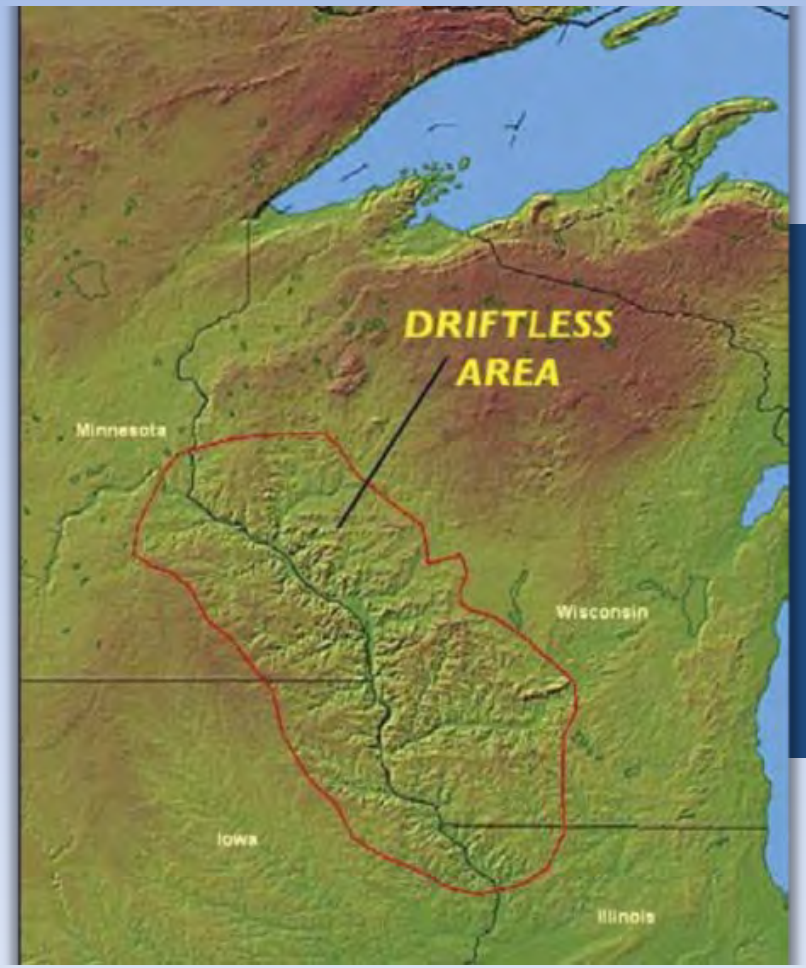
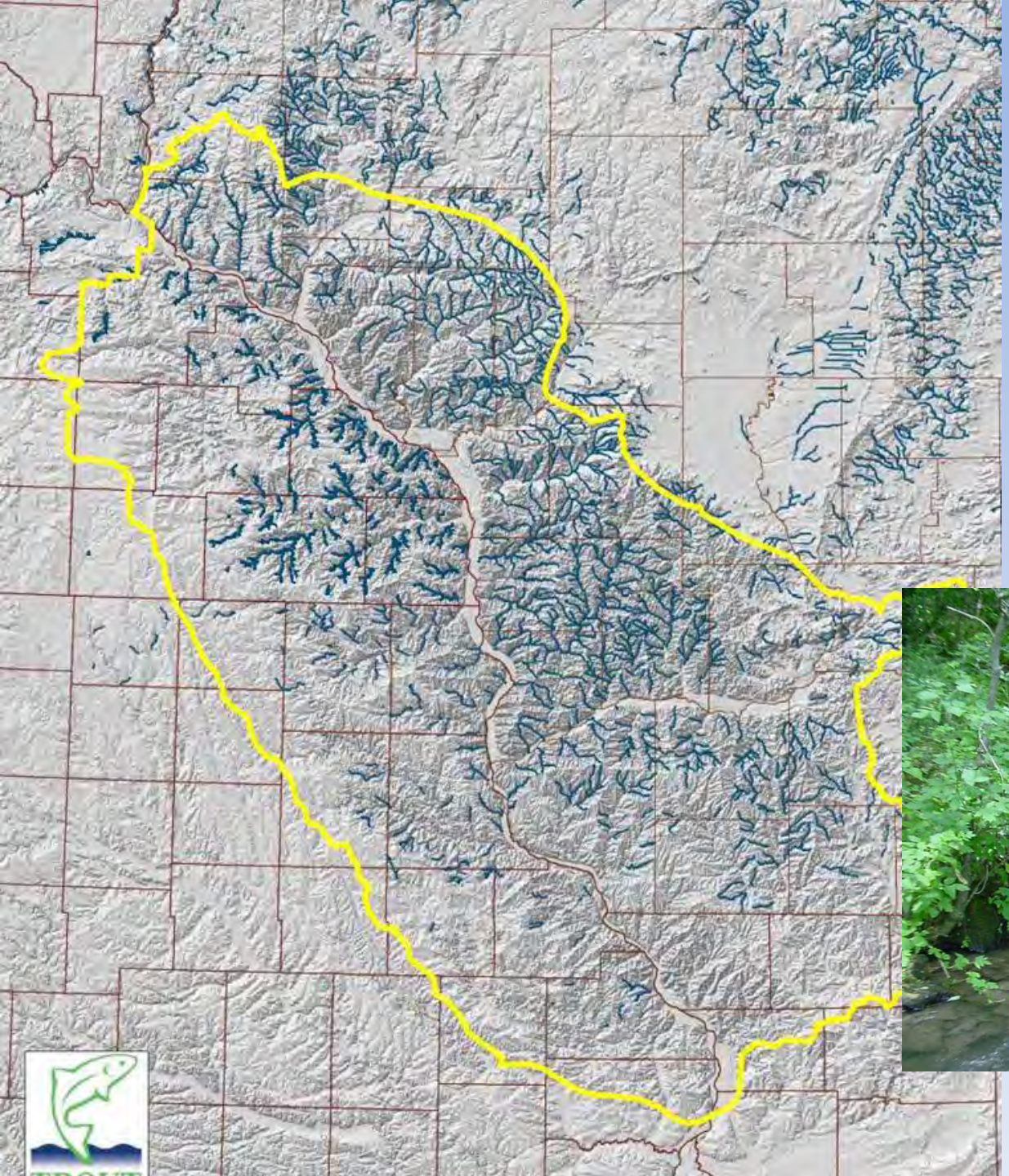
Trout Unlimited – Driftless Area Restoration Effort



Jeff Hastings

Project Manager

Restoring cold-water streams and their watersheds.



Over 600 coldwater streams.

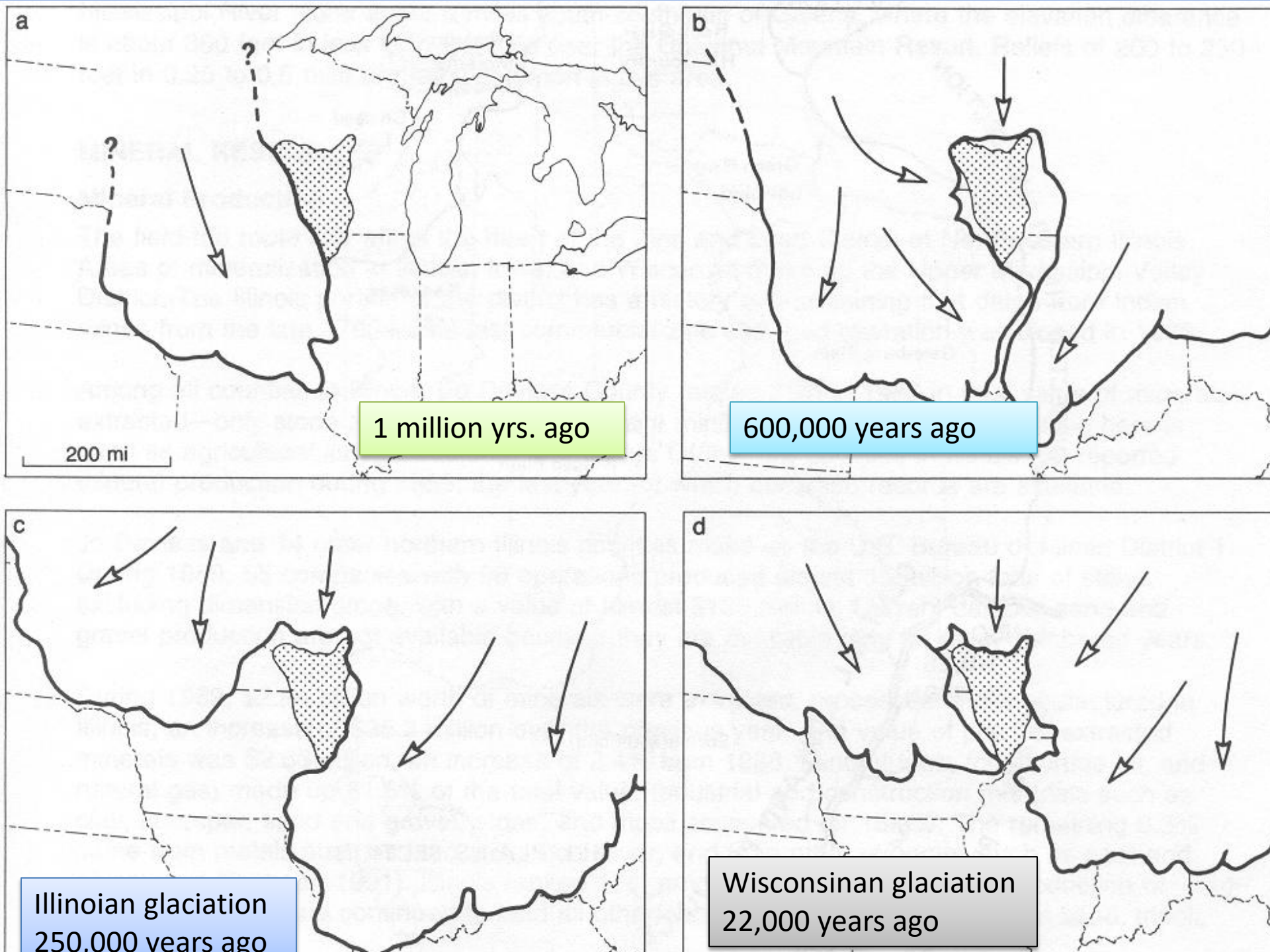
Greater than 4,000+ miles.

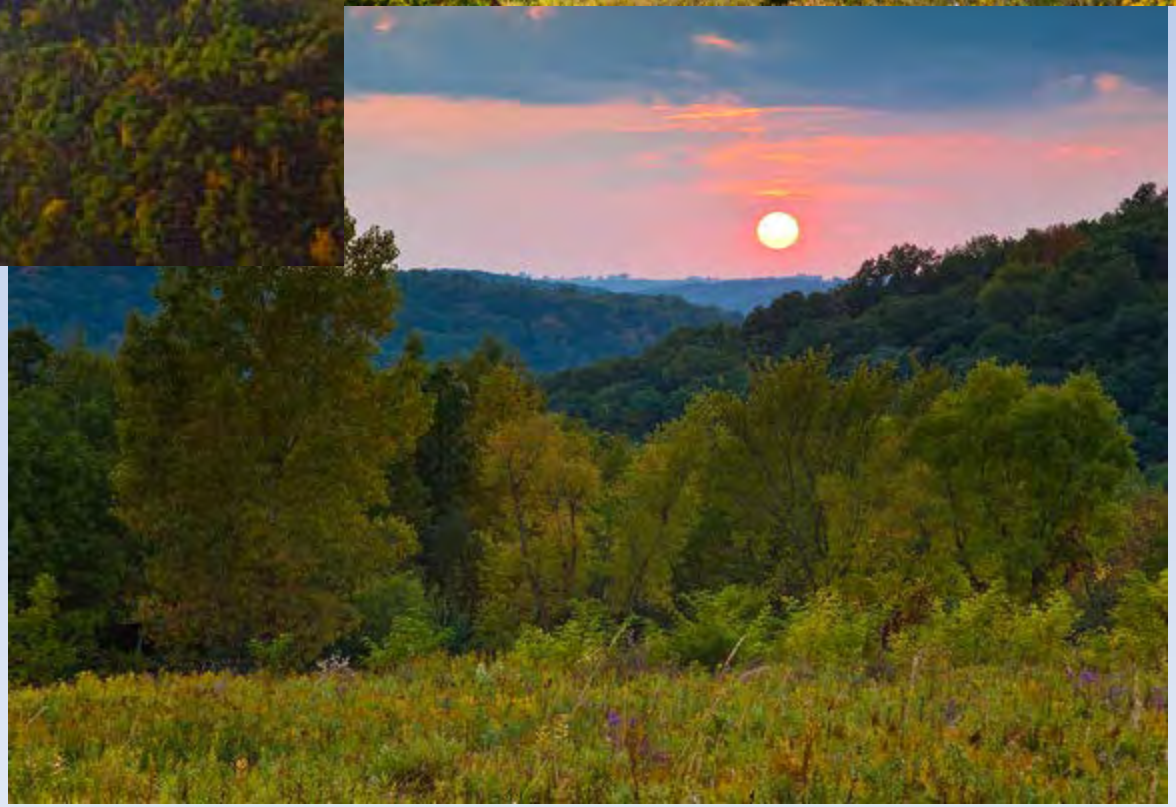
Building Capacity of groups to do more stream restoration projects.

Topics Covered:
Liability, Fund raising, Easements, Working with landowners, Experienced Chapters with less experience, Workdays, etc.

04/28/2007
GENERAC 6500XL

Riparian & Watershed sessions


a
?
?
200 mi
1 million yrs. ago
b
600,000 years ago
c
Illinoian glaciation
250,000 years ago
d
Wisconsinan glaciation
22,000 years ago



Decoding the Driftless

Hixton quartzite – one of the largest prehistoric quarry sites in the upper Midwest – Jackson County

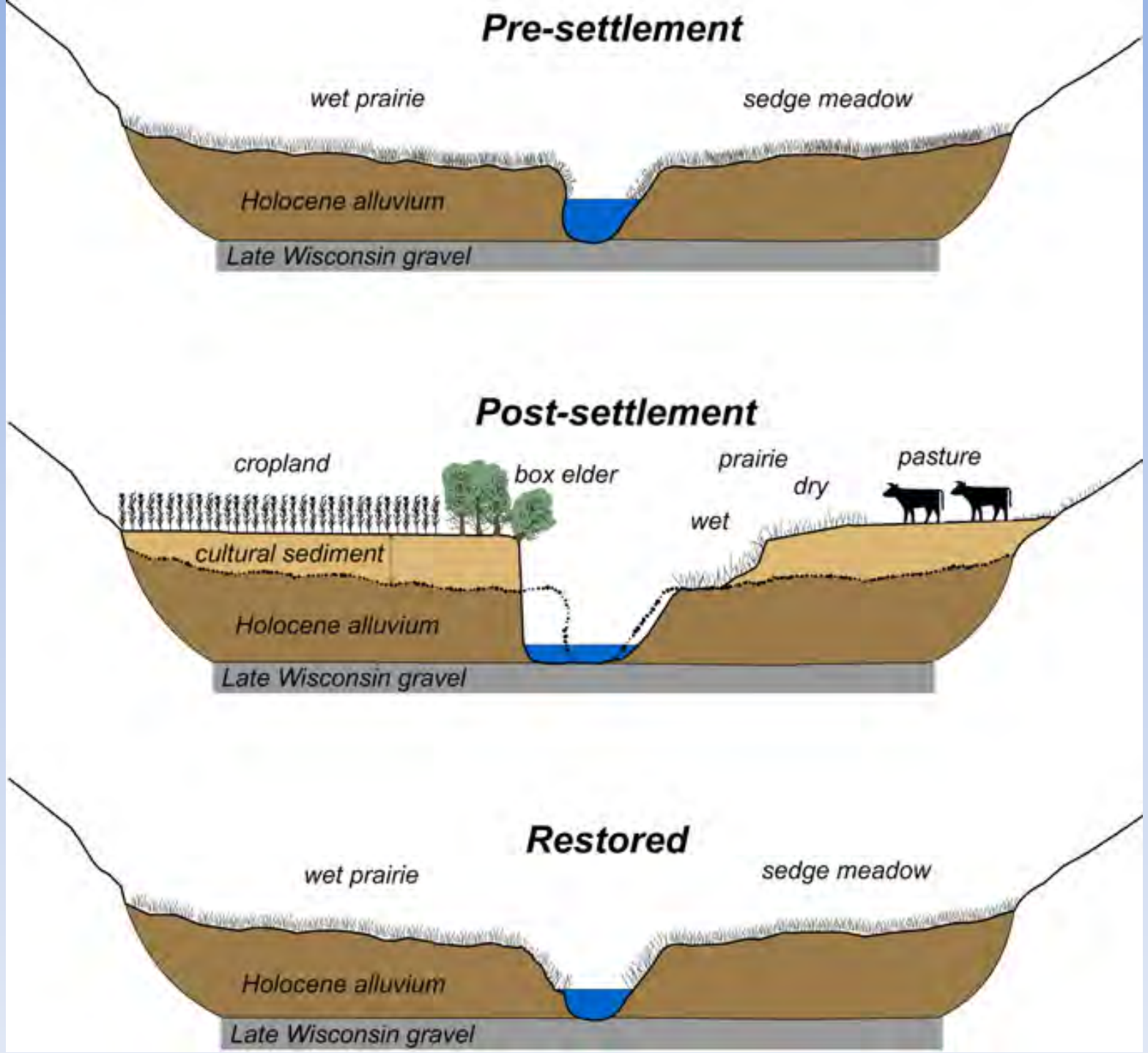
Effigy Mounds National Monument
Excavations of mounds have uncovered human remains…also functioned as territory markers and as multi-purpose ceremonial places.

Water

Recreation

A Story of Degradation…

Wis-717

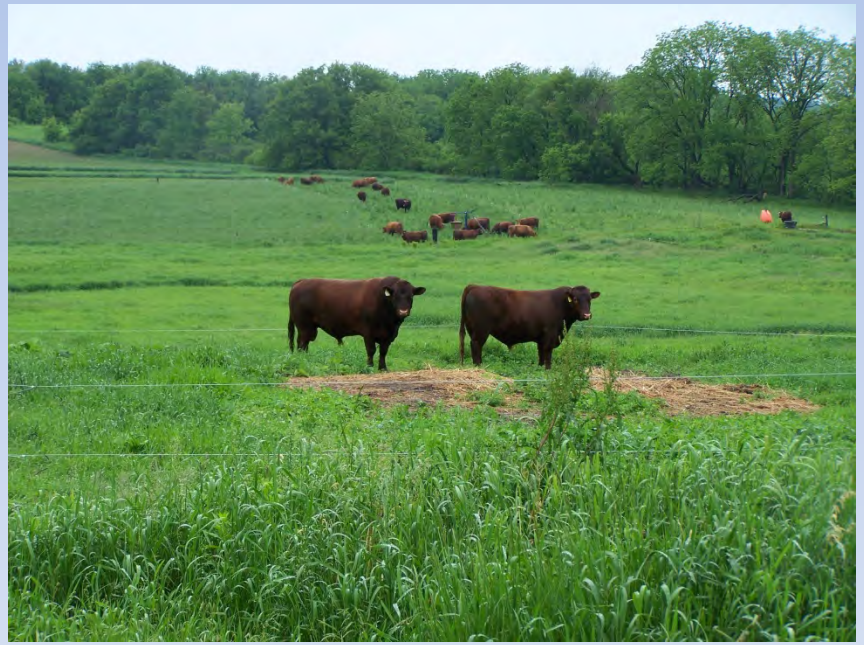

Pre-settlement
wet prairie
sedge meadow
Holocene alluvium
Late Wisconsin gravel
Post-settlement
cropland
box elder
prairie
dry
pasture
wet
cultural sediment
Holocene alluvium
Late Wisconsin gravel
Restored
wet prairie
sedge meadow
Holocene alluvium
Late Wisconsin gravel

Coon Creek Watershed Project

Conservation

85% 3020 cu yds.

Managed Grazing



900 cu.yds.

CONSTRUCTED SIDE VIEW
WATER LINE
FACE ROCK
Rock Backfill
Reinforcing Rod

WEST
33
131

Heritage Glen

Driftless White Paper

Promising Restoration Results

Typical Driftless Brown

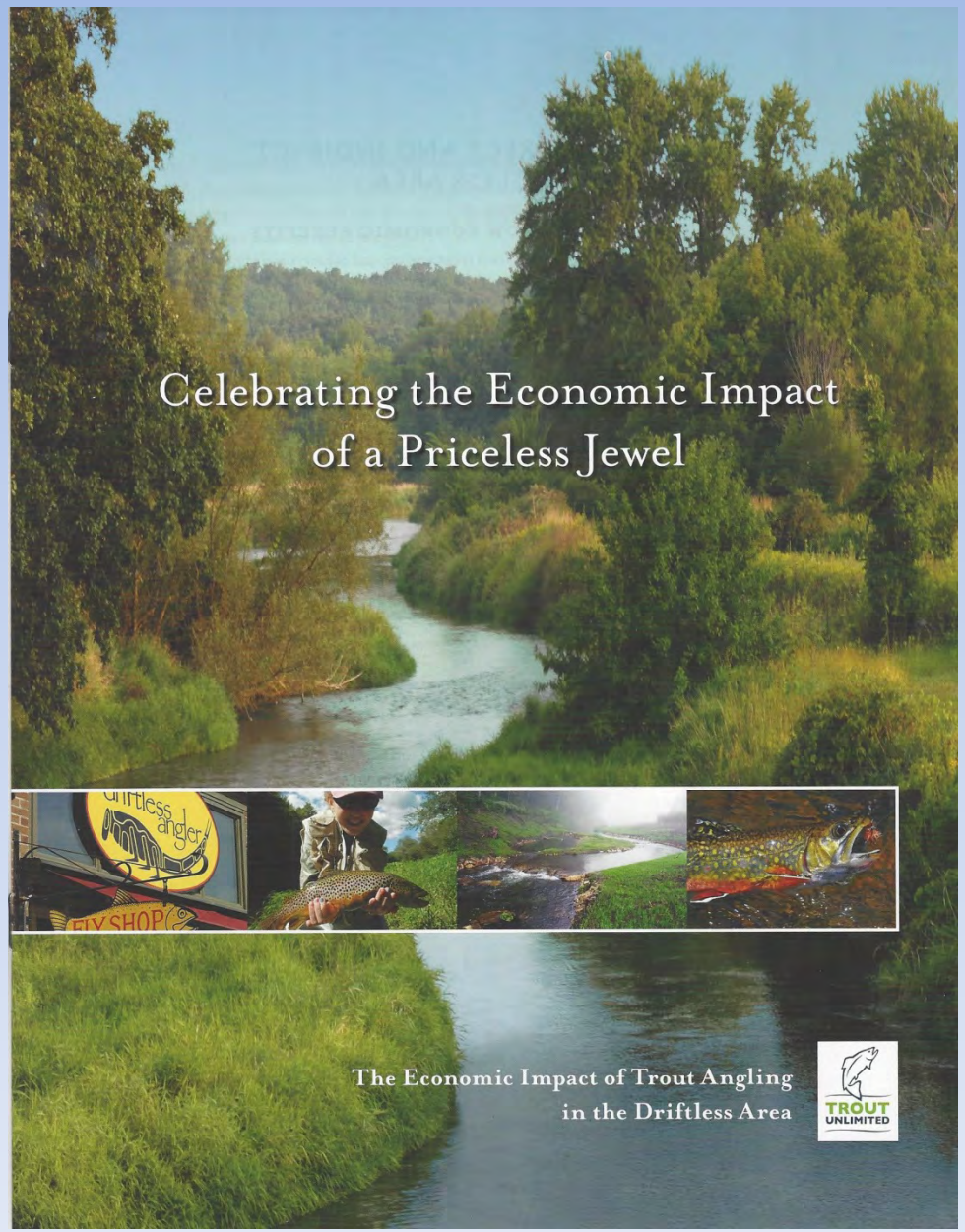
EASEMENTS
1200+ miles

"I wouldn't let Charlie go fishing today because it's our wedding anniversary. Now he's going through extreme withdrawals."

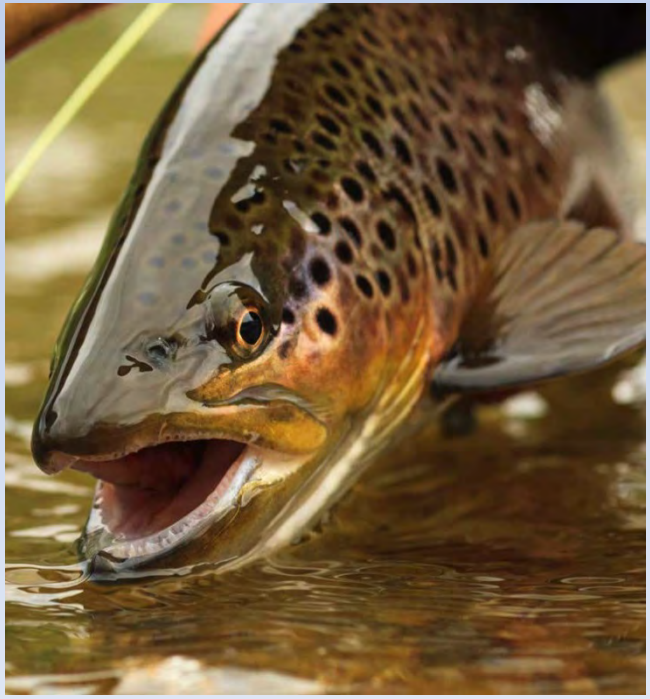
Cold Water Recreational Angling

TOTAL ECONOMIC CONTRIBUTION:
$646,819,673 Direct Effect + $464,691,659 Indirect/Induced Effects
= $1,111,511,332

Economic Impact 2016 Report



- ✓ $1.6 Billion
- ✓ 6579 supporting jobs
- ✓ 92% satisfied with the experience
- ✓ 1200+ public access



Method of Angling

- Spin 34.7%
- Fly 51.4%
- Live bait 24.1%
- Artificial bait 26.4%
- Other (Salmon eggs, lures, drift cheese) 1.0%

Likelihood of Fishing in Driftless Region Given Restoration Efforts

• More likely	79.5%
• Less likely	.5%
• Neither more nor less likely	20.0%
• Total	**100.0%**

Driftless White Paper

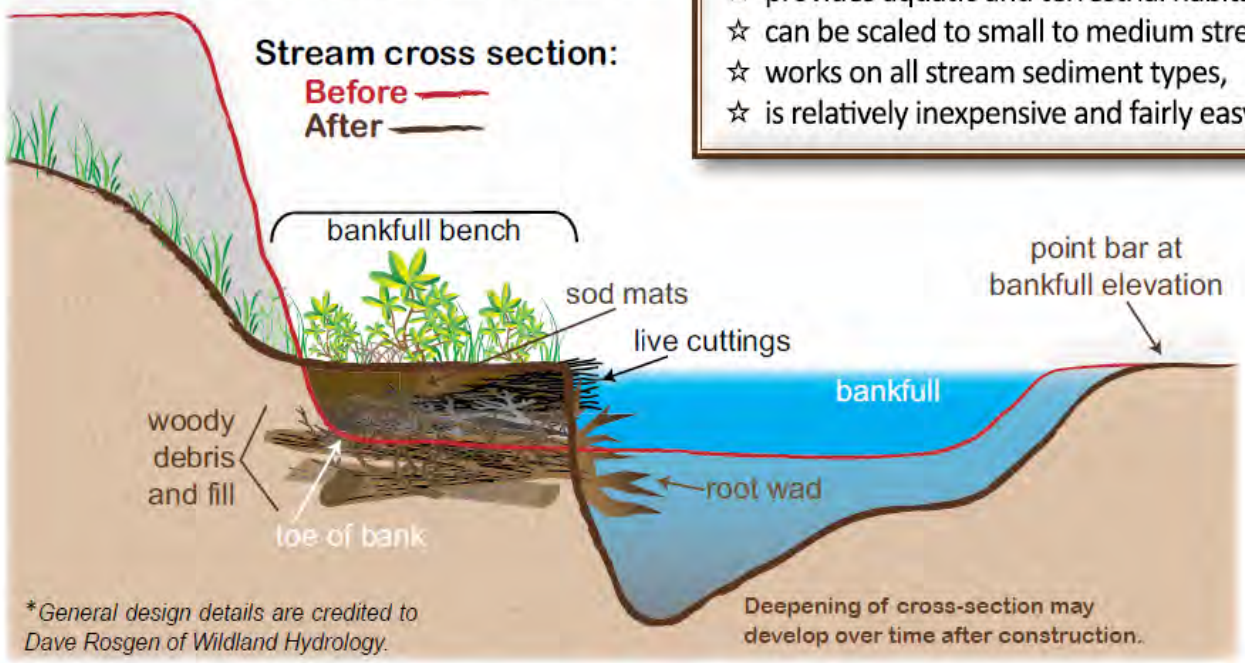
Habitat Program

Purpose of a Toe Wood-Sod Mat

All streambank restoration project goals should be to: 1) restore channel function, dimensions and connection to the floodplain, 2) provide short-term protection that promotes natural long-term stability, 3) allow the channel to adjust over the long-term, 4) protect meanders (a.k.a., sinuosity) of a stream to prevent a meander cutoff. A toe wood-sod mat provides the opportunity to add stability, habitat, and streambank protection where it is needed.

The toe wood-sod mat is a preferred design because it:

- ☆ restores channel dimensions (width & depth),
- ☆ protects a once vulnerable and unstable cutbank,
- ☆ restores the connection to the floodplain with a bankfull bench,
- ☆ incorporates transplanted sod mat(s) and live cuttings that grow quickly and develop dense roots,
- ☆ utilizes all natural materials using local vegetation and sod,
- ☆ provides aquatic and terrestrial habitat,
- ☆ can be scaled to small to medium streams,
- ☆ works on all stream sediment types,
- ☆ is relatively inexpensive and fairly easy to install.



*General design details are credited to Dave Rosgen of Wildland Hydrology.

Deepening of cross-section may develop over time after construction.

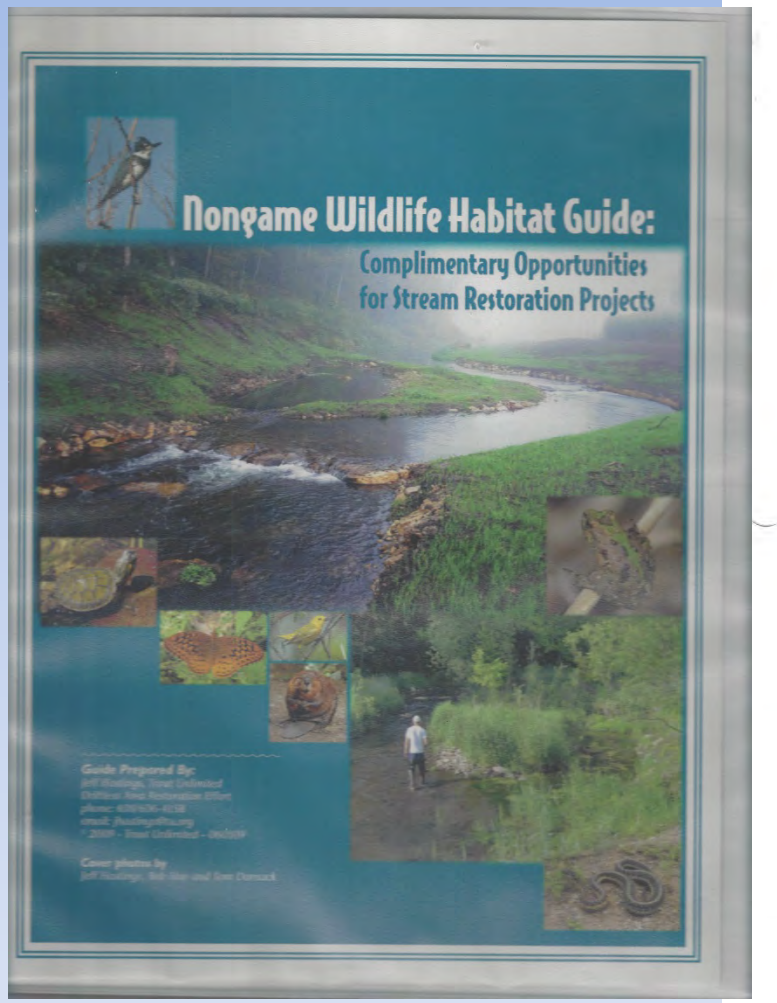
DEERE

Overhead Cover
Nongame Habitat
Stable Banks
Deep Pools
Pollinator Habitat

Strategy for Wildlife Species of Greatest Conservation Need
Wisconsin
DRIFTLESS AREA
Minnesota
Wisconsin
Iowa
Illinois

Temporary Habitat

Wild & Rare Committee



Birds(Class Aves)

Birds are warm-blooded species that maintain stable internal body temperatures regardless of external influences. Because winters in the Midwest impact food availability for many birds, they migrate south to take advantage of warmer climates where access to food resources is not limited by cold temperatures, ice or frozen soils. This includes many of the riverine and wetland- associated birds. Most water-associated non-game bird species fall into the categories of insectivores (which eat invertebrates including insects), piscivores (which eat primarily fish), or omnivores (more general predators, which eat a wide variety of prey including insects, fish, amphibians, reptiles and small mammals, along with wetland/aquatic vegetation and seeds). A wide variety of birds can be found along stream corridors, but are not dependent on these habitats alone.

© Bob Gress

Solitary Sandpiper

© R. Jordahl

Yellow Warbler

© Bob Hay

Great Blue Heron

© J. Hastings

Not all trees are removed, only the invasive/shallow rooted trees

Shallow wetlands, low gradient shorelines of ponds, mud flats and backwater areas along streams provide excellent foraging areas for wading birds. Perches over the water are important for a variety of insect eating birds such as eastern kingbirds and for fish eaters like the belted kingfisher. Dead trees provide perching areas for hawks and other birds and can provide structure for nesting and foraging. Vertical banks can be important nesting habitats for bank swallows and kingfishers. Varied habitat structure (trees, brush and grasslands) in riparian habitats can provide a variety of nesting opportunities.

Invertebrates (protozoa, annelids, mollusks, arthropods, crustaceans, arachnids and insects)

This exceedingly diverse group of species is the backbone or base of the animal food chain and as a result is perhaps the most important. Providing for the life cycles of such a broad range of species may be best accomplished by replicating many of the macro and microhabitats that occur within an intact natural riparian community in the watershed or region where you are working. Providing standing and flowing water habitats with varied depths, temperatures, substrates and structures may be the best way to maximize aquatic invertebrate diversity. Some of these microhabitat features are likely to be naturally provided over time. Riparian and upland habitats should have varied vegetative structure and be planted with a diverse mix of species (forbs and grasses). In order to achieve this, we are suggesting seed mixes that contain both native and exotic species (grasses and forbs) that have the greatest likelihood of achieving a varied herbaceous vegetation layer once established. We are purposefully including some exotic plant species, such as Kentucky bluegrass, because it provides a low-canopy structure that is valuable to a variety of non-game species from a thermoregulatory perspective. We include this species because we recognize that most of these properties will not receive management after they are initially planted. The establishment and maintenance of a diverse native planting typically requires significant management, especially in the early years, if a diverse plant community

© Bob Hay

Black Swallowtail

with variable habitat structure is to be achieved. Where a project is attempting to improve conditions for one or more of the SGCN target invertebrates, such as a butterfly, seed mixes can include host plant seeds as appropriate. Having knowledge about these species and their specific habitat requirements, including host

Turtle Hibernaculum

Stream Type	Riparian Habitat
Small, stable rock/cobble, cold headwater stream	Primarily closed canopy
Medium sized cool to cold water stream*	Primarily open canopy
Medium sized cool to warm water stream/river	
Larger warm water rivers	

© Bob Hay

No or very low value

Low to moderate value

Moderate to good value

Good to excellent value

Nongame Wildlife Habitat Guide:

Complimentary Opportunities for Stream Restoration Projects

Introduction

The Driftless Area, located in the heart of the Upper Mississippi River basin, is a geographically distinct 24,000 square-mile area primarily in southwestern Wisconsin, and includes areas of southeastern Minnesota, northeastern Iowa and extreme northwestern Illinois (see Figure 1). This area is interlaced with more than 1,200 streams (more than 4,000 river miles) that spring from the underlying limestone-bedrock. The area includes very steep topography with elevations ranging from 603 to 1,719 feet. The peculiar terrain is due to its having escaped glaciation during the last glacial period (approximately 10,000 years ago).

The streams and riparian habitats of the Driftless Area suffer from a history of human disturbances. Land use practices have led to extensive erosion and subsequent sedimentation of the watersheds in this region. The steep topography of the region has exacerbated these human influences. Across the region, hundreds of miles of spring creeks have been inundated with soils and fine sediment, resulting in degraded water quality, increased stream temperatures, damage to aquatic habitat, and altered watershed hydrology. For over fifty years conservationist and conservation organizations have been working to improve Driftless Area streams by stabilizing streambanks and incorporating habitat for trout. Each year federal, state and county conservation agencies spend millions of dollars to stabilize streambanks and create habitat for trout. However, past stream restoration projects in the upper Midwest have often failed to incorporate habitat for non-game species such as amphibians, birds, invertebrates, mammals and reptiles, primarily because of a lack of knowledge about those species' habitat needs. Developing habitat for other non-game species at the same time that construction equipment is being used for stream restoration projects is efficient and cost-effective. Failure to combine habitat for these species is a missed opportunity.

Having a better understanding of what kinds of non-game wildlife live in your project area and a basic understanding of their life history will help you create a better project. A good way to start gathering information on which non-game species would benefit from additional or improved habitats is by reviewing your state's Wildlife Action Plan. All of the states in the Midwest have developed Wildlife Action Plans identifying natural communities and their associated *Species of Greatest Conservation Need* (SGCN) (low and/or declining populations that are in need of conservation action). From this you can generate a target species list for your region. We have provided a generalized target species list in this guide for the Driftless region to help you refine your species list (see page 20). It will be helpful to then obtain a more precise list of

© Trout Unlimited

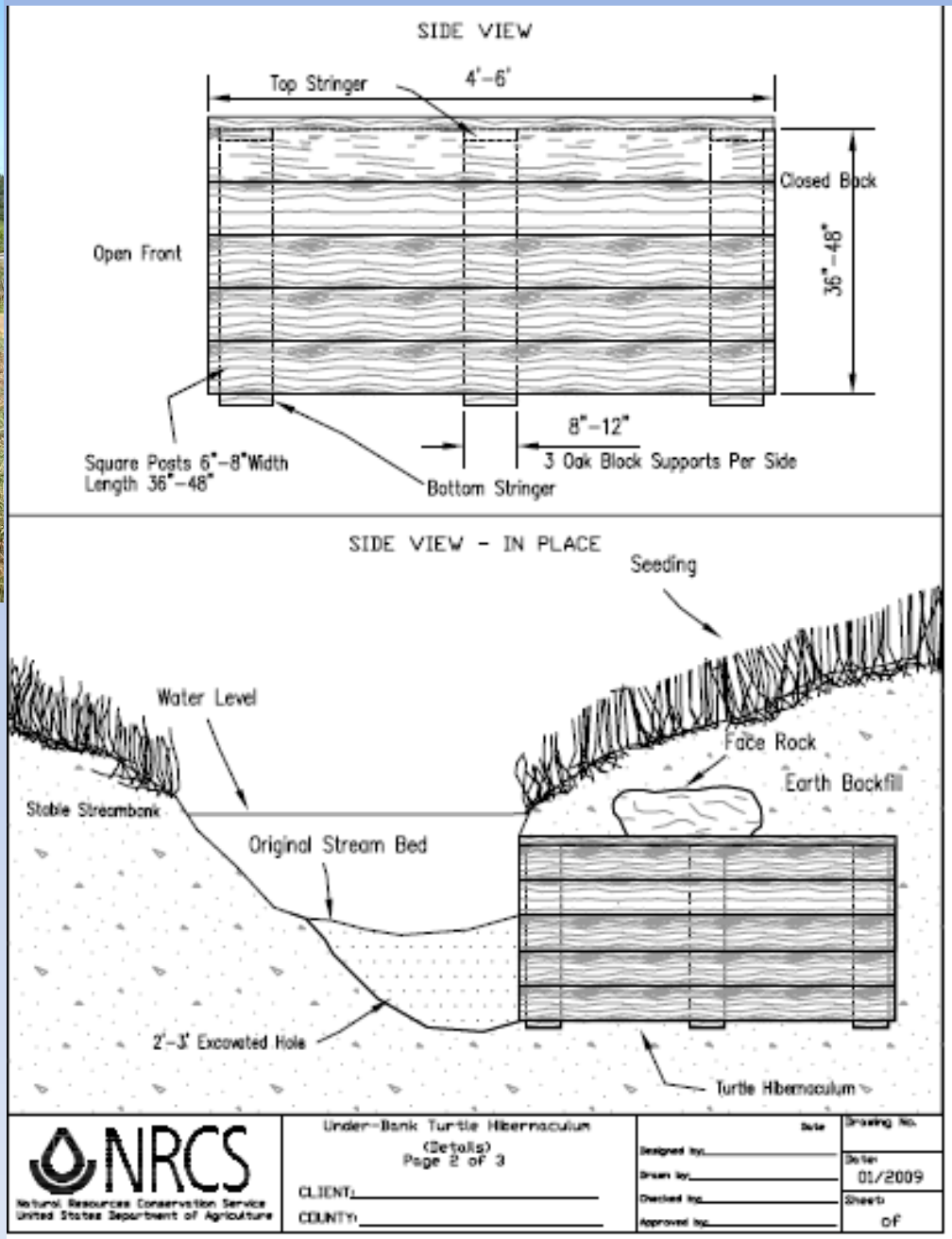
Figure 1. Driftless Area map

© Bob Hay

Painted turtle

© Jeff Hastings

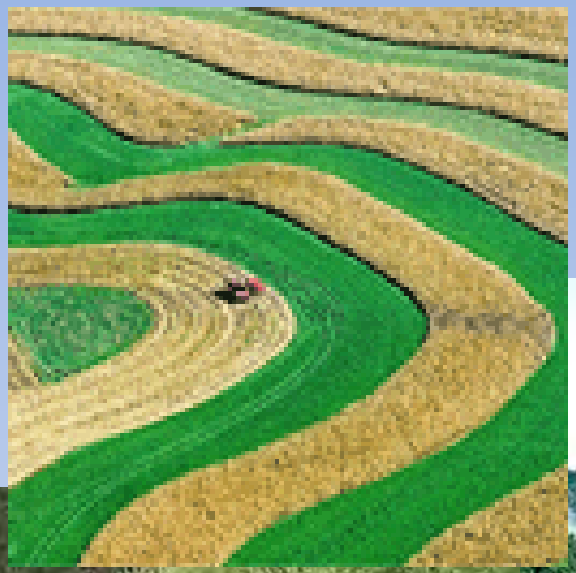
Degraded Stream in need of restoration.



Standard Designs for Natural Resources Conservation Service …now eligible for Farm Bill dollars - EQIP

Cost effective
Structures/Mile

Farm Bill dollars



Driftless Area Landscape Conservation Initiative Proposal

A proposal to restore, improve, and protect the nationally significant fish and wildlife habitat of the Driftless Area, including working lands, woodlands, prairies, and cold water streams.

Photo by Jim Richardson @ Richardson Photography

USDA Natural Resources Conservation Service
Illinois, Iowa, Minnesota, and Wisconsin.

April 27, 2012

USDA is an equal opportunity provider and employer.

6.5 million 5 years
1.5 million for stream restoration
Iowa – in 2017

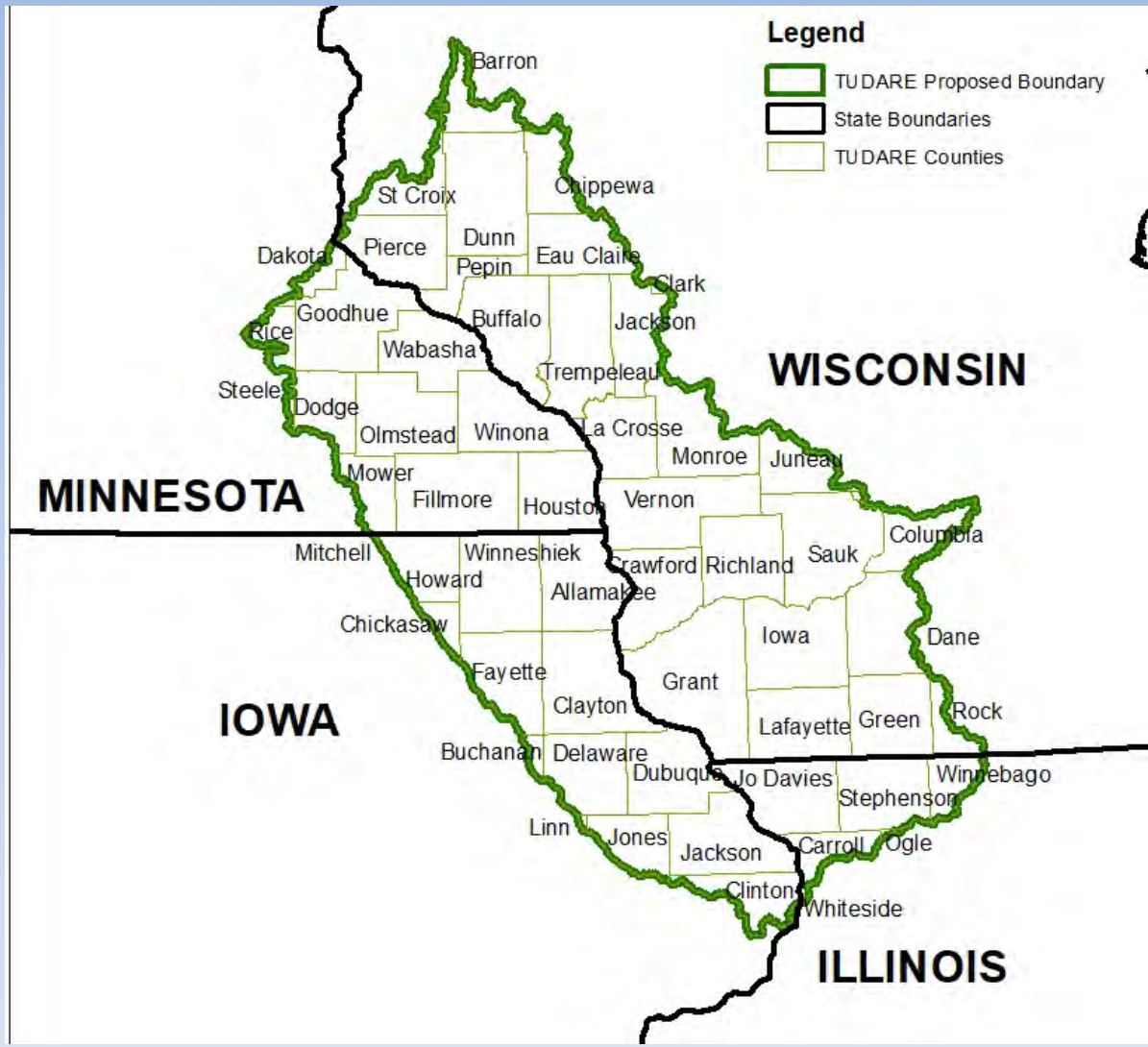
Restore watershed health to reduce delivery of sediment and nutrients and improve water quality to benefit Driftless Area rivers and streams

$2.9 Million Regional Conservation Partnership Program, RCPP
2016 - 2020

March sign-up 31 contracts..over $800,000.

Driftless Area Regional Conservation Partnership Program – Phase II

- ✓ $9.2 Million - 5 years for cold-water (cool-water in IL) restoration projects
  - ✓ Streambank stabilization
  - ✓ Critical area seeding
  - ✓ Stream Crossings
  - ✓ Brush Removal
  - ✓ Fencing
  - ✓ Habitat for both game and non-game species



The End

DO NOT CROSS PASTURE UNLESS
YOU CAN DO IT IN 3.7
THE BULL CAN DO IT IN 3.8