

2018 NHAL Annual Integrated Property Management Meeting - Minutes
Kemp Natural Resource Station
2/21/2018 – 9:00am

1. NHAL Property Management & Administration

- i. Masterplan (<http://dnr.wi.gov/topic/lands/masterplanning/MPCComplete.html>)
 - i. Land Management Classification - Masterplan Variance
 - i. Moved to 75% in forest production areas as a composite across all state forests except Gov. Knowles. NRB Approved March 2017.
 - ii. No significant change in management noticed locally.
 - ii. Recreation Update - Masterplan Amendment
 - i. Regional Recreation Opportunities Analysis completed in 2017.
 - ii. Significant plan update focused on recreational components of forest, including changes to:
 - a. Camping
 - b. Non-motorized rec trails
 - c. Motorized rec trails
 - d. Boat landings & day use areas
 - iii. Yarrington reminded group that land disturbances >1 acre require storm water permits.
 - iv. NRB approved, with amendments by the board to increase mileage of open roads during hunting, in October 2017.
- ii. Staff in new positions or new roles
 - i. Joe Schwantes new Woodruff Area Forester (Vilas, Oneida, Lincoln, Marathon, Taylor)
 - ii. Tom Shockley - NHAL Forestry Team Leader
 - iii. Craig Dalton – NHAL Property Manager
 - iv. Shelley Wrzochalski – Wausau Forestry Team Leader
 - v. Forestry Specialist/Dispatcher – Vacant
- iii. **Real Estate - Margitan**
 - i. Land Use Agreements:
 - i. Utility Easements: Multiple Utility Easements updated
 - ii. New Project Requests: numerous new LUAs developed
 - iii. Existing LUAs – numerous LUAs updated
 - ii. Major trespass issues Resolved: *Six Major trespassing cases*
 - iii. Minor trespass cases resolved: 25 plus cases settled working cooperatively with Rangers. A few cases will need follow-up work and site inspections this spring.
 - iv. Acquisition:
 - i. Evaluated and Entered three key parcels into the Land Acquisition Tracking System for ranking. All 3 parcels ranked high and made the first two
 - v. Created & prioritized a Real estate list of 14 high profile cases consisting of Land Trade Requests, Major Encroachments & Boundary Line

- vi. Gravel pits
 - i. Storm water plans and non-metallic mining permits for Trilby, Newcomb, and River Road updated in 2017
 - ii. Plan to expand gravel crushing at Caywood pit in 2018
 - iii. Town of Boulder Junction may be requesting to use a gravel pit soon for a local project
- vii. Major construction projects
 - i. Recreation related projects – see Recreation section of minutes.
 - ii. Fish trap dam is currently being evaluated and some maintenance was done in late 2017.
 - iii. Several road projects have been identified to improve public access and access for forest management – which projects proceed in 2018 will depend upon funding.
 - iv. An assessment of all water control structures on DNR lands is underway. All structures should be inventoried in LMS by 5/31/18. Property manager will work with others to complete.

2. NHAL Law Enforcement – Law Enforcement Jim Jung/Dave Walz

- a. Discussed adjustment of the Woodruff Warden team boundaries as part of realignment. Woodruff Team dropped Forest and Florence Counties and these counties became part of the newly created Antigo Team. That Antigo Team now covers Forest, Florence, Lincoln and Langlade Counties.
- b. Field Wardens have received Property Training at in-service training and will continue with property management training at the upcoming Regional Meetings in March 2018.
- c. Wardens shifts will begin in April of 2018 within NHALSF and Willow properties.
- d. Currently four Woodruff Team Wardens are stationed at either Crystal Lake or Clear Lake Contact Stations to aid in a LE presence within the campgrounds.

3. NHAL Recreation – Sara Pearson/Joe Fieweger

- a. Alignment Changes and New Reporting Structure
 - i. All recreation staff are now a part of the Fish, Wildlife and Parks Division in the Bureau of Parks and Recreation Management.
 - ii. NHAL Work Team now includes the Willow and the Turtle – Flambeau Flowages. A park manager will be hired for the TFF, hopefully sometime in 2018.
- b. A quick look back at 2017...
 - i. 2017 Recreation Season
 - 1. Overall, camping down 2.7% from 2016
 - 2. Revenue for FY 2017: \$1.1 million, almost a 50/50 break between what comes through the station and what is taken online for camping reservations.
 - 3. Top two most popular campgrounds: Crystal, 74% occupancy Jun – Aug; Firefly, 73% occupancy Jun – Aug
 - 4. Top two least popular campgrounds: Cunard, 13% occupancy Jun – Aug; Sandy Beach, 21% occupancy Jun – Aug

- ii. Went through the Recreation Opportunity Analysis for the Northwoods
- iii. Underwent a master plan amendment, was approved by the NRB in Oct 2017
- iv. Highlights of the master plan amendment (not all inclusive, and the amendment can be found online <http://dnr.wi.gov/topic/Lands/MasterPlanning/MPCComplete.html>):
 - 1. Camping opportunities:
 - a. Convert Indian Mounds, Sandy Beach and Upper Gresham to modern campground (shower / flush buildings, dump stations, electrical hook-ups, paved roads, other amenities)
 - b. Eliminate the existing authorization for 70 campsites at our rustic campgrounds
 - c. Designate Cunard and Starrett as quiet zones (no generators allowed) – expect to implement in 2019
 - d. Add 2 new group campgrounds: Sweeney and Cunard Lake
 - 2. Non-motorized trail opportunities
 - a. Add 5 miles of hiking trails
 - b. 60 additional miles of new bicycle touring trails (paved bike trails)
 - c. 15 miles of off-road constructed mountain bike trails at Muskie Mountain and 15 miles that would connect to the WinMan trail system
 - 3. Motorized Recreation
 - a. Designate up to 202 miles of existing DNR roads as ATV / UTV routes
 - b. Allow construction of up to 36 miles of single track off-highway motorcycle trails
 - c. Work with partners to develop “preferred tours” for dual-sport motorcycles and 4-wheel drive vehicles
- c. Manitowish Waters Bike Trail
 - i. Master Plan amendment allowed for bike trail construction would link to the town of Mercer. Additionally, it would provide a nice little loop trail around Manitowish Waters.
 - ii. Bike Trail Inc has offered to construct the trail and they have an endowment to perpetually maintain it. The trail would be on state forest land, and where it’s not on the NHAL, it is proposed to be within the highway ROW.
 - iii. The project does include a 182’ clear span bridge across the MW River. The Department considers the bridge a donation, and it went before the NRB in January 2018 where we officially accepted their donation.
- d. Crystal Lake Nature Center

- i. We received a generous donation of \$2,000 to be used on the educational and interpretive programs on the NHAL. We have a lot of great ideas to improve and enhance our interpretive and educational program here on the state forest. We're excited to grow in this area, and lots of discussion forthcoming on what our approach will be.
 - e. Property Management – Joe Fieweger
 - i. Fishtrap Dam
 - 1. Dam failure analysis identified potentially insufficient spillway capacity – Further analysis is underway and will determine replacement efforts
 - f. Recreation – Joe Fieweger
 - i. Buffalo Lake shoreline stabilization
 - 1. Severe erosion/safety hazards
 - 2. Filled a few dangerous stairways
 - ii. North Trout Nature Trail – working with North Lakeland Discovery Center to re-do interpretive signage, Raven next year?
 - iii. New Signage – continuing efforts of past few years
 - 1. large campground entrance signs installed last summer
 - 2. large NHAL signs along state highways and Trout Lake HQ signs to be installed this summer
 - iv. Capital Development
 - 1. New vault toilets – East and West Star, Razorback, Starrett, Escanaba, Crystal beach (15 buildings)
 - a. Installed late fall
 - b. Concrete work, finish grading, landscaping to be completed in spring
 - 2. Shower stall refinishing
 - a. Clear, Crystal, and Musky done last spring
 - b. Firefly to be done this spring
 - 3. Campground well replacements – 7 new hand pump wells installed in campgrounds last fall.
 - 4. Crystal Visitor Station addition – completed last summer
 - a. 2 new offices for Wardens and a Conference Room
 - 5. Stacks Bay boat landing
 - a. Complete reconstruction this fall (after Labor Day)
 - b. 2 ramps with dock in middle
 - c. Repave lot
 - 6. Clear Lake trail around lake (2005 master plan project)
 - a. Tony Martinez will be working with LAMBO on planning a route, updating cost estimates

4. NHAL Forest Management - Tom Shockley

- i. Annual Goals
 - i. Forest management has averaged 4574 acres per year in the last 5 years and we plan on establishing approximately 4000 acres for Fiscal Year 2018. The forest management goals for FY19 are being planned now.

The schedule of practices due will be evaluated and fine-tuned to state our acreage goals in April.

- ii. Stand Assessment for harvest. Another priority work goal is to look at 4390 acres that recon has scheduled and set up what is ready to harvest. Some of these acres will be deferred to a future date to manage.
- iii. Harvest activity. Approximately 64,070 cords of pulpwood and 1.128 million board feet of sawlogs were harvested and sold in calendar year 2016.
- iv. Reconnaissance goals were to update 5% of our forest inventory by the end of FY17. This amounts to 1884 acres of backlog recon over 20 years old and 11,350 acres of regular yearly maintenance for a total of 13,234 acres. Last year NHAL updated 12,113 acres of NHAL area. Our backlog of recon is now less than 1% of property acres.
- ii. Presale Planning package will be available for internal review in May. It includes stands and compartments that will be worked on for evaluation and establishment in the next 2 years (2017/2018).
- iii. Sale activity. To date there are close to 70 active contracts on the NHAL State Forest. We plan on a bid opening to sell more sales in May. Two bid openings per year approx. 35 new sales per year are established. Last fiscal year we billed out \$3,654,455.93 in timber stumpage from NHAL sales.
- iv. Other forest products sold on the NHAL are firewood, Christmas trees, boughs and miscellaneous forest products. Revenues are \$5285 for firewood (1410 cords), \$735 for 147 Christmas trees, \$560 for 7.5 tons of balsam boughs.
- v. Significant wind event resulted in additional harvest on Misc. permits. \$163,868.09 for was collected for miscellaneous forest products that were the result of salvage harvesting in the Boulder Junction and Woodruff areas.
- vi. Cultural Activities on NHAL
 - i. 108 acres are planned to hand plant in 2017, 219 acres planned for 2018.
 - ii. 202 acres of hand release in 2017, exact numbers not available yet for 2018, depends on regeneration plot data (should be approx. 200-300 acres).
 - iii. 168 acres of site preparation scarification in 2017, 176 acres planned in 2018.
 - iv. 186 acres of ground spray herbicide were completed 2017, 191 acres planned in 2018. Some additional acres will likely be added in oak areas for release and oak wilt stump spraying.
- vii. NHAL Timber Sale Establishment. The Team contracted with 4 private forestry consultants to help with timber sale establishment and cruising annual goals this year. The property goal was to contract out 10% of our establishment budget for the year.
- viii. Property Road inventory is complete and plans are in progress to do priority road maintenance work.

5. Willow Flowage Forest & Property Management – Tom Shockley

- i. Master Plan
 - i. With the new Willow master plan approval in April 2016, most of 2017 involved plan implementation.
 - ii. Numerous roads have been opened for motorized access as authorized by the plan. Over 8 miles of additional hunter walking trails have been established.

- iii. Two new group camp sites were established.
- iv. Sportsman's boat landing renovation completed.
- ii. Timber management activities
 - i. Four timber sales sold in fall 2017: 439 acres, \$336,725.00 contracted revenue
 - ii. Currently working on 4 sales that will be available for the fall 2018 bid opening. The acreage established will meet the annual goal of approximately 360 acres.
- iii. Invasive species management: remaining buckthorn area along Tomahawk River requires treatment. Contract is under development.
- iv. Law enforcement report from warden/ranger: Due to alignment, shift from NHAL Ranger staff to Bureau of LE staff to enforce fish and game rules and regulations along with code 45.
- v. Recreation report: The master plan allows for increased camping on the both the flowage and the lower Tomahawk River. Two new group sites have been established. Several more miles of hunter walking trails were developed and several road segments were opened for motorized vehicle access.
- vi. Facility Management / Capital Development
 - i. Construction was completed on Sportsman's Boat Landing in late Spring 2017.
 - ii. There are several authorized projects in the master plan, such as the addition of a toilet building, a well/hand pump at the Dam Boat Landing and other capital development projects planned to improve roads.
 - iii. There is a proposed parking lot off Prairie Rapids Road and 2 additional handicap accessible parking spaces that must first be approved by a plan amendment.

6. NHAL Pesticide Use

- i. Pesticide application plans for 2018
 - i. Integrated pest management (IPM) strategies, such as mechanical treatment, pulling, grazing, etc. are always considered when evaluating whether to use pesticides and are often used in conjunction with or instead of pesticides when viable.
 - ii. Forest management site preparation related projects – see Forest Management section of minutes.
 - iii. Johnson Lake Barrens and Springs SNA (overlaps with Colleen's notes)
 - 1. Spot treat ~3ac honeysuckle with basal bark and foliar applications of triclopyr in late summer/fall
 - iv. Tomahawk Lake Hemlocks SNA
 - 1. Spot treat barberry with a cut-stump treatment of triclopyr in late summer/fall
 - v. Plum Lake Hemlock Forest SNA
 - 1. Spot treat honeysuckle and barberry with cut-stump treatment of triclopyr in late summer/fall
 - 2. Spot treat mullein with foliar spray of glyphosate in late summer/fall
 - vi. Van Vliet Hemlocks SNA

1. Treat ~5 acres hemp nettle with foliar spray of triclopyr in late June/early July
- vii. Restored wood turtle nest sites along the Wisconsin River
 1. Spot treat vegetation with a foliar spray of glyphosate in mid-May or late June/early July.
- ii. If new infestations of invasives are found throughout the year that require treatment, they may be spot treated as necessary. The following is a list of herbicides that may be used on state lands to treat the associated list of plants:
 - i. Herbaceous invasives: Biennial and monocarpic perennial invasives plants (such as Garlic Mustard, Japanese Hedge Parsley, sweet clovers etc...) and Perennial polycarpic invasives (such as Crown Vetch, Spotted Knapweed, etc.) may be spot treated with herbicide (Triclopyr, Glyphosate, Aminopyralid, Metsulfuron, 2,4-D, Clopyralid or Dicamba).
 - ii. Woody Invasives (Black Locust, Box Elder, Buckthorn, Honeysuckle, Oriental Bittersweet, Euonymus, Japanese Barberry and other undesirable woody species) may be spot treated (cut stump, basal bark, and foliar) with herbicide (Triclopyr, Glyphosate, Aminopyralid, Metsulfuron, 2,4-D, Clopyralid or Dicamba).
- iii. Cellu-Treat or Rot-Stop may be applied to cut conifers to prevent or contain the spread of the pathogen heterobasidium (annosum) root rot.
- iv. Triclopyr may be applied to cut or girdled stems to prevent or contain the spread of the pathogen oak wilt.

7. NHAL Wildlife Management - Woodford

- i. Powell Marsh Wildlife Area
 - i. PMSWA Master Plan was approved with modifications by NRB Dec 14th, 2016.
 - ii. Next steps (short term):
 - i. Water's program assisting with a Lake Management plan for DPL. Goal for it to go to NRB in April 2018.
 - ii. Recreation:
 - a. The Powell Refuge closure dates is a question on this year's Conservation Congress Spring Hearings questions.
 - b. Staff will continue to work on a ADA (American Disabilities Act) accessible trail and waterfowl viewing/hunting blind
- ii. Scattered Forest Parcels near NHAL: Bolger Lake
 - i. In the final stages of completing a land use agreement with LAMBO bike club to allow a connector trail across state lands for an existing mountain bike trail.
- iii. Turkey Stamp
 - i. This is the 1st year of a 2 year FY18-19 project.
 - ii. NHAL Projects: only received ~52% of requested Turkey Stamp funding.
 - iii. Planned Projects: 30 acres of oak release work on NHAL (estimated cost \$10,000), NHAL Wildlife Opening rehabilitation (mowing and hand treatment \$1500)

- iv. Baiting and feeding ban continues to be in effect in NHAL due to a CWD positive deer farm in Oneida County and a Positive from a wild deer in Lincoln county that is near the Oneida county border.
 - i. Vilas/Oneida WM team sampled ~284 deer heads for Chronic Wasting Disease in a 2017 (160 sampled in 2016). (Samples were obtained from hunters volunteering to submit deer heads during hunting seasons, and the requirement of Ag damage and Managed hunt participants to submit deer heads.)
 - ii. Educating the public on symptoms of CWD vs normal spring stresses.
 - iii. All Reports of sick deer will be followed up on and Euthanizing & conducting testing will be preferred over no action. Request LE to take body shots rather than head shots. Staff looking for help from other programs to report sick deer.
- v. Body condition study: WM will continue to conduct a study on road-kill deer to determine fat content, etc. in Vilas and Oneida. Research program has enough data from mild winters, so focus will only be for counties with WSI index of 50 or more (aka Moderate winters or more severe ones). NHAL meets the criteria this year.
- vi. Beaver
 - i. Monitoring of man-made dams on NHAL continue as beavers continue to pose problems. Some letters were written to Lake associations and land owners allowing the removal of Beavers on state land following the Nuisance Wildlife guidance.

8. Fisheries

- a. Staff Updates
 - i. Oneida Co Fisheries Biologist (to be announced, by April 1)
 - ii. Oneida Co Fisheries Technician (Chad Leanna)
- b. Oneida County Fishery Management (John Kubisiak)
 - i. 2017 stocking on NHAL waters (DNR Hatcheries)
 - 1. Walleye: 46,060 small fingerlings in Clear and North Nokomis lakes
 - 2. Muskellunge: 2,912 large fingerlings on Tomahawk and Little Tomahawk lakes
 - 3. Lake Trout: 2,569 yearlings in Big Carr Lake.
 - 4. Other Trout: 12,461 stocked in Dorothy, Hawk & Little Bass lakes.
 - ii. Fisheries surveys completed on both Vilas and Oneida NH-AL Lake with stocking of walleyes
 - 1. Comprehensive surveys on Carrol & Madeline (including angler creel survey)
 - 2. Spring crappie & perch netting on Gilmore.
 - 3. Fall electrofishing surveys on 5 lakes.
 - iii. Spring surveys planned in 2018 (Treaty Fisheries Unit)
- c. Vilas County Fishery Management
 - i. Manitowish Chain walleye management plan: several public meetings have been held and more will be as planning process continues. DNR and GLIFWC will continue fall surveys, stocking evaluation, and chain wide PE planned in 2019.

- ii. Improving Alder Lake walk-in access to accommodate boats/parking may be proposed as possible cooperative project w/WFT – if this is done it would require development of a canoe campsite.
- iii. Big Lake (Cisco chain) boat landing – improve current landing at end of Big Lake Landing Rd. Received funds from Bond Falls FERC mitigation to cover cost of plan development, blueprint has been created, will request building funds at from Bond Falls at upcoming March 2018 meeting.
- iv. Planning for 2018 spring in progress.
- v. 10-bag on pan fish, Bearskin Lake
- vi. Bass bag limit on Oneida Lake increases from 3 to 5 (no minimum length, 14-18” protected; 1-over-18)
- vii. 50-inch minimum length for Muskellunge on Katherine Lake and Willow Flowage
- viii. Boulder and Razorback (Vilas) – 1 over 18” smallmouth or largemouth

9. NHAL Fishery Research & Escanaba Lake Research Station – Sass

- i. Escanaba Lake Research Station and the Northern Highland Fisheries Research Area Collaborations with Forestry Partners
 - i. Special thanks to Forestry partners for plowing out the Escanaba Lake Research Station; the snowplowing has been and continues to be very much appreciated.
 - ii. Staff members at Escanaba will continue to assist Forestry partners with deploying and removing swim buoys and docks as well as cleaning up snow around our joint pole barn.
 - iii. We also greatly appreciate our Forestry partners helping us with electrofishing and netting in times of great need.
 - iv. Thanks for allowing us to participate in work planning in regards to proposed timber sales near NHFRA lakes and other research lakes.
 - v. Thanks for the new outhouses☺
- ii. Current Research Plans
 - i. Continued NHFRA lakes fish sampling, limnological sampling, compulsory creel census
 - ii. Sanford Lake tree drop study with Dairymen’s, Inc. was initiated in spring 2015 and is ongoing. This study is intended to measure fish community, aquatic ecosystem, and riparian forest responses for the next 25-30 years. Study design and implications will be discussed with Forestry partners. The first tree drops (~160 trees) are scheduled for spring 2018.
 - iii. Lake Ellwood (Florence County) study ongoing to test for factors limiting largemouth bass and bluegill recruitment. Long-term chemical treatments of Eurasian watermilfoil are specifically being focused upon.
 - iv. Continued research on sustainable walleye management in the Ceded Territory of Wisconsin, specifically focused on angler and tribal exploitation, replacement costs of maintaining walleye fisheries through stocking, and genetic pedigree analysis.
 - v. Continued involvement in studies related to bass-walleye interactions with UW-Madison, WICFRU, and UWSP including the initiation of a whole-lake centrarchid removal study on McDermott Lake (Iron County)

beginning this spring. Sandy Beach Lake is serving as the reference system.

- vi. Statewide cisco assessment was completed in 2014; sentinel lakes monitoring on select lakes is ongoing.
- vii. New project initiated in spring 2017 to compare fish community, within-lake habitat, and riparian habitat among lakes with stable walleye natural recruitment, with declining walleye natural recruitment, and with remnant populations of walleye (this will be a collaboration among Escanaba Lake researchers, Spooner researchers, and GLIFWC; some selected lakes may be within the NHAL State Forest)
- viii. New regulation for smallmouth bass on Nebish Lake will be implemented in spring 2018. The former regulations were a 9-12 inch protected slot on smallmouth bass with a five-fish daily bag limit, no live fish could be used for bait, and a lead tackle restriction. The new regulations will be a 14-inch maximum size limit on smallmouth bass with a five-fish daily bag limit, live fish for bait is allowed, and a lead tackle restriction.

10. NHAL Natural Heritage Conservation

- i. NHC will continue with wood turtle project on the Wisconsin River in NHAL
 - i. Nesting surveys conducted in June.
 - ii. Electric fencing may be added to 1 or 2 restored wood turtle nest sites along the river – probably in fall 2018
 - iii. Hatchling telemetry project is planned for fall/winter 2018-19.

11. NHAL Prescribed Fire

- i. Program responsibility for Rx fire has shifted from primarily Wildlife and NHC to the Forestry Division
- ii. Prescribed burns for silvicultural goals will remain a priority
- iii. One prescribed burn is being planned for 2018 on NHAL. 26-acre burn (adjacent 14-acre unit burned in 2017) planned for wildlife habitat and oak regeneration purposes

12. NHAL Surface Water Quality - Gauthier

- i. Surface water grants funded for the upcoming season that included:
 - i. The Town of Plum Lake sponsored grants that funded ILIDS cameras that will be placed at 2 landing on Plum Lake, one at East Star Lake, and one at Ballard/Irving.
 - ii. Vilas County sponsored a grant to operate a boat decontamination unit at a few landing/areas in the Towns of Boulder Junction/Plum Lake.
 - iii. Here is a link for the funded grants - <https://dnr.wi.gov/aid/surfacewater.html>
- ii. We will be working with Boulder Lake this coming year – sampling aquatic plants, water quality, shore lands, coarse woody habitat, AIS, and user group surveys – a pilot of sorts for our Lakes Team.

13. UW Field Stations (Kemp & Trout Lake LTER) – Scott Bowe\Susan Knight

- i. Kemp NR Station – Scott Bowe

Kemp Natural Resources Station - Scott Bowe: College of Agricultural and Life Sciences, UW-Madison has a long history of teaching, outreach, and research centered on Wisconsin's natural resources. To aid in its mission, a new teaching and conference facility, called the Connor Forestry Center, was completed in 2017. We are looking forward to a busy summer of field courses, research, and public outreach.

- ii. UW-Trout Lake Station Susan Knight
 - i. Site review last August 2017, good reviews, sets up for renewal proposal in 2020 (renewal proposal every 6 years, site review mid-way through 6-year grant)
 - ii. Seven primary study lakes (Crystal, Big Musky, Allequash, Sparkling, Trout, Trout Bog, Crystal Bog) water quality, zooplankton
 - iii. Series of groundwater monitoring wells near Crystal Lake extending to Trout Lake
 - iv. Fish sampling mid-July to mid-August, aquatic plant survey on Trout Lake only
 - v. Numerous other research projects and collaborations.
 - vi. Outreach
 - 1. Science on Tap
Public program highlighting science of interest to the community
 - 2. Monthly WXPR piece on "Field Notes" highlighting research results, Scott B and SK – science and stories
 - 3. Open House planned for 8/3/2018

14. National Ecological Observatory Network (NEON) – Peter Weishampel

- a. The National Ecological Observatory Network's Great Lakes Domain (NEON, Domain 05) began work at Little Rock Lake in 2017. We now work at 3 terrestrial sites and 2 aquatic sites in northern Wisconsin.
- b. Our terrestrial surveys address:
 - i. plant phenology: small mammal population:
 - ii. Small mammal population and disease ecology, bird diversity: mosquito phenology: tick abundance: soil biogeochemistry.
- c. Our aquatic work, including our work at Little Rock Lake, includes surveys of
 - i. Surface water chemistry: Microbial diversity ; Groundwater chemistry
Aquatic plants
 - ii. Aquatic invertebrates: Algae Zooplankton Sediments chemistry Fish diversity
 - iii. Our work at Little Rock Lake typically will be most intense (2-5 days per week) during the following times: Mid-April – Mid-May, July, and Mid-September to Mid-October. Otherwise our activities at the site occur approximately every other week.

For questions about management of the Northern Highland American Legion State Forest contact NHAL State Forest Property Manager Craig Dalton at 715-356-5211 extension 258.