

SPRING

2013



BAD RIVER NATURAL RESOURCE

# Common Ground

## Spring Fisheries Projects

By Tim Wilson, Fisheries Specialist

A busy spring is just wrapping up for Bad River’s fisheries staff. This spring, the fisheries crew conducted its annual walleye broodstock survey on the Kakagon River, operated the Bad River Fish Hatchery, and monitored the tribal walleye harvest in the Kakagon River. The walleye broodstock survey did not begin until May 3<sup>rd</sup> this year due to the cold snowy spring. In their six net lifts, the fisheries crew caught a total of 1,058 walleye (724 males and 334 females). After completing the survey and collecting eggs for the hatchery, the fisheries crew released 797 walleye back into the Kakagon River, donated 216 walleye to the elderly, and sent 12 walleye to a lab for mercury testing.

This year’s walleye and yellow perch egg collection was also delayed due to the weather, but the Hatchery Crew was still able to collect 13.6 million walleye and 1 million yellow perch eggs. During 2013, 48% of the 13.6 million walleye eggs incubated in the Bad River Fish Hatchery successfully hatched. The walleye rearing ponds, Kakagon River, and Bad River were stocked with 0.8, 4.8, and 0.9 million two day old walleye fry respectively. Walleye will be reared in the rearing ponds for 45 to 50 days before they are stocked into Reservation waters. This year, 1

*(Continued on page 2)*



*Fisheries crew checking a fyke net set on the Kakagon River. Photo by Ed Leoso, Fisheries Technician.*

### Inside this issue:

Spring Fisheries Project	1
Wazjhashk (Muskrat)	3
Bringing GIS Back to Life For Bad River	5
Water Resources Program Overview & Highlights...	7
In Review: The Manomin Informational Meeting	8
Part V: Mineral Exploration	9
Climate Change, Forest Management , and the Shared...	11
Burn Barrels...Disposal System for Garbage....	14
New Environmental Programs Taking Flight	15
Boozhoo from the Tribal Historic Preservation Office!	18

### Special points of interest:

- *New Conservation Warden*
- *Wildlife Update: Piping Plover*
- *ANA Project Update!*
- *Everyone Check Themselves...Tick Season is Here!*
- *Still at Risk!*
- *New NRD Employees*
- *Manomin Management: Controlling Native Competitors in 2013*

## Spring Fisheries Projects *Continued*

By Tim Wilson, Fisheries Specialist



*(Continued from page 1)*

million yellow perch eggs were also collected and incubated in the Bad River Fish Hatchery. The perch eggs had a higher hatch rate than the walleye eggs, with approximately 840,000 of the perch eggs hatching. All of the perch fry were stocked into a rearing pond and will be stocked into Reservation waters throughout the summer.

The total allowable catch for walleye in the Kakagon River for 2013 was set at 1,400 fish. During this year's season, the Tribe's Creel Clerks reported that Tribal members harvested 1,153 Kakagon River walleye with gill netters harvesting 316 walleye; dip netters harvesting 576 walleye, with 544 fish being caught off of the Goslin Bridge and 32 fish being caught off of the Kakagon Bridge; tribal elders being given 216 walleye; and 12 walleye being sent to a lab for mercury testing. A total of 50 adult walleye died in the hatchery this year from May 5<sup>th</sup> to the 23<sup>rd</sup>. Seventeen of the hatchery mortalities were donated to the elders and the remaining 33 walleye were spoiled and could not be donated.

If you have any questions regarding this year's spring walleye projects or if you would like more information, contact Tim Wilson, Tribal Fisheries Specialist at 715-682-7123 ext. 1552.



*Walleye eggs incubating in the Bad River Fish Hatchery. Photo by Ed Leoso, Fisheries Technician.*



*Tribal fishermen pulling up a walleye off of Goslin Bridge. Photo by Sam Plucinski, BRNRD.*



*Photo of Christina, the new warden & Tribal Chairman Mike Wiggins*

**Christina Dzwonkowski, Bad River Conservation Warden**  
72682 Maple Street, Odanah, WI 54861  
Office: 715-682-7123 x 1564  
Mobile: 715-292-4101  
[brwarden@badriver-nsn.gov](mailto:brwarden@badriver-nsn.gov)

## New Conservation Warden

Boozhoo! My name is Christina Dzwonkowski, and I was recently hired as a Bad River Tribal Conservation Warden. I am a Bad River tribal member and the mother of an amazing 3 year old named Kiera. We moved to the area 2 years ago, but I have been coming to the Reservation regularly my whole life. I have always loved the outdoors and especially enjoy hunting and fishing. I have an Associates of Science in Criminal Justice from Rock Valley College in Rockford, IL and attended the 520 hour Police Academy in Eau Claire, WI at Chippewa Valley Technical College in 2003. I have almost 11 years of Law Enforcement experience, working as a Tribal Police Officer for both the Lac du Flambeau and Menominee Tribal Police Departments and as a Conservation Officer for GLIFWC. I am very excited about this new position and I look forward to working in our community. If you need anything, please don't hesitate to contact me.



## Wazjhashk (Muskrat)

By Lacey Hill, Wildlife/ GIS Specialist



Since the Common Ground Newsletter is seasonally issued, each season we will highlight an individual wildlife species and provide interesting information about that species. For the 2013 spring edition we will be highlighting a very important wildlife species, the muskrat (Ojibwe: Wazjhashk, Latin: Ondatra zibethicus).

### Why are they called “muskrats”?

Muskrats have paired scent glands that enlarge during the breeding season, producing a “musky” odor. They use these glands to excrete musk oil that they use to mark their territory, edges of the lodge, and stations along travel routes. Both males and females have these glands but the males are more active. The “rat” part comes from their “rat-like” appearance.



### What to muskrats eat?

Muskrats are herbivorous, meaning they eat mostly plants like cattails, wild rice, water lilies, pickerelweed, arrowhead, pondweeds, etc. They will eat the roots, stems, and leaves from the plants they consume. They will also eat mussels, crayfish, small fish, and snails<sup>1</sup>.

Muskrats can have a big impact on the aquatic vegetation where they live. In Southern United States reports of severe “eat-outs” have been reported<sup>1</sup>. A severe eat-out is when muskrats remove all or most of the existing emergent vegetation, including the roots. Muskrats will also create great little openings in the vegetation for waterfowl species. This occurs from there general house building and foraging activities.

### When do muskrats breed and have young?

Muskrats will breed from March through October, with the peak being March – June<sup>1</sup>. Females have varying estrous cycles that can vary from 2-22 days, which they have a gestation period of 28-30 days<sup>1</sup>. In southern climates, muskrats will breed and have young year round. In northern climates, ice limits this behavior and breeding typically will begin when the waterways are ice-free. Muskrats begin

breeding when they are 12 months in age (as early as 6 months in age in the South). Litter can range in size from 3 - 14 kits and females can have multiple litters in a season and by the time the kits are 3.5 months they are similar in size and appearance to small adults<sup>1</sup>.

### Where do muskrats live?

Muskrats can live in lodges (houses) or in burrows in the banks. Entrances to their dwellings are usually located under water. Muskrats are not the only wildlife that use muskrat houses. Waterfowl, birds, reptiles, amphibians, insects and other mammals can use them as resting, basking, feeding, or as a place to live and raise young<sup>1</sup>.

### What can effect muskrat populations?

Water levels have been shown to have a strong influence on the muskrat population in areas<sup>1</sup>. Low water levels can cause freeze outs in the winter and can also expose muskrats to higher rates of predation while high water levels can reduce the amount of vegetation available, flood and destroy houses, and increase land movements which also increases the risk of

*(Continued on page 4)*

## Wazjhashk (Muskrat) *Continued*

By Lacey Hill, Wildlife/ GIS Specialist

*(Continued from page 3)*

predation. Good muskrat habitat requires a permanent supply of still to low flowing water. Muskrats populations also have cyclic tendencies like snowshoe hares and ruffed grouse and have been reported having 10-14 year population cycles<sup>1</sup>. Muskrats also have many predators including bald eagles, other raptors, house cats, bobcats, raccoons, fox, coyotes, owls, and more.

### How to monitor muskrat populations?

The most popular way to monitor trends in muskrat populations is to do house counts<sup>1</sup>. Aerial surveys can often be the most effective way of doing these types of monitoring over large areas. The BRNRD has began doing fall-muskrat house counts during the Fall, of 2012, in the Kakagon. There are plans to continue the counts each fall.

### Literature Cited:

<sup>1</sup>Erb, J. and H. R. Perry, Jr. 2003. *Musk rats. Wild Mammals of North America: Biology, Management, and Conservation.* Pgs. 311-348. The John Hopkins University Press. Maryland.



*Above are muskrat lodges located in the Big Slough and near Snake Island*



## Wildlife Update: Piping Plover

By Lacey Hill-Wildlife/GIS Specialist

Christy LeGrew and Patrick Mayotte are the two piping plover monitors on Long Island this year. There are currently five plover nests and they are expected to start hatching soon! Remember these are ground nesting birds that nest right on the beach. They are sensitive to beach disturbances. Please be careful and it is important to keep your dog on a leash when at the beach because they will kill chicks.

**Please leave traps alone: If you find a trap that is set for wildlife please leave the trap alone. If you have any questions about it or why it is there please feel free to stop by BRNRD or drop me an email to ask.**



*NRD Photo of plover nest on Long Island*



## Bringing GIS Back to Life for Bad River

By Kim Ness, GIS Specialist

You might recall that the Natural Resources reinstated a full-time GIS Specialist. In case you were wondering, “GIS” stands for Geographic Information Systems and my job duties revolve around making maps and managing the map data. And maps are everywhere. Unknowingly, you probably use information about location everyday in your work and personal life. But, where does all this information originate? The answer is from geographic information. Perhaps you have used an in-car GPS or routinely take your hand-held GPS out to the field. Or, you’ve used Google’s or MapQuest’s online driving directions for navigation. If so, then you are already familiar with the power of geographic information.

Paper or “hardcopy” maps only display a snap shot of the underlying data. Maps are created from layering many themes atop each other to tell a story of how the themes relate. By coupling information and geographic location, you get a **Geographic Information System** or a GIS. A GIS layer (or theme) could be lease locations on the Bad River Reservation, or the number of sturgeon spawning in the Bad River. As an actual example in the Bad River Reservation, the Tribal Council wants to know where to develop more land to lease out new properties for housing. This question is inherently geographic, meaning that *the location of one place relative to another place* will be the answer. A possible solution might involve selecting areas of land that have no current leases, building structures, roads, streams or wetlands, within the Bad River Reservation boundary, which have a specific land ownership designation as owned by the Bad River Band of Lake Superior Chippewa Indians. The resulting locations would give

engineers a starting point for assessing the land for buildings.

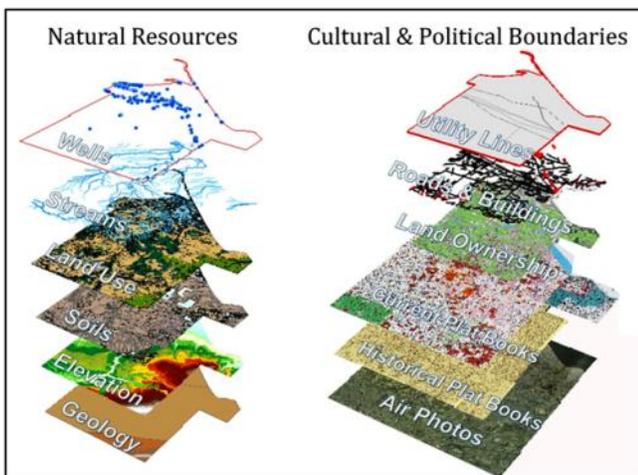
To understand how GIS data come together, this graphic offers an abstract view of how each GIS layer paints a picture of the natural and political boundaries of the Bad River Reservation. Maps are needed to show not just locations of information (roads, houses, streams...etc), but to inform you as a map-reader, of the relationship between the location and the associated information such as soil type or building or building address. Another example of current events using GIS is relating the proposed mine location and its location to the Bad River Watershed, Bad River Reservation, and other streams and rivers. *Cartography* (map-making) involves the artistic rendering of such relationships, while *data management* involves modifying existing geographic information such as new roads, wildlife locations, or buildings or creating new information such as a boundary of an archaeological site survey.

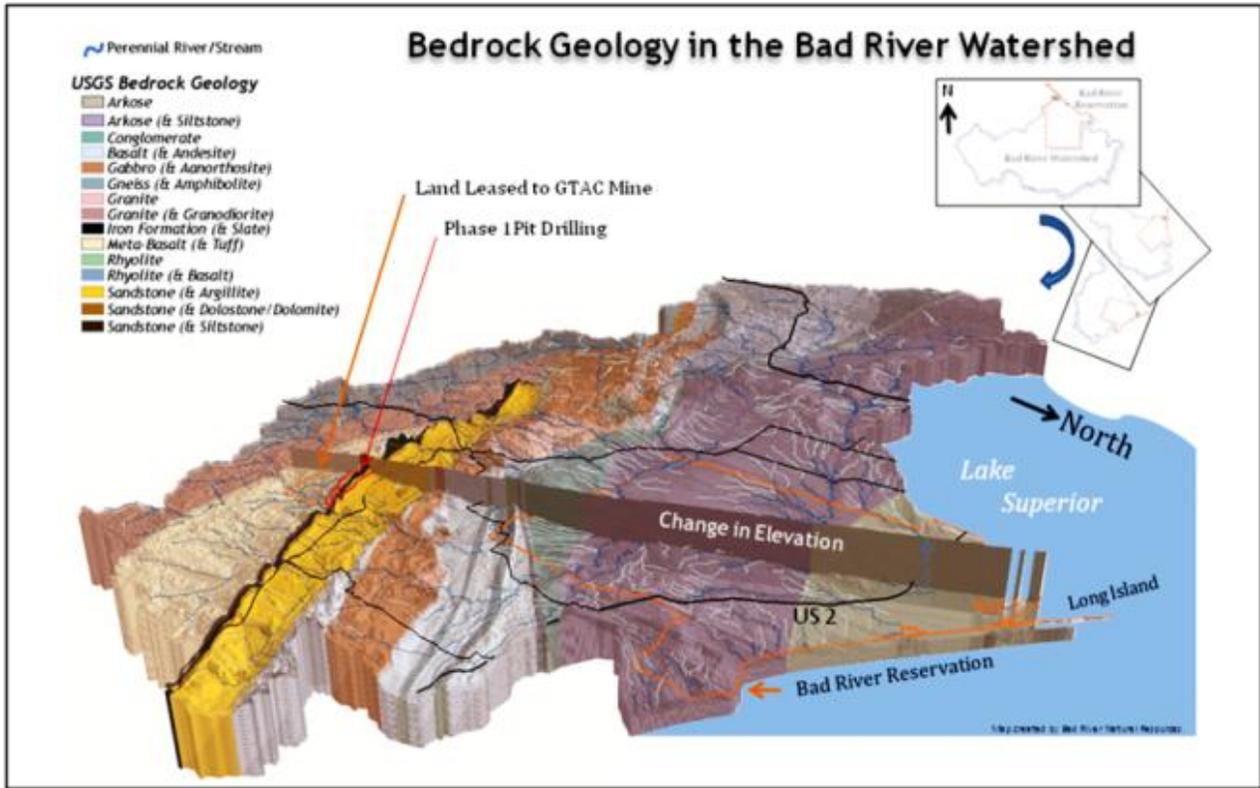
### A History of Bad River GIS

GIS technology was originally brought to the Tribe in the 1989 through a multi-year grant for coastal management. The tribe was ahead of its time and had survey-grade gear for collecting high-accuracy locations using *global positioning systems* (GPS). The GIS program bounced between different departments over the last decade. Unfortunately, as a result, some geographic information that were organized, collected, and managed since the mid-1990’s lacks the related information. In other words, we only have the geographic location (the points, lines, or shapes), and are missing the labels (information) to be displayed next to the location. Sadly, much of the history of data collection and how it was organized was lost over the years while the GIS data was not managed or updated.

Despite these setbacks, the GIS/Map Services Program has made immense progress in organizing, updating, and rebuilding a robust GIS for the Tribe. Most recently, GIS data have been published to the internet to give approved personnel and tribal member access to secure GIS data. Such internet-based maps are called *interactive maps* or *webmaps*. Check these resources out on the Tribal Government webpage: <http://www.badriver-nsn.gov/natural-resources/gis-maps/webmaps>. Sensitive GIS data are login-secured,

(Continued on page 7)





**Welcome to the Bad River Natural Resource Department Mapping Tool!**

This map is for initial planning. Please note that land ownership layers are from 2006.

To see attributes, simply click on the location.

---

**Sign In**

Please sign in to access BadRiverStall/Reservation\_BaseMap\_small on www.brns.org/6080

Username:

Password:

Your password will be sent unencrypted.

Bad River Th... Information...

Enter address

More... BaseMap

Latitude: 46.562475 Longitude: -90.618111

Sources: Esri, DoD, USGS, NPS | esri

## Bringing GIS Back to Life for Bad River *Continued*

By Kim Ness, GIS Specialist

*(Continued from page 5)*

meaning that only pre-approved persons are provided login information. A "Tribal Planning Map" has been developed to provide access to GIS data for Bad River roads, ownership (from 2006), aerial imagery, the Penokee Mine boundaries, soils, streams, Public Land Survey System (PLSS) boundaries, among others.

These interactive web-maps allow you, as the tribal planner or interested member, to search for and learn about natural resources or ownership-related locations and information.

### On-Going Projects

The GIS/Map Services Program's goal is *"to securely manage and disseminate data as maps, webpages, interactive maps, and reports that exemplify the political, cultural and natural resources within the Bad River Reservation."*

To meet this goal, the Natural Resources Department is developing a streamlined process for assisting other departments with map and data requests. Until a streamlined

process is available, on an on-going basis, Kim Ness is updating GIS data for:

- **Critical Infrastructure** (e.g., roads, sewers, pipelines, electric lines, housing/structure locations)
- **Natural Resources** (e.g., wells, streams, wildlife locations, forest harvests, land use/land cover, designations of resources)
- **Lease Sites** (e.g., locations of past and present lease boundaries, monuments for legal descriptions, maps for NEPA review of leases)
- **Land Ownership** (e.g., historic allotments, fractionated interests, current owners, land purchases, plat maps)
- **Tribal Historic Preservation** (e.g., cemeteries, burials, historic roads and structures, historic plat maps)
- **Governmental Boundaries** (e.g. Reservation boundary, watershed boundaries, PLSS boundaries)

To see the full list of on-going projects, see the GIS/Map Services webpage: [http://www.badriver-nsn.gov/images/stories/docs/GIS\\_Map\\_Services/OnGoingProjects\\_GISMappingProgram2013.pdf](http://www.badriver-nsn.gov/images/stories/docs/GIS_Map_Services/OnGoingProjects_GISMappingProgram2013.pdf)



### Water Resources Program Overview and Highlights of Beach Monitoring

By Naomi Tillison, Water Resources Specialist

2013 is a busy year for the Water Resources Program, which is currently a 7-member team! We're tackling projects that range from expanding our water resources monitoring to enhancing wild rice management (for more information, please see the manomin article in this

newsletter) and from closing abandoned wells to permitting projects in a manner that reduces their potential impacts to the water resources. We've increased opportunities for community involvement in our projects, and we recently held public meetings on our beach monitoring efforts (4/30/13) and our wild rice enhancement project (6/18/13). Please stay tuned for additional opportunities to share your ideas and suggestions with us.

This year we initiated our Beaches Environmental Assessment and Coastal Health (BEACH) Act project, and we are routinely monitoring seven (7) beach sites within the Bad River Reservation. The water samples collected from these sites are analyzed for E. coli, which is an indicator for fecal contamination. If a sample result exceeds the Tribe's water

quality criteria, then we will post an advisory for the beach from where that sample was collected. The purpose of an advisory is to notify the community that swimming and other primary contact activities are not recommended at that specific beach due to its current conditions. An advisory will remain into effect until a sample result from that beach no longer exceeds the Tribe's water quality criteria.

We started our beach monitoring at the end of May, and so far this year, we've posted two advisories: (1) an advisory for Waverly beach was posted on 6/7/13; and (2) an advisory applicable to the two beaches bordering the mouth of the Bad River (i.e., Bad River Mouth East and Bad River Mouth West) was posted on 6/25/13. Both of these advisories were associated with runoff events, and these advisories were quickly lifted when follow-up sampling showed the conditions were safe for swimming. More information about E. coli monitoring can be found in our Department's Winter 2013 newsletter. Additional information about beaches, including actions you can take to protect our beaches, can be found at: <http://water.epa.gov/type/oceb/beaches/>. If you have questions, please contact us at (715) 682-7123.



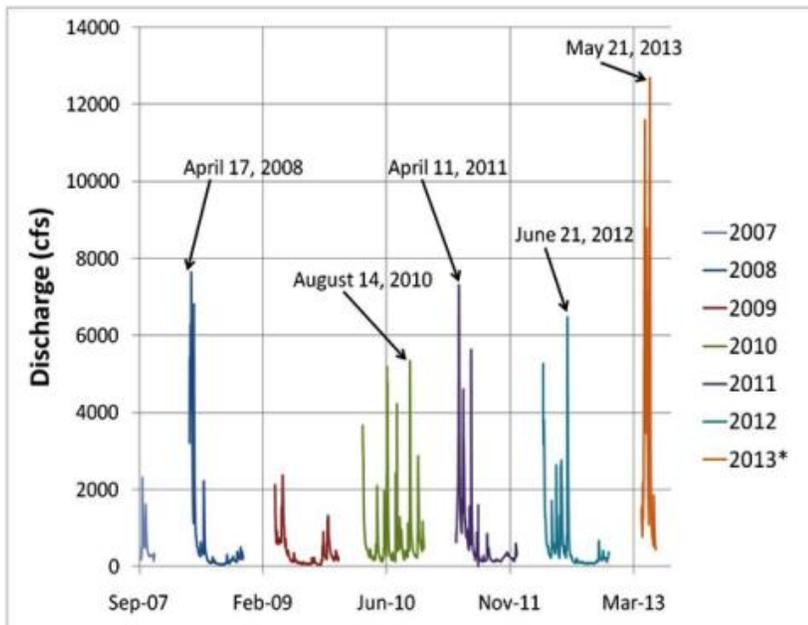
## In Review: The Manomin Informational Meeting

By Jessica Soine, Wetlands Specialist

On June 18<sup>th</sup> the Water Resources Program hosted a community meeting concerning manomin management on the Reservation. In addition to presenting information on ongoing projects and factors that may be affecting the manomin, the Program highlighted how they have been incorporating community feedback from past manomin forums. One other item on the agenda for the evening was a presentation by Erick Arnold, Lead Attorney, on proposed changes to the Sloughs Protection Ordinance that enhance protection of the manomin. (Information pertaining to the proposed ordinance changes will be distributed by the Legal Department at a later date.)

The Natural Resource Department has many projects in place for 2013 to further our management and protection of the wild rice. One of the larger projects is the Native Species Competitor Control scheduled to start the last week in June. This project focuses on controlling the native plant competitors from certain sections of the Kakagon Sloughs to

allow for better manomin growth in 2014. (For more details about this project please read “Manomin Management: Controlling Native Competitors in 2013” on the back page of this newsletter.) Other projects in 2013 include, but are not limited to, the following activities: carp removal; pre- and post-vegetative surveys of hand-control test plots and airboat control areas; increase enforcement in the Sloughs, including the Slow, No Wake rules; wild rice density monitoring; surveying wild rice harvesters; buying back green seed from harvesters; control of non-native invasives like cattail and purple loosestrife; and monitoring other aspects of the ecosystem including water quality, vegetation, and macroinvertebrate monitoring. All of these projects help protect the manomin, some by contributing to our knowledge so we can adapt management decisions and others by directly trying to prevent or restore detrimental impacts. For more information related to these different activities contact BRNRD and look at previous and future issues of *Common Ground*.



Discharge (cubic feet per second) at the Bad River gaging station at Elmhoist Road for the last seven years. Discharge recorded in 2013 is preliminary data. Source of data: <http://waterdata.usgs.gov/wi/nwis/rt>.

Manomin is a plant very sensitive to changes in its environment, so some factors that can affect manomin are water level, water flow, and water quality. All of these factors come into play during a flooding event, where water levels can fluctuate rapidly, flow increases, and nutrient and sediment loading occurs. However, these flooding factors can be moderated by the presence of riparian wetlands along the shores of the flooding watercourse. The floods this spring on the Reservation were perfect examples of this as there were overflows on many of the local rivers and streams, with the Bad River flooding over into the Kakagon River during the latter half of May. Even though the floodwaters were high enough to connect the two rivers, countless acres of wetland along the Bad River helped slow and absorb some of the water that would have otherwise flowed into either system. Since increased flows and water levels have been shown to uproot young manomin plants, it is crucial that these riparian wetlands helped to lessen such impacts by containing

(Continued on page 9)

## In Review: The Manomin Informational Meeting *Continued*

By Jessica Soine, Wetlands Specialist



*The Bad River (right) on May 24, two days after its water levels rose enough to start flowing into the Kakagon River (left). The reddish standing water in the bottom right portion of the picture shows the extent of the riparian wetlands that help slow and absorb water that would otherwise rush downstream. These riparian wetlands in some areas still have standing water from the flood a month later.*

*(Continued from page 8)*

some of the water. Also, riparian wetlands help protect water quality by allowing nutrients and other suspended materials to settle out before reaching downstream waters. However, had these riparian wetlands along the rivers been damaged by building or other disturbances they would have not been as functional at absorbing the floodwaters to moderate the impacts to the wild rice and other sensitive areas downstream. That's why it is important to avoid impacting wetlands in the landscape—not only will you be protecting the wetlands and their ecosystems but the manomin beds downstream as well.

If you have any questions please contact Jessica Soine, Wetlands Specialist ([wetlands@badriver-nsn.gov](mailto:wetlands@badriver-nsn.gov)) or Naomi Tillison, Water Resources Specialist ([wqs@badriver-nsn.gov](mailto:wqs@badriver-nsn.gov)) at 715-682-7123.



## Part V: MINERAL EXPLORATION

By Cyrus Hester, Bad River Environmental Program

Exploration is the process by which the mining industry locates ore deposits for potential development. I should note that when the industry refers to an “ore deposit” they’re speaking specifically

about an accumulation or one or more minerals that are able to be mined at a profit. So, there are three components to defining an ore body: occurrence, accessibility, and economic feasibility.

In exploring for ore deposits, companies may use a variety of techniques, from stream sediment or soil sampling to aeromagnetic surveys or often core drilling. This article will focus on core drilling of bedrock, given the activity currently underway by Gogebic Taconite. According to their application, the Company is currently drilling at 8 sites (depicted in the figure on the right) at about a 45° angle to the earth’s surface, in order to sample a cross-section of the iron formation. It should be noted that exploration can provide important information, both to the mining company and to regulators and reviewers, if made public. Core samples allow

for the direct collection and analysis of geological, geotechnical, and structural data. The chemical characterization of subsurface rocks for factors like acid



*(Continued on page 10)*

---

## Part V: MINERAL EXPLORATION *Continued*

By Cyrus Hester, Bad River Environmental Program

generating potential depends upon the collection of core samples. This type of information is critical for an industry that has been shown to perform somewhat poorly when it comes to predicting the likelihood of an impact from their project.

But, expanded characterization can also result in greater impacts as the footprint of the activity expands. Initial exploration tends to utilize existing road networks, similar to what we see here by GTAC. But, as exploration leads to characterization, road networks capable of handling heavy equipment may be established. In fact, it is often the less obvious aspects of the project, like access creation, that can have the most significant effects.

For example, new road networks can increase the degree of forest fragmentation. Changes in forest structure can then affect microclimatic conditions and the composition of avian, amphibian, and other faunal communities. Canada Yew (*Taxus Canadensis*), a state special concern species, is known to inhabit riparian areas and rocky outcrops in the project area. This understory herb prefers mature over-story and shady sites. Changes in microclimate associated with canopy clearing or edge creation could impact this species' ability to compete and persist. Reviewers and the public should be mindful of these types of indirect effects in the event forest clearing is proposed for bulk sampling or other activities.



Improving and establishing roads can also disrupt the flow of streams and inadvertently lead to wetland fill. The image above is of an access road proposed for potential use by GTAC and clearly shows the close proximity of wetlands and water courses. Given the various regulatory, treaty, and cultural implications of impacting water resources, regulators must take



every reasonable measure to mitigate risks to these places.

Exploration can also have implications even after a project is abandoned or moves into development. Improperly abandoned boreholes can provide transport pathways by which surface contamination can impact groundwater or artesian pressure can carry brines or affected water by mine workings to the surface. Proper construction and abandonment are necessary to mitigate these risks. But, an often overlooked challenge is the abundance of historic boreholes in areas being considered today.

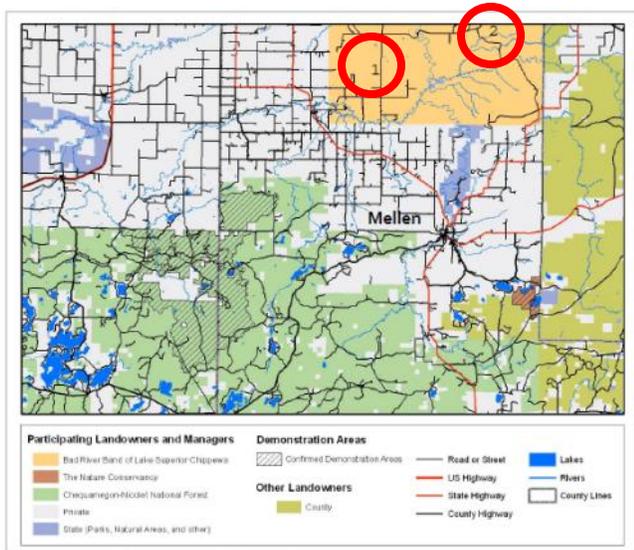
In conclusion, exploration can provide valuable information on the geological characteristics of a proposed mine site. While the footprint of an individual site is small relative to many contemporary industrial activities, care still needs to be taken in the construction, operation, abandonment, and regulatory review of exploratory drilling projects. The long-term implications of numerous drill sites across a landscape can begin to have cumulative effects on the structure and ecology of the area if needless impacts are permitted or abandoned sites are not properly restored.

All that being said, core drilling and bulk sampling are two very different operations. Not only in the scale of operations and methods used, but in the equipment required and the long term footprint of the activity.

***“...it is often the less obvious aspects of the project, like access creation, that can have the most significant effects.”***

# Climate Change, Forest Management, and the Shared Landscapes Initiative

By Eric Oliphant, BIA Forester



The Bad River Tribe became a collaborator in the SLI project in the spring of 2012. Since then, the Natural Resources Department (BRNRD) and the Bureau of Indian Affairs (BIA) have been working on two demonstration sites on the Bad River Forest. These will be the 4<sup>th</sup> and 5<sup>th</sup> sets of sites included in the “Climate Change Adaptation Project” portion of the SLI. The first site is 80 acres located on Government Road, approximately ½ mile north of the railroad crossing (Site #1). The second site is located on Elm Hoist Road, approximately 1.5 miles south of the Falls/Pine Flats/Birch Hill Trail intersection (Site #2)

## Climate Change and the Bad River Forest

You may be asking “why are we part of this project?” The explanation is there will be changes to the climate, and this will have a number of effects on forests in northern Wisconsin. The degree to which these changes occur is related to the amount of greenhouse gases that are emitted by human activities, and higher levels of these emissions will generally result in more dramatic changes to the climate and ecosystems. Scientists have used both high and low emissions scenarios to describe some of the potential changes, which could be:

- *Change in mean annual temperatures in northern WI, which are expected to increase by an average of about 10.5°F over the next century (under high emissions), and by about 6.5°F under lower emissions. Temps are expected to increase more in winter than in summer, which may extend the growing seasons.*
- *Rise in precipitation, which most of the increase is expected to occur in the winter. Precipitation may decrease during the summer and occur in more intense events. Changing precipitation patterns as well as warmer temperatures may increase the likelihood of drought.*
- *Projected increase in the number of storms and extreme weather events.*
- *Pests and disease increase or severity as warmer temperatures allow for faster rates of insect development or allow southern species to survive the winter.*
- *The possibility of suitable habitat for many tree species will move northward. Warmer temperatures will be more favorable to trees that are located at the northern edge of their range and*

Most of us have heard one thing or another about the title of this article. But what is the Shared Landscapes Initiative and how does it tie in with the others and Bad River? The Shared Landscapes Initiative (SLI) is a smaller branch of the larger Climate Change Response Framework Project, which is overseen by the USDA Forest Service-Northern Institute of Applied Climate Science (NIACS). For more information check out the following link: <http://www.nrs.fs.fed.us/niacs/climate/northwoods/sli/>

The SLI is a partnership of various landowners that provides them with a chance to discuss climate change impacts on ecosystems, management responses, and cooperative activities across a variety of organizations. The activities are demonstrational in nature, and intend to provide:

- *Forest landowners and managers access to the latest science on climate change and its potential effects on local forests*
- *A description of possible social and economic impacts to northern Wisconsin*
- *Supply forest managers with new tools to help adapt forest management strategies to a changing climate*
- *A semi-formal communication forum among a variety of land managers and owners, as well as the general public concerned about climate change.*

(Continued on page 13)

**Table: Incorporating Climate Change into Forest Management**

<b>Stand</b>	<b>Current Management</b>	<b>Possible Adaptation Actions with Climate Change</b>
<b>All Stands</b>	<p>Regenerate stands using vegetative reproduction</p> <p>Prevent Spread of invasive species</p> <p>Timber harvest activities restricted to winter only to protect soils</p> <p>Follow Best Management Practices for water quality</p>	<ul style="list-style-type: none"> <li>• Maintain or increase activities to reduce the spread of invasive species</li> <li>• Implement actions that minimize impacts to surface waters and soils</li> <li>• Evaluate culverts when present and improve to accommodate larger storm events</li> <li>• Consider the use of more temporary stream crossings to reduce impacts on soils and water</li> <li>• Evaluate BMP's to protect water quality to address a range of climate change impacts</li> </ul>
<b>Aspen Stand (Site 1)</b>	<p>Regenerate aspen</p>	<ul style="list-style-type: none"> <li>• Diversify stands to include a greater mix of species that are expected to fare better under future conditions by transitioning stands away from pure aspen to a mix of hardwood and conifer species</li> <li>• Retain trees that are expected to be better adapted to future conditions during harvest, including red and white pine, red maple, and bur oak. This also will help to increase the diversity of tree species and stand structure</li> <li>• Include supplemental plantings with white pine and red pine to enhance long-lived conifer component and encourage hardwood species that are expected to fare better under future conditions</li> <li>• Try unique management techniques in the adaptation project area to provide a comparison with more typical management in similar nearby stands</li> </ul>
<b>White Pine Stand (Site 2)</b>	<p>No management scheduled</p> <p>IRMP goal is to increase conifer component when possible, regenerate more white pine</p>	<ul style="list-style-type: none"> <li>• Encourage white pine regeneration by thinning overstory white pine and reducing competition from the hardwoods in the understory</li> <li>• Use prescribed fire to reintroduce low-intensity fires into the ecosystem and create conditions favorable for white pine to seed naturally</li> <li>• Plant additional white pine if needed to ensure the presence of that species</li> <li>• Develop plans to treat the site in the event that windthrow removes the existing white pine overstory before white pine is established in the understory.</li> </ul>

# Climate Change, Forest Management, and the Shared Landscapes Initiative *Continued*

By Eric Oliphant, BIA Forester

*(Continued from page 11)*

*less favorable to shoes at the southern edge. Some evidence of this change is already being observed in the region and this pattern is predicted to continue.*

- *The interactions of many of these stressors that are likely to have a negative effect on forest ecosystems. Many of the projected changes, such as increases in drought, storms, pests, and diseases, will increase stress on forests.*
- *The likeliness for increased effort and resources needed to face the complex challenges caused by climate change.<sup>1</sup> The sustainable management of forest ecosystems will continue to be very important in the future. It is likely that more effort and resources will be needed to face the complex challenges caused by climate change.*

## Incorporating Climate Change into Forest Management

In an effort to demonstrate that it is practical to incorporate some considerations of climate change into normal forest management activities, sites that contain the most common forest types on the Tribe's land were chosen for the project. There is also a lot of interest in the effectiveness of these strategies when applied to forests on the Lake Superior Clay Plain.

A team of scientists and resource managers from the Bad River Natural Resources Department, the Bureau of Indian Affairs, and NIACS used the Adaptation Workbook from Forest Adaptation Resources: Climate Change Tools and Approaches for Land Managers to evaluate the potential impacts of climate change on the sites and suggest a variety of actions



that could enhance forest resilience to climate change under a wide range of future conditions.

## What Happens Next

The climate change adaptation project will fully integrate climate change into forest management in these stands. Future activities include:

- *Continued collaboration between the Bad River Natural Resources Department and the Bureau of Indian Affairs to develop the stand prescriptions and implement the adaptation actions on the ground with timber harvest projects.*
- *A set of monitoring metrics will be developed to evaluate the effectiveness of adaptation actions, in addition to the current long-range monitoring datasets that exist through the Continuous Forest Inventory (CFI) program.*
- *Lessons learned from this effort will be used to help incorporate climate change into the next Bad River Integrated Resource Management Plan.*

NIACS and the Bad River Natural Resources Department will work with the Shared Landscapes Initiative to communicate the outcomes and lessons from this project to land owners, natural resource managers, and others.



*Elm Hoist Road White Pine site visit, with Maria Janowiak, NIACS Scientist, (left) and Doug Tutor, BRNRD Forestry.*



<sup>1</sup>USFS, Northern Research Station Research Review, A Climate Change Response Framework for the Chequamegon-Nicolet National Forest, No. 10, Summer 2010.



## Burn Barrels... Disposal System for Garbage or a Toxin-Producing Factory?

By Nathan Kilger, Air Quality Specialist

Just a few generations ago, backyard burning was not as dangerous as it now is. Today our garbage is loaded with many products that can seriously affect the health of your family and neighbors. Everything from plastic forks and spoons to the colorful, glossy papers that are found in a junk mail envelope or magazine has the capacity to cause harm.

Let's take a look at some (definitely not all) of the toxins that are emitted from a burn barrel. Products such as foam cups, bait containers, plastic forks and spoons and egg cartons contain styrene. Styrene gas is readily absorbed through the skin, respiratory system and gastrointestinal tract and has the ability to cause a deep, drug induced coma and even death at high levels.

Products such as adhesives, sealants or wood finishes produce hydrogen cyanide and phosgene. Both hydrogen cyanide and phosgene were used in WWI as chemical weapons because of their acute toxicity. Hydrogen cyanide affects both the central nervous system as well as the respiratory system. Phosgene affects the central nervous system, shutting it down at high levels.

White packaging materials such as those found in frozen food or pizza boxes (or any cardboard that is white), produce halogenated hydrocarbons when burned. These are basically different carbon compounds with chlorine or fluorine atoms attached. With continued high exposure, these compounds have the ability to cause blood abnormalities such as low white cell counts or leukemia. Liver damage is also possible. Other cardboard products that have been dyed different colors may contain synthetic inks. These dyed paper products contain heavy metals such as cadmium or chromium. Absorption of heavy metals by humans has been linked to birth defects as well as liver and kidney ailments.

Last but not least are products that contain large amounts of chlorine...namely PVC and other plastic materials. These might include bottles, children's toys, vinyl tubing and siding materials. Hydrogen chloride gas is produced when PVC is burned. Once inhaled, this gas comes in contact with the moist lining of our lungs and becomes hydrochloric acid. These products have the distinction of producing two of the most toxic



products known, dioxins and chlorinated furans. It should also be noted that any product that contains even small amounts of chlorine would produce these chemicals in varying amounts when burned. Both chemicals are known to cause cancer as well as birth defects.

It has been estimated that a family of four that burns their garbage in a burn barrel releases as much dioxins and furans into the air as a well maintained municipal waste incinerator that services tens of thousands of households. A municipal incinerator usually burns at well over 1800°F and adds plenty of oxygen to get a more complete burn. These incinerators are also equipped with devices that capture much of the remaining toxins before they leave the smoke stack. Burn barrels on the other hand operate at around 400 to 500°F. At these relatively low temperatures your burn barrel has actually become a toxin-producing factory churning out dioxins, furans and a host of other poisons.

So as you can see, using burn barrels to get rid of garbage is not a very good option. Not only are you harming yourself and your family, you are harming your entire neighborhood. The Bad River Tribe has a burn barrel ordinance in place so burning all but yard debris and certain wood scraps is prohibited. If you cannot re-use, recycle or compost an item, the best alternative is a landfill. Bad River Recycling has curbside pickup of garbage as well as an accessible transfer station for residents so using a burn barrel no longer makes sense.

If there are materials that can only be burned, a burning permit is required and can be picked up from the Natural Resource Department.

Information on the Burn Ordinance can be found on the Natural Resource Department's website at:

<http://www.badriver-nsn.gov/index.php/natural-resources/nrd/fire-danger-level/324>

Current fire danger on the Reservation is updated at:

<http://www.badriver-nsn.gov/index.php/natural-resources/nrd/350-fire-danger-levels>





# New Environmental Programs Taking Flight

By John J. Prohaska, Brownfields Specialist

The Bad River Natural Resources Department has received funding for two new programs to help protect, cleanup and revitalize the Bad River Reservation. The Bad River Band is exercising its inherent sovereignty to take over administration of these programs from the federal government. We are working with EPA in the development of tribal capacity to effectively deal with contaminated tribal lands.

We are flapping our wings hard to get the new programs off the ground. The first program is the Tribal Environmental Response Program (TERP). The main purpose of TERP is to create environmental program capacity to deal with environmental issues on tribal lands. Some of the specific tasks that we are currently working on are:

- *The discovery of contaminated or potentially contaminated sites and creation of an inventory of those sites.*
- *Creating a scoring system for contaminated or potentially contaminated sites which takes into account the cultural uses of properties to prioritize sites.*
- *Suggest and possible adoption new laws to create a formal process to identify and cleanup environmental contaminated sites.*

## ANA Project Update!

By Tony Corbine, ANA Project Administrator

We are asking the people of the community to share their history and any information on where and how the community interacts with the environment. I have been assigned the task of assisting with the evaluation process, documenting the sites and tribal members' statements and stories through interviews. To accomplish the goal of implementing tribal water quality standards for these historically sacred sites, we are utilizing various methods of science to achieve this: cultural anthropology, participatory geography, toxicology and paleoecology. In simple words, we would like to conduct interviews with people who have a strong connection with different locations throughout the reservation, places that you have visited many times for many years and/or carried out your tradition and cultural practices. The traditional cultural significance of a historic property is derived from the role the location/site plays in a community's historically rooted beliefs, customs, and practices. We would like to document your recollection of how it looked, felt, smelled and further your views on how a certain something once was and how it may of

- *Create ways that the public will remain informed about sites, what is happening with them and any future plans.*

So here are few things that coming up. Besides sifting the files and records at local, state, and federal records to identify sites, we will be using information from the public. In the next month there will be a new link on the natural resources website @ <http://www.badriver-nsn.gov/natural-resources/nr-programs-a-personnel> which will lead to the "Environmental cleanups and Brownfield Redevelopment" pages. On this page there will be information about these new programs, information about known sites as well as a link to submit comments and information you may have about additional sites you know about. Your help in this process is greatly appreciated. Notice we mentioned "Brownfield Redevelopment" above? We will reveal more about that program in the next addition of Common Ground.

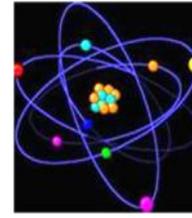


changed or stayed the same throughout the years. We would like people of different age groups, family groups, and homestead sites and am requesting for people who have special knowledge about these traditional cultural properties, as they have a connection and value the site and can provide testimony. If you would like to share your stories and history or know of someone who has a deep rooted connection with different locations in the area, please feel free to contact Tony Corbine, the ANA Project Administrator, Call at (work) 715-682-7123 or (cell) 715-292-9154. Thank You!



## Still at Risk!

By Daniel Wiggins- Air Quality Technician



Unfortunately a person who doesn't smoke isn't always awarded with a lifetime absence of lung cancer... the risk is still there! Radon is the second leading cause of lung cancer behind tobacco smoke and the first leading cause for those who have never smoked (less than 100 cigarettes in a lifetime)<sup>1</sup>. The chances of developing lung cancer from indoor radon can depend on three factors: 1) how much radon is in the home, 2) the amount of time you spend in your home, 3) and whether you are a smoker or have never smoked.<sup>1</sup>

Smokers are at an obvious risk of developing lung cancer, and with the addition of living within a home that has high levels of indoor radon, are at an even higher risk. However, if you do not smoke and live within a home with high levels the risk is still there, but much lower. Studies have shown that out of 1,000 people living within a home at 20pCi/L, and whom smoke, 260 could likely get lung cancer. If those same 1000 people have never smoked, and lived within a home at the same level, an estimated 36 people could get lung cancer<sup>1</sup>. The obvious answer is quit smoking and mitigate your home, if you are a smoker. However, what if you are a non-smoker is it worth fixing your home? Short answer...YES! The rise in concentration of radon and an extended length of exposure increases your chances; therefore, if you can lower your indoor radon levels it will likely lower your chances.<sup>1</sup>

Unfortunately, radon can cause cancer at very low concentrations, as well. Even at levels between 2 and 4pCi/L people still could get lung cancer. In addition, the EPA's action level for radon is 4pCi/L, which an estimated 7 people out of a 1,000 (whom never smoked) are still estimated *that could develop cancer*<sup>1</sup>. Where can we hide and why test if even low levels can cause cancer?

The idea when monitoring and/or lowering radon levels is to minimize the amount and time of exposure, therefore lowering the chances of developing lung cancer. A person who wants to reduce their smoking wouldn't smoke more just because they found one cigarette can still cause lung cancer. The same should go for your home. Just because you found rather low levels does not mean you should not apply radon reduction methods and techniques to your home, if the opportunity is available.

The trend in construction will eventually be to build every home radon resistant utilizing material, methods, and techniques during the beginning stages of constructing. Building a home radon resistant may be found sufficient for

reducing levels initially, and if levels are still found high, will make the application of future radon reduction methods and techniques less labor intensive and less expensive. Although some contractors and companies do emphasize their radon resistant structures, which they offer, many still remain passive. Many contractors, developers, renters and even housing authorities are aware of radon but still do not apply or even offer these options when it is available, possible, convenient, and/or least expensive. Right now, it is up to the homeowner to emphasize radon resistance and protection to the contractor and/or renter. **Testing can be very persuasive and a powerful tool!**

Radon is everywhere! It is very difficult to find a city, countryside, or suburban community that has not found at least one home with high indoor radon levels. Unfortunately radon will always be an issue and even at low levels, possibly cause a person to develop cancer. However, it may be important to utilize radon resistant construction and reduction methods/techniques, in the beginning stages of construction or during any time of your home's-lifespan. **Testing your home is still essential in knowing the extent of your radon issue.** Once you have a known concentration lowering that amount effectively can ultimately lower your chances of developing lung cancer.

If you have any questions please contact Daniel Wiggins, the Air Quality Technician, at 715-682-7123, extension 1553 or email at [Air1@badriver-nsn.gov](mailto:Air1@badriver-nsn.gov).

**PLEASE START BY TESTING YOUR HOME!**  
**Testing is free for Bad River Tribal Members**



<sup>1</sup> *A Citizen's Guide to Radon: The Guide to Protecting Yourself and Your Family from Radon*, U.S. EPA 402-K-07-009, Revised 2007

# Everyone Check Themselves...Tick Season is Here!

By Corinne Bigboy



The warm weather is coming and so are the ticks. If you, your children or your pet(s) spend any time outdoors, there is a good chance that you will come in contact with a tick at some point in time. Ticks thrive in woodlands and grasslands where there is an abundance of

wildlife. Ticks can be found in wooded or grassy areas, especially along the edges of trails, roads and yards. There are two main types of ticks that are prevalent in northern Wisconsin. The first tick is the deer tick. The deer tick or also known as the black legged tick can transmit Lyme disease. Deer ticks are prevalent in late spring to mid-summer. Adult female deer ticks are red-brown while adult males, unlike females, are darker and do not bite. Deer ticks are usually very small in size, which makes them harder to find and properly remove from the body. The second tick is the wood tick or dog tick. The wood tick is the most commonly encountered tick and is most active in April, May and June but can be found all summer, even into early fall. Males and females are reddish-brown and about 3/16-inch long. Females have a large silver-colored spot behind the head and males have fine silver lines on the back. It is important to protect yourself and loved ones from tick bites this summer season in order to stop the transmission of the various diseases that they carry. Tick identification cards are available at the Natural Resources Department.

If you happen to come across a tick there is a proper way to remove it. This ensures that the entire tick is removed from the site. **Here are the steps to remove a tick properly:**

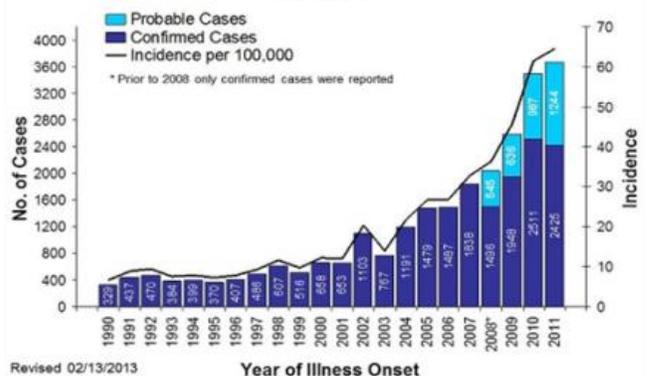
- Using tweezers, grasp the tick near the mouth parts (as close to the skin as possible).
- Gently pull the tick in a steady, upward motion, until the tick lets go.
- Wash the area and use a disinfectant on the bite site. Small tick parts often remain, and usually shed without

problems.

- Consult a physician if you remove an engorged deer tick.
- Other methods such as Vaseline, alcohol, and nail polish remover are not effective!
- Ticks should be removed promptly. Ticks usually need to attach for 36 hours to transmit Lyme disease. Ticks may attach at body folds, behind the ears and in the hair.
- Watch for early signs and symptoms of Lyme disease which usually occur 4-20 days after initial bite. These symptoms may include fatigue, muscle and joint pain, fever, chills, headache and a expanding red, round rash. Later symptoms of Lyme disease include nerve dysfunction, tingling, neck stiffness and heart palpitations.
- There is no way to totally avoid ticks, especially if you will be spending time outdoors during the summer months. However, there are ways to lessen your chance of becoming a host.
- Here are a couple of prevention tips to follow to avoid tick bites:
  - Avoid high risk areas such as high grass and edge of woods.
  - Wear dark color, long sleeves and pants tucked into socks in bushy areas.
  - Apply insect repellent, especially around ankles and belt line. A common repellent is a DEET based repellent.
  - After being outdoors thoroughly check yourself, children and pets right away and again in a few hours.
  - Shower and wash clothes soon after coming indoors. Heat drying will kill ticks on clothing.

Reported Lyme Disease in Wisconsin 1990-2011

(n=25,373)



---

## Boozhoo from the Tribal Historic Preservation Office!

By Edith Leoso, THPO



As we enter into the 2013 construction season our Tribal Monitors are out and about! Three Projects are being monitored right now: 1) Phase-2 of the Tribal Water and Sewer System Improvement Project, 2) Merit Fiber Optic Installation Project, and 3) Norvado Fiber Optic Installation Project on Madeline Island.

Tribal Monitors observe excavations to watch for inadvertent discoveries of human remains, sacred items, archaic items and funerary items, such as those placed with burials.

The Tribal Historic Preservation Office continues to diligently watch for requests to review mining activities in the Penokee Range. It is mandatory for federal agencies, such as the Army Corp of Engineers, to request a review of historic properties and that which is culturally significant to Tribes when they issue a federal permit, license, or when the agency provides direct or indirect federal funds for a project.

There are many things that may significantly impact the Tribe and its cultural and natural resources if Mining occurs in the Penokee Range:

- environmental changes in the weather because the natural barrier that the Penokee's provide is completely removed, which may affect the flow of surface water in rivers, lakes and streams, thereby, affecting the growth of the Manomin and possibly the waves on the lake, which may also increase or decrease erosion on our shoreline and change animal, bird and fish habits;
- the beautiful natural landscape of the Penokee's will be removed;
- run-off from tailings basins will kill all aquatic life in the Bad River and other rivers and streams on the reservation, just as it is beginning to kill all aquatic life in the St. Louis River in Minnesota;
- contamination and loss of ground water and water pressure from mining operations diverting water from the Bad River, which will decrease or eliminate our drinking water resources;
- dust residue in the air from blasting that will contaminate and kill vegetation and increase lung problems in the area, which will decrease the animal populations, such as deer; and
- many natural medicines, berries, trees, fruits, will be smothered from the dust, as well as, all the homes in the area.

This might sound a little extreme, but this is essentially what all the technical jargon is telling us. Essentially, the place we call "Home" will not be a viable place for life and for future generations, if mining occurs. Our culture has evolved around the water – from the time we migrated from the east coast in canoes, to the time most families in Old Odanah moved away from the Bad River to form "New Odanah".

Surprisingly, similar circumstances may have taken place, which the Odanah we know today rests in a place once known as Manido Lake. This lake never dried up until the lumber boom happened and all the trees were cut down in the area. Then, the Stearns Lumber Company built their "Company Farm" in the place that was once Manido Lake. This is according to a story provided by Marie D. Livingston in the Indian Research Project of 1935 (Envelope 19: VI, A., 16, pg. 50). In the story she states:

*"Should one ask the older Indians now about Manido Lake, they shake their heads and sadly say, 'Since the coming of the white men, everything that was once beautiful has left us or has been destroyed. These live now only in our memories and we too shall soon depart forever.'"*

The memories we hold today is the history we keep for tomorrow. How memorable it would be for future generations to say,

*"Once they tried to remove the mountains they call the Penokee's, which would've killed everything here, including the people, but the people of Northern Wisconsin, our Ancestors, stood up to protect it – for me."*

### Protect the Penokee's - create History. Miigwech



Photo of Tyler Forks

---

## **NEW EMPLOYEES**



### **Tony Gilane, Beach Monitor Aide**

I would like begin by introducing myself. I am Tony Gilane. I will be working for the Bad River Natural Resources Department in the water resource division. My major field of study was in biology as well as earning a minor in Arc/GIS from the University of Wisconsin-Superior in 2010. My title with the department is the Beach ACT Coordinator. The Beaches Environmental Assessment and Coastal Health (BEACH) Act was enacted in October of 2000. The Beach ACT is designed to monitor and assess the coastal recreational waters adjacent to beaches used by the public. Through the program water samples are collected and processed in the lab for the presence of microbial pathogens or pathogen indicators like E. coli. In order to prevent exposure during an occurrence of elevated levels of microbial bacteria in coastal reservation waters; we strive to implement a notification program to inform the public of potential human health risk.



### **Tony Corbine, ANA Project Administrator**

Hello, my name is Tony Corbine and I'm the new ANA project administrator. I am a member of the Bad River Tribe and have worked for the Tribe in the past at various capacities. Prior to me going back to college I worked for the Natural Resources department and before that I worked at the Water and Sewer department. Most recently I worked for Red Cliff Environmental department as the EPA 319 Non-point Source Coordinator and was responsible for community education outreach. I also assisted with water sampling under the EPA 106 program.

I look forward to fulfilling my new responsibilities and duties in my current role, as you might see me on the reservation conducting surveys, interviews, and examining traditional cultural properties. My office is located in the Natural Resources department toward the back, next to the laboratory. I am sociable and easy-going, so feel free to contact me if you have questions about the ANA grant. You can reach me at 715-682-7123, extension 1560.



### **Jeff McRoy, Environmental Technician**

Hello, my name is Jeffery McRoy Jr. and I have been hired as the Environmental Technician for the Brownfields/ Environmental Response Program. When the program is fully developed, I will be helping with the care of various contaminated sites around the reservation as we try to return them to their former selves and/or, if possible, for future development. In the meantime, I am learning the intricate details on how a program works and the requirements needed for sustainability.

This is my third time as an employee of the BRNRD, with previous employments as a Wildlife Aide and another as a Project Consortium under the Environmental Office. Both have helped me acquire skills and experience needed for continued advancement, which include GIS/GPS skills. My hopes for the future is being able to use everything I gained from my prior experience and apply it where for the good of the environment and the community.



### **Brad Bigboy, Water Resources Technician**

Hello, my name is Brad Bigboy, and I have recently been hired as a Water Quality Technician for the Department. I am ecstatic to say the least to have been selected for this position. Currently I am working a lot with collecting water samples for both streams and rivers, and wetland sites throughout the reservation. The amount of information to take in is amazing but I am up for the challenge. I also will be working with this years' Manomin season. I will be assisting with things such as density counts, controlling non-native and native species that are competing with our Manomin, and conducting harvest surveys. I am excited for the next couple months and cannot wait to assist and contribute in anyway I can. If you have any other questions or need to contact me I can be reached at 715-682-7123 or by email at [ricetech@badriver.nsn.gov](mailto:ricetech@badriver.nsn.gov).



## BAD RIVER NATURAL RESOURCES

Bad River Natural Resource Department

Chief Blackbird Center

72682 Maple Street

Odanah, WI 54861

Phone: 715-682-7123

Fax: 715-682-7118



Photo By Daniel Wiggins

*"Powwow Ground's Campgrounds flooded by May Snowfall"*

**We're On The WEB!**

**[www.badriver-nrn.gov](http://www.badriver-nrn.gov)**

# Manomin Management: Controlling Native Competitors in 2013

Projects for manomin (wild rice) management in the Kakagon Sloughs are overseen by staff from the Bad River Natural Resources Dept. (BRNRD). More information about these projects can be obtained by contacting the BRNRD offices at 715-682-7123.

Please work with us to make these projects a success; avoid disturbing the manomin beds where enhancement and monitoring activities are occurring.

Miigwech.



### Reseeding Manomin

The BRNRD will be continuing to reseed manomin within the slough. During the harvest, the BRNRD will be buying back green rice harvested in the Kakagon and Bad River for reseeding purposes. Details will be posted once the harvest has been opened.

### Treatment using Hand-Control

This project focuses on controlling native competitor species, and control is accomplished using volunteers and BRNRD staff to selectively remove the stems of the competitor species. This control will be applied to 6 acres within the Kakagon Sloughs; these areas will be open for Manomin harvesting this season.

This hand control treatment is complemented by test plots that were setup in the summer of 2012. These test plots compared two methods of hand control (pulling and cutting) side by side to see which method is more effective. These test plots will be continued to be monitored and assessed during 2013.

The BRNRD is accepting volunteers to assist with this project.

### Treatment using an Airboat Mower

This project focuses on controlling native competitor species invading the manomin beds in the Kakagon Sloughs. Airboat mowers will be used to control 25 acres; the targeted areas are long, straighter stretches where these species are especially abundant. Mowing will take place three times in each area to stress the invading species to prevent seed production and increase winter mortality. Mowing will be completed by staff from the Fond Du Lac Natural Resources Department using their airboat mowers. These areas will not be harvestable for manomin in 2013.

### Native vs. Non-native Species

Both native and non-native species are competing with our manomin. While the native competitors have always been in Wisconsin, the non-natives have been introduced to our area. Examples of non-native competitors are narrow-leaf cattail and hybrid cattail; like other non-natives they quickly take over areas, forming dense stands where only they grow.

There are four common native competitors that are currently competing with our manomin. Being perennial plants, their colonies can sometimes displace our manomin. Pickerelweed, bur-weed, arrowhead, and white and yellow water lilies are the native competitors being targeted via hand control and the airboat mower this season.



Photos are courtesy of FDLNR



Photo courtesy of BRNRD

## ***-MISSION STATEMENT-***

*The Department strives for resource management which both conserves the natural resources for the future generations and provide for the needs of the present. The departments existence reflects the importance the Bad River Tribe places on its right and ability to exercise sovereignty, self-determination and self-regulation in the area of natural resource management.*