be huge.

To: Jay Schiefelbein, Department of Natural Resources
From: [REDACTED]
Re: Environmental Impact of the Proposed Kohler Golf Course

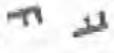
July 14, 2015

Page Four

3. Native American Burial Mounds, Sand Dunes, Artifacts and Relics.

Herbert V. Kohler, Jr.'s petition, pending approval, for his private profit championship golf course, will result in bulldozing 'Kohler Company's Forest Preserve State Wildlife Refuge (Private Lands)' (See Exhibit VII). This historically archeologically mapped land is a pristine natural habitat upon which are strewn many Native American Burial Mounds. Bulldozing will destroy or disturb sacred Native American Burial Mounds that are located on the proposed site, as well as the irreplaceable and ancient interdunal sand dunes and wetland systems.

The published maps were drawn from a survey level position in 1920 (See Exhibit VIII-a and Exhibit VIII-b). Back then they did not have aerial imaging equipment, which perhaps would more accurately show the exact locations of the Native American Burial Mounds.

The images  and/or • • show the location of Native American Burial Mounds. "These mounds have never been under cultivation and therefore are quite well preserved, there being about fifty large mounds in the group or groups arranged in an irregular line." *Wisconsin Archeologist (Aug. 1920) Vol.19, No.3, Pg. 160, published by Wisconsin Archeological Society)*

Additional human remains have also been found as they came to the surface when sand dunes naturally reshaped. This is archeologically historic land where museum quality artifacts have been found and recorded as far back as 1894, including: Arrowheads; Spearheads made from deer antlers for spear fishing; Bone Spears; Fish hooks made from deer antlers; and diverse shapes and colors of pottery and pipes. (Please gain access to this information: *Wisconsin Archeologist (Aug. 1920) Vol.19, No.3, Pgs. 152-163, published by Wisconsin Archeological Society)*

It is against the law to disturb these Native American Burial Mounds. A truly 'independent study' needs to be done to ascertain the exact locations and areas that need to be legally protected. An independent study is not 'independent' if arranged and paid for by Herbert V. Kohler, Jr., and/or any affiliates that will benefit from approval of the petition.

According to Mike Grimm, the ecologist at Sand Ridge in Door County, the Kohler property's interdunal wetlands and ridge and swale wetlands can never be created elsewhere. They are created over approx. 5000 years by the Lake Michigan activity. So to lose them is to lose a huge part of our ecological heritage.

Door County wetlands are deemed to be of 'International Significance.' Door County wetlands are a very close match to Kohler's property, and should be revered and protected, just as have been in Door County. (See Exhibit IX).

To: Jay Schiefelbein, Department of Natural Resources

July 14, 2015

Page Five

From: [REDACTED]

Re: Environmental Impact of the Proposed Kohler Golf Course

4. Golf Course Access Across Public Owned State Park Land.

In addition to the fact that Kohler should not be allowed to take or use public owned state park land for private profit use, I don't see how he can access the proposed golf course without disrupting Native American Burial Mounds.

- A. Warranty Deed 877247 is clearly defined (See [Exhibit X](#)) which specifically and 'forever' gifts to the State of Wisconsin all pristine natural habitat now known as Kohler Andrea State Park. The Protective Clauses covenant: To Preserve the natural beauty of a unique area along the westerly shore of Lake Michigan; to provide the people of the State of Wisconsin with an interesting and naturally beautiful recreational area; and to recognize the contributions to the conservation of Wisconsin's natural resources made by John Michael Kohler and his family.

Herbert V. Kohler, Jr. asked for a road easement in 1984 from the State of Wisconsin across the same area on which he is now requesting an easement for the proposed golf course. At that time, in 1984, Herbert V. Kohler wanted to build his home on the now proposed golf course property and wanted an easement to the property across State land. Please see State of Wisconsin Correspondences/ Memorandums dated November 13, 1984 ([Exhibit XI](#)) and November 16, 1984 ([Exhibit XII](#)), within which the DNR said NO.

The DNR stated it was a violation of Section 6 (f) of the Land and Water Conservation Fund Act (LAWCON.) If it was a LAWCON violation in 1984, it should still be a LAWCON violation in 2015 and beyond, since NOTHING HAS CHANGED!!!

- B. See [Exhibit XIII](#), which compares the current map of the proposed golf course to the 1920 published map marking the Native American Burial Mounds. At the southern part of Section 14, the  symbol marking a group of mounds extends clear across, from west to east, from Black River all the way over and very near the beachfront.

Kohler recently accessed the land to do test well drilling. I am not aware of any archeological studies having been done prior to drilling the test well, to locate Native American Burial Mounds. At the well test access point, it is possible that the large well-drilling equipment and trucks have already caused irreversible damage or destruction to some of the Native American Burial Mounds.

To: Jay Schiefelbein, Department of Natural Resources
From: [REDACTED]
Re: Environmental Impact of the Proposed Kohler Golf Course

July 14, 2015

Page Six

5. Environmental Impact To 'Forest Preserve State Wildlife Refuge.'

Exhibit VII map of Kohler-Andrae State Park lists the Kohler Company property as a 'Forest Preserve State Wildlife Refuge.'

Whistling Straits was built on a military dump site. Kohler's Championship Golf Course plan will environmentally destroy the natural resources of this natural habitat and pristinely beautiful 'Forest Preserve State Wildlife Refuge.'

Bulldozing and deforestation over 125 acres of pristine forest trees, and replacing it with turf grass for greens and fairways, will destroy major bird migratory routes, thereby eliminating major bird presence in the area; and destroy rare/uncommon plant species.

6. Has Herbert V. Kohler, Jr., et al., really proven "Kohler Co.'s Commitment to Environmental Responsibility" ???

Third Worst Contaminator: I was stunned by the documents and facts presented and submitted by Deb Desmoulin, another constituent at the Town of Wilson's first public hearing on July 16, 2014, and her Sheboygan Press 'Letter to the Editor' dated October 1, 2014 (See Exhibit XIV). Deb Desmoulin revealed and submitted trackable documentation, that Kohler Company is the third worst contaminator of the environment. As stated and submitted in her findings, Kohler also violated environmental regulations/ordinances by burying a portion of The Sheboygan River, paying what to him would be pennies in fines, and not restoring/reversing the damage. To date, I am told that no remedial efforts have been taken to repair the damaged. Please verify all documented data above from July 16, 2014 Public Hearing records, which are now stored/archived.

The DNR would have records of all violations and fines issued. Do you expect Herbert V. Kohler, Jr. to keep his word, when history has already proven that Kohler Company is the third worst contaminator of the environment, and has also already violated regulations/ordinances by burying a portion of the river?

This proves to me that fines for such actions are just pennies to Kohler, the damage will not be reversed, and that he will do whatever he wants, wherever he has taken control. I wish Kohler would adhere to green (environmentally sound) principles. I'm sure the reason there have been no fines for environmental contamination in all other areas where he's built his golf courses, is because no subsequent tests measuring contamination have been performed, which again would only generate 'pennies' of fines.

In Conclusion:



The **NO BUILD ALTERNATIVE**, presented by Kohler, would be the best direction for the DNR's decision.

To: Jay Schiefelbein, Department of Natural Resources

July 14, 2015

Page Seven

From: [REDACTED]

Re: Environmental Impact of the Proposed Kohler Golf Course

I strongly oppose the construction of a golf course within any portion of the Black River Forest and/or on any portion of State Park land. I have done a great deal of research, on many subjects, reports, and studies, which have revealed to regarding the negative and irreversible environmental impact regarding the proposed Kohler Golf Course. **In short, this entire plan violates every definition of protecting 'Natural Resources'.**

The approval of Kohler's private profit plan will devastate much more than the Native American Burial Mounds in this archeologically historic area: Nearly the entire area will be bulldozed, which will cause deforestation, destruction of all native plants, wetlands, and the natural and migratory habitat of many animals and birds. Once the bulldozers arrive, it will also be too late to identify and/or preserve Native American Burial Mounds, museum quality artifacts and relics, and all other portions of this pristine natural preserve.

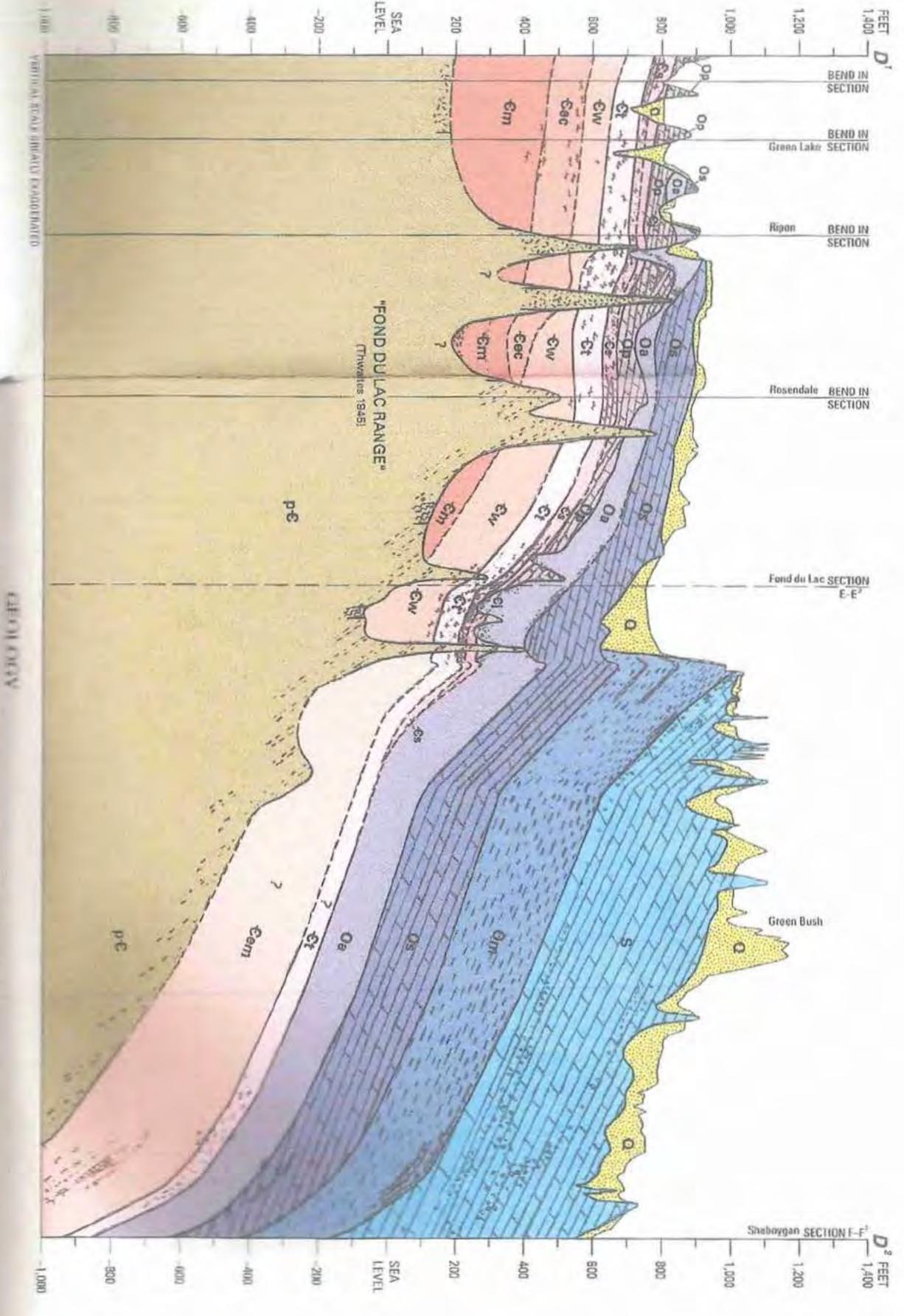
I promote ecological protection of the whole, including but not limited to: the preservation of the integrity of that river; its wetlands; all forestation; all lifeforms/species; and the adjoining Lake Michigan shore. The land for the proposed golf course is already so beautiful that it needs no improvement.

Please take prompt affirmative action to stop environmental invasions, protect Native American Burial Mounds, our beautiful woodlands, wetlands, water purity, well integrity, and all incredible natural lifeforms.

Sincerely,

[REDACTED]

Exhibit I



GEOLOGICAL

Exhibit II

Whistling Straits High Capacity Wells Data for 2012 and 2013

	W S Clubhouse	W S Main- tenance	W S North Shelter	WS South Shelter	W S Pond Supply	W S Irish Course N	WS Irish Course S	W S Clubhouse	W S Grounds- keeper House No Data available	W S Totals
Jan-12	50,275	6,509								
Feb-12	37,881	6,143								
Mar-12	80,039	21,806				24,069	10,824	35,799		
Apr-12	100,865	16,864	5,454	3,090	1,244,600	335	1,018	6,840		
May-12	246,393	31,244	7,313	512	7,951,600	875	1,663	17,490		
Jun-12	326,108	41,099	629	762	10,013,500	862	5,327	31,170		
Jul-12	330,777	40,877	539	649	11,594,500	875	2,106	24,360		
Aug-12	444,097	47,083	14,650	13,303	7,007,900	1,331	11,395	49,440		
Sep-12	279,995	29,560	755	1,078	9,614,200	1,005	3,817	35,460		
Oct-12	261,360	21,140	363	635	4,741,200	597	6,328	8,590		
Nov-12	169,945	15,060	25	77		163	276	8,620		
Dec-12	124,090	4,270								
2012 Total	2,451,825	281,695	29,728	20,106	52,167,500	30,112	42,754	217,769		55,241,449
Jan-13	59,169	7,527								
Feb-13	151,700	6,112								
Mar-13	67,155	8,961								
Apr-13	116,838	24,052	26,161	12,859		26,311	8,372	88,160		
May-13	238,815	32,138	384	2,578		1,941	1,039	22,540		
Jun-13	396,040	39,447	797	1,269	4,924,500	1,355	1,684	22,160		
Jul-13	272,675	43,845	6,373	9,560	7,477,600	1,120	1,900	29,580		
Aug-13	379,235	38,568	925	1,852	9,682,900	1,307	10,663	32,060		
Sep-13	311,175	43,170	1,130	1,511	8,817,700	1,078	1,771	460,101		
Oct-13	290,250	35,500	945	660	888,900	875	870	42,710		
Nov-13	101,100	7,300			617,000	100	80			
Dec-13	93,000	2,600								
2013 Total	2,477,152	289,220	36,715	30,289	32,408,600	34,087	26,379	697,311		35,999,753

Exhibit III

Blackwolf Run High Capacity Wells Data for 2012 and 2013

	BR Rest Station	BR Champions Locker	BR Irrigation Pond	BR Irrigation	BR Rest Station	BR Totals
Jan-12		30,080				
Feb-12		6,460				
Mar-12		21,050			10,958	
Apr-12	972	15,410	1,249,000		2,309	
May-12	4,854	4,840	5,938,700	5,165,000	5,672	
Jun-12	6,102	22,690	17,147,300	10,633,000	8,126	
Jul-12	6,955	41,080	11,279,700	9,660,800	6,436	
Aug-12	6,950	38,280	5,857,700	4,261,300	8,602	
Sep-12	8,868	79,360	4,914,200	4,981,800	9,889	
Oct-12	1,725	71,390	1,958,900	1,468,100	3,930	
Nov-12		31,100			1,238	
Dec-12		68,700				
2012 Total	36,426	430,440	48,345,500	36,170,000	46,202	85,028,568
Jan-13		20,040				
Feb-13		10,360				
Mar-13		22,890				
Apr-13	1,611	121,260			2,743	
May-13	3,644	217,251	1,176,000		12,176	
Jun-13	8,965	166,979	3,006,200		10,359	
Jul-13	7,000	45,160	6,560,500	6,525,100	6,000	
Aug-13	9,800	72,970	6,853,700	6,317,800	9,000	
Sep-13	5,100	74,030	2,952,000	1,586,400	9,000	
Oct-13	3,000	63,060		494,500	12,000	
Nov-13		35,700			18,000	
Dec-13		11,000				
2013 Total	39,120	860,700	20,548,400	14,923,800	64,359	36,436,379

Exhibit IV

Assessment of Risk to Drinking Water from Turf Pesticide Runoff

Masters of Engineering Project

By

Julia Leung

Biological and Environmental Engineering

Cornell University

May 2011

Table of Contents

Executive Summary	3
Introduction	4
Background	5
Methods and Data	7
Simulation Results	12
Conclusions	18
References	19

Executive Summary

A human health risk assessment was performed on pesticide runoff from lawns and golf courses for 9 U.S. locations using a fate and transport modeling program. Pesticide concentrations for 37 turf pesticides registered for application on golf courses were compared to drinking water standards. A maximum 24 hour lake pesticide concentration was used for an acute risk assessment and a mean daily lake concentration was used for a chronic risk assessment. Our results show that a number of the pesticides posed a potential risk as evidenced by a risk quotient (RQ; concentration divided by standard) over 0.01. For fairways, both iprodione and 24-D produced acute and chronic risk at more than 3 locations. Potential risk was only found for myclobutanil applications to greens and tees. MCPA, oxadiazon and 24-D applied to lawns posed both acute and chronic risks. The highest concentrations were seen with acephate applied to fairways with acute $RQ \geq 0.01$ in 4 locations and in oxadiazon applied to lawns in Houston with chronic $RQ \geq 0.01$. The assessment was based on simulations using TPQPond, a model developed for predicting pesticide runoff and resulting concentrations in a receiving pond, lake, or reservoir. The risk assessment followed general protocols used by USEPA in their pesticide concentration model, FIRST, but with more realistic methods of determining reservoir flow characteristics, pesticide mass balances and region specific weather data. Risk levels were found to vary with location and turf type. Pesticide concentrations were highest for fairways and lowest for greens. Greatest impacts were observed in areas of high annual precipitation rates and long growing seasons whereas lowest impacts were observed in areas of low precipitation rates. These results suggest that persons living in heavy rainfall areas may have higher exposures of turf pesticide in their drinking water than would be predicted by EPA risk assessments.

Introduction

Drinking water quality in reservoirs receiving runoff from lawns and golf courses may receive pesticide contamination. Health effects of pesticide exposure can range from dizziness and nausea to long term damage such as cancer and organ damage. A number of the pesticides used on turf grasses have been shown by the EPA to be possible carcinogens, irritants and linked to reproductive and neurological disorders (1).

There are over 15,000 golf courses in the US. An average golf course uses over 1,500 pounds of pesticides per year. Typical agricultural applications average less than a pound per acre per year. In some areas, pesticide applications on golf courses are more intense than on agricultural fields. In a survey of golf courses in Long Island, New York, pesticide applications averaged up to seven pounds per acre per year (2). Pesticides are sprayed on golf courses to maintain the greens and fairways. In addition, over 67 million pounds of pesticides are applied to lawns each year (3). Although golf courses often implement best management practices and integrated pest management strategies and also use specialized equipment to limit pesticide contamination, the effectiveness of these approaches is not well documented. During times of heavy precipitation, these pesticides are washed off into drinking water reservoirs.

A study on surface water quality effects from a Pacific Northwest golf course concluded that no significant impacts were found after pesticide applications (4). However, this study was limited to one location and a small number of pesticides. Research on the human health risk from turf grass pesticide applications is relatively limited. Haith (5) performed an ecological risk study using the same pesticides and weather data as this study. Of the 37 pesticides modeled, 4 posed potential risk to invertebrates or fish while 2 posed risk to plants. His study, however, was limited to acute ecological risk. This paper will explore both acute and chronic human health risk.

There is a need for a drinking water risk assessment of pesticides applied to lawns and golf courses due to the vast quantities applied to these grasses annually and the potential health hazards exposure will pose. The USEPA considers all dietary exposures when determining levels of concern for pesticide in food. Due to traces of pesticides found in ground and surface waters that are used for drinking, EPA considers drinking water a dietary pathway for exposure to pesticides. This study will take into account a full range of turf grass pesticides and weather data from different climate regions in the US. It will compare concentrations predicted by the TPQPond simulation model to individual drinking water standards to determine whether or not

recommended pesticide application rates on container labels result in harmful impact on human health.

Background

The purpose of this study is to perform a human health risk assessment of pesticides applied to lawns and golf courses using the general procedures outlined by USEPA. The study is a nationwide evaluation of acute and chronic water supply health risk. Results are provided for 37 pesticides in 9 US locations on 3 different grass surfaces.

The EPA's Office of Pesticide Programs (OPP) uses a tiered approach to evaluating the human health risks of pesticides in drinking water. Pesticides that pass the first tier in EPA drinking water assessment have a low risk of adversely impacting human health. Pesticides that do not pass the first tier move on to the next tier. Each successive tier is designed to screen out pesticides by requiring more complex levels of investigation. OPP uses a 2-tiered system for evaluating human health risk. This study will focus on EPA's first tier for risk assessment.

Currently, EPA uses FQPA Index Reservoir Screening Tool (FIRST) (6) as their Tier 1 screening model for assessing drinking water risk. FIRST is a simulation model that calculates pesticide concentrations in drinking water based on pesticide application rates and pesticide properties. It provides conservative exposure values for acute and chronic risk assessment. FIRST takes into account adsorption of the pesticide to sediment, deposition of the pesticide due to spray drift and degradation in the field and in the reservoir. It is based on the methods used in EPA's screening model for ecological risk assessment, GENEEC2, which assumes a single, large rain event. It is linked to EPA's PRZM and EXAMS surface water models.

To ensure that the pesticides that pass these screening tiers are unlikely to pose a human health risk, EPA uses conservative measures when estimating pesticide concentrations. FIRST assumes that each surface receives the maximum number of applications at maximum application rates with minimum time between applications as indicated on the pesticide label; that there is no buffer between the reservoir and application area; that the cropped area is highly vulnerable to runoff and easily influenced by rainfall events.

FIRST uses the characteristics of an index drinking water reservoir located in Shipman City, Illinois in its simulations. The vulnerability of the reservoir in Shipman City to contamination is representative of many small, shallow reservoirs in the Midwest that are faced with pesticide

contamination problems. Insufficient data for areas outside of the Midwest has prevented the EPA from developing region specific models in their risk assessment.

Model predictions of reservoir pesticide concentrations are compared to human drinking water levels of concern (DWLOC). The DWLOC is the maximum concentration of pesticide that a human can ingest before adverse health effects are observed. If the pesticide concentrations predicted by FIRST exceeds the DWLOC, the pesticide fails the first tier and moves on for further evaluation under EPA's Tier 2 screening model. If the pesticide passes the test, no further assessment is conducted and it is concluded that the pesticide poses little risk to human health. This study reports concentrations with $RQ \geq 0.01$, since in some ecological risk assessments, pesticides with these low risk levels are of some concern.

In order to incorporate a more realistic watershed in EPA's risk analysis, pesticide concentrations are adjusted by multiplying by a percent crop area (PCA) factor. Since pesticides are usually applied only to cropped areas and not the entire area of the watershed, the PCA factor represents the maximum fraction of the watershed that the pesticide is applied to. PCA factors also vary for different types of crop since it is also unlikely that the watershed is covered with only one type of crop. For non-agricultural areas such as lawns, EPA recommends using a PCA factor of 1 (7).

When simulating pesticide runoff from golf courses, EPA recommends using a Golf Course Adjustment Factor (GCAF) (8). Golf courses consist of several different grass surfaces classified as tees, greens, fairways and roughs. For golf course simulations, EPA assumes that the entire watershed is a golf course. The GCAF represents the decimal fraction of the watershed that is covered by a specific grass surface. This distinction is made because pesticides are not applied to entire golf courses but rather to certain playing areas. Pesticides are most intensely applied on tees and greens (5). EPA recommends a GCAF of 0.29 for fairways and a GCAF of 0.05 for greens and tees (8). Tees were not modeled separately because of their similarities to greens.

The risk analysis used in this study follows the general protocols of USEPA standards for drinking water assessment but uses the TPQPond simulation model rather than FIRST. The TPQPond model was developed by Haith (9, 10) to estimate daily pesticide concentrations in a receiving pond, lake or reservoir due to runoff from grass surfaces. Unlike FIRST, the model includes the daily water and chemical mass balances on land and in the receiving water. As a result, it is suitable for long-term simulations.

Methods and Data

This study uses the same reservoir characteristics of an index reservoir in Shipman City, Illinois as used in FIRST. Shipman City Lake is 144,000 cubic meters in capacity, 2.74 meters deep and receives runoff from a 172.8 hectare watershed (6). This study used the same pesticides that

Table 1: Pesticide properties and applications (5)

Pesticide	Pesticide properties			Fairways		Greens		Lawns	
	Koc	Soil half life	Water half life	Rate	Frequency	Rate	Frequency	Rate	Frequency
	(cm ³ /g)	(days)	(days)	(kg/ha)	(#/yr)	(kg/ha)	(#/yr)	(kg/ha)	(#/yr)
24-D	56	10	29	1.65	2	1.65	2	1.65	2
Benefin	10777	40	1	1.2	1			1.26	1
Bispyribac-sodium	302	13	35	0.11	3				
Carfentrazone-ethyl	866	0.5	0.4	0.06	3	0.06	3	0.06	3
Clopyralid	5	34	0	0.14	2				
Dithiopyr	801	39	0	0.43	1			0.43	1
Fluroxypyr	66	3	25	0.26	2	0.26	2	0.26	2
Isoxaben	601	105	17	0.84	1			0.84	1
MCPA	74	15	17	0.8	2			0.8	2
Mecoprop-p	31	8	50	0.23	2			0.23	2
Oryzalin	949	20	33	1.4	1	1.4	1	1.4	1
Oxadiazon	1294	135	113	3.36	1			3.36	1
Pendimethalin	15744	90	16	2.25	1	2.25	1	2.25	1
Penoxsulam	94	32		0.04	2			0.04	2
Prodiamine	12710	120		1.21	1			1.21	1
Rimsulfuron	47	24.3	6	0.03	3	0.03	3		
Sulfentrazone	43	541		0.28	3			0.28	3
Sulfosulfuron	33	24	26	0.07	2			0.07	2
Triclopyr	48	39	29	0.84	3			0.84	3
Trifluralin	8765	181	6	1.26	1			1.26	1
Chlorothalonil	850	22	0.1	11.2	3	11.2	9		
Cyazofamid	1780	10	14	0.86	4	0.86	4	0.86	2
Fluopicolide	321	271	777	0.24	2	0.24	2	0.24	2
Iprodione	373	84	30	2.17	5	2.17	5		
Mancozeb	998	0.1	76	18.3	13	18.3	13	18.3	2
Metconazole	1116	84	465	0.48	5	0.48	5	0.48	2
Myclobutanil	517	306	626	1.08	7	1.08	7	0.77	2
Propamocarb-hydCl	535	39.3	17	2.37	2	2.37	2	2.37	2
Thiophanatemethyl	207	0.6	2	1.45	4	2.9	10	2.9	2
Acephate	2	3		3.03	6	3.03	6		
Bifenthrin	236610	26	251	0.14	2	0.14	2	0.14	1
Chlorantranili-prole	328	210		0.19	3	0.19	3	0.19	1
Clothianidin	160	545	56	0.22	2	0.22	2	0.22	1
Halofenozide	250	219		1.13	2	1.13	2	1.13	1
Imidacloprid	225	191	129	0.45	1	0.45	1	0.45	1
Indoxacarb	6450	17	6	0.15	6	0.15	6	0.15	1
Permethrin	100000	13	40	0.73	3	0.73	3	0.73	1

were evaluated in Haith’s ecological risk assessment (5). Chemical properties and application information are given in Table 1.

An advantage that TPQPond has over FIRST is that the former uses daily weather data to calculate runoff and flow rate through the reservoir. This enables us to run region specific simulations. FIRST uses an annual flow through the reservoir that is assumed to be enough for two turnovers or twice the reservoir volume of 144,000 cubic meters. This is equivalent to a constant flow or 33 cubic meters per hour. TPQPond uses a mass balance approach that takes into account precipitation, evapotranspiration and snow melt. This provides a more realistic model of runoff and reservoir volumes compared with FIRST, which assumes constant volume.

This study uses 100-yr generated daily weather data for 9 locations in the US with varying climate and precipitation patterns: Albany, Atlanta, Bismarck, Columbus, Fresno, Houston, Madison, Olympia, and Roswell. These are the same locations as used ecological risk assessment studies by Haith (5). Each location is in one of the nine climatic regions as noted by the National Climatic Data Center. Other factors in determining these locations include plant hardiness zones, annual temperature, precipitation and growing seasons. Table 2 shows the weather characteristics for these 9 locations.

Table 2: Location and climate characteristics (11)

Location	Mean annual temperature (°C)	Mean growing season precipitation (mm)	Growing season
Albany, NY	9	441	May-Sept
Atlanta, GA	16	696	Apr-Oct
Bismarck, ND	5	273	May-Oct
Columbus, OH	11	554	May-Oct
Fresno, CA	17	135	Mar-Nov
Houston, TX	20	917	Mar-Nov
Madison, WI	7	443	May-Sept
Olympia, WA	10	344	May-Oct
Roswell, NM	16	264	May-Oct

A mass balance performed on the reservoir dictates daily reservoir volume. Water enters the reservoir through precipitation, snow melt and runoff. Additional water is pumped into the reservoir to maintain a minimum volume. Conversely, overflow occurs when volume levels exceed reservoir capacity. If an ice layer forms over the reservoir, snow can accumulate

on top. Runoff volume is calculated using TurfPQ. Water leaves the reservoir through evaporation and overflow.

Pesticide enters the reservoir solely through runoff. TPQPond simulates daily pesticide runoff from turf grass surfaces. Four required inputs for determining runoff are biodegradation half life, organic carbon partition coefficient (Koc), runoff curve number and organic carbon content of the turf. Pesticide in both dissolved and adsorbed forms are degraded in TPQPond, whereas FIRST degrades only the dissolved component. FIRST uses results from PRZM/EXAMS simulation models to partition the pesticide into adsorbed and dissolved forms. Pesticide is partitioned into adsorbed and dissolved forms using linear partitioning in TPQPond.

Both FIRST and TPQPond assume first order biodegradation in the grass, sediment and reservoir. These degradation rates are based on water and soil half lives. FIRST also considers degradation of pesticides in the reservoir by photolysis. It assumes that photolysis rate constants are 124 times slower in the reservoir than it is in clear water. Using 1/124 the photolysis rate in our calculations offers a very minute disparity in overall pesticide degradation calculations. This study does not consider degradation by photolysis.

A pesticide mass balance on the reservoir takes into account pesticide that is already in the reservoir, pesticide entering through runoff and pesticide leaving through overflow. The reservoir is assumed to be well mixed. USEPA's FIRST takes into account direct deposition of pesticide in the reservoir through spray drift. Spray drift occurs when spraying equipment discharge stray particles of pesticide that are carried by the wind and directly deposited into the reservoir. Application efficiency for most nozzles used in pesticide application is 99% and deposition from spray drift is minimal. This study does not consider pesticide additions from spray drift in its mass balance.

Final pesticide concentrations are adjusted by PCA factor for lawns and GCAF factor for golf courses. FIRST outputs two values: the maximum value for a single large rainstorm, used for acute risk assessment and the annual average of the peak values for 364 days, used for chronic risk assessment. For this study, TPQPond calculated 1-in-10 yr maximum daily lake concentration, used for acute risk assessment, and mean daily concentration, used for chronic risk assessment.

EPA uses Drinking Water Levels of Concern (DWLOC) values as the measure for exposure and risk. In order to determine the threat of each pesticide, this study compares the model estimates of lake concentrations multiplied by PCA or GCAF with the chemical's DWLOC value.

For an acute risk assessment, acute DWLOC values are compared to the 1-in-10 yr maximum daily lake concentrations. Chronic DWLOC values are compared to mean daily lake concentrations. Some DWLOC values can be found in individual pesticide reregistration reports (12). In cases where DWLOC values were unavailable, this study estimated values using chronic and acute reference dose (aRfD, cRfD, respectively) or acceptable daily intake, ADI. The reference dose is the maximum acceptable oral dose of a substance considering intake from both food and drinking water. Reference dose values can be found in USEPA pesticide registration reports, rule and registration reports or risk assessment reports. The acceptable daily intake value is used as the chronic dose when neither chronic DWLOC nor cRfD value is available. THE ADI is maximum dose of a substance that can be orally ingested over a lifetime without any health risk. Table 3 shows the list of DWLOC, RfD and ADI values used in this assessment. RfD and ADI values are converted to estimated DWLOC by assuming a 70kg male consumes 2L of water per day:

$$DWLOC = \frac{70 \text{ (RfD or ADI)}}{2} \quad (1)$$

Risk quotients (RQ) are used as simple assessments that identify high or low risk situations. It is calculated by dividing exposure estimates by the drinking water standard:

$$RQ = \frac{\text{exposure}}{\text{standard}} \quad (2)$$

In human health risk assessments, pesticides resulting in $RQ \geq 1$ are generally considered safe. However, in this study, we report RQ values as small as 0.01, reasoning that even these low risk levels are of some concern (13).

Table 3: List of DWLOC, RfD or ADI values used in risk assessment

Pesticide	DWLOC		RfD		ADI	Source ¹
	Acute	Chronic	Acute	Chronic	Chronic	
	(mg/L)		(mg/kg/d)		(mg/kg/d)	
24-D	1.932	1.68				RED
Benefin				0.005		RED
Bispyribac-sodium				0.1		RULE
Carfentrazone-ethyl			5	0.03		RULE
Clopyralid			0.75	0.15		RA
Dithiopyr					0.0036	PPDB
Fluroxypyr				1		RA
Isoxaben				0.05		RULE
MCPA	1.455	0.111				RED
Mecoprop-p			1.75	0.04		RED
Oryzalin			0.25*	0.14		TRED
Oxadiazon	4.2	0.126				RED
Pendimethalin				0.1		RED
Penoxsulam				0.147		RULE
Prodiamine					0.05	APVMA
Rimsulfuron				0.818		RA
Sulfentrazone			2.5	0.14		RULE
Sulfosulfuron				0.24		RULE
Triclopyr			0.3	0.05		aRfD from PPDB, cRfD from RED
Trifluralin			1*	0.024		TRED
Chlorothalonil			0.6	0.02		aRfD from PPDB, cRfD from RED
Cyazofamid			1*	0.948		RULE
Fluopicolide			0.18	0.2		aRfD from PPDB, cRfD from RA
Iprodione	0.693	.324*				RED
Mancozeb	0.123			0.05		RED
Metconazole			0.12*	0.04		RULE
Myclobutanil			0.6	0.025		RULE
Propamocarb			2	0.12		RULE
Thiophanate-methyl	5.7	0.86				RED
Acephate	0.136	0.038				RED
Bifenthrin			0.33	0.013		RA
Chlorantranilprole				1.58		RA
Clothianidin			0.25	0.098		RA
Halofenozide				0.038		NOEL
Imidacloprid			0.14	0.057		RA
Indoxacarb			0.09	0.015		RULE
Permethrin			0.25	0.25		RED

DWLOC = Drinking Water Level of Concern; RfD = Reference Dose; ADI =Acceptable Daily Intake

*Value calculated for female population, none calculated for general population

¹ RED: USEPA Reregistration Eligibility Decision Report
RULE: USEPA Rule and Registration Report
PPDB: Pesticide Property Database
RA: USEPA Risk Assessment Report
NOEL: Calculated from dog NOEL (3.8 mg/kg/d), assuming uncertainty factor = 1000
APVMA: Australia Pesticide and Vet Medicine Authority
TRED: USEPA Tolerance Reassessment Progress and Risk Management Decision Report

Simulation Results

Lake pesticide concentrations are compared with DWLOC in Tables 4-9. Results are only given for pesticide concentrations that exceeded 0.001 mg/L. A potential risk was seen on fairway, lawn and green and tee applications in Houston. A comparison of these results also shows that Houston has the highest pesticide concentrations among the other 8 locations. This is due to the long growing season and the high precipitation rate in the area. On the other hand, Fresno, with an equivalently long growing season as Houston but the lowest precipitation rate resulted in the lowest pesticide concentrations. Only myclobutanil applied on fairways posed any risk in Fresno. This demonstrates that rainfall has the highest influence on pesticide concentration.

Applications on greens and tees yielded the lowest pesticide concentrations. Nearly none of the pesticides in the chronic risk assessment had concentrations above 0.001 mg/L. The acute risk assessment produced higher concentrations than the chronic assessment, but of the 23 pesticides applied on greens, only 1 posed a potential risk.

The pesticide with the highest acute risk was mancozeb, which also had the highest application rate among the 37 pesticides tested. Mancozeb posed acute risk on applications to fairways at 7 locations and lawns at 5 locations. Myclobutanil had the highest chronic risk with potential risk indicated at all three turf types in at least 1 location.

Although, none of the reservoir pesticide concentrations calculated by TPQPond exceeded the drinking water level of concern for humans ($RQ \geq 1$), there is still risk in a number of pesticides that exceeded RQ values of 0.01. Tables 10 -13 summarizes these results.

The pesticides with the highest risk on fairway applications were iprodione and 24-D. Both indicated potential acute and chronic risk at more than 3 locations. Acephate at Columbus, Houston, Madison, Albany and Atlanta posed the highest acute risk with a $RQ \geq 0.1$. In addition, myclobutanil posed a chronic risk at all 9 locations.

Only 1 of the 37 pesticides simulated produced any type of risk when applied to greens and tees. Myclobutanil applied in Houston produced a chronic RQ equal to 0.01.

The pesticides with the highest risk on lawn applications were 24-D and MCPA. Potential acute risk was indicated in over 4 locations and potential chronic risk was indicated in over 6 locations. Oxadiazon applied in Houston had the highest chronic risk with an RQ over 0.1.

Table 4: Comparison of 1-in-10 yr maximum daily lake concentration times GCAF with acute DWLOC for fairways ^b										
Pesticide	Acute DWLOC ^a	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
24-D	1.932	0.007	0.025	0.007	0.019		0.038	0.018		0.003
Bispyribac-sodium			0.001		0.001		0.002	0.001		
Clopyralid	26.250		0.002		0.001		0.002	0.001		
Dithiopyr		0.001	0.002		0.001		0.002	0.001		
Fluroxypyr			0.003		0.002		0.004	0.002		
Isoxaben		0.002	0.005	0.002	0.004		0.005	0.003	0.001	0.002
MCPA	1.455	0.004	0.011	0.004	0.010		0.020	0.009	0.000	0.002
Mecoprop-p	61.250	0.001	0.004	0.001	0.003		0.005	0.003		
Oryzalin	8.750	0.001	0.003		0.002		0.002	0.002		
Oxadiazon	4.200	0.008	0.014	0.006	0.014	0.001	0.018	0.012	0.007	0.006
Pendimethalin			0.001		0.001		0.001	0.001		
Penoxsulam			0.001		0.001		0.001	0.001		
Prodiamine			0.001		0.001		0.001	0.001		
Rimsulfuron			0.001				0.001			
Sulfentrazone	87.500	0.005	0.008	0.005	0.008	0.001	0.012	0.008	0.001	0.005
Sulfosulfuron			0.001		0.001		0.002	0.001		
Triclopyr	10.500	0.007	0.017	0.005	0.013		0.025	0.012	0.003	0.004
Trifluralin	35.000	0.001	0.001		0.001		0.001	0.001	0.001	
Chlorothalonil	21.000	0.031	0.051	0.022	0.051		0.081	0.050	0.002	0.031
Cyazofamid	35.000	0.001	0.002		0.001		0.004	0.001		0.001
Fluopicolide	6.300	0.004	0.005	0.004	0.006		0.009	0.007	0.002	0.004
Iprodione	0.693	0.035	0.068	0.020	0.047	0.001	0.108	0.062	0.025	0.031
Mancozeb	0.123	0.011	0.027	0.001	0.022		0.084	0.009		0.012
Metconazole	4.200	0.008	0.012	0.004	0.009		0.018	0.011	0.007	0.007
Myclobutanil	21.000	0.027	0.050	0.026	0.037	0.014	0.075	0.034	0.037	0.029
Propamocarb-hydCl	70.000	0.009	0.019	0.006	0.016		0.030	0.018	0.003	0.009
Thiophanate-methyl	5.700	0.001	0.005	0.001	0.006		0.006	0.003		0.001
Acephate	0.136	0.020	0.034	0.001	0.025		0.037	0.023		0.013
Bifenthrin	11.550									
Chlorantranilprole		0.003	0.004	0.002	0.004		0.007	0.004	0.003	0.002
Clothianidin	8.750	0.002	0.004	0.002	0.004		0.007	0.004	0.001	0.002
Halofenozide		0.013	0.023	0.013	0.022	0.001	0.042	0.026	0.007	0.013
Imidacloprid	4.900	0.002	0.005	0.002	0.005		0.008	0.005	0.001	0.002

^aConcentrations based on acute values in Table 4, RfD and ADI values based on 70 kg male consuming 2L of water per day

^bMaximum 24 hr concentrations calculated using TPQWS, adjusted using GCAF factor of 0.29, only values ≥ 0.001 are displayed

Table 5: Comparison of mean daily lake concentration times GCAF with chronic DWLOC for fairways ^b

Pesticide	Chronic DWLOC ^a	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
24-D	0.168		0.001		0.001		0.001	0.001		
MCPA	0.111						0.001			
Oxadiazon	0.126	0.002	0.004	0.001	0.003		0.006	0.003	0.002	0.001
Sulfentrazone	4.900	0.002	0.002	0.002	0.002		0.003	0.003		0.001
Triclopyr	1.750		0.001		0.001		0.001	0.001		
Fluopicolide	7.000	0.002	0.002	0.002	0.003		0.004	0.003	0.001	0.002
Iprodione	0.324	0.003	0.006	0.001	0.004		0.011	0.005	0.003	0.002
Mancozeb	1.750	0.001	0.002		0.002		0.005	0.001		0.001
Metconazole	1.400	0.004	0.005	0.002	0.004		0.009	0.005	0.004	0.003
Myclobutanil	0.875	0.017	0.030	0.014	0.022	0.004	0.055	0.020	0.021	0.014
Propamocarb-hydCl	4.200		0.001		0.001		0.002	0.001		
Chlorantranilprole	55.300	0.001	0.002	0.001	0.002		0.003	0.002	0.001	0.001
Clothianidin	3.430		0.001				0.001	0.001		
Halofenozide	1.330	0.004	0.007	0.003	0.007		0.012	0.008	0.002	0.003
Imidacloprid	1.995		0.001		0.001		0.001	0.001		

^aConcentrations based on chronic values in Table 4, RfD and ADI values based on 70kg male consuming 2L of water per day

^bMean lake concentrations calculated using TPQWS, adjusted using GCAF factor of 0.29, only values ≥ 0.001 are displayed

Table 6 : Comparison of 1-in-10 yr maximum daily lake concentration times GCAF with acute DWLOC for greens and tees ^b

Pesticide	Acute DWLOC ^a	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Chlorothalonil	21.000		0.002				0.014	0.001		
Iprodione	0.693		0.001				0.005	0.001		
Mancozeb	0.123						0.001			
Metconazole	4.200						0.001			
Myclobutanil	21.000		0.001				0.003		0.001	
Propamocarb-hydCl	70.000						0.001			
Thiophanate-methyl	5.700						0.001			
Halofenozide							0.002			

^aConcentrations based on acute values in Table 4, RfD and ADI values based on 70 kg male consuming 2L of water per day

^bMaximum 24hr concentrations calculated using TPQWS, adjusted using GCAF factor of 0.05, only values ≥ 0.001 are displayed

Table 7: Comparison of mean daily lake concentration times GCAF with chronic DWLOC for greens and tees ^b

Pesticide	Chronic DWLOC ^a	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Myclobutanil	0.875						0.001			

^aConcentrations based on chronic values in Table 4, RfD and ADI values based on 70 kg male consuming 2L of water per day
^bMean lake concentrations calculated using TPQWS, adjusted using GCAF factor of 0.05, only values ≥ 0.001 are displayed

Table 8: Comparison of 1-in-10 yr maximum daily lake concentration times PCA with acute DWLOC for lawns ^b

Pesticide	Acute DWLOC ^a	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
24-D	1.932	0.016	0.054	0.014	0.051		0.115	0.043		0.009
Benefin			0.001		0.001		0.001			
Dithiopyr		0.001	0.003	0.001	0.003		0.004	0.002		0.001
Fluroxypyr		0.001	0.005	0.001	0.004		0.011	0.004		
Isoxaben		0.005	0.011	0.004	0.009		0.014	0.008	0.003	0.003
MCPA	1.455	0.010	0.027	0.007	0.027		0.056	0.022		0.007
Mecoprop-p	61.250	0.002	0.009	0.002	0.007		0.015	0.006		0.001
Oryzalin	8.750	0.002	0.007	0.001	0.004		0.005	0.003		0.001
Oxadiazon	4.200	0.017	0.035	0.012	0.030	0.002	0.047	0.028	0.018	0.012
Pendimethalin		0.001	0.002	0.001	0.001		0.002	0.001	0.001	
Penoxsulam		0.001	0.002	0.001	0.002		0.003	0.001	0.000	0.001
Prodiamine		0.001	0.002		0.001		0.002	0.001	0.001	0.001
Sulfentrazone	87.500	0.017	0.023	0.015	0.021	0.003	0.039	0.023	0.005	0.013
Sulfosulfuron		0.001	0.003	0.001	0.003		0.006	0.002		0.001
Triclopyr	10.500	0.022	0.046	0.013	0.036	0.001	0.077	0.033	0.008	0.012
Trifluralin	35.000	0.001	0.002	0.001	0.002		0.003	0.002	0.001	0.001
Cyazofamid	35.000	0.001	0.002	0.001	0.002		0.005	0.002		0.001
Fluopicolide	6.300	0.011	0.016	0.010	0.016	0.001	0.027	0.019	0.009	0.011
Mancozeb	0.123	0.001	0.009		0.005		0.008	0.001		
Metconazole	4.200	0.006	0.011	0.005	0.009		0.019	0.011	0.006	0.006
Myclobutanil	21.000	0.033	0.043	0.026	0.041	0.004	0.070	0.051	0.034	0.028
Propamocarb-hydCl	70.000	0.019	0.044	0.013	0.036		0.073	0.041	0.007	0.018
Thiophanate-methyl	5.700		0.011		0.004		0.009	0.004		
Chlorantranilpro		0.002	0.004		0.010	0.006	0.003	0.002		
Clothianidin	8.750	0.002	0.005		0.014	0.008	0.003	0.003		
Halofenozide		0.015	0.027	0.001	0.065	0.039	0.017	0.017		
Imidacloprid	4.900	0.005	0.010		0.025	0.015	0.005	0.006		

^aConcentrations based on acute values in Table 4, RfD and ADI values based on 70 kg male consuming 2L of water per day
^bMaximum 24 hr concentrations calculated using TPQWS, adjusted using PCA factor of 1, only values ≥ 0.001 are displayed

Table 9: Comparison of mean daily lake concentration times PCA with chronic DWLOC for lawns ^b

Pesticide	Chronic DWLOC ^a	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
24-D	0.168	0.001	0.003	0.001	0.002		0.004	0.002		0.001
Isoxaben	1.750		0.001				0.001			
MCPA	0.111		0.001		0.001		0.002	0.001		
Mecoprop-p	1.400		0.001		0.001		0.001			
Oxadiazon	0.126	0.005	0.010	0.002	0.007		0.014	0.007	0.006	0.002
Prodiamine	1.750		0.001				0.001			
Sulfentrazone	4.900	0.006	0.008	0.007	0.008	0.001	0.012	0.010	0.001	0.004
Triclopyr	1.750	0.001	0.003	0.001	0.002		0.005	0.002		0.001
Fluopicolide	7.000	0.007	0.008	0.004	0.008		0.012	0.009	0.005	0.005
Mancozeb	1.750		0.001		0.001		0.002			
Metconazole	1.400	0.003	0.005	0.001	0.004		0.008	0.004	0.003	0.002
Myclobutanil	0.875	0.021	0.023	0.011	0.021	0.001	0.035	0.025	0.019	0.011
Propamocarb-hydCl	4.200	0.001	0.002		0.001		0.004	0.002		
Chlorantranilpro	55.300	0.001	0.002	0.001	0.001		0.003	0.002	0.001	0.001
Clothianidin	3.430	0.001	0.001		0.001		0.001	0.001		
Halofenozide	1.330	0.008	0.011	0.004	0.007		0.018	0.010	0.006	0.004
Imidacloprid	1.995	0.002	0.003	0.001	0.002		0.005	0.003	0.002	0.001

^aConcentrations based on chronic values in Table 4, RfD and ADI values based on 70 kg male consuming 2L of water per day

^bMean lake concentrations calculated using TPQWS, adjusted using PCA factor of 1, only values ≥ 0.001 are displayed

Table 10: Pesticides with acute RQ ≥ 0.01 for fairways

Pesticide	Risk quotient								
	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
24-D		0.01		0.01		0.02			
MCPA						0.01			
Iprodione	0.05	0.10	0.03	0.07		0.16	0.09	0.04	0.04
Mancozeb	0.09	0.22	0.01	0.18		0.69	0.07		0.10
Acephate	0.15	0.25	0.01	0.19		0.27	0.17		0.09

Table 11: Pesticides with chronic RQ ≥ 0.01 for fairways

Pesticide	Risk quotient								
	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
24-D		0.01		0.01		0.01	0.01		
Oxadiazon	0.02	0.03	0.01	0.03		0.04	0.02	0.02	0.01
Iprodione	0.01	0.02		0.01		0.03	0.01	0.01	0.01
Myclobutanil	0.02	0.03	0.02	0.03	0.01	0.06	0.02	0.02	0.02

Pesticide	Risk quotient								
	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
24-D		0.02		0.01		0.03	0.01		
MCPA		0.01		0.01		0.01	0.01		
Oxadiazon	0.04	0.08	0.01	0.05		0.11	0.05	0.04	0.01
Myclobutanil	0.02	0.03	0.01	0.02		0.04	0.03	0.02	0.01
Halofenozide	0.01	0.01		0.01		0.01	0.01		

Pesticide	Risk quotient								
	Albany	Atlanta	Bismarck	Columbus	Fresno	Houston	Madison	Olympia	Roswell
24-D	0.01	0.03	0.01	0.03		0.06	0.02		
MCPA	0.01	0.02	0.01	0.02		0.04	0.02		
Oxadiazon						0.01			
Mancozeb	0.01	0.08		0.04		0.07	0.01		

Conclusions

The assessment presented here shows that pesticide concentrations vary with location and turf type. Applications on fairways and high precipitation areas like Houston produced the highest pesticide concentrations. Dry areas such as Fresno and greens and tees turf types yielded the lowest model estimates. Risk quotients exceeded 0.01 for only 1 pesticide in Fresno and only 1 pesticide applied on greens and tees had RQ \geq 0.01 at any location. Only 8 of the 37 pesticides indicated potential acute or chronic risk with RQ \geq 0.01. Five of these 8 pesticides had greater chance of risk with RQ \geq 0.1 in at least one location.

Mancozeb posed highest acute risk, RQ \geq 0.01, on applications to lawns and fairways. This is probably due to the large applications - 18.3 kg/ha up to 13 times a year. The average application rate for turf pesticides is 1.6 kg/ha, applied 3 times a year. Myclobutanil posed the highest chronic risk, RQ \geq 0.01, on applications to all three turf types. Myclobutanil was the only pesticide to indicate chronic risk in Fresno and the only pesticide to indicate chronic risk on green and tee turf types.

Acephate, 24-D, iprodione and mancozeb are all pesticides eligible for reregistration by the EPA. However, according to this study, these same pesticides posed some potential acute

and chronic risk. 24-D had a $RQ \geq 0.01$ on fairways and lawns in over 3 locations, including Houston. These results suggest that persons living in heavy rainfall areas may have higher exposures of turf pesticide in their drinking water than would be predicted by EPA risk assessments. Discrepancies between the two models may be due to differences in model calculations and procedures. TPQPond takes into account regional weather data that may account for these variations. Consequently, evaluations as crucial as drinking water risk assessments should be conducted using several approaches to determine the most conclusive results.

References

- (1) Commonly asked questions about chemical lawn care. Washington DC.
<<http://www.beyondpesticides.org/lawn/factsheets/faq.htm>>
- (2) Cox, C. *Pesticides on golf courses: Mixing toxins with play*. Journal of Pesticide Reform. Volume 11, Number 3 (available online at <http://www.pesticide.org/get-the-facts/ncap-publications-and-reports/general-reports-and-publications/journal-of-pesticide-reform/journal-of-pesticide-reform-articles/golfcourses.pdf>)
- (3) USGAO. Lawn care pesticides: Risks remain uncertain while prohibited safety claims continue. 1990 <<http://www.getipm.com/government/fifra-laws/gao-rpt.htm>>
- (4) Hindahl, M.S. et al. *Surface water quality impacts from golf course fertilizer and pesticide applications*. International Turfgrass Society Research Journal Volume 11. 2009. (available online at <http://www.nwturfgrass.net/enewsletter/newsletters-09/sept/sept-09-linked-documents/GC%20Surface%20Water%20Q%20ITSRJ.pdf>)
- (5) Haith, D.A. 2010a *Ecological risk assessment of pesticide runoff from grass surfaces*. In Environmental Science & Technology (available online as es101636y, July 28, 2010)
- (6) USEPA. FIRST: A screening model to estimate pesticide concentrations in drinking water, 2008. <www.epa.gov/oppefed1/models/water/first_v1_1_1_description.doc>
- (7) Jones, D.R. et al. *Development and use of percent cropped area adjustment factors in drinking water exposure assessments*. 2010. Office of Pesticide Programs, Environmental Protection Agency
<http://www.epa.gov/oppefed1/models/water/pca_adjustment_dwa.html>
- (8) USEPA. *Golf course adjustment factors for modifying estimated drinking water concentrations and estimated environmental concentrations generated by Tier I (FIRST) and Tier II (PRZM/EXAMS) models*, 2011.
<http://www.epa.gov/oppefed1/models/water/golf_course_adjustment_factors.htm>
- (9) Haith, D.A. 2010b. *A PC program for estimating pesticide concentration in a receiving pond due to runoff from turfgrass*. Biological and Environmental Engineering, Cornell University, Ithaca, NY.

- (10) Haith, D.A. **2002**. *A PC program for estimating pesticide runoff from turfgrass*. Biological and Environmental Engineering, Cornell University, Ithaca, NY.
- (11) Haith, D.A.; Duffany, M.W. *Pesticide runoff loads from lawns and golf courses*. J. Environ. Eng. **2007**, 133 (4), 435-446
- (12) USEPA. Pesticide Reregistration Status.
<<http://www.epa.gov/oppsrrd1/reregistration/status.htm>>
- (13) USEPA. Appendix D. Risk quotient (RQ) methods and levels of concern (LOC).
<<http://www.epa.gov/espp/litstatus/effects/redleg-frog/permethrin/appendix-d.pdf>>

Health Effects of 30 Commonly Used Pesticides

		Health Effects						
		Cancer	Endocrine Disruption	Reproductive Effects	Neurotoxicity	Kidney/Liver Damage	Sensitizer/Irritant	Birth Defects
Pesticides	Herbicides							
	2,4-D*	X ⁴	X ¹⁰	X ⁷	X ⁸	X ⁸	X ¹	X ¹¹
	Benfluralin					X ¹	X ¹	
	Bensulide				X ²	X ¹	X ²	
	Clopyralid			X ⁷			X ²	X ⁷
	Dicamba*			X ¹	X ²	X ²	X ¹	X ¹
	Diquat Dibromide			X ¹²		X ¹¹	X ¹	
	Dithiopyr					X ¹	X ¹	
	Fluazipop-p-butyl			X ¹		X ¹		X ¹
	Glyphosate*	X ¹²	X ⁴	X ¹		X ⁸	X ¹	
	Imazapyr					X ⁷	X ²	
	Isoxaben	X ³				X ²		
	MCPA		X ⁶	X ²	X ²	X ¹¹	X ¹	
	Mecoprop (MCPP)*	Possible ¹	X ⁶	X ²	X ¹	X ⁹	X ¹	X ¹
	Pelargonic Acid*						X ¹	
	Pendimethalin*	Possible ¹	X ⁶	X ¹			X ²	
	Triclopyr			X ⁷		X ⁹	X ¹	X ²
	Trifluralin*	Possible ¹	X ⁶	X ¹		X ²	X ¹	
	Insecticides							
	Acephate	Possible ²	X ⁶	X ¹¹	X ⁹		X ²	
	Bifenthrin**	Possible ²	Suspected ^{6,10}		X ⁸		X ¹	X ⁹
	Carbaryl	X ³	X ¹⁰	X ⁸	X ¹	X ¹¹	X ¹¹	X ⁷
	Fipronil	Possible ²	X ⁶	X ⁸	X ⁸	X ⁸	X ⁸	
	Imidacloprid †			X ⁷		X ³		X ⁷
	Malathion*	Possible ²	X ¹⁰	X ¹⁴	X ⁹	X ²	X ²	X ²
	Permethrin**	X ³	Suspected ^{9,10}	X ^{1,7}	X ^{9,7}	X ⁹	X ¹	
	Trichlorfon	X ³	X ⁶	X ¹¹	X ²	X ²		X ²
	Fungicides							
	Azoxystrobin					X ²	X ²	
	Myclobutanil		Probable ⁵	X ²		X ²		
Propiconazole	Possible ¹	X ⁶	X ²		X ¹	X ¹		
Sulfur						X ¹		
Thiophanate methyl	X ³	X ¹	X ¹	Suspected ¹	X ¹	X ²	X ¹	
Ziram	Suggestive ²	Suspected ⁶			X ²	X ²		
Totals:	16	17	21	14	25	26	12	

*These pesticides are among the top 10 most heavily used pesticides in the home and garden sector from 2006-2007, according to the latest sales and usage data available from EPA (2011), available at http://www.epa.gov/opp00001/pestsales/07pestsales/market_estimates2007.pdf.

† EPA lists all synthetic pyrethroids under the same category. While all synthetic pyrethroids have similar toxicological profiles, some may be more or less toxic in certain categories than others. See Beyond Pesticides' synthetic pyrethroid fact sheet at bit.ly/TLBuP8 for additional information.

‡ Imidacloprid is a systemic insecticide in the neonicotinoid chemical class, which is linked to bee decline.

Description

Most toxicity determinations based on interpretations and conclusions of studies by university, government, or organization databases. Empty cells may refer to either insufficient data or if the chemical is considered relatively non-toxic based on currently available data.

The list of 30 commonly used lawn chemicals is based on information provided by the General Accounting Office 1990 Report, "Lawn Care Pesticides: Risks Remain Uncertain While Prohibited Safety Claims Continue," U.S. Environmental Protection Agency (EPA) National Pesticide Survey (1990), Farm Chemicals Handbook (1989), The National Home and Garden Pesticide Use Survey by Research Triangle Institute, NC (1992), multiple state reports, current EPA Environmental Impact Statements, and Risk Assessments, EPA national sales and usage data, best-selling products at Lowe's and Home Depot, and Beyond Pesticides' information requests.

For more information on hazards associated with pesticides, please see Beyond Pesticides' *Gateway on Pesticide Hazards and Safe Pest Management* at www.beyondpesticides.org/gateway. For questions and other inquiries, please contact our office at 202-543-5450, email info@beyondpesticides.org or visit us on the web at www.beyondpesticides.org.

Citations

1. U.S. EPA. Office of Pesticide Program *Reregistration Eligibility Decisions (REDs), Interim REDS (iREDs), and RED factsheets*. <http://www.epa.gov/pesticides/reregistration/>.
2. National Library of Medicine, TOXNET, *Hazardous Substances Database*, <http://toxnet.nlm.nih.gov/>.
3. U.S. EPA. 2012. Office of Pesticide Programs, *Chemicals Evaluated for Carcinogenic Potential*. http://npic.orst.edu/chemicals_evaluated.pdf.
4. California Environmental Protection Agency. *Proposition 65: Chemicals Known to the State to Cause Cancer or Reproductive Toxicity*. Office of Environmental Health Hazard Assessment. http://www.oehha.org/prop65/prop65_list/files/P65single052413.pdf.
5. The Pesticide Management Education Program at Cornell University. *Pesticide Active Ingredient Information*. <http://pmep.cce.cornell.edu/profiles/index.html>.
6. The Endocrine Disruption Exchange. 2011. *List of Potential Endocrine Disruptors*. <http://www.endocrinedisruption.com/endocrine.TEDXList.overview.php>.
7. Northwest Coalition for Alternatives to Pesticides (NCAP), *Pesticide Factsheets*. <http://www.pesticide.org/get-the-facts/pesticide-factsheets>.
8. Beyond Pesticides *ChemWatch Factsheets*, <http://www.beyondpesticides.org/pesticides/factsheets/index.htm>.
9. U.S. EPA. *Chronic (Non-Cancer) Toxicity Data for Chemicals Listed Under EPCRA Section 313*. Toxic Release Inventory Program. http://www.epa.gov/tri/trichemicals/hazardinfo/hazard_chronic_non-cancer95.pdf.
10. European Union Commission on the Environment. *List of 146 substances with endocrine disruption classifications, Annex 13*. http://ec.europa.eu/environment/endocrine/strategy/substances_en.htm#report2.
11. Extension Toxicology Network (EXTOXNET) *Pesticide Information Profiles*. <http://extoxnet.orst.edu/ghindex.html>.
12. International Agency for Research on Cancer, World Health Organization (IARC) category 2A, the agent (mixture) is probably carcinogenic to humans based on sufficient evidence of carcinogenicity in laboratory animal studies. <http://monographs.iarc.fr/ENG/Classification/index.php>.

Exhibit VI

Search



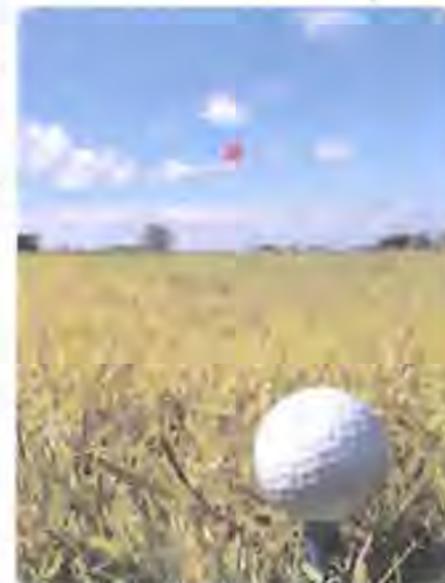
Golf, Pesticides and Organic Practices

Jay Feldman, Beyond Pesticides

For the typical golfer, a day playing golf is a day to enjoy the beautiful outdoors. Unfortunately, golf courses typically are among the areas most heavily treated with toxic pesticides. Why is that a concern?

A medical school professor at the University of Iowa in the 1990's, under contract with the Golf Course Superintendents Association (GCSAA), found that golf course superintendents have a higher mortality from certain cancers, including lung, brain, non-Hodgkin's lymphoma, large intestine and prostate. The statistical mortality study reviewed the death certificates of 618 from GCSAA members between 1970 and 1992 and compared those rates to the general population. The researchers were cautious, urging that "a prudent strategy for golf course superintendents and their workers is to minimize their exposure to pesticides" and reminding people that "these results cannot be interpreted to mean that golfers are at risk."

Unfortunately, golfers as a group have not been studied. Previous studies of farmers, pesticide applicators, and agricultural workers have suggested that an elevated risk for non-Hodgkin's lymphoma and leukemia among farmers are associated with exposure to pesticides and other agricultural chemicals.



Even before the medical school study, the New York State Attorney General's office published a report entitled Toxic Fairways, a widely cited study of pesticide use on 52 Long Island, New York golf courses. The report, which was particularly concerned with the potential for groundwater contamination, concluded that these golf courses applied about 50,000 pounds of pesticides in one year, or four to seven times the average amount of pesticides used in agriculture, on a pound per acre basis. The report says, "In order to maintain the greens and fairways, many golf course managers apply huge amounts of pesticides following a pre-determined "recipe" of repeated applications, rather than customized treatments addressing actual problems." The report continues, "Many pesticides are used preventively, not in response to specific problems. Ironically, this can eventually turn into a pesticide addiction, which many require increasing amounts of different types of pesticides to produce the same results." The report recommended reducing golf course pesticide hazards by limiting or ending the use of known carcinogens, minimizing the use of other pesticides, and fully informing golf course users and the public about pesticides dangers and the times of application.

Of the 30 most commonly used turf pesticides, 19 can cause cancer, 13 are linked to birth defects, 21 can affect reproduction and 15 are nervous system toxicants. The most popular and widely used lawn chemical, 2,4-D, which kills broad leaf weeds like dandelions, is an endocrine disruptor with predicted human health hazards ranging from changes in estrogen and testosterone levels, thyroid problems, prostate cancer and reproductive abnormalities. 2,4-D has also been linked to non-Hodgkin's lymphoma. Other turf chemicals, like glyphosate (Roundup), have also been linked to serious adverse chronic effects in humans. So, exposure is occurring to golfers who spend time on pesticide-treated turf.

At the same time, public understanding of the deficiencies in the U.S. Environmental Protection Agency (EPA) process of evaluating and regulating pesticides was coming to light with reports from the U.S. General Accountability Office (GAO) and the National Academy of Sciences. Harmful pesticides are allowed to be used in the marketplace and acceptable risks are set by EPA based on effects to the average population and their average exposure to pesticides. However, exposed individuals may have the same health conditions that are caused or exacerbated by many pesticides. EPA's calculation of acceptable risk to the general population does not take into account the higher exposure associated with the game of golf. In 2003, EPA negotiated a cancellation of the residential uses of a highly neurotoxic insecticide, chlorpyrifos (Dursban) but allowed its continued use on golf courses. In the 1980's, EPA banned a commonly used pesticide, diazinon, on golf courses because of bird deaths. It was not until 2004 that EPA negotiated an end to residential uses of diazinon because of health and environmental effects.

As awareness about pesticide hazards improves, more golfers and greens committees are looking for alternative approaches to turf management that are not reliant on pesticides. Some are trying organic practices that rely on building soil health as a way of maintaining healthy plants or turf grass.

Efforts to change practices on managing large sites like golf courses requires information that informs people about the hazards of pesticides and the availability of alternative methods. Understanding how a beautiful turf could somehow be hurting players and the environment requires an educational campaign that explains the effectiveness of organic methods.

The hazards of pesticides can be avoided with good turf management, protecting the health of golfers and the environment. Turf can be maintained using the following steps, which will eliminate the conditions that promote weeds and fungal diseases.

1. **Compaction** – Compaction is an invitation for weeds. If the turf is hard, compacted, and full of weeds, aerate to help air, water and fertilizer to enter. If you can't stick a screwdriver easily into your soil, it is too compacted. Use an aerator. Once a healthy soil and turf are established, worms and birds pecking at your soil will aerate it for free!
2. **Mowing Height** – Bad mowing practices cause many lawn problems. Mowing lower than 1 ½ to 1 ¾ inches can kill the root system by preventing photosynthesis, and mowing with a dull blade makes the turf susceptible to disease. A low mowing height also invites sunlight in for weeds to sprout. Greens are particularly vulnerable and must be carefully monitored. Fairways provide opportunities to use native grasses that are more resistant to disease. While grass species vary across the country, mowing high (approximately 3 inches) allows the grass to develop deeper, drought-resistant roots systems. Mower blades must be sharp to prevent the development and spread of fungal disease, or ask your service provider to sharpen their blades frequently.
3. **Soil pH and Soil Testing** – Low pH means acidic conditions and high pH indicates alkaline conditions. If the pH is too high, turf cannot properly absorb nutrients. Ideal pH should be between 6.5-7.0, slightly acidic. Generally, lime is added to raise the pH and sulfur is added to lower the pH, and adding compost can naturally correct your pH. A soil test is highly recommended to determine the soil pH and specific nutrient needs. In addition to nutrients and pH analysis, organic content analysis should be 5% or higher.
4. **Fertility** - Soil testing is the best way to determine the soil's specific nutrient needs. Fertilizing in early fall ensures good growth and root development for grass. Nitrogen, the most abundant nutrient in lawn fertilizers promotes color and growth. Adding too much nitrogen, or quick-release synthetic fertilizers, can weaken the grass, alter the pH, promote disease, insect, and thatch build-up. Grass clippings contain 58% of the nitrogen added from fertilizers, improve soil conditions, suppress disease, and reduce thatch and crabgrass. So, leaving clippings on the turf where possible is a positive. A mulching mower is helpful.
5. Compost is an ideal soil conditioner, adding the much-needed organic content to the soil, and suppressing many turf pathogens. In the fall and spring, preferably after aerating, a ¼ inch layer of organic or naturally-based compost should be spread over the turf. Compost tea and worm castings are also great additions. Some fertilizers, such as Ringer® Lawn Restore®, are certified by the Organic Materials Review Institute, www.saferbrand.com. Other makers include [North Country Organics](#), [Harmony Farm](#), [Peaceful Valley Farm Supply](#) and [Down To Earth's Bio-Turf](#).
6. Thatch is a dense layer of grass stems and roots on the surface of the soil. Thatch is a symptom of shallow watering and chemical fertilizer usage. When thatch layers become ½" or more, the roots will grow up within the thatch instead of in the soil, making grass susceptible to insects, disease, and weather stress. Thatch is reduced by aeration, topdressing with organic matter, or power raking. In healthy turf, earthworms and soil microorganisms break down the thatch.
7. **Watering and Poor Drainage** – Drought conditions, excessive watering or poor drainage due to soil type are all invitations for weeds. Watering needs are very site specific, but generally speaking, a deep watering of about one-inch once a week in the early morning is best. The type of soil effects drainage and is also site specific. Once established, a deep root system requires less water.
8. **Grass Seed and Seeding** – Grass varieties differ enormously in their quality, resistance to certain pests, tolerance to climatic conditions, growth habit and appearance. Some weeds are the result of using poor quality grass seed. Overseed with the proper grass seed for the region to promote a dense turf that out-competes weeds.

See more information on organic turf management on the [lawns and landscapes](#) program page.

Exhibit VII

Zoom-In Image of Map of State Trails

The **yellow section** defines
"Kohler Company's Forest Reserve State Wildlife Refuge (Private Lands)"

This entire area, and more, will be bulldozed if Herbert V. Kohler, Jr. is allowed to move forward with Kohler's Championship Golf Course.

**'Forest Reserve' is not honorably defined by complete deforestation!
All species of wildlife (plants, birds, or animals) will no longer have a
'Wildlife Refuge!'**



Kohler-Andrae State Park

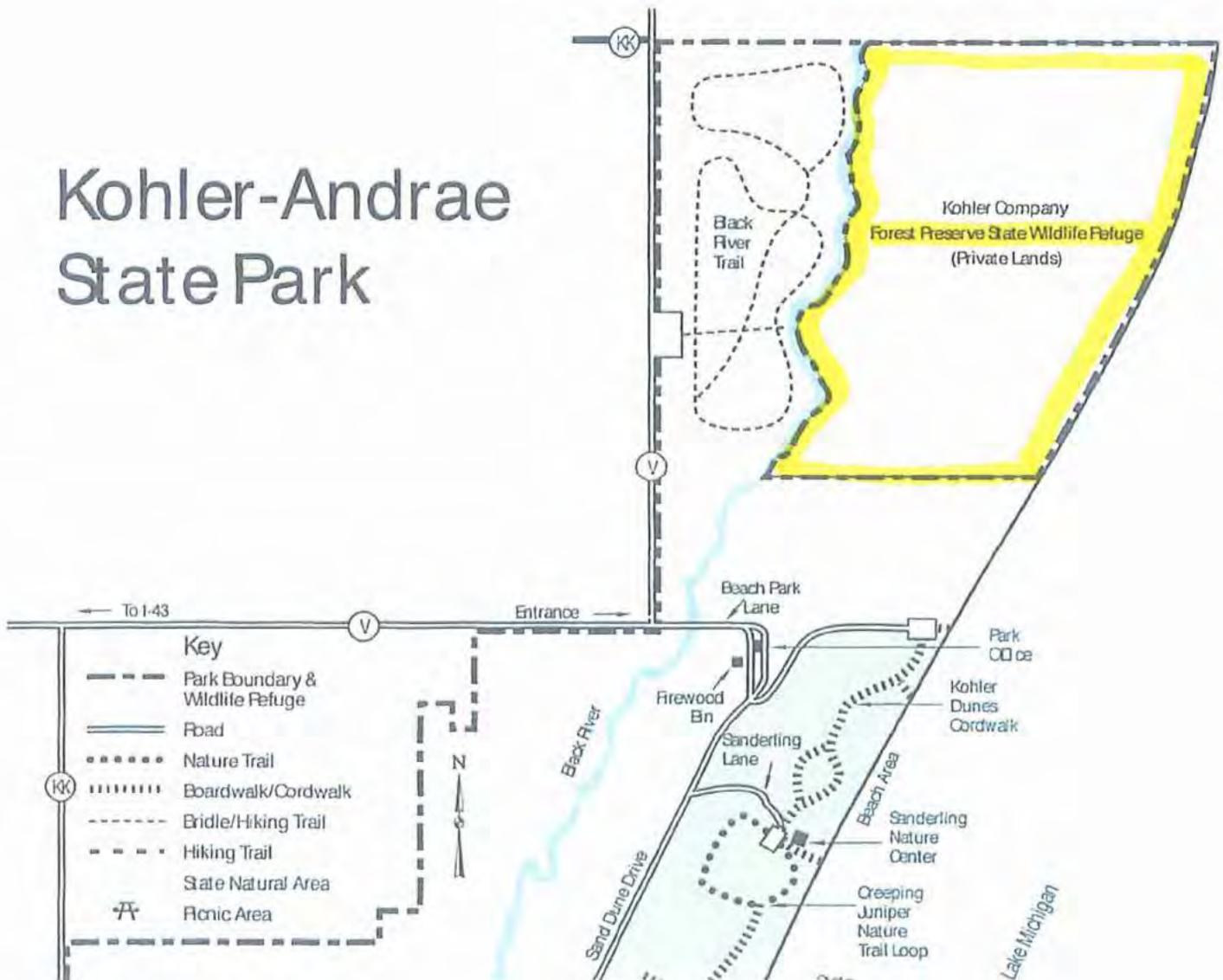


Exhibit VIII a

Archeological Map – Zoom-In Images of original map for Town of Wilson Lakefront. Sections 11 and 14 are the proposed location for the Kohler Championship Golf Course.

All areas marked with the symbols   and/or  are the locations of very large Native American Mounds, which by law can not be disturbed. These mounds are difficult to see from horizontal land survey views. They are best identified from aerial views.

↖ Town of Wilson - Section 11: Small southern area of Section 11 for proposed Kohler Championship Golf Course.

"These mounds have never been under cultivation and therefore are quite well preserved, there being about fifty large mounds in the group or groups arranged in an irregular line." (pg. 160)

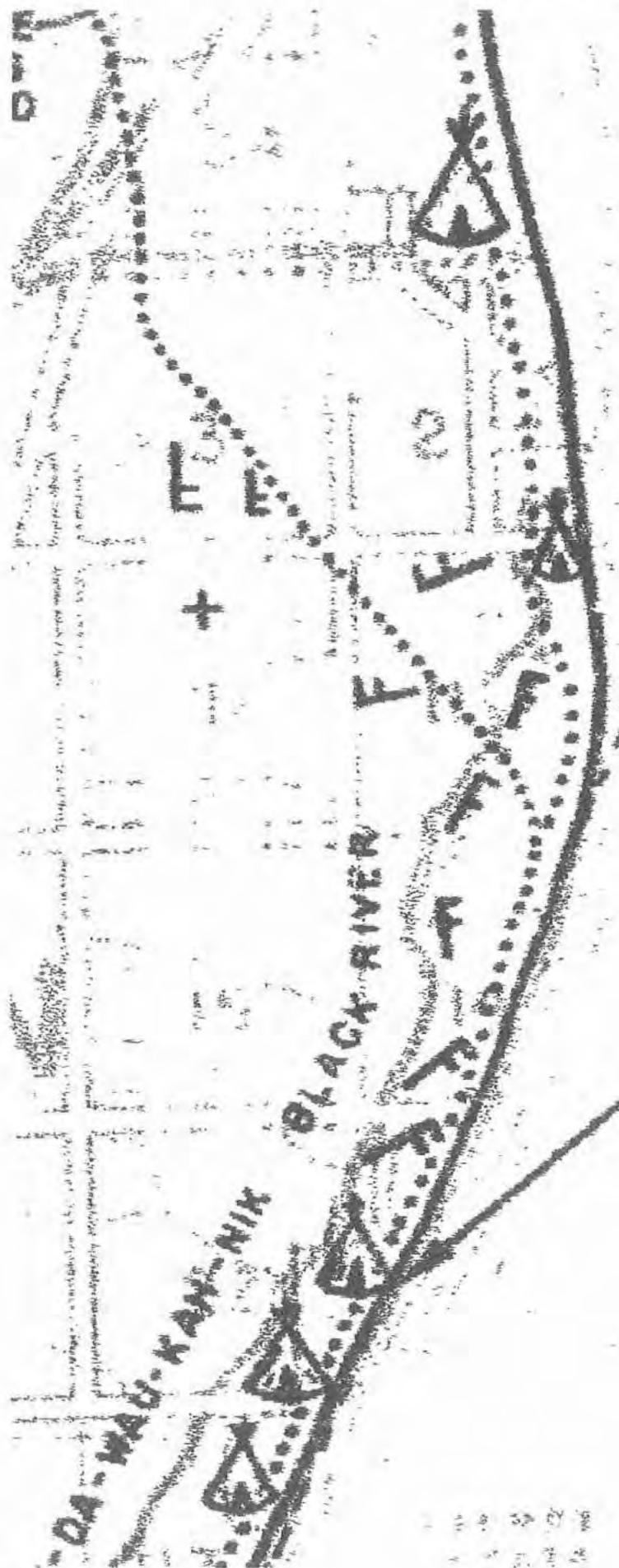
"The Black river group is situated mostly in the southern half of Section 11 and the northern half of Section 14 and follows quite closely the course of the Black river. Some of the mounds are one-fourth mile or more from it." (pg. 161)

*Wisconsin Archeologist (Aug. 1920)
Vol. 19, No. 3, Pgs. 160 & 161, published
by Wisconsin Archeological Society*

← Town of Wilson - Section 14: Entire area for proposed Kohler Championship Golf Course.

- LEGEND -

- TRAILS 
- MOUNDS 
- VILLAGE 
- CORN FIELD 
- HURIALS 



<http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/wisconsin/newsroom/door-peninsula-wetlands-deemed-of-international-significance.xml>

Door Peninsula Wetlands Deemed of International Significance

Baileys Harbor, Wisconsin | May 11, 2015

Door County conservation partners are pleased to announce that the Door Peninsula Coastal Wetlands complex has been designated a Wetland of International Importance under the Ramsar Convention, an intergovernmental treaty for protection of exemplary wetland systems around the world. The site joins Everglades National Park in Florida and Chesapeake Bay Estuary in Virginia as one of only 37 sites in the United States to achieve this designation.

A public celebration of the designation will take place on Friday, May 22, 2015, at 6:30 p.m. at the Maxwellton Braes Lodge in Baileys Harbor as part of the Door County Festival of Nature, an annual event hosted by conservation organizations and agencies in Door County.

"Here in Wisconsin, the Door Peninsula's coastal wetlands have long been recognized as special places for nature and people," said Nicole Van Helden, Nature Conservancy director of conservation for the Green Bay watershed. "Through the Ramsar designation, they have now been acknowledged as having significant value not only for Wisconsin but globally."

"Wetlands in Door County and worldwide provide many benefits such as water purification, flood regulation, recreational opportunities, climate regulation and habitat for fish, birds and other wildlife," said Katie Beilfuss, outreach programs director with the Wisconsin Wetlands Association and the keynote speaker at Friday's celebration event. "For example, 75% of Wisconsin's wildlife species depend on wetlands for some portion of their life cycle."

Among the reasons cited for recognizing the international importance of the Door Peninsula Coastal Wetlands were the following:

- The site encompasses more than 22 miles of protected Lake Michigan shoreline and protects some of the most biologically diverse habitats in the region from wet forests, sedge meadows and fens to springs, creeks and interdunal wetlands.
- The wetlands support a high diversity and abundance of characteristic as well as uncommon animals including colonial-nesting water birds, wetland-dependent breeding and neo-tropical migratory birds, Great Lakes migratory fish and numerous resident wetland-associated mammals and amphibians.
- More than 150 species of birds utilize the wetlands during the nesting season or as migratory stopover areas during the spring and fall. It's a hotspot for warblers with 23 species documented there.
- The wetlands host the largest known population and best habitat of the federally-endangered Hine's emerald dragonfly, an insect that lives in calcareous spring-fed marshes and sedge meadows overlaying dolomite bedrock.
- A substantial population of a globally rare plant, the federally-threatened dwarf lake iris, is also found there. The only place in the world that this plant grows is around the Great Lakes near the shores of Lakes Michigan and Huron in Wisconsin, Michigan and Ontario, Canada.

Located in Liberty Grove, Baileys Harbor and Gibraltar townships in Door County, the 11,443-acre Door Peninsula Coastal Wetlands complex encompasses Europe Lake, Mink River, North Bay, Mud Lake, Ephraim Swamp, Ridges Sanctuary and other important natural areas.

The land is owned by the Wisconsin Department of Natural Resources, Door County, the University of Wisconsin-Green Bay, The Nature Conservancy, Door County Land Trust, The Ridges Sanctuary, George and Sharon Cobb and Ed and Sandy Miller.

"We placed our property into conservation easement because we believe it is essential to the life of our planet. Climate change is a fact, and this is a small effort to protect the natural world and leave a better place for our grandchildren and their children," said George Cobb.

“In thinking about what might happen to our 110 acres after we were gone, we realized we wanted to protect its natural beauty and ecological significance intact rather than subjecting it to any development or subdividing. The conservation easement offered by the Door County Land Trust gave us that protection,” said Ed and Sandy Miller.

“Decades ago, conservation pioneers like Albert Fuller, Jens Jensen and Emma Toft began working to protect the unique lands, waters and wetlands of Door County,” said Steve Leonard, executive director of The Ridges Sanctuary. “Later, others like George Evenson, Roy Lukes and Carl Scholz picked up where they left off. This designation is a testament to their conservation efforts and to the collaborative planning and partnership approach taken by private landowners, communities, non-profits and government today to continue the work they so passionately began more than 75 years ago.”

Wisconsin’s Knowles-Nelson Stewardship Program has been a key partner in protecting the Door Peninsula Coastal Wetlands. Funding has also been provided by the Great Lakes Restoration Initiative, the North American Wetland Conservation Act, National Coastal Wetland Program, Wisconsin Coastal Management Program, Lower Fox River/Green Bay Natural Resource Trustee Council and other public and private donors.

The Ramsar designation is entirely non-regulatory and does not supersede local ownership and management authority.

More information about the Door County Festival of Nature, which takes place from May 21-24, 2015, can be found at www.ridgessanctuary.org.

The Nature Conservancy is a leading conservation organization working around the world to conserve the lands and waters on which all life depends. The Conservancy and its more than 1 million members have protected nearly 120 million acres worldwide. Visit The Nature Conservancy on the Web at www.nature.org

8772A7

WARRANTY DEED

THIS INDENTURE, Effective the 30th day of December A.D., 1965, between KOHLER CO., a corporation duly organized and existing under and by virtue of the laws of the State of Wisconsin, located at Kohler, Wisconsin, party of the first part and the STATE OF WISCONSIN (CONSERVATION COMMISSION) party of the second part,

WITNESSETH, That the said party of the first part, for and in consideration of its desire to promote the public welfare has given, granted, bargained, remised, released, aliened, conveyed and confirmed and by these presents does give, grant, bargain, remise, release, alien, convey and confirm unto said party of the second part, its successors and assigns forever, the following described real estate situated in the County of Sheboygan and State of Wisconsin, to-wit:

The South Half ($S\frac{1}{2}$) of the Southeast Quarter ($SE\frac{1}{4}$) of the Northeast Quarter ($NE\frac{1}{4}$) of Section 22, Town 14 North, Range 23 East.

Also, Government Lot One (1), in Section 23, Town 14 North, Range 23 East.

Also, a portion of Government Lot Two (2), in Section 23, Town 14 North, Range 23 East; described as follows:

Commencing at the Northwest corner of said Government Lot Two (2); thence East and parallel with the north line of said Section, one hundred eighty-one and five-tenths feet (181.5'); Thence South Ten Degrees forty-seven minutes West ($S10^{\circ}47'W$) seven hundred five and four-tenths feet (705.4'); Thence West and parallel with the north line of said Section 23, forty-nine and five-tenths feet (49.5') to the west line of said section; Thence North along said west line six hundred ninety-three feet (693.0') to the place of beginning.

Also, a parcel of land in Section 14, Town 14 North, Range 23 East, more particularly described as follows:

Commencing at the northwest corner of said Section 14; thence East along the north line of said Section a distance of nineteen hundred feet (1900') more or less, to a point where said north line intersects the center of the Black River; thence southerly, upstream along the centerline of said river to a point where said centerline intersects the south line of the North Half (N $\frac{1}{2}$) of the Southwest Quarter (SW $\frac{1}{4}$) of said Section 14; thence West along said south line a distance of eight hundred fifty feet (850'), more or less, to the west line of said Section 14; Thence North along said west line to the place of beginning.

All the above parcels contain 221 acres, more or less.

The Northwest Quarter (NW $\frac{1}{4}$) of the Southwest Quarter (SW $\frac{1}{4}$), Section 14, Town 14 North, Range 23 East is subject to an easement granted to Wisconsin Power and Light Co., executed April 2, 1935 and recorded in the Office of the Register of Deeds for Sheboygan County on January 18, 1936 in Volume P of Contracts Pages 200 to 201 for installing and maintaining utility poles along the east side of County Trunk Highway KK.

The Northwest Quarter (NW $\frac{1}{4}$) of Section 14, Town 14 North, Range 23 East is subject to an easement granted to Wisconsin Power and Light Co., executed March 29, 1935 and recorded in the Office of Register of Deeds for Sheboygan County on January 18, 1936 in Volume P of Contracts, Page 201 for installing and maintaining utility poles along the east side of County Trunk Highway KK.

This conveyance is by deed of gift and no revenue stamps are required.

PROTECTIVE CLAUSES

The covenants hereafter stated have been created and agreed upon to protect the following mutual interests of the parties hereto;

- To preserve the natural beauty of an unique area along the westerly shore of Lake Michigan.
- To provide the people of the State of Wisconsin with an interesting and naturally beautiful recreational area.

-- To recognize the contributions to the conservation of Wisconsin's natural resources made by John Michael Kohler and his family.

By accepting this deed of gift the State of Wisconsin (Conservation Commission) its successors, representatives, or assigns agree to be bound by the following covenants running with the land:

1. The property herein conveyed and the area of which it becomes a part shall be used for state park and public recreational purposes.

2. The property herein conveyed and the area of which it becomes a part shall be officially designated as and henceforth be known as the

* → "JOHN MICHAEL KOHLER STATE PARK".

The foregoing covenants shall be binding upon the parties hereto, their successors, representatives or assigns and any breach or threatened breach of these covenants may be enjoined upon the application of the party of the first part, its successors or assigns or any citizen of the State of Wisconsin who would be affected thereby.

In addition, this conveyance is made and accepted on the express conditions running with the land that in the event said property should cease to be used for state park and public recreational purposes or shall not within one year be officially designated and thereafter bear the name, "JOHN MICHAEL KOHLER STATE PARK", this conveyance to the State of Wisconsin (Conservation Commission) shall be void and title to the property shall thereupon be vested by gift over in the KOHLER FOUNDATION, INC., a charitable corporation organized and existing as such under the laws of the State of Wisconsin to be used for the benefit of the public or to be conveyed to some appropriate public agency for such use.

TOGETHER with all and singular the hereditaments and appurtenances thereunto belonging or in any wise appertaining; and all the estate right, title, interest, claim or demand whatsoever, of the said party of the first part, either in law or equity, either in possession or expectancy of, in and to the above bargained premises, and their hereditaments and appurtenances.

TO HAVE AND TO HOLD the said premises as above described with the hereditaments and appurtenances, unto the said party of the second part, and to its successors and assigns, that at the time of the en sealing and delivery of these presents it is well seized of the premises above described, as of a good, sure, perfect, absolute and undefeasible estate of inheritance in the law, in fee simple, and that the same are free and clear from all incumbrances whatever and that the above bargained premises in the quiet and peaceable possession of the said party of the second part, its successors and assigns, against all and every person or persons lawfully claiming the whole or any part thereof, it will forever WARRANT AND DEFEND.

IN WITNESS WHEREOF, the said KOHLER CO., party of the first part, has caused these presents to be signed by J. L. Kuplic its President and countersigned by G. A. Desmond its Secretary at Kohler, Wisconsin, and its corporate seal to be hereunto affixed, this 23rd day of December A.D.,

1965

K O H L E R C O .

Signed and Sealed in
Presence of

By J. L. Kuplic
J. L. Kuplic, President.

Lucius P. Chase
Lucius P. Chase

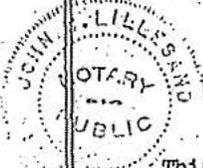
Countersigned:

G. A. Desmond
G. A. Desmond Secretary

Gelane Granger
Gelane Granger

STATE OF WISCONSIN }
SHEBOYGAN COUNTY } ss.

Personally came before me, this 23rd day of December A.D. 1965, J. L. Kuplic, President and G. A. Desmond Secretary of the above named Corporation, to me known to be the persons who executed the foregoing instrument, and to me known to be such President and Secretary of said Corporation, and acknowledged that they executed the foregoing instrument as such officers as the deed of said Corporation, by its authority.



John W. Lillesand
John W. Lillesand, Notary Public
Sheboygan County, Wisconsin
Permanent Commission

This deed of gift together with the covenants and conditions contained herein is accepted and agreed to on behalf of the State of Wisconsin (Conservation Commission) this 22nd day of December 1965 by:

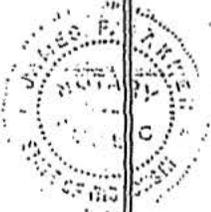
L. P. Voigt
L. P. Voigt, Conservation Director

Witnesses: E. Kaminski
James F. Bakken
E. Kaminski
James F. Bakken

STATE OF WISCONSIN }
DANE COUNTY } ss.

On this 22nd day of December 1965, before me personally appeared the above named L. P. Voigt, to me known to be the Conservation Director of the State Conservation Commission of Wisconsin, and to me known to be the persons who, as such Conservation Director, acknowledged and accepted the foregoing instrument in behalf and by authority of the State Conservation

Commission of Wisconsin and that he did so as his free act and deed in the capacity and for the purposes stated.



James P. Bekka
Notary Public

Dane County, Wisconsin

My Commission Expires in permanet

This instrument drafted by
John W. Lillesand,
Attorney - Kohler, Wisconsin

8772A7

REGISTER'S OFFICE
SHEBOYGAN COUNTY, WISCONSIN
Received for Record the 27th day of
November, A. D. 1965, at 8:44
o'clock A.M., and Recorded in Vol. 469
of Sheboygan on page 674.
Raymond J. DeWitt Register
By _____ Deputy

Call - 457-4441
Att. 522
att. 522
P. 500

6) END

Exhibit 81

CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

Date: November 13, 1984

File Ref: 8700

To: Ed Trecker

From: Tom Blotz

Subject: Kohler Andrae Private Access Easement

My review of the proposed easement request indicates it would violate Section 6(f) of the Land and Water Conservation Fund Act (LAWCON). The LAWCON fund was used to develop a portion of the park. Once LAWCON funds are used in a park the entire park is then subject to the rules of the LAWCON program. Section 6(f) of the program prohibits the conversion of outdoor recreation areas to other than public outdoor recreation use. The granting of an easement for roadway purposes is a definite conversion.

ma

Exhibit XII

CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

Date: November 16, 1984 File Ref: 8700/2500
To: D.L. Weizenicker - P&R/4
From: Ed Trecker
Subject: Kohler Corporation Access Desires

Too often in our zeal to accomplish some other worthy objective we may forget laws and procedures which have been established to protect the public interest. We don't do this out of malice--we simply forget these because we don't deal with them very often. One of these situations is LAWCON 6(f).

Basically, LAWCON 6(f) was put into law to protect park and recreation agencies from raids on their lands for nonrecreational purposes, such as roads, prisons, etc. It prohibits conversion without replacement.

Attached is a request from the Kohler Company (through an agent) for a road easement on the north side of J. Michael Kohler State Park. Also attached is an opinion from our district community relations specialist stating that the action desired by the Kohler Company is a LAWCON 6(f) situation.

In my opinion, the other Kohler Company desires for access across state park lands into their holdings on the lake is also a 6(f) situation. You have the files on this and may wish to check with Pete Jensen to see if I'm correct.

If we are, in fact, dealing in a situation with Federal LAWCON 6(f) protection it may change our bargaining position.

bg

Attach.

c: John Young - Kohler Andrae

YES

Exhibit XIII

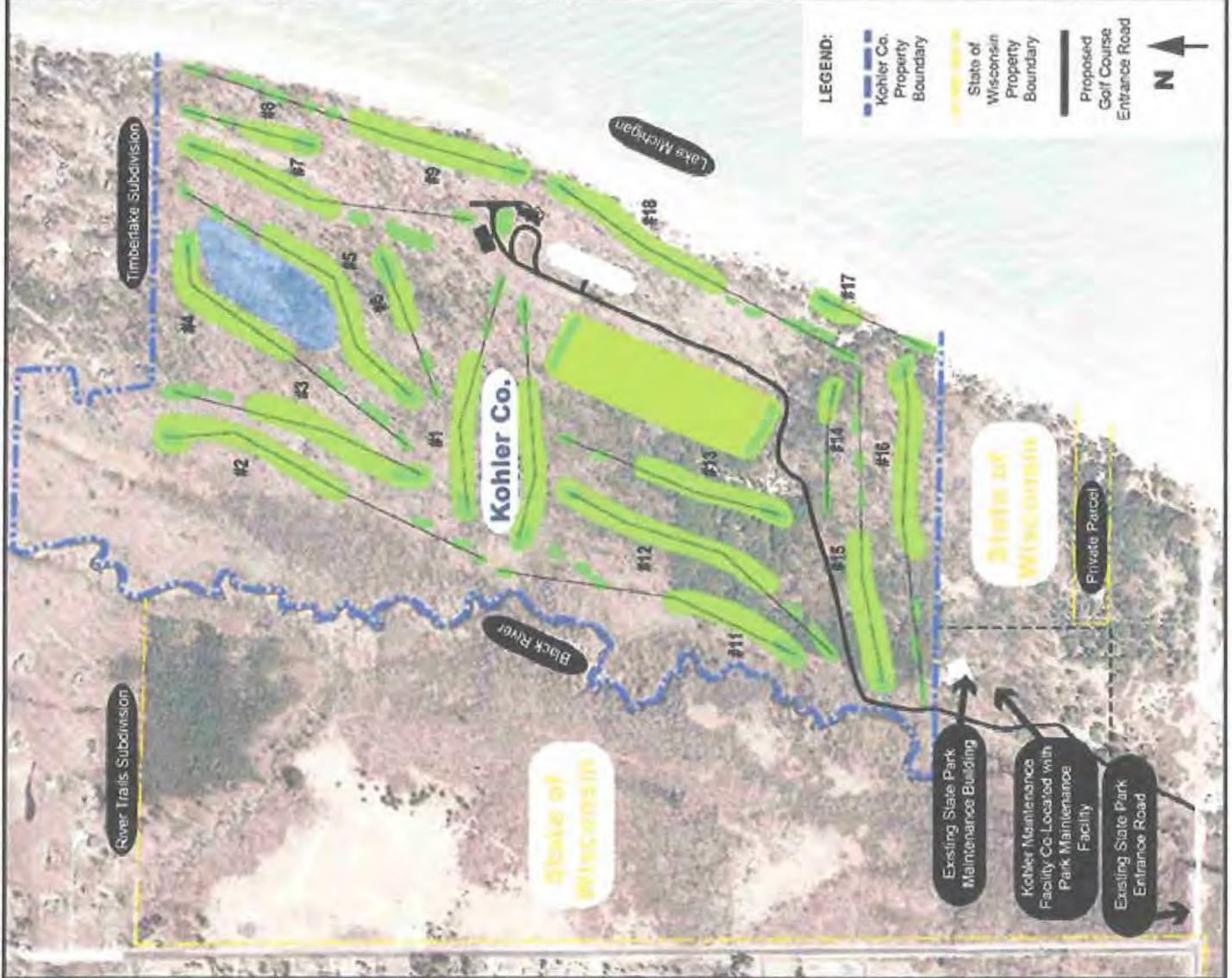
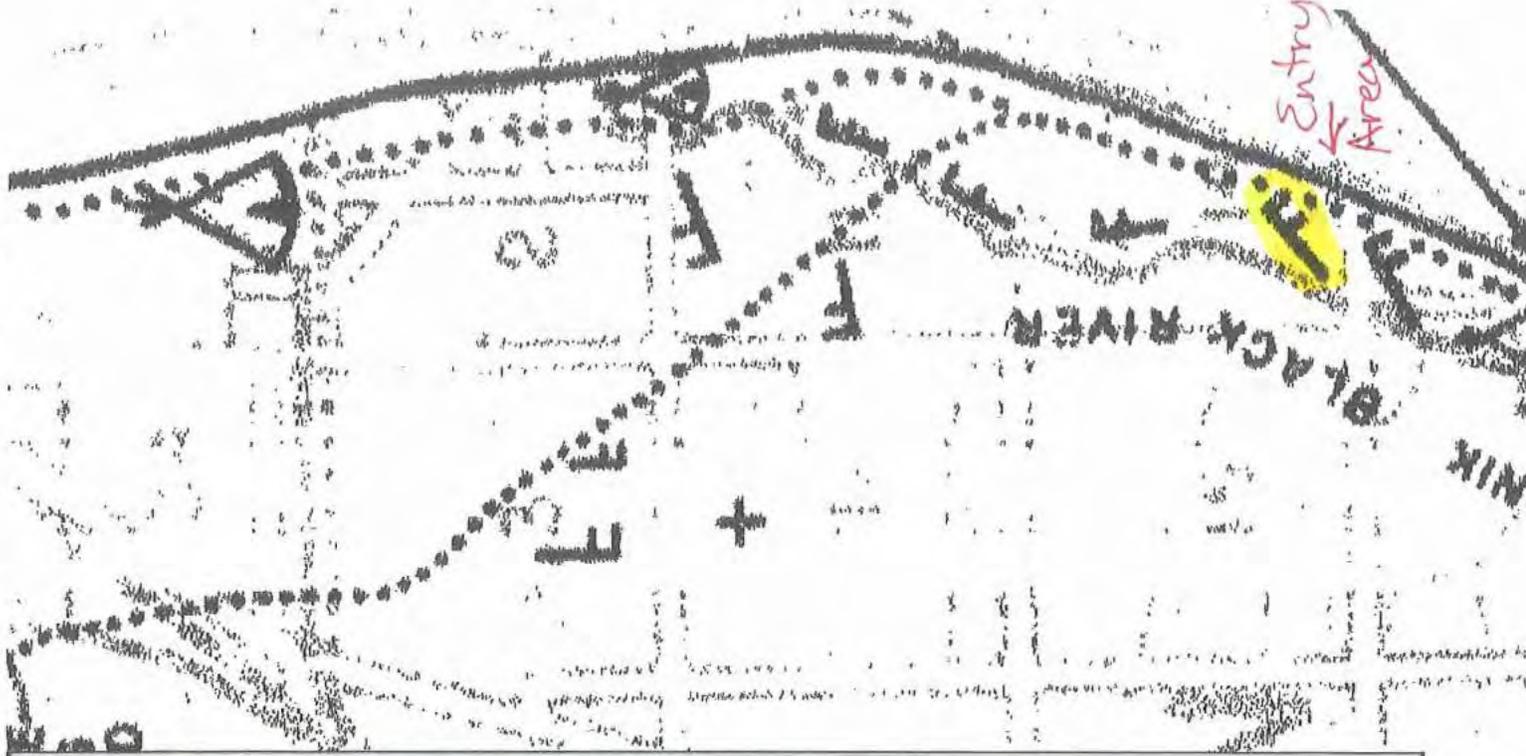


Exhibit XIV

Letter: Kohler Co. hardly a good environmental 'citizen'

<http://www.sheboyganpress.com/story/opinion/2014/10/01/letter-kohler-co-hardly-good-environmental-citizen/16563685/>

Wisconsin 7:47 p.m. CDT October 1, 2014



14 CONNECT [TWEET](#) [LINKEDIN](#) 4 COMMENT [EMAIL](#) [MORE](#)

A Sheboygan Press letter dated Sept. 17 called Kohler Co. a good corporate "citizen." Kohler's desire to replace a forested wildlife refuge with another golf course is ecologically detrimental. The information below is based upon research done by my daughter (Alizee) reporting Kohler's environmental record. No one should be granted the right to destroy our natural resources like this project will do.

In a comparison with Rock, Milwaukee, Manitowoc and Dane counties, Sheboygan County has the greatest overall amount of recognized toxins released to the environment. Sheboygan County releases 546,259 pounds of pollutants. Of these, Kohler Company generates roughly 51,421 pounds of pollutants annually. Thus, Kohler ranks third in Sheboygan County as the most polluting industry. The factories of Kohler Company release benzene, lead, chromium and nickel. Other chemicals include manganese, antimony, copper, zinc, barium and triethylamine.

Of the two Environmental Protection Agency recognized superfund sites in Sheboygan County, the Kohler Company landfill is located in Kohler, only 300 feet from the Sheboygan River. The site has been used to dispose of industrial wastes, municipal wastes and foundry sludge. The groundwater beneath is contaminated with cadmium, chromium and phenols and, according to the EPA, has contaminated drinking water sources.

* This groundwater feeds directly into an aquifer that is used for drinking. This Sheboygan harbor and river landfill site extends eight miles through the towns of Kohler, Sheboygan and Sheboygan Falls, all within Sheboygan County. This landfill has been leaching heavy metals and PCBs into the Sheboygan River and its two tributaries: the Mullet and Onion Rivers. These contaminants are at such high levels as to initiate a ban on ingesting fish from the Sheboygan River and its tributaries.

This is according to the Environmental Protection Agency Scorecard report: <http://scorecard.goodguide.com>

Debbie and Alizee Desmoulin

Sheboygan

Town of Wilson aquifers are in jeopardy of contamination if Kohler's plan is approved to "pollute Black River, Lake Michigan, & wetlands". In addition to dry wells, we may not be able to drink our water.

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [Redacted]

Representing: Resident of Town of Wilson

Address: [Redacted]
Sheboygan, WI 53081

Phone: [Redacted]

E-mail: [Redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,
• Fold this sheet and mail stamped sheet to the printed address on the back; or,
• Send email comments to:
DNRKohlerProposal@wisconsin.gov
Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

- ① High Capacity Well Use Impact on any/all town wells
- ② Impact on wetlands, Black River & Lake Michigan
- ③ Native American Indian Mounds, Sand Dunes, Artifacts & Relics.
- ④ Golf course access across Public owned State Land.
- ⑤ Environmental Impact to All species of nature
- ⑥ Kohler's "commitment" to Environmental Responsibility

NO BUILD ALTERNATIVE, presented by Kohler, would be the TRUE MINIMALIST PLAN.

Additional sheets are included: X Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

DNR Draft Environmental Impact Statement Scoping Comment Sheet

Proposed Kohler Golf Course, Town of Wilson, Sheboygan Co

DO YOU WISH TO MAKE A VERBAL COMMENT AT THE MEETING? YES NO

Name: [redacted] [redacted]

Representing: Town of Wilson

Address: [redacted] [redacted] [redacted] [redacted]
Black River, WI 53001

Phone: [redacted] [redacted]

E-mail: [redacted] [redacted]

Check box to subscribe to email updates about the proposed Kohler golf course (be sure to include an email address above).

PLEASE DEPOSIT COMMENT SHEET AT THE SCOPING SESSION; or,

- Fold this sheet and mail stamped sheet to the printed address on the back; or,
- Send email comments to: DNRKohlerProposal@wisconsin.gov

Submit comments on the Draft EIS outline by Friday, July 24, 2015

Issues that should be covered in the scope of the Environmental Impact Statement (EIS):

- Chemical impact on the area - short term and long term effects.
- Heavier traffic flow in Black River = widening roads = negative environmental impact
- Loss of ecosystems & rare wildlife.
- The supposed benefits Kohler is claiming this project will have on the surrounding community are highly outweighed by the devastating environmental impact the course will have.

irreversible

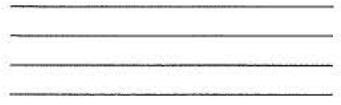
I moved to Black River less than a year ago. Had I known that my lovely neighborhood would be overtaken by such an unnecessary monstrosity I would never have considered moving there. I do NOT wish to live my life there wondering if I will contract cancer due to the use of chemicals.

Additional sheets are included: back Yes No

Personally identifiable information collected on this form is used for administrative purposes and may be provided to requesters under the public records laws, ss. 19.31 to 19.39, Wis. Stats.

When walking the trails in my own backyard, the very trails + woods they are due to be destroyed, I see so many people, young and old using the area. Learning + connecting with nature are imperative for future preservation. The fewer opportunities and areas for children in particular to learn the WONDERS of nature, the less care will be present as the years go on. Who will learn who will advocate for future environmental issues if these trails are destroyed? This project is socially and environmentally immoral.

Fold and close to mail.



Please
place
postage
stamp here

Jay Schiefelbein
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313-6727