

Mazina'igan

A Chronicle of the Lake Superior Ojibwe

Published by the Great Lakes Indian Fish & Wildlife Commission

Fall 2014

Emerald ash borer tightens its grip on Lake Superior region

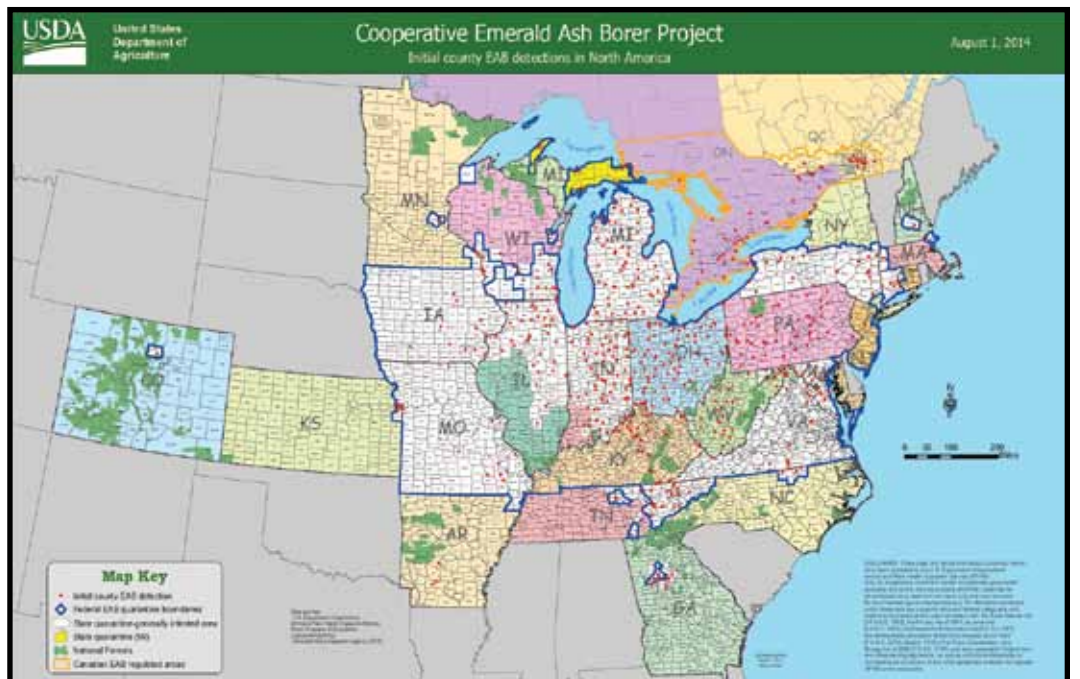
By Steve Garske, ANA Forest Pest Env. Grant Coord.

Odanah, Wis.—With last year's discovery of emerald ash borer in Superior, Wisconsin, and its recent appearance in Door County, the emerald ash borer (EAB) continues to spread into the western Great Lakes region. Unfortunately its rapid spread is due to an unlikely ally—us!

Emerald ash borer infestations usually only spread a mile or two a year on their own. That means, for example, that it would take the EAB 40 years to travel to Ashland, Wisconsin, from the nearest known infestation in Superior, Wis., 60 miles away. But it gladly accepts rides from people hauling firewood and logs, meaning that EAB from Superior could reach Ashland in under two hours. The city of Superior estimates that it will cost \$2.2 million to remove and replace all their ash street trees. And that doesn't include trees in people's yards. When you consider the eventual loss of millions of ash trees across northern Wisconsin and northeast Minnesota, the environmental and financial cost to the Lake Superior region alone will be enormous.

The loss of black ash (*baapaagimaak*) in particular is a major concern to traditional basketmakers. They worry that ash will no longer be available someday. But their concerns go much farther, from the loss of an important forest tree to the potential loss of the stories and traditions that have been passed down for centuries (see sidebar, page 19).

Federal and state quarantines are in place to prevent infested ash firewood, logs or nursery trees from being transported to uninfested (See *Invasive species threaten lifeways*, page 19)



Emerald ash borer quarantine areas. The red dots indicate the first EAB infestation found in each county. Keep in mind that even within the quarantined areas, there are many communities and woodlots that are still not yet infested. (For a full-sized version of this map, go to http://www.emeraldashborer.info/files/MultiState_EABpos.pdf.)

College students trace manoomin life history at Fond du Lac

By Charlie Otto Rasmussen
Staff Writer

Cloquet, Minn.—After the last fragments of plant matter dissolve from lake-bottom muck, an important clue remains to help researchers understand aquatic natural history: phytoliths. For a group of college students, the hunt

for microscopic phytoliths form the linchpin of a summer program to help answer questions about manoomin in Minnesota and, importantly, to learn scientific approaches to natural resources esteemed by American Indian cultures.

“Tribal people in this country will always have land and natural resources to manage,” said Fond du Lac Natural Resources Program Manager Thomas

Howes. “Training the next generation can’t start soon enough.”

Manoomin project students hail from all over the United States: California, South Dakota, Texas, Oklahoma, plus Minnesota. While most are native, other young people who are underrepresented in science, including women, round out the group. Until now, wild rice—let alone phytoliths—occupied a vague, disconnected corner of most students’ minds.

“Our project focuses on wild rice. It’s important to us in Ojibwe Country,” Howes said. “We are exposing students from across the country to research problems, challenging them with resources and concepts that are foreign.”

Wild rice, or manoomin, is revered as a sacred gift from the Creator to upper Great Lakes tribes. From the pre-contact era through today, manoomin remains a primary staple food—part of a low-fat, healthy diet. An aquatic grain, wild rice is sensitive to watershed alterations and pollution from toxic mine runoff. As the summer internship nears completion, students are detailing reports that highlight how human actions affect wild rice—information that may help natural resources officials make better-informed management decisions in the future.

Focusing in

Phytoliths feature tiny silica (think glass) deposits and accumulate over a plant’s lifetime. They can only be viewed under a microscope, appearing in an alien combination of globular and geometric shapes. Paleo researcher Chad Yost explained that scientists who study historic plant distribution have only identified phytolith signatures for a short list of plants: corn, beans and of course, wild rice.

“These silica stones are all that’s left for us to find after the plant is gone,” said Yost, a University of Minnesota (UM) expert working with students and tribal staff.

The manoomin project is a scientific marriage of the Fond du Lac Band Natural Resources Program and UM’s College of Science & Engineering. With funding from the National Science Foundation, students and professional mentors are collaborating to describe wild rice abundance and first-occurrence on a pair of on-reservation lakes. At a third location—Big Sandy Lake located next to MinnTac’s massive iron mine north of Mountain Iron—a research team is studying the impacts of sulfate mine seepage on wild rice growth. (See *FdL Band*, page 2)



Student intern M’a’K’o’quah Jones (right) lines up a core sample to the blade of a cast cutting saw at the LacCore Laboratory in Minneapolis. LacCore’s Ryan O’Grady and manoomin project intern Ida Clarke look on. (Photo by Thomas Howes)



Leafy spurge & phragmites targeted by GLIFWC

By Miles Falck, GLIFWC Wildlife Biologist

Odanah, Wis.—GLIFWC's invasive species program staff are busy this summer. Staff have been distributing biological controls for leafy spurge, surveying ceded territory lakes for aquatic invasive species (AIS), confirming phragmites reports, and following up on last fall's phragmites control efforts.

GLIFWC's control crew started early this year, collecting and distributing *Aphthona* beetles. These "flea beetles" eat nothing but leafy spurge, a perennial herb native to Eurasia. Leafy spurge displaces native vegetation in open habitats including prairies, pine barrens, and pastures. It is especially dominant on dry or nutrient poor sites where its extensive root system and lack of natural enemies give it a substantial advantage over native vegetation.

Because leafy spurge is unpalatable to cattle and deer, it can cause significant economic and ecological impacts. Pine barrens habitats in northwestern Wisconsin are unique habitats that are especially vulnerable to the threats posed by leafy spurge. These areas provide habitat for a wide range of wildlife, as well as gathering and hunting opportunities for tribal members. The use of biological controls complements herbicide applications conducted in the fall and reduces the amount of herbicide needed to achieve effective control.

Last fall, GLIFWC conducted rapid response control efforts on small pioneer stands of non-native phragmites which were detected along the western shore of Chequamegon Bay. The non-native subspecies of phragmites (*Phragmites australis* ssp. *australis*) is extremely invasive, growing in moist habitats and waters up to one meter deep as well as floating mats in deeper water. Phragmites can quickly establish dense clonal stands and poses a serious environmental threat to the freshwater estuaries of Chequamegon Bay as well as inland manoomin (wild rice) waters. Phragmites are already common and widespread along the Lake Michigan shoreline; however it has only recently been introduced to the Wisconsin and Michigan portion of the Lake Superior watershed where only small scattered phragmites populations exist.

A coordinated follow-up effort among Red Cliff Natural Resources Department, Bayfield and Ashland County AIS Coordinators, Northwoods Cooperative Weed Management Area, and GLIFWC has determined that last year's phragmites



GLIFWC Wildlife LTE Ron Parisien Jr. bundles a recently discovered phragmites patch in Fish Creek Slough. GLIFWC technicians use bundling prior to herbicide treatments to avoid non-target plants. (Photo by Jake Parisien)

control efforts were over 90% successful. Follow-up treatments will be applied to the few areas where regrowth has been observed. One new phragmites site was detected near Fish Creek Sloughs in Ashland and will also be treated this summer. This year's annual AIS survey efforts include verification of phragmites reports in the ceded territory, especially those in or near manoomin waters. As of press time, over a dozen reported sites have been visited and all have turned out to be the native subspecies of phragmites (*Phragmites australis* ssp. *americanus*).

FdL Band, UM collaborate in science program

(Continued from page 1)

The investigations utilize long, cylindrical tubes driven into the lakebed to extract sediment core samples. Researchers are able to estimate manoomin abundance over the past 10,000 years by counting silica phytoliths in refined core cross-sections, which act like time capsules. With the exception of open-water core drilling at Sandy Lake, most of samples were retrieved in the wintertime, Howes said.

United under the byname Team Zaaga'igan [Lake], students and mentors prepared their study-cores at the UM LacCore Laboratory in Minneapolis. Using



At the Fond du Lac Resource Management Laboratory, students from around the United States scan for microscopic wild rice phytoliths. FdL Program Manager Thomas Howes (background) and a pair University of Minnesota researchers serve as mentors for the summer internship. (COR)



Bisected core samples from Fond du Lac Reservation's Mud Lake. (Photo by T. Howes)

precision cutting equipment, the team bisected cores from the three study lakes. UM laboratory staff labeled and archived one-half of each sediment core, leaving the remaining section for microscopic examination back at the Fond du Lac Resource Management Center.

For Team Zaaga'igan, the work is often intensive, requiring students to engage in fieldwork, conduct eye-straining laboratory analysis, and organize data on computer spreadsheets. Despite being immersed in math and science, interns understand the broader significance that their research represents.

"I didn't know what wild rice was before coming here. But the more I learn about the cultural aspects, the more I see how important it is," said Ricardo Munoz, University of California-Santa Cruz undergraduate. "We can help verify oral stories about wild rice abundance. We can see how the ditch system had an impact on wild rice on the reservation."

Ida Clark, Pine Ridge Oglala Sioux, said her Minnesota experience is becoming a catalyst for work she hopes to do back home in southwestern South Dakota; development of a uranium mine is moving forward just 40 miles away from the reservation.

"I'm trying to see how mining affects natural resources," said Clark, an undergraduate student at

Ojibwemowin in Science

Phytoliths =
Gete-manoominan eniwisegin
(ancient wild rice remains)

Black Hills State University in Spearfish, SD. "I want to go back home and use what I learn to help the community."

Expanding manoominike (ricing) opportunities

Even as the manoomin internship wraps up, the hunt for wild rice phytoliths and other ancient clues is just gaining momentum at Fond du Lac. Through partnerships with cooperating institutions, the Band has been building its scientific capacity to study manoomin over the past five years. Howes and a number of tribal natural resources technicians are preparing for a more thorough core study of wild rice lakes on the reservation.

"What are the ideal conditions when wild rice has flourished at a certain time in history?" Howes said. "We ultimately want to have a detailed study of all our wild rice lakes."

Over the past century, wild rice production on the 101,000-acre reservation has experienced dramatic changes. Hoping to boost the volume of tillable farmland, state authorities constructed a network of ditches a century ago, partially draining area wetlands connected to manoomin lakes. The ditches produced little benefit to agriculture and hundreds of acres of valuable wild rice were lost from low water levels. Colonization and competition from other aquatic plants has further complicated conditions for wild rice recovery.

(See FdL Band, page 3)



Mine haul roads and their potential environmental impacts

By Esteban Chiriboga, GLIFWC GIS Mapping Specialist

Madison, Wis.—Mine haul roads are integral parts of a mine operation. These roads can vary in size from single lane dirt roads located within the footprint of a mine to multi-lane paved highways used to transport materials to and from a mine site. Roads located within the mine footprint are usually included in the analysis of potential environmental impacts of a mine. However, roads that lead away from the project site to processing areas or regional shipping hubs are often overlooked, and the impacts that occur along these transportation routes may be discounted.

The Red Dog mine in Alaska is one of the more notable examples of a project that has impacted the environment along its haul road. This open pit zinc, lead and silver mine transports crushed rock from the open mine pits to a concentrating facility. From there, the concentrate is transported via a 50-mile haul road to a port facility. Sampling along the haul road conducted in the early 1990's showed elevated concentrations of metals on the road surface and on the road shoulder. This finding led to additional studies which indicated that metal deposition has occurred along the road, and concentrations decrease with distance from the road right-of-way. Elevated metal concentrations in several plant species are detectable up to 1600 meters (approximately 1 mile) from the road (ADEC, 2002).

The source of the metals is concentrate dust that adheres to the truck tires as well as trace amounts of concentrate dust on the surface of the trucks (ADEC, 2002). It is important to note that the trucks have hydraulically sealed doors that completely enclose the concentrate inside. Even with this precaution, contamination has still occurred.

Here in the Lake Superior region, there are ongoing concerns about impacts along mine haul roads in Minnesota and Michigan ceded territories. The proposed **PolyMet mine in Minnesota** is very similar to Red Dog in its operations and design. Although in the case of PolyMet, the crushed ore would be transported by rail and not by truck, GLIFWC staff are concerned about the potential for environmental impacts along the rail line. PolyMet proposes to use open rail cars that have gaps along the side door hinges to transport ore from the pit to the processing facility. There is no question that ore dust will escape the cars through these openings. In response to GLIFWC comments, the lead agencies for the PolyMet Environmental Impact Statement (EIS) have required water quality monitoring along the rail corridor between the pits and the processing facility. GLIFWC staff will continue to advocate for the use of sealed rail cars to reduce the possibility of contamination along the rail line.

The construction of a mine haul road also impacts the environment. The **Eagle mine in Michigan** is currently rebuilding sections of a county road to accommodate large ore trucks (Photo 1 and 2). The construction of this road through a remote area involves filling of wetlands and numerous stream crossings. This area, which is included in the Lake Superior Binational Program Important Habitat List as an area of high biodiversity, has suffered habitat fragmentation due to this construction. It is possible that the use of salt in the winter will lead to water quality impacts in the area's small creeks, and unintended ore dust deposition along the route is likely. Additional impacts may result from pumping water out of local creeks to use in dust suppression activities during construction (photo 3). To our knowledge, the effects of pumping on creek water levels and biota have not been characterized. In addition, dust suppression often involves mixing the water with chemicals, and the effects of these chemicals have not been identified.

GLIFWC staff have and will continue to advocate for inclusion of mine haul roads in the analysis of environmental impacts of proposed mine projects. In the case of the road construction at the Eagle mine, the environmental impacts of the road were not evaluated when the permits for the mine were considered. The Eagle mine's haul road is permitted under general state permits that are issued for road construction. These general permits, while often adequate for normal roads, do not require the data and analysis needed for a road that will be used to



Photo 1—Eagle mine haul road under construction. No evidence of silt fencing or erosion control best management practices are visible.

(Photos by Esteban Chiriboga)



Photo 2—Eagle mine haul road has caused habitat fragmentation in this biologically rich area.



Photo 3—Tanker spraying water for dust control along the Eagle mine haul road construction site.

transport mine concentrate and/or metallic ores. These materials are often reactive when exposed to air and water and, as exemplified by the Red Dog haul road, can create environmental impacts in very small quantities. The failure to evaluate infrastructure associated with mining activities appears to undermine the goal of clearly disclosing all impacts associated with mineral development projects. Mine haul roads should also be included in any analysis of the cumulative impacts of multiple mine projects on the ceded territories.

Sources Cited

Alaska Department of Environmental Conservation (ADEC), 2002, *Fugitive Dust Background Document*—Draft Report.

FdL Band, UM collaborate

(Continued from page 2)

Now, with four water control structures in place, the acquisition of aquatic vegetation cutting equipment, and aggressive control of beaver dams, tribal natural resources staff are adding scientific data from core samples to fine-tune management schemes. In the coming years tribal harvesters and wildlife are poised to benefit with more abundant, more consistent stands of manoomin.

On the cover

The regalia of dancers Rena Belle and Bianca Whitecloud catch the eye with the colorful and intricate beadwork and applique. Rena's regalia infuses geometrics and florals. The inspiration for the photo stems from this contrast of woodland and plains tribes, and the kinship ties maintained is sheer beauty. (Photo by Dylan Jennings)



Fond du Lac Band launches elk restoration study

By **Charlie Otto Rasmussen**
Staff Writer

Cloquet, Minn.—Woodland caribou are gone from Minnesota along with wild bison. Of the large, four-leggeds erased from the western ceded territory landscape during the settlement era only one seems likely to make a comeback—omashkoozoog (elk).

“The habitat appears to be there, and tribal leaders endorse the idea of bringing back elk,” said Mike Schrage, Fond du Lac Band wildlife biologist. Elk are known as omashkooz in the Ojibwe language. “Elk are tough and adaptable. If they hadn’t been shot out 100 years ago, they would probably be living across most of the forests of Minnesota today.”

State, county, tribal, and private-land forests dominate the region in and around the Fond du Lac Chippewa Reservation. Schrage said active timber management is a priority for these landowners, resulting in the continuous availability of young aspen woodlands—habitat preferred by elk as well as other native species including deer and ruffed grouse. Networks of failed century-old drainage ditches carve up the landscape—a reminder that settlers lost

the bid to cultivate farms on the mostly low, flat ground. Left with a largely scattered collection of hayfields serving small livestock operations, agricultural conflicts pose a minimal threat.

“Mapping the area, quantifying habitat types, getting the numbers down will take time,” said Schrage. “It’s a long-term process, years down the road, to potentially see an elk release. Right now we’re going through the process of gauging support from the public and various government landholders, along with assembling more data on habitat suitability.”

Over the past few decades omashkoozoog have reclaimed portions of their former range in the eastern United States through trap-and-transfer programs. Despite the creeping effects of climate change—rising annual temperatures and native habitat degradation—elk are fairing quite well in southern locales like Virginia and Kentucky. Fond du Lac Chairwoman Karen Diver said that kind of resiliency is crucial as important resources like moose decline and climate change advances.

“Bringing elk back will help restore traditional biodiversity and assist in food security,” said Diver, who also serves on President Obama’s Climate Advisory Task Force.



Missing from the Minnesota ceded territory for more than a century, elk may be on the trail back home. (Photo by Charlie Otto Rasmussen)

Some 250 miles from the Fond du Lac Reservation, two small elk herds survive in the northwest corner of Minnesota. One group resulted primarily from the natural dispersal of Canadian elk; the other from a 1930s effort to establish a free-range population using a mix of wild and game farm animals. Neither herd has been particularly valued. Farmer complaints of crop and fence damage by the roaming ungulates

branded northwestern elk as little more than pests and under direction from the Minnesota Legislature state wildlife managers have suppressed herd growth.

So far, attitudes in Ojibwe Country are much more inspired. “At Fond du Lac, most tribal members are excited about possibilities,” Schrage said. Potential release areas include forests in the southern 1854 and northern 1837 ceded territories of Minnesota.

Tribal deer hunt to follow tribal rules—including harvest of antlerless deer

By **Jon Gilbert, PhD,**
GLIFWC Wildlife Biologist

Odanah, Wis.—Tribal deer hunting will proceed in 2014 just like it did in 2013. Unfortunately, the Sawyer County Record published an article on June 4 entitled: “No Does Allowed in 2014 Northern Deer Hunt.” What this article failed to mention is that the zero quotas established for all counties and reservation units in the north only applies to state-licensed gun and bow hunters. It does not apply to tribal members hunting either on or off the reservations. There are no limits on the harvest of antlerless deer by tribal members during the 2014 hunting season.

Some may ask, “Why is this?” Why do state-licensed hunters have to forgo shooting antlerless deer while tribal hunters are permitted an unlimited number? The answer is relatively simple. Despite what has been said in the media, state hunters will not be prohibited from shooting antlerless deer. Antlerless deer harvest will be permitted for youth hunters (with no limits), disabled hunters (with no limits), military hunters (with no limits), people whose property is enrolled in the Deer Management Assistance Program program (with no limits), and finally farmers experiencing agricultural damage will be able to shoot antlerless deer (with no limits). All of this unlimited antlerless deer harvest will continue to take place despite zero quotas.

The Wisconsin Department of Natural Resources (DNR) in their press release has characterized this antlerless deer harvest (by youth et al.) as ‘limited.’ They say this despite the fact that there are no limits placed on these harvests. But the DNR may call these hunts ‘limited’ because few people are participating relative to the number of deer hunters, and they will harvest relatively few antlerless deer during these hunts. So because few people will participate and they will harvest few deer, the DNR calls the hunts ‘limited.’

This same logic applies to tribal hunting. Only a small number of tribal members hunt deer compared to the 750,000 deer hunters in Wisconsin. And, tribal off-reservation antlerless deer harvest has been less than 1,000 for many years. So few tribal hunters will harvest a small number of antlerless deer, thus the tribal hunt could be called ‘limited’ as well.

The tribes take seriously their management responsibilities that flow from their treaty reserved rights and have steadfastly maintained their responsibility to manage the resources of the reservation and the ceded territories, including waawaaskeshi (deer).

Advice to tribal hunters, follow your tribe’s rules for deer hunting whether it is on or off reservation. If you have questions about the rules you may contact your tribe’s conservation department or the Great Lakes Indian Fish & Wildlife Commission at (715) 682-6619.

Ojaa joins GLIFWC Wildlife Section

Adam Ojaa, a Bad River tribal member, joined the GLIFWC crew in late March as the new wildlife technician. Prior to GLIFWC Adam worked for the Bad River Casino mechanical maintenance department for over 13 years. However, this isn’t the first time Ojaa’s experiences have led him to GLIFWC. In 1998 he interned for GLIFWC and now he is humbled to be back.

Ojaa resides on the Bad River reservation and devotes much of his free time to hunting, fishing, and trapping. In addition he is a Bad River volunteer fire fighter and medical first responder, which keeps him very busy.

Most importantly, Adam is a family guy and enjoys camping in the outdoors with his wife and two sons.

We are delighted Adam’s journeys have led him to GLIFWC once more.

—Dylan Jennings



Mashkawizi returns home: Rehabilitated eagle released

Odanah, Wis.—A humble gathering consisting of 25 people, a small feast of berries, and a few local singers welcomed migizi (bald eagle) home after spending months in a rehabilitation center. This male named Mashkawizi was originally banded in Cornucopia, Wisconsin as a chick in 1996, which would make him approximately 18 years old. The bird was struck by a vehicle and survived on the ground for two weeks before he was found by the Bad River Natural Resources Department. It was deemed that Mashkawizi would not fly again. However after spending rehab time at Wild Instincts Wildlife Rehabilitation Center in Rhinelander, Wisconsin, Mashkawizi made noticeable progress. On Thursday July 24th, positive thoughts and powerful songs were sung for the migizi as he took flight and landed in a nearby tree. Wildlife specialists will keep close watch on Mashkawizi to make sure he cannot only survive, but thrive once again.

—Dylan Jennings

Partner agencies finish Mille Lacs Lake population estimates

Data collected on walleye and northern pike

By Mark Luehring, GLIFWC
Inland Fisheries Biologist

Mille Lacs Lake, Minn.—Minnesota DNR, GLIFWC, Fond du Lac, and U.S. Fish and Wildlife Service fisheries assessment crews collaborated to conduct walleye and northern pike tagging population estimates on Mille Lacs Lake this spring. Concerns about the recent walleye population decline prompted biologists to organize tagging efforts on the 132,500-acre lake for the second straight year. Survey crews from the partner agencies sprang into action just as the lake finally escaped from the icy grip of the much-hyped 'polar vortex' that ruled the weather pattern in midwestern states this last winter.

Northern pike spawn a little bit earlier than walleyes, so these were the first target for tagging. Most northern pike were tagged after being captured in fyke nets in tributary streams where the ice receded first. In total, crews tagged over 3,600 northern pike.

As soon as the stubborn Mille Lacs Lake ice began to melt back from the shore, electrofishing crews began prowling the shallows during the night shift for spawning walleyes. These survey boats sent just enough electrical current out into the water to stun the fish. Crew members then netted the fish and put them in a recovery tank. When enough walleyes were in the tank, the crew would stop electrofishing to tag, measure, and determine the sex of each walleye before releasing them back into the lake. A total of over 14,000 walleyes were tagged before the spawning run diminished in mid-May.

A couple of weeks after the tagging phase of the estimate, when the fish had become more mixed, recapture crews took to the lake to finish the last part of the estimates. These crews set multi-panel gill nets to catch a wide variety of sizes of both northern pike and walleyes. These nets were set only for short time periods, to minimize mortality of the fish caught. Walleyes and northern pike were measured,



Butch Mieloszyk, GLIFWC fisheries technician, pulls in an assessment net during population surveys on Mille Lacs Lake.



Noah Arbuckle, GLIFWC fisheries aid, measures a captured walleye while Mieloszyk records data. Data from assessments are shared with the Minnesota Department of Natural Resources. (Photos by Ed White)

checked for tags, and released. Almost 4,000 walleye and 1,300 northern pike were examined for tags during the recapture portion of the survey.

The total numbers of fish marked, and the proportion that were found to be tagged during the recapture portion can then be used to estimate the fish populations in the big lake. Overall, biologists were pleased with the survey effort this spring. As a result of the cooperation between partner agencies, enough fish were observed during the marking and recapture phases for useful estimates of walleye and northern pike abundance to be calculated.



2014 Partners in Fishing

The Lac Courte Oreilles Band hosted the 2014 Partners in Fishing event on the Chippewa Flowage June 4. The annual event—shaved down to one day this year—brings together state, federal and tribal representatives involved in ceded territory fisheries management.

Brandon Toms, (left) Lac du Flambeau, with a Chippewa Flowage largemouth bass. On an excellent day of angling, Toms also boated a muskie, walleye, northern pike and bluegill.

(Photos by Charlie Otto Rasmussen)

New generation of lake sturgeon maturing at LdF

Lac du Flambeau, Wis.—Nearly a decade after tribal hatchery officials slipped the first tiny lake sturgeon into the Bear River and Lac du Flambeau (LdF) Chain of Lakes, the ancient fish appear to be mounting a successful comeback.

“Reports of sturgeon catches have come in from area ice fishermen,” said Larry Wawronowicz, LdF natural resources director. “I’ve been impressed by the growth rates we’ve seen.” Sturgeon caught by hook-and-line in recent winters measured between 38-48 inches, he said.

Beginning in the 1930s a series of dams in the Bear River watershed—including a low head dam at the confluence of the Chain’s Flambeau Lake—created isolated lake sturgeon populations. Through the remainder of the 20th Century, breeding age fish lived on, but largely failed to reproduce, unable to reach suitable spawning grounds.

A dozen years ago, the LdF Tribe drew up plans with the Wisconsin Department of Natural Resources, U.S. Fish & Wildlife Service, and University of Wisconsin-Milwaukee to inject a new generation of the long-lived fish into the watersheds. (See LdF lake sturgeon, page 7)



Mille Lacs cultivates a personal connection to manoomin

By Sue Erickson, Staff Writer

Mille Lacs Reservation, Minn.—Launching a two-three year wild rice study this summer, the Mille Lacs Band's goal is to preserve its manoomin (wild rice) by gathering scientific information about valued rice beds and by more completely engaging Band members in the tradition of manoominike (ricing).

"We are very proud of our rice beds. We know our rice beds are in peak condition in the region and are lucky and grateful for this bounty," says Mille Lacs Wildlife/Fisheries Biologist Kelly Applegate. His intent through the study is to protect that bounty well into the future, beginning by gathering baseline data on their now healthy and prolific beds.

With funding from the Bureau of Indian Affairs Circle of Flight program, the Band has initiated intensive surveys of favored wild rice beds, including but not limited to Lake Onamia, Rice Lake, and Mallard Lake, all exceptional manoomin lakes.

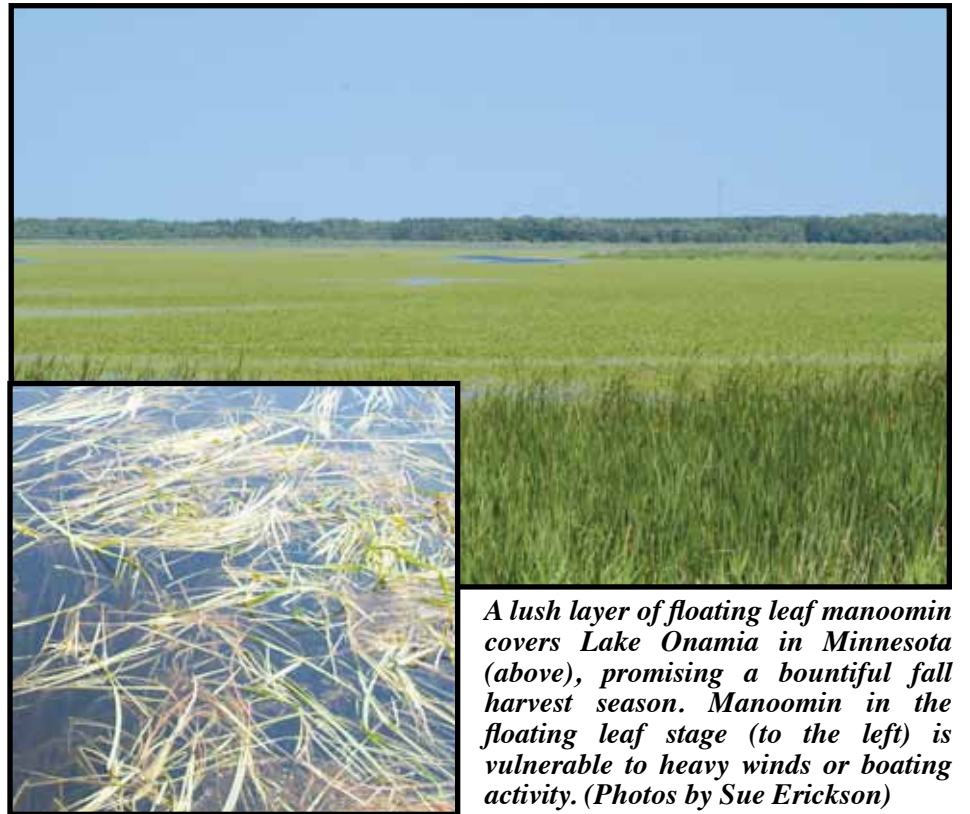
The scientific aspect of the study relates to data collection on the existing beds. For one, data on numbers and species of birds will be recorded. For instance, Mille Lacs rice beds currently host numerous species of birds and waterfowl, Applegate says. Rice Lake, in the Band's District II area, is an important migration stop for ring-necked ducks, with up to one million ducks recorded in recent years! Information on birds and other wildlife is important because they are often early indicators of environmental changes.

Mille Lacs is working closely with University of Minnesota-Duluth graduate student Tanya Kjerland who is studying under Dr. John Pastor, well-known for his wild rice research. Kjerland hopes to develop a unified sampling protocol for monitoring wild rice abundance. According to GLIFWC Wildlife Biologist Peter David, the protocol focuses on seed abundance and will be tested this fall. It may then be adopted by various wild rice researchers in order to insure that their results are based on a uniform standard.

At Mille Lacs water quality sampling is also an important aspect of the study. The Band will record current water composition and thus be able to detect changes in the future.

According to Applegate the Band is particularly concerned about increased levels of sulfates in the lakes, which could result from mining in the region. While sulfates in the water do not contaminate the rice as food, sulfide (an oxygenated form of sulfates) limits the plants' ability to grow and at certain levels could eliminate a bed entirely, says David.

Another concern for the future is genetic manipulation of rice and preserving the integrity of the Band's rice stands. Universities and plant hybridizers have expressed interest in genetically modifying wild rice, Applegate explains, similar to the way other plants such as corn have been genetically altered. If that occurs, there is a risk that modified wild rice could propagate with traditional wild rice, altering the centuries-old plant that the Ojibwe have long depended upon.



A lush layer of floating leaf manoomin covers Lake Onamia in Minnesota (above), promising a bountiful fall harvest season. Manoomin in the floating leaf stage (to the left) is vulnerable to heavy winds or boating activity. (Photos by Sue Erickson)

The second prong of the study aims at generating more interest and personal connection to the manoomin by youth and all Band members, Applegate says. Though the Mille Lacs Band has many well-seasoned ricers, there is a need to involve younger folks and create a lasting connection with more personal interest.

For a start, the Band will host a Wild Rice Festival this fall when the rice is ready. The festival will feature stations, each with something unique about wild rice or ricing. Applegate's intent is not only to educate about the biology of manoomin and its cultural history, but also about how to harvest and process the rice. Importantly, the opportunity for hands-on practice will be there. Folks will get a chance to knock rice.

"Sometimes people are afraid to try ricing, because they are unsure on how to do it," Applegate says. The experiential aspect of the festival will demonstrate harvest procedures and let people try it out.

Experiencing ricing as a traditional, cultural activity will promote that personal connection to manoomin that has typified the Ojibwe people for centuries, from the time they first migrated to the Gichigami region in search of the "food that grows on the water." Applegate believes that cultivation of this personal connection and caring will insure future generations will continue to protect and enjoy manoomin.

Preparing for manoomin season? Check lake info on GLIFWC website

By Lisa David, GLIFWC Manoomin Biologist

Odanah, Wis.—Despite the late appearance of warm weather and the abundant rain events, it seems that manoomin (wild rice) is making every effort to once again provide for us all. The 2014 growing season is progressing nicely.

Our interns have been in the field only a few weeks at press time, surveying rice beds in the ceded territory but their reports are bringing some encouragement. In many cases where the rice is standing it appears robust.

Of course, we are still some weeks away from getting out the knockers and push-poles and a lot can happen between now and harvesting time. Unfortunately, heavy rain events, windy days, and other factors have the power to change the status of beds.

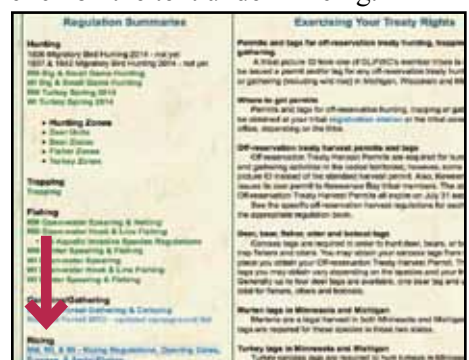
Yet still we continue to gather ricing data. Once plants are a bit more developed GLIFWC staff will begin aerial surveys to further assess this year's rice crop. This information along with the on-the-ground field work can ultimately be used to help direct you to this season's most productive stands.

Ever wonder how to use this info to help you scout good rice beds? Don't worry, it's actually quite easy to find and use. Simply follow these steps and in a few clicks you will have a wealth of manoomin info available to you on GLIFWC's website.

On GLIFWC's home page at "www.glifwc.org" click "Harvest Regulations" on the top title bar.



Next scroll down the "Regulation Summaries" in the left-side column and click on the text under "Ricing."



Now, before you is the "Summary of Off-Reservation Manoomin (Wild Rice) Harvest Regulations" with regulatory info for each state in drop-down format and a map with manoomin waters highlighted with colorful bubbles. More waterbody information is also laid out in an expanded table just below this map.



The wild rice crop for each waterbody in the table will be listed as either Poor, Fair, Average, Good or Very Good. These terms compare this year's crop to that of recent years for that individual water.

Therefore, a "Fair" crop on a lake that generally supports large beds may represent more rice than a "Good" crop on a smaller water. We recommend using this information as your initial guide—

it's always best to do your own scouting before the season begins.

Be sure to check the site periodically because the indicator bubbles for each of the date-regulated waters will change color as the opening dates for the lakes are determined by the local rice authorities. And remember, some lakes may not open at all as a result of crop failure—so these waters will retain their red "closed" bubble.

If the water you are interested in is not on the list of date-regulated waters, you may harvest it whenever the rice is ripe. Of course, all other ricing regulations—such as hours and boat length—still apply.

Finally, for those of you relatively new to ricing remember it is important to scout a rice bed to check if the seed is ripe for harvesting. Be patient and let the seeds fill out and ripen. If the rice is not falling well, and still has empty hulls or milky seeds, PLEASE do not attempt to rice, instead give the bed more time to mature.

We hope that this information is useful. Be sure to let us know what you think about GLIFWC's rice website by calling 715-682-6619 or email lisa@glifwc.org, and as always...happy ricing!

Healthy lifestyles taking root through garden program

By Charlie Otto Rasmussen, Staff writer

Odanah, Wis.—As summer eases toward fall, root vegetables swell within the reservation soil, vines hang low with red tomatoes and a new orchard is taking root in the ancient planting grounds of Old Odanah. With growing community interest and a new grant award, the Bad River 4-H Youth Development program is making healthy strides.

“We’re encouraging kids to go back to a traditional diet,” said Jeremy McClain, UW Extension 4-H youth coordinator. “It’s really a paradigm shift. A lot of kids have been acculturated to getting food from modern sources, Wal-Mart and McDonalds. This is about home and community gardening and increasing physical activity through harvesting.”

The Bad River 4-H initiative draws youth ages 5-18 years old from on-reservation programs including the Mashkisibi Boy’s and Girls Club, Trails Program, and the Birch Hill Community Home. Through networking with area youth leaders and the nearby Ashland School District, participation has doubled over the last year to 280 youths in summer 2014, McClain said.

While 4-H is noted for developing farm and rural living skills, the Bad River program takes direct aim at reducing obesity and diabetes—diseases often associated with each other and negatively impact many American Indians. According to the Centers for Disease Control and Prevention, diabetes is the number four killer of native people, and approximately one-in-five children are obese—a figure that nearly doubles into adulthood.

“Kids are going to be physically and mentally stronger, more resilient, through this program,” McClain said.

Signs of the program at work has literally popped-up all over the reservation. Using vegetable plants seeded and tended at the Bad River Community Center while deep snow still covered the landscape, project participants established gardens in

nearly 30 yards, providing tilling services and installing wildlife fencing. Raised garden beds based on *hugelkultur*—a blanket of planting soil covering decomposing logs—are featured at the Wake House and yard of the Elder House. Children and teenagers also get valuable time interacting with older tribal members who share an interest in gardening and healthy living.

“For some families there are gaps in the teaching of traditional values and behaviors” McClain said. “This is one way we hope will improve cultural identity.”

On July 9, when garden vegetable growth seemed to idle in the cool, soggy weather, 4-H’ers planted 30 fruit trees at a site utilized by natives for centuries. To alleviate concerns about disturbing cultural resources housed in the red clay soil of Old Odanah, planners brought in 80 loads of black dirt that were transformed into small, volcano shaped planting mounds. The tree mix is comprised of hearty, northern varieties of apple, pear and cherry and should begin producing fruit in a few years.

Assistance from a great many partners is making the 4-H program a success, McClain said, including Bad River tribal staff and local horticultural experts. For more information contact McClain at 715.682.7111 ext.1630.

Growing and learning together: Three Sisters at LCOOCC Farm

By Emily Nelis
GLIFWC Summer Intern

Lac Courte Oreilles Reservation, Wis.—Corn, beans, and squash have long been grown by American Indians, generation after generation, to help maintain a healthy diet. Often called the “Three Sisters,” corn, beans, and squash thrive harmoniously, and each plant works together to help one another grow.

On July 25, a Three Sisters seed saving workshop was held on the Lac Courte Oreilles Ojibwa Community College (LCOOCC) Farm, held cooperatively by the Intertribal Agriculture Council (IAC) and LCOOCC. Lea Zeise, Raine Lampert, and Bruce Savage led the workshop.

Participants gathered from surrounding areas to discuss the importance of the Three Sisters to indigenous peoples. The main focus of the workshop was how to save the seeds of native corn, beans, and squash to plant in the

future. Slideshow presentations, short videos, and real plants and seeds aided Lea and Raine in their efforts to educate about seed saving. The primary concern is preserving seeds that have not been genetically modified or hybridized like the seeds found in most catalogues and retailers. There was also a hands-on portion of the workshop, where tomato seed saving was demonstrated, and Savage discussed the use of high tunnels.

There were many questions, discussions, and a lot of laughter. Participants were eager to learn and share their own knowledge about seed saving, and everyone often chimed in with interesting stories about seeds and planting. Emphasis was also placed on the importance of revitalizing traditional gardening in tribal communities.

In order to address the lack of healthy, natural foods on many reservations, and help strengthen the native food economy, the IAC Mobile Farmers Market was also present at the seed saving workshop, where participants were able to purchase native-grown food.



On a perfectly wet, overcast July 9, Bad River youth planted 30 fruit trees adjacent to the Old Odanah pow wow grounds. The youth group included, from left: Mishka Newago, Lacey Adams and Destiny Houle. (COR)

LdF lake sturgeon



Lake sturgeon fingerlings like this one at the William J. Poupert Sr. Tribal Fish Hatchery have grown briskly since a series of releases in the latter 2000s. (COR)

(Continued from page 5)

Beginning in 2005 biologists collected milt and eggs from spawning sturgeon below a dam on the Turtle-Flambeau Flowage and tribal fisheries staff cultured fertile spawn at the William J. Poupert Sr. Tribal Fish Hatchery in Lac du Flambeau.

Tribal staff ultimately hatched-out and reared 4,000 five-to-seven inch sturgeon from 2005-2009. Each young sturgeon received a PIT (personal identification tag) implant before release, allowing fisheries survey crews to track their progress over the coming years.

In the Ojibwe language, sturgeon are called name. —COR



Preservation of native corn and wild rice, two staple foods in the Ojibwe diet, was discussed at the seed-saving workshop. (Photo by Emily Nelis)



New state teal season may impact ricers

By Sue Erickson
Staff Writer

Odanah, Wis.—While regulation changes have not yet been finalized by federal law, the U.S. Fish and Wildlife Service's (USFWS) proposal for an early state teal season is likely to be approved for blue and green winged teal in Michigan and Wisconsin. This may bring wild rice harvesters and state teal hunters into the same areas near the peak of the ricing season.

Scheduled to open September 1 through September 7, this state hunt is

part of a three-year experiment, says GLIFWC Wildlife Biologist Peter David, in which both Michigan and Wisconsin intend to take part.

The USFWS determined growth in the continental teal population warrants expanded opportunities for hunters. While early seasons are already in place in southern states, this will be a first opportunity in northern breeding states like Michigan and Wisconsin. Minnesota opted not to pursue this opportunity in 2014.

Several concerns come with the early season in these states, including the potential for confusing teal not yet

in full plumage with wood ducks and mallards. Managers plan to man "spy blinds" during the seasons as a means of gathering data on the harvest of non-target species. If too many non-target ducks are harvested due to mistaken identity, managers may need to rethink the season, David says.

Another concern about the early season is potential conflict with ricers and interruption in rice beds. So it is best to be aware and cautious. David also mentions that duck boats are more likely to cause damage in rice beds than the slim canoes used by rice harvesters.

"We encourage ricers to be looking for hunters, and hunters to watch out for ricers during this season," David says. "Hopefully the problems will be few."

tundra swans while minimizing impact on trumpeter populations, but has not been approved as of yet.

The ceded territories hosts two species of native swans, the trumpeter and tundra swans. The less abundant trumpeter swan, which breeds locally is difficult to tell apart from the more abundant, migrant tundra swan. For this reason, swan harvest will be monitored, and all swans harvested must be registered during the treaty season. The daily bag limit is two, but if ten trumpeter swans are taken, the season will be closed.

By closing the season when ten trumpeters are harvested, some opportunity for swan harvest is offered while continuing to protect the trumpeter population. Setting the season later in the year will allow for more tundra swans to migrate into the region's population, which will help mitigate the impact on the trumpeters.

If the proposed season is not approved, there will be no treaty swan season in 2014.

USFWS report shows healthy waterfowl populations

The preliminary estimate for the total duck population is 49.2 million birds, an eight percent increase over last year's estimate of 45.6 million birds, and 43 percent above the long-term average. The report provides abundance estimates for individual duck species, including the following:

- Estimated mallard abundance is 10.9 million birds, similar to last year's estimate of 10.4 million birds and 42 percent above the long-term average.
- Blue-winged teal estimated abundance is 8.5 million, which is 10 percent above the 2013 estimate of 7.7 million, and 75 percent above the long-term average.
- The northern pintail estimate of 3.2 million was similar to last year's estimate of 3.3 million and remains 20 percent below the long-term average.
- American wigeon were 18 percent above the 2013 estimate and 20 percent above the long-term average.
- The combined (lesser and greater) scaup estimate of 4.6 million was similar to 2013 and 8 percent below the long-term average of 5 million.
- The canvasback estimate of 685,000 was slightly lower than the 2013 estimate of 787,000 but 18 percent above the long-term average.

Habitat conditions assessed during the survey were mostly improved or similar to last year as a result of average to above-average annual precipitation.

The 2014 Waterfowl Breeding Population and Habitat Survey conducted by the U.S. Fish and Wildlife Service and Canadian Wildlife Service encompasses more than 2 million square miles of waterfowl habitat across Alaska, north-central and northeastern United States, and south-central, eastern and northern Canada. The annual Waterfowl Breeding Population and Habitat Survey guides the Service's waterfowl conservation programs under authority of the 1918 Migratory Bird Treaty Act. Waterfowl population surveys and monitoring programs are critical components of successful waterfowl management and a reflection of the Service's commitment to generating high-quality scientific data to inform conservation planning.


(USFWS Migratory Bird Program release on the Trends in Duck Breeding Populations 2014: www.fws.gov/migratorybirds/)

Proposed swan season

The tribes may have their first opportunity to hunt swan this fall under a season proposal that has been submitted to the USFWS. The season, proposed to begin November 1, is designed to target

Trumpeter & Tundra Swans


Trumpeter Swan



Length—64 in.
Weight—28 lbs.

Trumpeter swans are the largest birds native to North America. The non-native mute swan is nearly as large, but has a distinctive orange knob on the top of the bill which makes identification easy. Trumpeter swans have a large, stout, black bill. Large male trumpeters can have a wingspan of nearly ten feet. Trumpeters feed mostly on aquatic plants, although in winter they may forage on waste grain and grasses in farm fields.

Tundra Swan



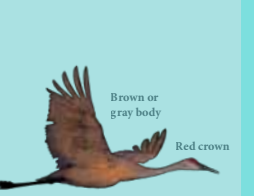



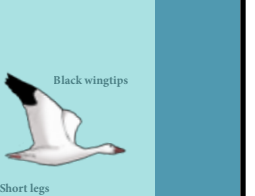


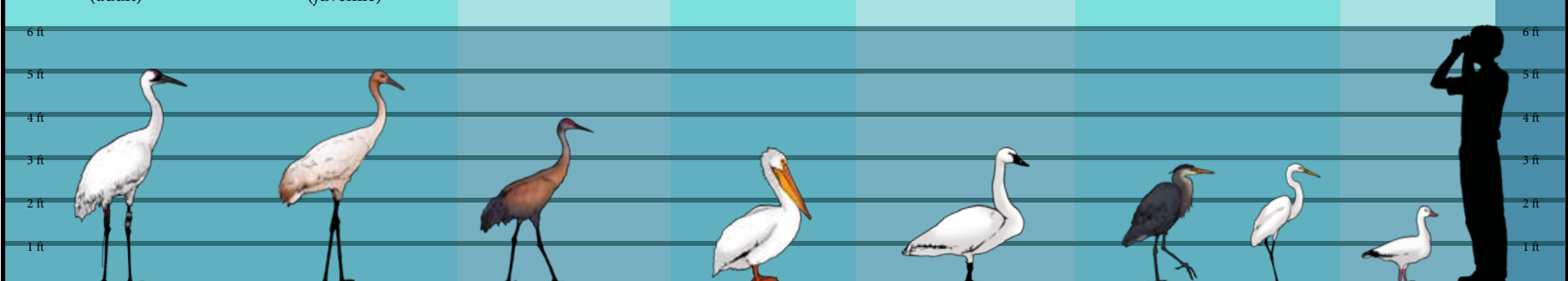
Length—59 in.
Weight—16 lbs.

True to their name, tundra swans breed in the Arctic and subarctic tundra. This species is sometimes split into two subspecies, Bewick's swan and whistling swan. Both are all white, with variable-sized yellow patches on the base of the bill. They eat mostly aquatic vegetation, although in some areas they may feed heavily on waste grain and other land plants.

Large Water Birds: An Identification Guide

To learn more about cranes and wetlands visit www.bringbackthecranes.org
Panel and illustrations developed by the International Crane Foundation: www.savingcranes.org

 <small>Black wing tips Red mask ID bands on legs</small>	 <small>Brown and white body Flies with neck straight</small>	 <small>Brown or gray body Red crown Long legs</small>	 <small>Black mid-wing and wingtips Long orange bill</small>	 <small>White wings and body May have ID band on neck Short legs</small>	 <small>Flies with neck bent Long legs</small>	 <small>Black wingtips Short legs</small>
Whooping Crane (adult)	Whooping Crane (juvenile)	Sandhill Crane	White Pelican	Swan	Heron and Egret	Snow Goose





Caring for Gichigami

Habitat protection critical

By Bill Mattes, GLIFWC Great Lakes Biologist

The Sacred Shell rose up out of the water and told the people that this was the place they had been searching for. Here, the Waterdrum made its seventh and final stop on the migration. The Sacred Fire was carried here and here it burned brightly.

—The Mishomis Book, *Edward Benton-Banai*

Ojibwe teachings tell of the long migration that the Ojibwe people undertook guided by the Sacred Megis Shell to their ultimate destination, Madeline Island in Gichigami (Lake Superior). It was along the shore of Lake Superior that they found the precious food, manoomin (wild rice) and a land of beauty and abundance. It became their homeland. Today, it is the responsibility of all people to protect this great gift and resource, which nourishes us both spiritually and physically.

Those of us who work day-to-day on issues related to Lake Superior probably do not reflect often enough on this unique and magnificent resource. By virtue of its great size and geographic position, Lake Superior creates its own microclimate that distinctly influences the flora and fauna that fall within its reach. In the context of nature's beauty, diversity, power, and value, Lake Superior stands alone. As you learn of the cultural heritage, and travel its rugged, mostly undeveloped shoreline, it is easy to become captivated. It is also easy to imagine why native people and early European explorers alike so revered and respected this Great Lake.

Although managing Lake Superior fisheries has been—and will continue to be—a challenging endeavor, the ultimate challenge may rest in our ability to preserve the environment on which the fisheries depend. For, despite its relative isolation, the lake's great size and pristine nature make it exceptionally vulnerable to human activities. Some of the broader goals that must be pursued to support healthy and stable fish communities are:

- Restoration and protection of near shore habitats
- Achievement and maintenance of water and air quality standards
- Rehabilitation of indigenous aquatic species

In this respect, achievement of our fish community and habitat objectives will serve as an important measure of our progress toward rehabilitating and protecting this unique and fragile ecosystem. To achieve our common goal of a healthy Lake Superior, cooperative action among governments, interest groups, and concerned citizens from many disciplines will be required. If we are successful, future revisions of fish community objectives for Lake Superior will largely reflect a desire to simply maintain and preserve the existing fish community and the environment on which it depends.*



Status of the fishery

Namegos (lake trout), adikameg (lake whitefish) and kewis (cisco a.k.a. lake herring) are indigenous native species whose populations are rehabilitated in Gichigami. Other species whose status is uncertain or still being rehabilitated are namé (lake sturgeon), ogaa (walleye) and namegos (brook trout).

All of the lake's fish populations declined between the turn of the last century and the early 1960s. This was due to a combination of excessive sea lamprey mortality and fishing. After sea lamprey control began to be successful, wild lake trout were protected through tighter fishing regulations and hatchery lake trout were stocked.

In 1996 much of the stocking was discontinued as wild fish were reproducing well on many of the historic spawning reefs. Lake whitefish recovery matched and then exceeded that of lake trout by 2000. Cisco recovery has been more modest, mainly due to predation by lake trout and sporadic successful recruitment (young fish surviving to be caught). Also, there are negative interactions between the invasive biijimaagazehns (rainbow smelt) and young cisco which affects the cisco populations.

All in all, since the turn of the last century, fishing and fish populations in the near shore waters of Lake Superior have been the best since the turn of the 19th (See [Lake Superior fish](#), page 23)

Sea lamprey remain a critical issue

By Bill Mattes, GLIFWC Great Lakes Biologist

Bimiizii (sea lamprey) are native to the Atlantic coast of the United States. They invaded Gichigami (Lake Superior) in the late 1930's after shipping canals were built connecting the Great Lakes to the ocean. Parasitic sea lampreys grow from six inches to nearly two feet long in eighteen months, and in this time they kill nearly forty pounds of fish by attaching to them and sucking out their body fluids. In the productive Atlantic Ocean their effect is minimal, but in the less productive waters of Lake Superior, their effect can be devastating if populations are left uncontrolled.

Lamprey peak abundance occurred in the mid 1950's prior to the first application of the lampricide TFM (3-trifluoromethyl-4-nitrophenol) which targets and kills larval lampreys before they become parasitic and start killing fish. In addition to lampricide, barriers were constructed on several streams. These barrier dams, along with many dams built for logging, hydropower, and other reasons, keep lampreys from reaching upstream spawning areas.

Lampricide and barriers are the backbone of an Integrated Pest Management (IPM) approach to battle lampreys which is led by the Great Lakes Fishery Commission. Under this approach new techniques are being developed and old techniques are being revisited. New techniques include using pheromones to attract or repel sea lampreys in rivers to more effectively trap them.



Jalyn LaBine empties a portable assessment trap of sea lamprey in the Bad River while Marissa Neitzke records the data. (Photo by Mike Plucinski)

On the Bad River a GLIFWC crew is revisiting an old technique; walking the river hunting for sea lamprey nests to destroy. This work is in addition to adult population assessment work that GLIFWC has conducted annually since 1986 in cooperation with the USFWS Marquette Sea Lamprey Control, Bad River Natural Resources Department and Keweenaw Bay Natural Resources Department. The adult assessment, in addition to removing a portion of the adult population, is used as a measure of the effectiveness of the control program and the damage to the fishery that can be attributed to sea lampreys.

Threats to the continuance of effective sea lamprey control in Lake Superior include:

1. **Apathy:** A lack of concern or interest in the control of sea lamprey because years of effective control have led to their negative effects not being noticeable.
2. **Barrier removal:** Free flowing rivers and connectivity are sought after attributes in watershed management. However, the removal of the lower most barriers in river systems opens them up to invasive species from Lake Superior (i.e. sea lamprey, river ruffe, round goby).
3. **Reduced lampricide effectiveness:** Effectiveness is reduced due to lampricide use being reduced in Lake Superior to be used elsewhere in the basin and lentic larval populations expanding (those populations not in the rivers where they can be treated), or behavioral adaptations to the lampricide.

(See [Sea lamprey](#), page 19)



A sea lamprey receives fin clips prior to release in an effort to determine the number of spawning sea lampreys ascending the Bad River. (Photo M. Plucinski)

New study looks at the future of safe fish consumption in Keweenaw Bay

By Sara Moses, GLIFWC Environmental Biologist & Valoree Gagnon (KBOCC/MTU)

Keweenaw Bay, Mich.—How many years will it take before the most sensitive populations in Keweenaw Bay are able to safely consume the amount of fish that they desire? This is the guiding question for the team of researchers conducting a \$1.45 million study based at Michigan Technological University (MTU) along with scientists from the Massachusetts Institute of Technology (MIT), the Desert Research Institute in Reno, and Boston University.

The 3-year project, which began in September of 2013, is funded by the National Science Foundation (NSF) and is titled “Managing Impacts of Global Transport of atmosphere-surface exchangeable pollutant’s (ASEPs) in the Context of Global Change.” The study is a collaboration between 18 investigators with expertise in a wide range of subjects including natural and social sciences as well as education and outreach. The project also includes 11 local, regional, national and international partners including Keweenaw Bay (KB) Indian Community Natural Resources and Forestry Departments, KB Ojibwa Community College, GLIFWC, the National Parks Service, and the International Joint Commission (IJC).

The study focuses on mercury, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs). These contaminants are released largely as a result of human activities and have a tendency to concentrate in northern regions, carried northward by air and water currents. They can be found in remote regions far from their sources, such as the upper Great Lakes and the Arctic. Once present in the

environment they can accumulate in fish and ultimately people, resulting in harm to human and ecosystem health. Their presence has triggered widespread fish consumption advisories and restrictions since the early 1970’s.

The research team is investigating several components of the guiding question. First, they are exploring how mercury, PCBs, and PAHs are arriving in the Great Lakes region and end up in the fish we eat. The focus will be on two locally important species: walleye and lake trout. Next they are looking to the future where they aim to predict how global change will impact these processes. Aspects of global change they are exploring include climate change, population increase, and changes in land use. In addition, they will look at the impact that existing and potential future regulatory actions (state, federal, tribal, and international) may have on the emissions and ultimately the concentrations in fish of these three contaminants. The researchers also recognize and will consider the unique physical, socio-cultural, and spiritual impacts the presence of these contaminants in fish has on tribal fishing communities.

The project will take three years to complete. Although the study is rooted in the Keweenaw Bay region and its people, the researchers are scaling-up to larger areas of concern such as Lake Superior and the wider Great Lakes basin. The research team has engaged the local community in helping frame and answer the guiding research question. Led by community concerns, the research team is keeping the seventh generation in mind throughout the duration of the study and its activities.

For additional information, you can visit the project website at www.asep.mtu.edu.



Lake trout and walleye living in Lake Superior’s picturesque Keweenaw Bay in Michigan are the subject of a three-year study of contaminant levels in the fish. Researchers will look at how the contaminants arrived there and what impact climatic change may have in the future. (Photo by Jim St. Arnold)

Tribal staff improve water sampling skills

Denver, Co.—Several tribal staff, including GLIFWC’s Dawn White, mining specialist, benefitted from a US Geological Survey (USGS) training on water sampling techniques this summer. The training, entitled Field Water-Quality Methods for Ground Water and Surface Water, “increased tribal capacity to conduct effective sampling as well as provide critical reviews of sampling plans proposed by agencies and contractors,” says White. The focus was on surface and ground water sample collection and sample processing methods, based on USGS established protocols.

The two-week training was comprehensive, according to Naomi Tillison, Bad River Water Resource Specialist, who attended the training along with Bad River Environmental Specialist Cyrus Hester. “It covered every aspect of water quality monitoring, from selecting a monitoring site to shipping water quality samples,” Tillison states. A mix of lectures with laboratory and field experiences allowed participants to actually practice concepts presented in lectures.

Tillison was particularly interested in receiving training on monitoring trace metal/inorganic constituents in surface waters. She plans to incorporate lessons learned into the tribe’s monitoring projects and to ultimately expand monitoring to include low-level mercury. She said the training also gave her some new perspectives on monitoring that will allow her to continue improving the quality and effectiveness of Bad River’s existing protocols. A second training session was attended by staff from Red Lake and Lac du Flambeau. The trainings were funded through a grant from the Charles Stewart Mott Foundation. —Sue Erickson

New zebra mussel biopesticide to be tested in Keyes Lake

By Sara Moses, GLIFWC Environmental Biologist

Scientists from the U.S. Geological Survey (USGS) are hopeful that a new experimental pesticide may be a powerful weapon in the battle against a troublesome invader in our lakes: the zebra mussel. The effectiveness of the pesticide will be tested this summer in Keyes Lake in the 1842 ceded territory of Wisconsin.

Zebra mussels were first introduced to the lower Great Lakes in the mid-1980’s after tiny larval mussels were released from the ballast water of a commercial cargo ship that arrived from Europe’s Black Sea. By the 1990’s, zebra mussels spread to all of the Great Lakes and numerous inland lakes, including many lakes within the ceded territories. They are often carried from lake to lake in boats and bait buckets. According to the Wisconsin Department of Natural Resources (WDNR), zebra mussels have been found in 163 lakes and rivers in the state.

First the bad news... An array of environmental and other issues arise from zebra mussel infestations. They clog water intake systems, disrupt ecosystems by altering the natural food web, contribute to harmful algal blooms, outcompete native species, and litter beaches with their sharp shells. But, the good news is that Zequanox, a new biopesticide made from cells of a common bacteria, may provide a new way to combat this aquatic invasive species.

Zequanox is highly specific, meaning it is only toxic to zebra mussels and the related quagga mussel, another invasive species that is not yet well established within the ceded territory. It is highly toxic to these species, killing up to 90% of the individuals in a treatment area. It has not been found to have any negative impact on other species, including native mussels. Zebra mussels consume the biopesticide along with phytoplankton, their main food source. Components of the bacterial cells in Zequanox then deteriorate the lining of the mussels’ digestive tracts, resulting in death. Any pesticide left in the environment breaks down after 18-24 hours.

Zequanox is already being used to eradicate zebra mussels from isolated industrial water intake systems, but is only recently being investigated for potential use directly in lakes and rivers. The first open water testing of this biopesticide within the ceded territory is scheduled to take place between July 15 and August 15 in the 194-acre Keyes Lake in Florence County. Zebra mussels were first identified in the lake in 2010. The lake also has a healthy native mussel population. The USGS, in collaboration with WDNR, will create and treat 6 enclosures in the lake for 8 hours, observing the percentage of zebra mussels successfully killed and assuring there is no effect on the native mussels.

The biopesticide is not anticipated to be a silver bullet for eradicating zebra mussels from our waters. But, it may prove effective for greatly reducing the number of mussels in treated areas, helping alleviate the negative impacts that arise when the populations are high.

To see where invasive zebra mussels have been found in Wisconsin, Michigan, and Minnesota and to learn more about how you can help stop the spread of these aquatic hitchhikers, visit <http://invasives.glifwc.org/ais/>.



Find us on facebook

<https://www.facebook.com/GLIFWC>

Second GLRI plan looks at 4-year funding priorities

By Jen Vanator

GLIFWC Great Lakes Program Coordinator

Odanah, Wis.—The Great Lakes Restoration Initiative (GLRI) was originally launched in 2010 to provide an influx of funding to accelerate efforts to protect and restore the Great Lakes. GLRI funding decisions were directed by the GLRI Action Plan, which covered fiscal years 2010-2014. Now with some fine-tuning, federal officials are preparing for a second round.

The United States Environmental Protection Agency (EPA) released a draft of the GLRI Action Plan II (Plan II) on May 30, which will direct funding decisions under GLRI for fiscal years 2015-2019. Plan II will, when final, direct funding decisions in much the same way as the initial Action Plan; unlike the original plan, however, Plan II does not address new sources of toxics outside of Areas of Concern.

Plan II incorporates a science-based adaptive management framework that will prioritize the issues to be targeted with GLRI resources and to assess the effectiveness of GLRI projects. To be adaptive, Specific Measures of Progress are included in Plan II to track and assess all actions implemented with GLRI funding.

Five focus areas are featured in the new proposal: cleaning up Areas of Concern, preventing and controlling invasive species, reducing nutrient runoff that contributes to harmful or nuisance algal blooms, and restoring habitat to protect native species, and science-based adaptive management. Each one of these focus areas includes federal funding commitments for specific activities.

Under Plan II, funding continues for cleaning up Areas of Concern, specifically targeting remediation, restoration, and delisting Areas of Concern, as well as increasing knowledge about contaminants in Great Lakes fish and wildlife. Under this focus area, the federal government commits to funding activities that will implement management actions necessary to remove Beneficial Use Impairments and to delist Areas of Concern, reduce human exposure to contaminants from Great Lakes fish consumption, and identify emerging contaminants and assess their impacts on Great Lakes fish and wildlife.

To help reign-in invasive species, project funding aims to prevent new infestations and to help control already-existing invasive species. Under this focus area, Plan II commits to funding activities that will block pathways through which aquatic invasive species can be introduced to the Great Lakes ecosystem, conduct early detection and monitoring activities, and rapid response actions or exercises. Plan II also commits to funding activities that develop and enhance technologies and methods to prevent the introduction and control of invasive species. It also develops and enhances invasive species specific collaboratives to support rapid responses and communicate the latest control and management techniques.

To reduce nutrient loading, federal authorities look to fund activities that implement agricultural or other nutrient-reduction practices in GLRI-targeted watersheds, which will reduce untreated runoff from urban watersheds by implementing watershed management practices in urban areas that have adopted a watershed strategy. To protect, restore, and enhance native habitats, Plan II commits to funding activities that will remove or bypass barriers on Great Lakes tributaries to facilitate fish passage; protect, restore, and enhance Great Lakes coastal wetlands; and protect, restore, and enhance GLRI-targeted habitats in the Great Lakes basin.

The next phase of the GLRI also keeps an eye to specific climate change resiliency criteria which was developed and incorporated into project selection processes. Plan II also encourages activities designed to educate children about the Great Lakes ecosystem by funding activities that promote Great Lakes-based environmental education and stewardship, with a focus on educator training.

While Plan II does not have a formal public comment period, the EPA is accepting public comment on the new draft Action Plan while it is being edited. Great Lakes Indian Fish and Wildlife Commission staff submitted comments that recommended that the GLRI Action Plan II align better with priority activities developed under the Great Lakes Water Quality Agreement and through the Lakewide Management Planning process.

The draft Action Plan can be found and comments submitted on the EPA's GLRI Public Engagement website at: <http://greatlakesrestoration.us/public.html>.



Locations within the Great Lakes identified as having experienced high levels of environmental harm. (Reprinted from <http://www.ec.gc.ca/raps-pas/>)

Feds act on tribal leaders' recommendations

By Ashley Duffy
GLIFWC Intern

Washington, DC—As part of the Climate Action Plan unveiled last year, President Obama established the State, Local, and Tribal Leaders Task Force on Climate Preparedness & Resilience in November 2013. The Task Force was charged with providing the President with recommendations on how the federal government can assist tribal, local, and state governments in preparing for and recovering from the effects of climate change, such as increased severe weather events. The Task Force is made up of governors, mayors, and tribal leaders including Karen Diver, Chairwoman of the Fond du Lac Band of Lake Superior Chippewa, Minnesota, and Reggie Joule, Mayor of the North-west Arctic Borough, Alaska.

From January 2014 until May 2014 Task Force members gathered information to develop recommendations. During that time, Chairwoman Diver and Mayor Joule undertook extensive outreach to Indian Country to gather as much information as possible from tribal communities about the barriers to accessing federal programs, and suggestions on how the federal government can best assist tribal communities prepare for the effects of climate change. Task Force members worked with the Council on Environmental Quality (CEQ) to develop this information into useful recommendations that can be presented to the White House.

On July 16 the Task Force met for a final in-person meeting in Washington, D.C. to discuss the recommendations that have been identified as priorities by members of the Task Force. In the afternoon, President Obama met with the Task Force, and used that opportunity to publicly announce a set of actions based on early recommendations provided by the Task Force.

Included in these early actions is a new program by the Bureau of Indian Affairs to develop a Federal-Tribal Climate Resilience Partnership and Technical Assistance Program that will help tribes prepare for climate change by developing and delivering adaptation planning. The announcement also includes five Climate Extension Support Liaisons to the Department of Interior's Climate Science Centers to work with tribes at the regional level, identifying basic information and science needs, and to work with other federal agencies to address those needs. These actions came directly from recommendations provided by Chairwoman Diver and Mayor Joule through their outreach to Indian Country.

The Task Force members, with the help of CEQ, are planning to compile a full draft report sometime in August 2014, which the Task Force members will review. Later in September, the White House and various agencies will be consulted on the final draft of the Climate Preparedness & Resilience Report, which will then be submitted to the President and released publicly by late September.

Essential Ojibwemowin

gichigami—Lake Superior

giigoonh—fish

adikamig—lake whitefish

gidagaa ginoozhi—northern pike

chinamekos—lake trout



Gathering supplies from nature,



Anishinaabe artists share traditional skills Dewe'iganag returns to Bad River Plaited quilling intrigues novice quillers at Red Cliff

By Dylan Jennings, GLIFWC LTE

Bad River Reservation, Wis.—One buffalo hide, some screws, a few plywood boards, and a little elbow grease from our youth are just what the drum doctor ordered. During the first week in July, Bad River summer youth workers had the opportunity to build a drum from frame up, for their community. Actually, they built not one, but two drums.

Joe Syrette, a drum maker from the Batchewana First Nations in Sault Ste. Marie, arrived on Monday and put the youth to work immediately.

Joe is Anishinaabe from Ontario, Canada and recognizes the importance of keeping our youth connected to the culture and traditional teachings. The process of drum



Joe Syrette, Batchewana First Nations, instructs Bad River youth on how to construct a drum frame. (Photos by Dylan Jennings)



Trimming and cutting a buffalo hide to form the drum's head.

making also comes with a set of teachings that are rarely written in books. Joe was raised around the dewe'igan (drum) in a traditional manner and has sung with some of pow-wow country's best drum groups from Bear Creek to Northern Cree. "I came up this way towards Mille Lacs for Big Drum services last spring. I can remember some of the old men telling me that Bad River used to have drums like that in their community. I tell the young ones here today that they are making history. These drums will be around for a long time and the generations to come will see this and recognize the wonderful things our youth are capable of."

One drum is designated for the youth and the other designated for the community. The community drum can be used at funerals, celebrations and anything the community may wish to use it for. The drum will be feasted and a brief ceremony will be conducted shortly after the drying process.

Tribal Chairman Mike Wiggins recalls, "Our elders remember that there was a time when Bad River had Big Drums and that they had a role in the good life of our people. A couple of years ago, there was a small group of Bad River members who journeyed West to attend ceremonies with the tribe who still takes care of the Big Drums that used to be in Bad River. Our Bad River people would like to see a Big Drum return someday. The message that came back to Bad River was that there was a lot of work that still needs to be done here and that we weren't ready yet. I take that message as a positive note that implies good possibilities for the future here in Bad River. Watching our youth receive teachings about drums and also how they are made is something that I definitely register as the type of work and prep that goes into a community getting ready for a day when a Big Drum comes home. Of course there is still a lot more work and ceremony that needs to be done too."



Another step in the process, Joe Syrette and Bad River youth assemble the drum frame.



Bad River youth complete construction and lace up the dewe'igan.

Plaited quilling intrigues novice quillers at Red Cliff

By Emily Nelis, GLIFWC Summer Intern

Red Cliff Reservation, Wis.—Gaag, the porcupine, is a common sight in the north woods. He is most often seen in the trees eating his favorite springtime buds or waddling slowly along the side of the road, and in some unfortunate cases, he becomes roadkill. The roadkill gaagwag, however, are important to many Native Americans today for acquiring quills, which are natural items that have been used for traditional crafts and regalia adornment long before the introduction of glass beads in tribal communities. Quillwork is a form of art that is still practiced today, and on June 6, Red Cliff community members got a chance to learn how to do plaited quillwork under the instruction of Kathy Kae, interim programming assistant, Northland College's Native American and Indigenous Cultural Center.



Kathy Kae, Northland College's Native American and Indigenous Cultural Center, coached on the techniques of plaited quillwork on birch bark at Red Cliff this summer. Participants could select from a host of dyed quills or use the natural quill. (E. Nelis)

After learning from an elder in Michigan, Kathy Kae has been quilling for over ten years, and has been doing plait style quillwork for about four years. Red Cliff welcomed her into a classroom at the Early Childhood Development Center where Kae explained how to get quills from roadkill gaagwag, how to properly clean and dye them and how to start quillwork. She chooses to quill on birch bark, and she brought all other items necessary to the classroom to teach eager community members how to quill. The classroom was buzzing with excited questions, jokes, laughter, and comparisons between quillwork and beadwork. According to some students, starting quillwork is the hardest part. "The only way to learn it, is to do it," another student noted.

Kathy Kae was brought to Red Cliff through the Native American and Indigenous Cultural Center at Northland College. One of the main focuses of the Cultural Center is tribal community outreach to support Native students by providing a sense of community on campus. The Cultural Center also serves as an educational resource of Ojibwe cultural knowledge for people both on and off campus. According to the program's director Katrina Werchowski, the community outreach is an effort to show that Northland College genuinely cares about committing to tribal communities and Native education.



Ojibwe skills/language at Kiwenz

By Emily Nelis, GLIFWC Summer Intern

Fond du Lac Reservation, Minn.—It's a different world at Fond du Lac's Kiwenz Campground during the annual Language Camp. You hear as much Ojibwemowin spoken as English; signage is in Ojibwemowin, and like most places where lots of "shinabes" gather, there is also a lot of laughter.

The 6th Annual Kiwenz Ojibwe Language Camp was held June 19-June 22 at the Kiwenz Campground in Sawyer, Minnesota. On June 20, three GLIFWC interns traveled to the Fond du Lac reservation to find the camp bustling with fluent Ojibwemowin speakers, traditional craft booths, and many people from around the country (and even the world) joining together to learn the Ojibwe language and get a hands-on experience with Ojibwe culture.

The Ojibwe Language Camp hosts different activities every year. The crafts taught this year included: birch bark basket making, beading, quilling, moccasin sewing, rice knocker carving, leather pouches, and rattles. There were also many other community-building events, such



Kiwenz participants were guided by master birch bark crafter Jim Northrup in constructing the ultimate winnowing basket. Above, a camp participant puts in the finishing stitches. (Photo by Darienne Nez)

as feasts, canoe races, a talent show, a round dance, a small powwow, and a talking circle as the camp finalized.

The Ojibwe Language Camp was created by Fond du Lac members Jim and Pat Northrup and Rick Gresczyk. According to Jim and Pat, the camp was initially started to actively use the Ojibwe language, teach others the language, and provide a nonthreatening, respectful and fun atmosphere for those who wish to learn about Ojibwe culture.

Every year, the camp's attendance seems to grow, despite not being advertised other than by word of mouth and Facebook. Last year's Kiwenz Ojibwe Language Camp attracted 1,215 people. With so many active participants and avid learners attending the camp, the Kiwenz Camp definitely has a positive impact on the Fond du Lac community and has also created a ripple effect that continuously draws in people from surrounding communities and even places such as the Navajo Nation, Alaska, Japan, and New Zealand!

Campers returned to their various homes, tired but enriched from experiences that affirmed and strengthened all that is Ojibwe, carrying with them not only items they had crafted, but also a good spirit and better feel for the language and its meaning.

Gidinawemaaganinaan (Our Relative)



GLIFWC's 2014 poster features ma'iingan (wolf). Mille Lacs artist Wesley Ballinger succeeds in illustrating the special kinship felt between the Anishinaabe (Ojibwe people) and ma'iingan. Ma'iingan and Original Man traveled the world together, according to a teaching in the Mishomis Book by Eddie Benton-Banai. As Ma'iingan and Original Man traveled they became like brothers, but their paths eventually parted.

18" x 24" posters are available through GLIFWC at PO Box 9, Odanah, WI 54861, by phone 715-685-2150 or email lynn@glifwc.org. They can be ordered online at www.glifwc.org/publications/index.html#Posters. The first poster is free, and there is a charge of \$2.50 plus postage for each additional poster. 8 1/2" x 11" posters are available for 30¢ each plus postage.

GLIFWC cookbook features Anishinaabe favorites

Recipes highlight traditional foods & healthy eating

GLIFWC's new cookbook, *Mino Wiisinida (Let's Eat Good!)*, will be ready for distribution by the end of August 2014. The 200-page book plus DVD includes recipes featuring traditional Anishinaabe foods which support a healthy lifestyle; harvesting references and resources, as well as kitchen safety and cross-contamination tips.

A culmination of the three-year project, *Mino Wiisinida (Let's Eat Good!)—Traditional Foods for Healthy Living*, the cookbook is the result of numerous interviews with tribal community members and elders for information on favorite recipes as well as gathering and processing tips. Color photos as well as nutritional information enhance the cookbook.

This project was funded through a grant from the Administration for Native Americans. More information on availability and pricing will be in the winter edition of *Mazina'igan* as well as posted on GLIFWC's Facebook page and website early this fall.

—Sue Erickson



With a first run hot off the press, a limited number of GLIFWC's new cookbooks were distributed at the July Board of Commissioners meeting by program coordinator LaTisha Coffin and dietician Owen Maroney. Above, receiving their copies are Fred Ackley and Fran VanZile from Mole Lake, whose recipe for Mole Lake lobster is in the new book. (Photo by Sue Erickson)

New officers launch GLIFWC Enforcement careers

Jordan McKellips

Odanah, Wis.—For Mosinee, Wisconsin native Jordan McKellips, the time spent tagging along with his dad on fishing and hunting excursions helped create a love for the outdoors and the desire to protect it.

"At around eight or nine years old I started going with my dad on hunts in a duck blind," McKellips said. "During deer season, we'd sit in one of those box blinds that a couple of guys can fit into."

Officer McKellips, a new warden in the Enforcement Division, comes to GLIFWC with a Bachelor of Science in Natural Resources Law Enforcement from UW-Stevens Point. At nearby Mid-State Technical College he completed the 520-hour Basic Recruit training. McKellips began his conservation enforcement career in 2013 as a ranger in the Northern Highlands State Forest.

At GLIFWC McKellips has been busy with advanced training, accompanying veteran wardens in the field to acquire a broad range of experiences. He'll soon take to Lake Superior to learn the Gichigami beat, which includes monitoring the commercial fishery and assisting boaters in emergency situations.

With the seasonal demands of the job, opportunities for wardens to hunt and fish for themselves are limited. McKellips doesn't see a problem.

"The trade-off is spending so much time outdoors," he said. "You're patrolling on a snowmobile, a boat, an ATV—all these things you'd like to do anyway."



Jordan and Dan assisted participants prior to the ceremonial canoe trip at Sandy Lake. (Photo by COR)

There are a lot of interactions with people too, which I like." McKellips will receive a ceded territory duty station sometime this winter.

—C. Rasmussen

Dan Perrault

Sports and fitness have played a big role in the life of GLIFWC's new warden, Dan Perrault, a Keweenaw Bay Indian Community (KBIC) member. Perrault recently completed basic training at the Wisconsin State Patrol Academy at Fort McCoy and will be stationed in GLIFWC's Eastern District.

Perrault is just shy of a bachelor's degree in fitness and sports management from Michigan Technical University, Marquette, Michigan, where he was recruited to play football and played as a linebacker for five seasons. His college football was an extension of a high school career playing both football and hockey in L'Anse, Michigan.

The ability to work outdoors is what attracted Perrault to a position with the GLIFWC Enforcement Division. That's where he wants to be. He was brought up in the hunting and fishing tradition with his dad and brother. "I have been hunting and fishing since I could walk," he says, "and learned the traditional ways, like putting down tobacco, from my dad and grandpa."

Prior to coming to GLIFWC, Perrault worked as a technician for the KBIC Department of Natural Resources. He also participates in other outdoor sports like golf and biking.

—S. Erickson



Recollections of events at Red Cliff prior to the LCO Decision

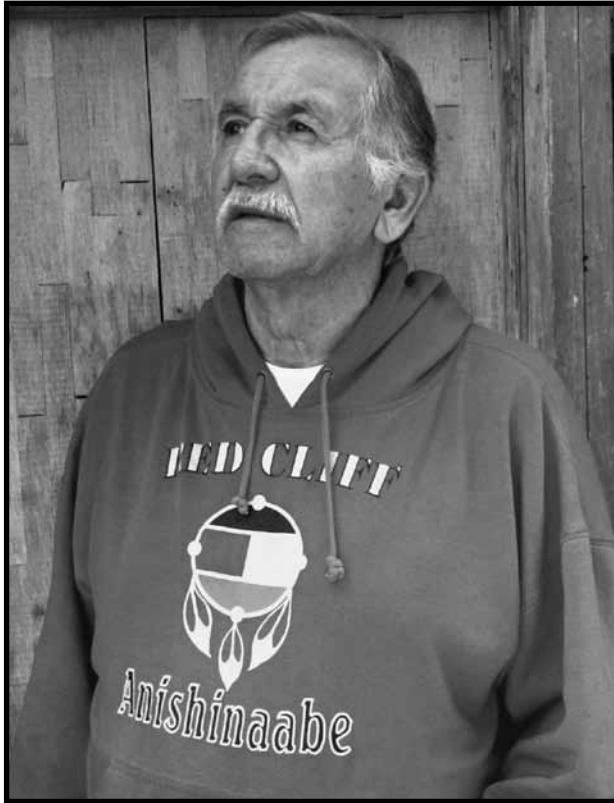
By Ron DePerry
For Mazina'igan

The treaty-making period between the Ojibwe Nation and the United States Government had come to an end. Land was ceded to the United States by the Ojibwe Nation in exchange for certain protected rights agreed upon in the treaties. Statehood is granted to Wisconsin in 1848. Soon thereafter, enrolled members of the Ojibwe Nation become subjected to federal and state laws, regardless of what was agreed upon in the treaties. What follows are my memories of things that happened to our people:

Mr. Ken Basina and his family lived down at the Old House at the time when for some reason the game warden stopped by his house and noticed an old deer hide laying in the shed. Mr. Basina was charged and had to spend thirty (30) days in jail.

It was in the winter sometime ago. I want to say during the month of March. One Saturday morning we got together: Donald "Duck" Livingston, Earl "Butch" Livingston and myself and headed out to the Sand River area to hunt deer. I don't believe our families were starving or if our parents just wanted some good old venison on the table. Whatever the case may be, we were going hunting. Upon arriving on the north side of Sand River, down in the area where all the deer were reported to have been seen, we were about to begin our hunt. All of sudden we noticed that a logger was waving us over to his side, and he began to tell us that the game wardens were just down here in this area.

And so with that information we decided to go over to the Sugar Bush area to do our hunting. Upon leaving the Sugar Bush area with our guns cased and in the trunk of the car we started back home. Just a few feet past the Point Detour road the game warden,



Ron DePerry. (Photo submitted)

Mr. Dahlsted, stopped us. He first ordered "Duck" to open the trunk of his car and at the same time he ordered "Butch" and I to stand outside the vehicle. He then ordered "Duck" to get back into his vehicle and began to question him. He told "Duck" that the boot tracks in the snow out in Sand River matched up with his boots. "Butch" and I laughed at that comment and told "Duck" not to tell him anything. By this time about 15 to 20 minutes had gone by, and he was still

questioning "Duck" inside the car. It was time for a smoke; so "Butch" lit up a cigarette, and I lit up my pipe with good old Prince Albert tobacco. Upon telling Mr. Dahlsted to either arrest us or let us go, Mr. Dahlsted, immediately got out of his vehicle and stood within inches of my face, chest to chest and said; "Keep your mouth shut DePerry or I'll take that pipe of yours and shove it down your f---in' throat." He then turned to get back into his vehicle but not before "Butch" told him to my surprise, "If you feel 'froggie,' why don't you go ahead and leap!" Within a few more minutes, he let "Duck" out of his car and drove away. After that episode, we put our hunting off for a few days.

In the fall of the year when the lake trout and the browns come in close to shore to spawn, Henry Buffalo, Sr. and Mike "Dip" DePerry would go down by the water's edge and set a gill net. They would have to wait until after dark to set their net. After getting their coffee and a little snack ready at home, they would head down the trail behind the church that led them near to Chicago Creek. It was in this area off the shore they would set their gill net. After setting their net, their little wooden boat was pulled up on shore and placed back in the woods out of sight. There they would sit late at night holding on to the inside line that was tied to the net. By holding the line they could tell when a fish had hit the net to be caught and if they had to pull the net in out of the water in a hurry, they could do that as well. The game wardens would patrol this area from time to time, and it was reported they would lift the nets if they would come upon them.

There are many stories like this throughout Indian Country and many of our Indian families had to suffer the loss. While the Treaty of 1854 with the Ojibwe clearly stated that we had the right of hunting, fishing and gathering, many of our family members had to pay the price of either being sent to jail and/or pay a fine.

Gurnoe-vs-the State "The Story behind the Story"

By Ron DePerry, for Mazina'igan

It was during the summer of 1969 upon returning home after a three-year "hitch" in the U. S. Army and being discharged. There was much talk around the Rez and it seemed throughout Indian Country that the treaty rights were not being upheld by the United States Government and arrests of Indians continued to be made by state game wardens for hunting and fishing. We held one of several meetings or gatherings to discuss what we thought needed to happen here on the Red Cliff Reservation to protect our treaty rights. While it was finally agreed upon that six of us would set a gill net in Lake Superior, it was also agreed upon that tribal members from the St. Croix Band would go out the night before and get arrested for hunting. Our initial plan was to get arrested and to bring both the hunting and fishing rights into the court system(s).

Days before the actual arrest; all the local TV stations in the area and the local newspapers were notified that tribal members from the Red Cliff Band and the St. Croix Band were going to test the hunting and fishing rights of the Treaty of 1854.

It was after dark the night before that we agreed to set the gill net off the shores in the location of the boat landing. The area today is the place of our Tribe's campground and the location of the Legendary Waters Hotel and Casino. As we got down to the boat landing, we could hear a boat's motor running, and the boat had its running lights turned off. Knowing the sound of the boat's motor, we knew it was the game warden's boat that was anchored off the shores of Roy's Point. A quick telephone call to the Coast Guard Station in Bayfield notified them that a boat was anchored off the shores in Red Cliff with its running lights off was in distress. Minutes later as we watched from the shore, the boat's running lights came on and the boat headed toward Bayfield. The gill net was then set.

The day the gill net was to be lifted or raised out of the water people began to arrive at the boat landing. There were many local tribal members from Red Cliff there to include women elders who carried signs and banners that read "Indian Power" and "Protect Treaty Rights." The media from the local television stations and newspaper also arrived. There were also local non-native fishermen and their families there to give support. There was also a group of students from the University of Wisconsin-Superior that heard there was going to be a "Fish In," and they were there as well.

It was now time to get aboard the two flat bottom boats that were made available to us for this occasion by a Red Cliff tribal elder, Mr. Franklyn Basina. In

one boat there was Mr. Philip Gordon, Mr. Richard Gurnoe and Mr. Louis "Butts" Peterson, and in the other boat were Mr. Allen Bear, Mr. Roger Basina and Mr. Ron DePerry. As we pushed off the shore to head toward the gill net, the game warden's boat was making its way right toward us. As the net was being lifted, Mr. Gordon held up the only catch of the day which was a big "sucker." While this catch drew many loud cheers from the shore, the game warden at this time ordered us under arrest and to come aboard their boat immediately. He then turned to the three of us and said that we were arrested too and told us to climb aboard as well, before we sink.

With the crowd still cheering from the Red Cliff shores, we were then taken by boat to the game warden station in Bayfield. Upon arriving at the dock in Bayfield, we were then ordered to get in the two waiting vehicles that transported us to the Bayfield County Courthouse to be arraigned. The courtroom was filled with standing room only. When the judge entered the room, he immediately turned to the tribal elder women that were carrying their signs and said, "Ladies, I will have none of that in my courtroom. Will you have those signs removed and place them outside?" Charges were then entered into the court records and all six of us entered a plea of not guilty. A court date was set along with a fine that had to be paid in so many days.

Upon arriving home that day, we were quick to find out that the tribal members from St. Croix did not get arrested for hunting. Although a deer was shot and placed on their vehicle, upon driving through the various towns the game wardens would not arrest them.

In Red Cliff we were later told that our fines were going to be paid by the Tribe. That the local bank had reported to the Tribe that there was an old account that still had some money in it from the Treaty Celebration of 1954! Things were looking up.

How it came to be: Somewhere in the whole process it was under our legal council's advice that we were asked to arrive at a single person(s) name to be entered into the arguments of our case. Upon the six of us involved, Mr. Peterson and Mr. Gurnoe were the only two that were making a living for their families as fishermen. We were told that it had to be unanimous among the six of us and so after some discussion, we had agreed that Mr. Gurnoe should be named.

As of today, five of the six Red Cliff tribal members have Walked On and continue their Journey in the Other World. For no other reason(s), I thought it was important to all concerned that the time has come to tell; "The Story behind the Story."

Miigwitch.

From lecture halls to Lake Superior: GLIFWC summer interns of 2014

By Emily Nelis, GLIFWC Intern

Odanah, Wis.—Rigorous homework and exams, microwaveable food, financial stresses, and meeting new people sums up the college experience. While balancing responsibilities that go along with post-secondary education may be a tough task for some, GLIFWC reaches out to college students for an opportunity that most students desire: an internship.

For a number of years, GLIFWC's Lake Superior fisheries, wildlife, and wild rice divisions have hired Northland College students to work alongside GLIFWC experts in their respective fields. Some have been Native Americans. Now, under the direction of the Board of Commissioners, GLIFWC has broadened its horizons and extended internship opportunities exclusively to tribal member college students. However, not all internships at GLIFWC are GLIFWC-sponsored.

The new internship program was planned well ahead in 2013, and GLIFWC soon developed a paid-internship opportunity poster that was distributed amongst all eleven member tribes, higher education departments, and regional colleges and universities. According to GLIFWC's Planning & Development Program Specialist Jim St. Arnold, the main goal of implementing tribal-member college students into the internship program is to present opportunities for younger generations of GLIFWC member tribes to become familiar with GLIFWC—what GLIFWC does, learn about the different divisions, work in specific field environments, and gain more knowledge along the way.

Currently, GLIFWC internship qualifications include being enrolled as a full-time undergraduate or graduate student, and although internships are open to everyone, tribal members from GLIFWC's member tribes receive preference. Students must also have an interest in a field involved with natural resources and must have a desire to work with Native American tribes.

Specific GLIFWC divisions are listed on the application, and interns are placed into certain fields based on their interests. GLIFWC wants to give every intern an exciting learning experience. Current interns are also encouraged to apply for a second time if they choose to do so.

Although there is no current evaluation process for interns, GLIFWC is planning on working with some colleges and universities to possibly turn internships into a work study program to allow students to receive college credit. GLIFWC is planning to provide many more fun and exciting opportunities in the future for students to receive job skills they would not normally get in a college lecture hall.

Meet GLIFWC interns! Darienne Nez

Coming from the Navajo Nation in Arizona, Darienne Nez is interning with GLIFWC's Intergovernmental Affairs Division this summer. She came here through the Institute for Tribal Environmental Professionals (ITEP), which is a program that GLIFWC participates in as a host site for interns.



Darienne Nez. (Photo by Emily Nelis)

As a senior at Northern Arizona University, she is majoring in biological sciences with minors in mathematics and chemistry. Her main focus while working at GLIFWC is climate change, and she is working on a report, "Recommendations for Climate Preparedness and Resilience." Darienne enjoys working at GLIFWC, and she says her favorite part of the internship is the ability to relate her work experience to her biology degree.

Darienne also likes learning about Ojibwe treaty rights and issues the Ojibwe are experiencing with climate change.

She was initially drawn to work at GLIFWC because Wisconsin has such a different environment compared to Arizona, and she also wanted to compare and contrast tribal issues between the Navajos and the Ojibweg.

After graduation, Darienne wishes to work for the Navajo Nation Department of Fish and Wildlife due to her positive experiences at GLIFWC. Other plans may include grad school at University of Colorado or the University of Arizona to study equine science or animal science. Darienne has high hopes for a doctorate degree.

Aside from studying and working, Darienne enjoys training and riding horses, which are her passion, and she is also teaching herself to play the guitar, sing, and speak her native language.

Through the internship program at GLIFWC, we hope to give college students, especially tribal college students, real life experiences and knowledge that they can take with them throughout their career, whether they come back to work for us, one of the tribes, or somewhere else.

—Jim St. Arnold, Program Coordinator

Charles Wiggins

Charles Wiggins is from Bad River, and he is in his junior year at Northland College. Charles is double majoring in water and ecology with a minor in geology. He is a biological science intern at GLIFWC, and he does various things with all different divisions within GLIFWC. He enjoys working with different departments instead of focusing on one single task, especially because this gives him a more broadened work experience. Charles applied to GLIFWC to help build up his résumé, gain more work experience, network, and learn more about different resources for him to use. After he graduates, he hopes to find sustainable employment. Meanwhile, Charles enjoys taking care of his daughter and playing guitar in his free time.



Charles Wiggins. (Photo by Sue Erickson)

Paul Soulier

As a senior at UW-Eau Claire, Red Cliff tribal member Paul Soulier is majoring in American Indian studies and political science. He works with GLIFWC's Planning and Development Division where he does numerous jobs such as helping edit a cookbook, assisting with informational booths, getting supplies from storage, helping out on traditional ecological knowledge, and harvesting wild plants. Paul enjoys working at GLIFWC due to the flexibility of his position and the variety of work experience it offers.

He is especially interested in intertribal organizations such as



Paul Soulier. (Photo by Emily Nelis)

GLIFWC, and since his father is a GLIFWC game warden, Paul is interested to see what GLIFWC is able to do and what it has done in the past. After graduating from UW-Eau Claire, Paul hopes to find a job, possibly in tribal government, GLIFWC, or the Bureau of Indian Affairs. In his free time, Paul likes to play the guitar (he's in a band at his college) watch sports, fish, and hang out with politicians.

Ashley Duffy

Ashley Duffy is also from Red Cliff, and she is in her fifth year at UW-Eau Claire, majoring in American Indian Studies. She is working with GLIFWC's Intergovernmental Affairs Division, and she is focusing on global climate change and the effect it has on indigenous species the Ojibwe traditionally used. Ashley enjoys her position because she is interested in global warming, and she is able to do research and find how global warming directly affects a culture.

With her father a longtime representative to the Voigt Intertribal Task Force, Ashley says she has always known about GLIFWC. When she applied as an



Ashley Duffy. (Photo by Emily Nelis)

intern, she knew her position would be a great fit for her, and she knew she would enjoy working at GLIFWC. After she graduates, Ashley plans on attending law school. When she is not working and studying, Ashley enjoys reading, beading, traveling, learning the Ojibwe language, and going to the beach when it's warm.

Jaylyn LaBine

Another Ojibwe intern from a different reservation is Jalyn LaBine, who is from Mole Lake. Jalyn is a sophomore at UW-Steven's Point, and she is majoring in marine biology. She is a GLIFWC Lake Superior Fisheries intern and her position allows her to use gill nets to capture juvenile sturgeon, take girth, length, fork length, add floy tags, add transmitters, collect and release sea lamprey for data, and collect otoliths samples from whitefish. Jalyn likes going outside in the field to get "down and dirty" instead of being in an office.

After her father and the chairman of her tribe told her about internship possibilities, Jalyn applied at GLIFWC to experience new things on a different reservation (See Interns and LTEs, page 22)

Use of ground-breaking science at Mille Lacs

Aims to help bineshiinhyag (birds) at risk

By Sue Erickson, Staff Writer

Mille Lacs Reservation, Minn.—The Mille Lacs Department of Natural Resources and Environment (MLNRE) is embarking on its third year of purple martin research, this year using GPS tracking on the birds to get more finite readings on migration locations.

In partnership with York University, Toronto, Canada, the Mille Lacs Band has been working to identify the precise migration patterns of purple martins and possibly identify at what point the birds are running into problems.

In the previous two years of tracking, researchers used geo-locators that rely on light levels to indicate where a bird is on the map. Accuracy with the geo-locators is within 50 miles, according to Kelly Applegate, Mille Lacs Fish and Wildlife biologist; whereas the new GPS units will track the bird within 30 feet of the bird's location, giving researchers a much more precise idea of the bird's path. "This is ground-breaking science," explains Applegate. "This is a first using GPS to track these birds."

The purple martin has evolved to be totally dependent on man for its habitat, with its natural nesting grounds, such as woody snags, mostly cleaned out. This is one reason why folks interested in the survival of the purple martin put up purple martin condominiums for nesting purposes and encourage other "landlords" to do so as well. The Purple Martin Conservation Association provides great advice and support for new martin landlords to help them along.

Many times the condos simulate a dried gourd because martins first adapted their nesting sites to gourds hung out to dry by Native people in the southeast. The people welcomed the birds who were not only entertaining to watch but also assisted with insect control and often warded off predators that might be eyeing garden goodies, Applegate relates. The martins are very protective of their home area, and they bomb-dive intruders.

The Mille Lacs reservation hosts multiple purple martin condos, and the area seems to be supporting a healthy nesting population of purple martins. However, in the larger picture the numbers in the Great Lakes region have decreased 80% since 1965, he says, giving reason for concern.

This summer the Mille Lacs Band will outfit 23 purple martins with tiny GPS locators, worn as mini backpacks to avoid any conflict with wing movement, according to Jeff Mau, wildlife intern from Bemidji State University. Throughout the summer, Mau has assisted Applegate in the capture, tagging and GPS outfitting of the purple martin at several sites maintained by the Band.

One of the condos located at the Kathio State Park is rigged so the condo can be lowered for easy access. This done, a small cardboard door controlled by a thin fishing line is set into the condo unit used by the martin selected for tagging.



A purple martin "condo" at Kathio State Park, Onamia, Minnesota, houses about 14 martin families. The structure is rigged to be lowered for purposes of checking and cleaning nests and research activities.



A healthy patch of chicks was typical of this year's breeding season in the Mille Lacs area.



Kelly Applegate, Mille Lacs fish and wildlife biologist, and intern Jeff Mowe, prepare to install a leg band and GPS unit on a captured martin.

(Photos by Sue Erickson)

Then it's a waiting game—waiting for the bird to enter its nesting box. Once that happens, a gentle tug on the fishing line, brings the cardboard door into place, and the bird cannot exit. After that, it's a matter of unlatching the hook that opens the face of each condo and gently snatching the bird.

The next process is slow and careful. Data is recorded on each bird, including wing and tail measurement, sex, age, and weight prior to leg bands being installed for identification and finally, the tiny GPS unit put in place and gently secured. Dots of Super Glue are carefully placed on top of the knots on the GPS unit tie-down in order to prevent them from coming undone. Prior to being applied, the leg bands are also turned bright pink with nail polish to make them more visible to observers.

Threats to the purple martin are multiple. Besides lack of suitable nesting habitat, Applegate cites cold weather and excessive rain that deplete the insects martins feed on; invasive species like the English sparrow or European starlings who take over nesting sites, and finally, explosions of nest parasites that can sicken and kill fledging birds.

The martin condos maintained by the Mille Lacs Band are well maintained, with nesting areas cleaned periodically to remove debris and especially parasites from the nests.

A purple martin condominium is a hub of bird activity. Each bird seems to know which unit is its own, even though they all look the same. With about four or five growing, hungry babies inside, mom and pop martin are busy carrying freshly caught food to the waiting family, so there are constant departures and arrivals, much like a busy airport terminal.

Martin habitat extends from Canada south as far as Florida and Texas and from the Midwest, east to the coast. One bird was tracked migrating as far south as Boliva, according to Applegate, and trackers also observed a migrating martin avoid a hurricane that was arriving in the Gulf.

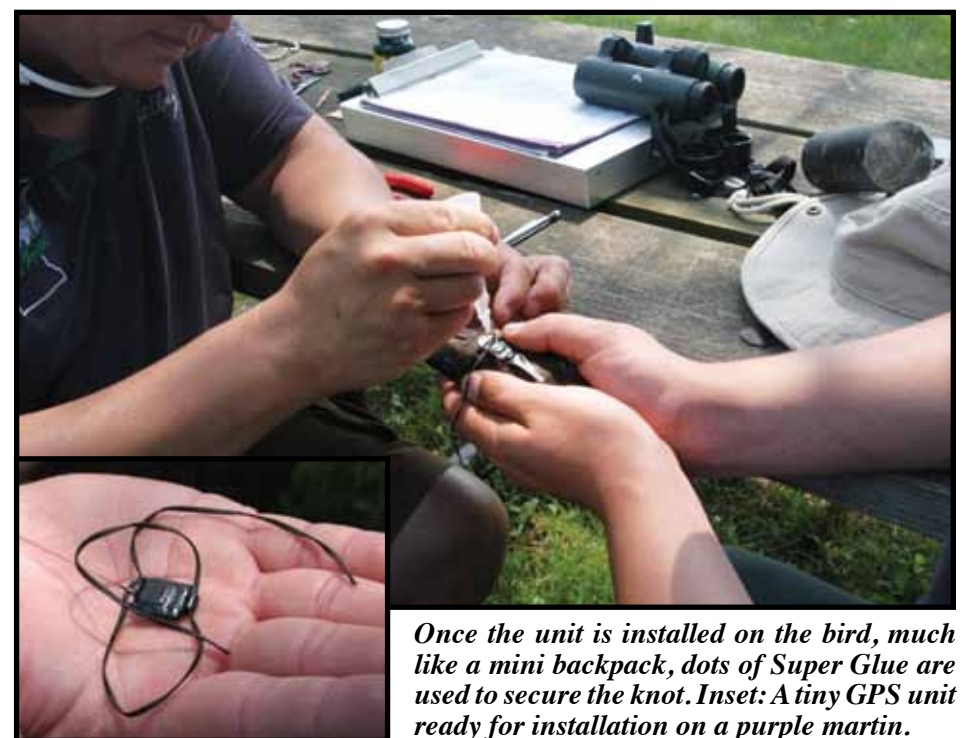
For more information on the purple martin or if interested in becoming a martin landlord, go to www.purplemartin.org, the website for the Purple Martin Conservation Association.



Biologist Kelly Applegate carefully installs a leg band on a purple martin. The band has been painted bright pink so it can be seen easily.



Taking a feather clip for DNA analysis.



Once the unit is installed on the bird, much like a mini backpack, dots of Super Glue are used to secure the knot. Inset: A tiny GPS unit ready for installation on a purple martin.



Report from Camp Onji-Akiing 2014

A mix of culture, science, reflection and fun

By Nikki Crowe, For Mazina'igan

Editor's note: Onji-Akiing is a joint GLIFWC, US Forest Service educational program held each July at Camp Nesbit in Upper Michigan. Nikki Crowe is the 13 Moons Program Coordinator for the FDLTCC Extension Program.

Boozhoo, Onji-Akiing Director Heather Naigus asked me to share a few thoughts on Camp Onji-Akiing. Last year, after hearing about the camp from the GLIFWC website I contacted Heather and found there was a place for me to come in and learn more about the camp and an opportunity to share more about the 13 Moons Fond Du Lac Tribal and Community College Extension program. I joined the camp to help teach about natural plant remedies and with that made a bug repellent which turned out to be in high demand by all participants at camp. I owe the repellent success to the never ending shortage of mosquitoes at any camp in July.

This is my second year at the Onji-Akiing camp and again I am impressed with the leadership and organization of this camp. Being a newcomer to the 2013 camp I didn't know what to expect. I had not been to an overnight camp...let's just say for many, many, many moons and that was a Girl Scout camp with the usual canoeing, smore's, camp songs, and longing for home. The uniqueness of this camp is the Anishinaabe culture and teachings incorporated into Camp Onji-Akiing.

One of the activities at camp is the morning spirit run and reflection. Every morning at 7:00 am the camp participants stretch and run almost a mile and then receive asemaa for a short meditation and reflection along a wooded path back to camp. As the group walks quietly into camp for breakfast, they are relaxed and ready to start their day in a good way. This part of the day is a great measure of success for this camp with nearly 50 5th-8th grade children truly engaged in this quiet purpose.



Bill Mattes, GLIFWC fisheries biologist (left), made available invasive sea lamprey specimens to Onji-Akiing campers during an afternoon session about natural resources careers. (Photo by Charlie Otto Rasmussen)



Frederick Maulson Jr. (left) and Cole Chapman balance on low-ropes, a team building exercise. (GLIFWC staff photo)

My nephew, Austin Smith, from Oneida, Wisconsin is on his 2nd year at camp. I can see his new-found confidence is in part from his experiences at the 2013 camp. Watching him attempt the high ropes was nail biting for myself, and it took everything to not climb up there and bring him down. I thank the staff and participants for continuously cheering him on to the zip-line and safely to the ground. Austin has patiently waited to attend the 2014 camp, carefully writing his letter of intent.

Although the camp is free, the participants are required to write a letter in their own words on why they want to attend camp. This helps to create participant buy-in to the camp and gives them ownership of their experiences. The camp is set up to teach about natural resources and their importance to the Ojibwe culture and treaties. Other activities include making rattles, Ojibwe astronomy, and a career fair in natural resources and introduction to service learning opportunities.

There is no shortage of canoeing, archery, swimming, storytelling and songs as participants are busy learning and strengthening their skills. This year's camp started with a water ceremony. Following the purpose of the camp, the teachings of the stories and songs is culturally specific in the way they are to honor the niibi (water) and Anishinaabe akiing (Earth). Miigwech for another opportunity to join the 2014 camp; hope to see you next year. Baama Pii.



Campers wait their turn on the high ropes course at Camp Nesbit in Upper Michigan. (GLIFWC staff photo)

Clip & Save ✂

2014 GLIFWC Enforcement youth activities/education

Class	Date	Place	Contact
Hunter Safety	August 18, 25 & 26	Lac du Flambeau	Jonas Moermond 715.562.0026 Riley Brooks 715.562.0300
Hunter Safety	August 30 & 31	Mole Lake	Roger McGeshick 715.889-3200 Adam McGeshick 715.209-7217
Hunter Safety	September 5-6	Mille Lacs	Robin Arunagiri 715.889.0734
Hunter Safety	September 8, 10, 12, 15, 17 & 19	St Croix	Brad Kacizak 715.562.0030
Hunter Safety	Sept. 27-28	Lac Courte Oreilles	Mike Popovich 715.292.7535 Lauren Tuori 715.292.8343
ATV/Snowmobile	October 6, 8, 9, & 10	St. Croix	Brad Kacizak 715.562.0030
Trapper Education	October 18 & 19	Mole Lake	Roger McGeshick 715.889-3200 Adam McGeshick 715.209-7217
ATV/Snowmobile	November 8 & 9	Mole Lake	Roger McGeshick 715.889-3200 Adam McGeshick 715.209-7217
ATV/Snowmobile	December 6-7	Lac Courte Oreilles	Mike Popovich 715.292.7535 Lauren Tuori 715.292.8343

All dates are tentative and subject to change. For updated information on these events and others please be sure to check our website at www.glifwc.org, visit us on Facebook or call your local GLIFWC warden.

Mazina'igan digital flipbook

Do you receive Mazina'igan in the mail? Would you rather read it online? You now have this option. The online edition is a full-color flipbook that can be read or downloaded to a PDF. Flipbooks are environmentally friendly, and they save postage and printing costs. If you choose the online edition, you will be notified via email—approximately one week before the Mazina'igan is mailed—when it is available for viewing. The email will contain a link to GLIFWC's website where you can view the flipbook. To sign up to receive the Mazina'igan, either electronically or a mailed subscription go to: www.glifwc.org/publications/mazinaigan/Mazinaigan.html and choose either new subscription or E-edition notification.



Invasive species threaten lifeways

(Continued from page 1)

areas. These quarantines make it illegal to transport untreated firewood or ash logs out of counties included in the quarantine. But quarantines are only as good as people's awareness of them, and their willingness to follow the rules. It only takes one careless person to start a new infestation. Don't be the weak link in the chain!

You can help by watching for the symptoms in these photos when you're out getting firewood or just walking around town.



Adult EAB beetles are only around from June through early September. They tend to stay in the treetops, where they often escape detection. (Photo by Daniel Herms, Ohio State University, www.bugwood.org)

You can help

Please don't move firewood! Tree-killing forest pests such as EAB and the Asian longhorned beetle (which destroys maple and birch) are easily transported on firewood. Harvest or buy firewood close to home, and burn it where you buy it!

If you see any of these signs in ash trees, please report it! You can call the USDA National EAB Hotline at 1-866-322-4512, or contact GLIFWC at 715-682-6619, ext. 2126.

For more information on the EAB, see <http://emeraldashborer.info/>.



The emerald ash borer kills ash trees from the top down. As the branches die, infested trees shoot out from the trunk in a struggle to survive. (Photos by Steve Garske)



The larvae tunnel under the bark, destroying the tree's food-transporting tissue.

Sea lamprey continued

(Continued from page 9)

While past and current lamprey control measures have prevented the devastation of Lake Superior's lake trout, they are to some extent the proverbial "finger in the dam." Continued surveillance and control efforts are necessary to protect the fishery because the fight against predator lampreys is far from won.

For more information on sea lamprey go to: <http://glfc.org/sealamp/>.

Traditions & culture at risk

Kathy Kae

Kathy Kae is an Eastern Cherokee from Michigan who lives with her husband in northern Wisconsin. She is well-known in the Ashland area for her high-quality utilitarian and decorative baskets.

Kay voices her concerns about the future of ash:

"The traditional knowledge of harvesting and weaving black ash has been handed down for generations and generations and is a gift from those who came before us. Sharing this knowledge is an obligation we take on when we learn it ourselves. I've shared this knowledge with my granddaughter, but will she be able to share it with hers?"

"We can document how we harvest and weave so if we lose the ash trees, we will still have that knowledge (in case one day the EAB is eradicated and the trees grow again). My fear though is that during that gap of how many generations that it might take (if ever) to bring the ash tree back, the inter-generational act of sharing that knowledge from grandmother to granddaughter, and all the intimate, heartfelt closeness and Spirituality that goes with sharing that knowledge, could be lost."

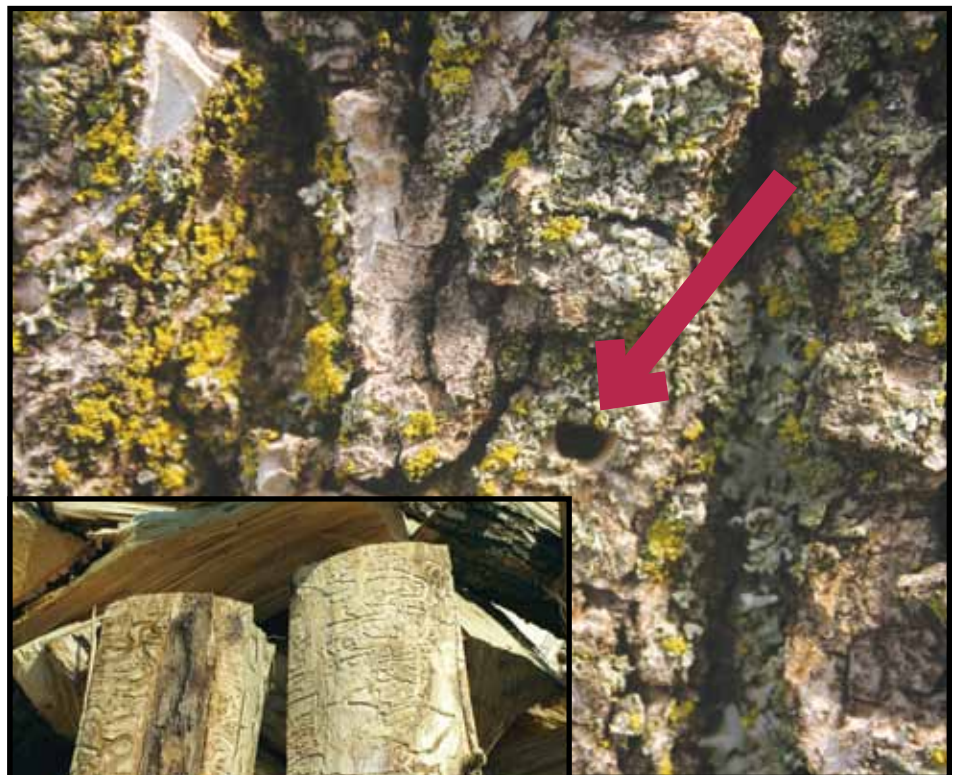


April Stone-Dahl

Bad River tribal member April Stone-Dahl is a maker of black ash baskets. She and her husband Jarrod created their business WOODSPIRIT in 2000, and have shared their skills both far and wide, crafting black ash baskets, birch bark canoes, bark baskets, spoons, bowls and other utilitarian objects.

"Learning about the natural world and how our ancestors were able to live in balance with the earth is vital for humankind today. I wish to pick up those skills and teachings left alongside the path long ago... and working with black ash is but a small part of it," says Stone-Dahl.

"Let us make the future of black ash basket-making possible and help prevent the spread of the emerald ash borer. Please don't move firewood."



Emerging adults leave D-shaped exit holes in the bark.

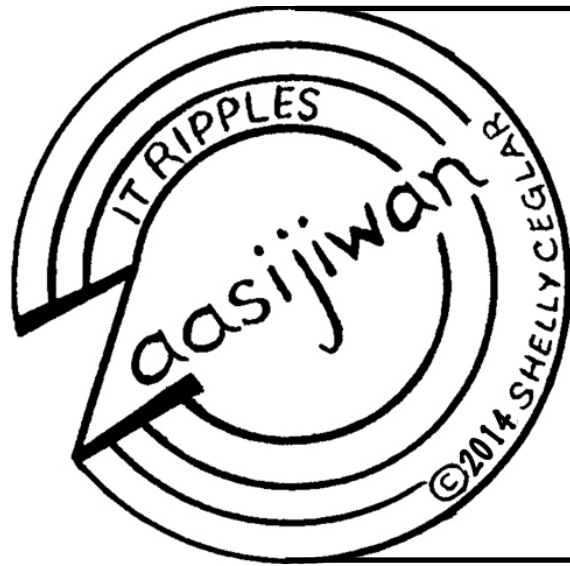
Inset: These zig-zag tunnels carved into ash firewood are a sure sign of EAB! (Photo by Troy Kimoto, Canadian Food Inspection Agency, www.bugwood.org)



UGA1249003



Niyo 2014



Dagwaagin Anishinaabewakiing. It is autumn in Indian Country.

Endaso-giizhik, odazhindaanaawaa. “Aaniin ezhiwebak agwajiing?” Dagwaaging daakaayaa. Gwekaanimad. Ondaanimad, waabani-noodin, ningaabii’anong, zhaawani-noodin, idash giuwedinong. Nimanoominikemin. Manoominike-giizis, izhinikaazo wa’aw giizis. Binaakwe-giizis izhinikaazo gaye. Gashkidino-giizis. Biboong, zoogipon idash gisinaa. Ziigwang, abaate. Giminwan. Niibing, gizhaate. Ganabaj niwii-kiigooyikemin endaso-giizhik. Izhaadaa! Miigwech!”

“Every-day they talk about it. “What are the events outside (weather) outside?” When it is fall, it is cool weather. The wind it shifts. It blows a certain direction, there is an east wind, a west wind, a south wind, and a north wind. We go wild ricing. Wild rice-moon (Sept.), s/he is called this moon.

Raking leaves-moon (Oct.) s/he is named also. She is called the freezing up-moon (Nov.). When it is winter, it is snowing and it is cold. When it is Spring, it is warming up. It rains. When it is summer it is hot weather. Maybe we will go fishing every day. Let’s all go! Thank-you!”

Bezbig—1

OJIBWEMOWIN (Ojibwe Language)

Double vowel system of writing Ojibwemowin.
—Long vowels: AA, E, II, OO
Waabooz—as in father
Miigwech—as in jay
Aaniin—as in seen
Mooz—as in moon

—Short Vowels: A, I, O
Dash—as in about
Ingiw—as in tin
Niizho—as in only

—A glottal stop is a voiceless nasal sound as in a’aw.

—Respectfully enlist an elder for help in pronunciation and dialect differences.

VII-Verb Intransitive

Inanimate; “It is...” verbs.
Minwendaagwad.—It is fun.
Minotaagwad.—It sounds good.
Dagwaagin.—It is fall.
Dagwaaging, gisinaa.
When it is Fall, it is cold weather.
Gaawiin dagwaagingzinoon.—It’s not fall.
Nitam-anokii-giizhigad.—It is Monday.
Niizho-giizhigad.—It is Tuesday/2nd day.
Aabitose.—It is Wednesday/halfway.
Niiyo-giizhigad.—It is Thursday/4th day.
Ishkwaa-anokii-giizhigad.—It is Friday.
Giziibiigiisaginige-giizhigad.—It is Saturday.
Anama’e-giizhigad.—It is Sunday

Niizh—2

Circle the 10 underlined Ojibwe words in the letter maze. (Translations below)

A. Naano-bidoonagad. Naano-nindaso-biboone noongom. Eya’!

B. Niiyo-giiziswagad ningii-anokii gaa-izhi-babaamoseng imaa.

C. Niizho-anama’e-giizhigad. Gitigaaning omaa ningii-anokii.

D. Onaagaans wiininaagwad. Desinaagan, biininaawad.

E. Azhigan wiinimaagwad. Babagi wayaan, biinimaagwad.

F. Jiimaan biinad. Eya’!
Zaaga’iganing nibi biinaagamin.

G. Michisag wiinad.
Nibi iwidi wiinaagamin.
Gawesa!

G W A Y
I O N A N O
T M I H O A W
I A Z H I G A N
G A W E S A A N M
A E I N O A D W O N
A K K O M I G I Y A Z
N N J I D B I A N A O A
I B I I N I N A A W A D
N J W B ‘ S E B S O N I
G I I Z I S W A G A D B

Niswi—3

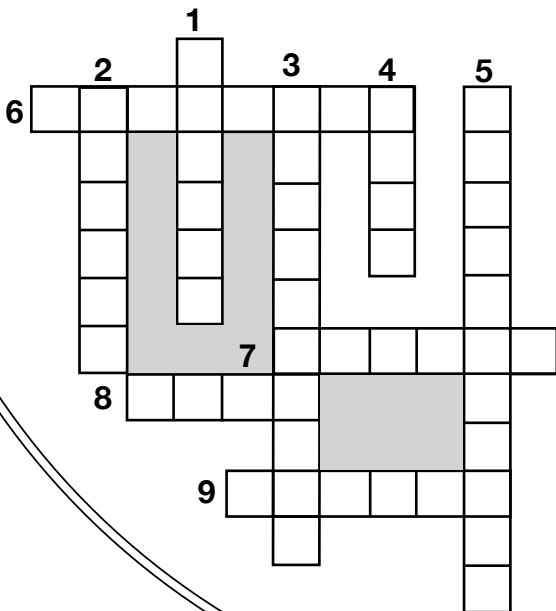
IKIDOWIN ODAMINOWIN (word play)

Down:

1. moon, month
2. It is warming up.
3. The wind it shifts direction.
4. yes
5. S/he is named so.

Across:

6. It is halfway/Wednesday.
7. It is windy.
8. water
9. No, no way!



Online Resources
ojibwe.lib.umn.edu
www.umich.edu/~ojibwe/
www.glifwc.org/

Niiwin—4

VII Informal Time It is...

Waban—It is dawn.
Jibwaa-Gigizhebaawagad.—It is morning.
Jibwaa-naawakwe.—It is before noon.
Naawaakwe.—It is noon.
Ishkwaa-naawakwe.—It is after noon.
Ishpi-naawakwe.—It is early afternoon.
Onaagoshin.—It is evening.
Dibikad.—It is night.
Aabitaa-dibikad.—It is midnight.
Ishpi-dibikad.—It is late at night.
Inashke! Mino-giizhigad.
—Look! It is a good day.
Daso-diba’iganed.
—It is a certain time in hours.

Howah! Mii’iw.

1. Nindizhaa imaa. _____ -naawakweg niwii-kiuwe.
2. _____ Waasa iwidi ishpiming bimisewag ingiw migiziwag.
3. _____-naawakwe. Ziibing na? giwii-giigooyike?
4. _____-dibikad. Nindayekoz. Niwii-nibaa.
5. Abinoojiyens mawi. Ayekozi. Noongom _____-naawakwe. Nibaaganing iwedi nibe’, eya’.

Ishpi-
Jibwaa-
Aabitaa-
Ishkwaa-
Inashke!

Translations:

Niizh—2 A. It is five years. Five, I am so many winters (years) old now. Yes! B. It is four months I have worked at the park (walking place) there. C. It is two weeks (Sundays/Praying days). In the field/garden here I have worked. D. The cup, it looks dirty. The plate, it looks clean. E. The sock, it smells dirty. The shirt it smells clean. F. The canoe it is clean. At the lake the water it (liquid) is clean. G. The floor it is dirty. The water over there it is dirty/polluted. No way, can’t do that!

Niswi—3 Down: 1. Giizis 2. Abaate. 3. Ondaanimad. 4. Eya’. 5. Izhinikaazo. Across: 6. Aabitose. 7. Noodin. 8. Nibi 9. Gawesa!

Niiwin-4 1. I am going there. When it is before-noon I will return home. (Jibwaa) 2. Look! Far off over there in the sky they fly those eagles. (Inashke!) 3. It is early-noon. At the river? Do you want to go fishing? (Ishpi) 4. It is mid-night. I am tired. I want to sleep. (Aabitaa) 5. The baby is crying. She is tired. Now it is afternoon. On the bed over there put him/her to sleep, yes. (Ishkwaa)

There are various Ojibwe dialects; check for correct usage in your area. Note that the English translation will lose its natural flow as in any world language translation. This may be reproduced for classroom use only. All other uses by author’s written permission.

Some spellings and translations from The Concise Dictionary of Minnesota Ojibwe by John D. Nichols and Earl Nyholm. All inquiries can be made to MAZINA’IGAN, P.O. Box 9, Odanah, WI 54861 lynn@glifwc.org.

Interns and LTEs out and about in the ceded territories



Working for GLIFWC's Great Lakes Section this summer are (from the left) Marissa Neitzke, Peter Houle and Jalyn LaBine. (Photo by Sue Erickson)

(continued from page 16)

and build up her résumé. After she graduates, Jalyn hopes to be a marine biologist and travel the world to conduct research. When she's not doing research, however, Jalyn enjoys reading, playing sports, watching football, being outdoors, drawing, hanging out with friends, traveling to powwows, and hunting.

Marissa Neitzke

Marissa Neitzke also works as a Lake Superior Fisheries intern this summer. She is a sophomore at Northland College and is double majoring in biology and sustainable community development. As she is a very sociable person, Marissa likes working at GLIFWC because she can meet new people, and she is highly interested in working for an indigenous organization to learn about the Anishinaabe point-of-view regarding natural resource management.

Marissa says that GLIFWC gives her a "whole different experience," and she loves being able to go out on Lake Superior. Her supervisor Mike Plucinski, GLIFWC Great Lakes Technician, helped reel in Marissa at Northland College's job and internship fair, and she was immediately interested in what GLIFWC does as an organization.

After graduating from Northland, Marissa has many plans which include working as a marine biologist, traveling the world, joining the Peace Corps, and educating others about environmentalism. In her free time, Marissa loves running, playing the cello, painting, hanging out with friends and family, and being on the water.

Peter Houle

Bad River's own Peter Houle is in his second year at Lac Courte Oreilles Ojibwa Community College, and he is studying natural resource management. Peter is the third Lake Superior Fisheries intern at GLIFWC, and he enjoys being outdoors while on the job. Like many other interns, Peter applied at GLIFWC to learn what GLIFWC is about and get hands-on experience in the field. He hopes to work for the Bad River Natural Resources Department or GLIFWC after he graduates. In the meantime, he enjoys hanging out with his friends and family, hunting, fishing, and playing basketball.

Emily Nelis

GLIFWC's Public Information Office received a boost with the summer outreach program and Mazina'igan articles from Emily Nelis, Bad River tribal member and GLIFWC summer intern. Emily is entering her sophomore year at UW-Madison, majoring in social work and minoring in American Indian studies.

Emily likes to travel, and travel she did, taking GLIFWC's information booth to the Bay Mills Pow-Wow in the far reaches of the UP and the Lac Courte Oreilles Honor the Earth PowWow this summer. Her knowledge of the pow-wow circuit made her an easy fit for the job. In addition to outreach, Emily contributed several articles to the Mazina'igan after interviewing other interns, and she also traveled to Fond du Lac's Kiwenz



Emily Nelis. (Photo by Sue Erickson)

Language and Culture Camp for a story. In between times, she assisted with multiple in-office tasks.

She learned about the GLIFWC internship through word-of-mouth and decided to apply, because it is close to home, and she was interested in learning more about GLIFWC's activities.

Emily is a little unsure of plans following graduation from college, but may pursue a master's degree and ultimately would like to return to the Bad River community and work with tribal youth.

—Sue Erickson



Jason Bolton. (Photo by John McCormick)

Jason Bolton

As a GLIFWC wild rice intern, Jason Bolton enjoys going outdoors and surveying wild rice beds. He attends Lac Courte Oreilles Ojibwa Community College, and he is studying natural resources land and water.

Jason was drawn to apply at GLIFWC after seeing internship postings around his school and he immediately took interest. After he graduates, Jason wants to work in a field related to natural resources, which suits him as his hobbies include fishing and bow hunting.



John McCormick. (Photo by Jason Bolton)

John McCormick

John McCormick attends Northland College, and he is GLIFWC's second wild rice intern. He is in his sophomore year, and he is double majoring in natural resources and biology. John enjoys the hands-on experience he gets with his internship, and he likes being outdoors.

When he applied as an intern, he saw a wonderful opportunity to further understand wild rice, and he was also excited to gain more experience in a field related to his career choice. After he graduates from Northland, John wants

to work in wildlife conservation and ecology management. In his free time, John likes to hunt, fish, trap, and make an assortment of crafts.

Tribal students assist GLIFWC as limited term employees

Dylan Jennings

Working with both the Biological Services Division and the Public Information Office, Dylan Jennings, Bad River, assisted in diverse projects throughout the spring and summer.

He worked closely with GLIFWC Wildlife Section, producing a poster relating to research on the American marten for Dr. Jonathan Gilbert's presentation at an international scientific forum in Poland. The poster as well as a short documentary featured the cultural significance of the American marten. In addition, he was involved in manoomin harvest data collection and entry.

Jennings provided several contributions to the fall issue of the Mazina'igan and assisted with editing. In addition he produced the original flyer and invitations for the Healing Circle Run (HCR) anniversary as well as worked extensively on design and layout for the HCR Memory Book. He also contributed to the 12-page HCR supplement included in the spring/summer edition of the Mazina'igan.

Out and about at various functions, he has manned GLIFWC's informational booth as well as pitched in as a speaker and/or hand-drum singer at GLIFWC events.

Jennings holds a bachelors degree in anthropology, archaeology and Native American studies from the University of Wisconsin-Madison. He plans to begin pursuing a degree in law this fall. In addition to being a student, he is a member of the Midnite Express Drum group and has worked extensively with Native youth in a variety of cultural programs.

(See GLIFWC LTEs, page 23)



Dylan Jennings. (Photo by Sue Erickson)



LVD honors core runners

By Sue Erickson, Staff Writer

The 2014 Healing Circle Run/Walk (HCR) was special, just like each of the run/walks in prior years, dating back to 2001, when the HCR first picked up the path of its 1989 and 1990 predecessor, the Anishinaabe Solidarity Relay. HCRs are always special because they combine physical and spiritual experiences along the 580-mile path linking eight Ojibwe reservations.

The run is, after all, a prayer. Opening and closing ceremonies each morning and night, when asemaa with prayers from the heart are sent up as opwaaganag are lit and the aroma of sage and bear root smudge fills the air, provide a time both for introspection and sharing. Each person in the circle of runners, walkers, and community members brings his or her own stories, struggles, humor, tears, and care to the circle. Those things are shared and carried as prayers down the road to the next destination. Each step is a prayer.

This is the way that healing is petitioned and received by individuals, families and communities.

The 2014 HCR was special, though, in several ways. For one, it paused at Lac Vieux Desert's (LVD) Ketegitigaaning Ojibwe Round House to honor core runners from the 1989 and 1990 Anishinaabe Solidarity Relays—those who ran and completed the entire journey in one or both of those first two runs. Fourteen

of thirty core runners from 1989 and 1990 joined the gathering to visit, remember, feast and give thanks. Twenty-two of forty-one core runners from the Healing Circle Runs were also present. Core runners were honored with songs from the two invited drums, Tomahawk Circle and LVD Four Thunders, and were gifted jackets with the Solidarity Run logo. One of the original organizers, Ernie St. Germaine, Lac du Flambeau, gave an historical account of the first run and the social setting that gave it birth.

Bundles were also presented to tribal communities to acknowledge and thank them for their support of the runs over the past 25 years. Organizer giuwe Martin, LVD and core runner, noted how the relays and runs have always depended on the hospitality of the tribal communities they visited. They have been given housing, food and most of all, the honor of meeting with the people from each community.

The 2014 Healing Circle Run was special because it brought together the 23 core runners/walkers and around 20-50 people from the each of the eight communities. Around 420 people participated in the run/walk and the gathering at LVD.

The 2014 HCR was special because miigwanag (feathers) were tied to mitiginabe (a staff used as a talking stick) in memory of Tobasonakwut and Niigaanigaabow, two spiritual leaders who have walked on but provided guidance to GLIFWC and so many others.

The 2014 HCR ended at Pipestone Creek on the Lac Courte Oreilles reservation, leaving a trail of memories both personal and shared, of thanks, of caring, and of hope.



The well-traveled 1989-1990 Anishinaabe Relay staff arrived at the 25th celebration of the Relay and Healing Circle Runs. Runners Ernie St. Germaine, Lac du Flambeau; Tina Danforth, Oneida chairwoman; giuwe Martin, Lac Vieux Desert; and Wes Martin, Menominee, admire the staff. Core runner Beth Reed is in the background. (Photo by Neil Kmiecik)

GLIFWC LTEs

(See GLIFWC LTEs, page 22)

Cheyenne White

GLIFWC also has a returning intern who is in high school. Cheyenne White, Lac Courte Oreilles, attends Washburn High School, and she will graduate in 2015. Cheyenne works as an office assistant, where she helps organize and helps out where it is needed. She really enjoys the work environment and the friendliness of the GLIFWC staff. Cheyenne applied for the position after her mother joined GLIFWC staff, and she took advantage of an LTE opportunity last year.

As she finishes up high school, Cheyenne plans on taking college courses next year and will graduate early. After graduation, she wants to join Job Corps. When she's not working hard to graduate, Cheyenne likes to run, canoe, swim, bead, and play guitar.

Kayla Plucinski

The title for youngest GLIFWC employee goes to Kayla Plucinski, Bad River tribal member, who is going into her sophomore year at Ashland High School. Daughter of Public Information Office (PIO) Assistant Director Lynn Plucinski, Kayla returned for a second year at GLIFWC working with PIO and does many in-office jobs. While she works, Kayla favors asking questions to learn about the numerous things GLIFWC does.

Kayla recently returned from her first year with the Pre-College Enrichment Opportunity Program for Learning Excellence (PEOPLE) at UW-Madison, which is a program that helps provide enriched academic learning opportunities for students of color and low-income students by bringing them to the UW-Madison campus during the summer. After she graduates high school, Kayla is planning on becoming a fellow Badger at UW-Madison, although she is not sure what she wants to study.



Core runners received specially designed jackets in appreciation of for their commitment in either the Anishinaabe Solidarity Relays or Healing Circle Runs. (Photo by Dylan Jennings)



Bundles, prepared as gifts for the tribal communities who supported the Healing Circle Run through the years, included blankets, medicines and wild rice. (Photo by Dylan Jennings)

Lake Superior fish stable some slightly declining

(Continued from page 9)

century. Most fishing takes place near shore in waters less than 260 feet deep (about 23% of the lake). Current trends in these near shore waters include an increased fish harvest while fish populations remain stable or slightly declining.

Seventy-seven (77%) of Gichigami is greater than 260 feet deep. Currently, not much fishing occurs in these off shore waters. Fish include siscowet or fat lake trout, a deep water relative to the lake trout with a higher body fat content, bloater chubs, kiyi, and deepwater sculpin. All of these off shore fish populations increased through the turn of the century and are presently stable.

*Reprinted from Preface from Horns, W.H., C.R. Bronte, T.R. Busiahn, M.P. Ebener, R.L. Eshenroder, T. Gorenflo, N. Kmiecik, W. Mattes, J.W. Peck, M. Petzold, D.R. Schreiner. 2003. Fish community objectives for Lake Superior. Great Lakes Fish. Comm. Spec. Pub. 03-01. 78 p.



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ODANAH, WI 54861

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EAU CLAIRE, WI

Printed by: EAU CLAIRE PRESS COMPANY, EAU CLAIRE, WI 54701

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(Pronounced Muh zin ah' igun)

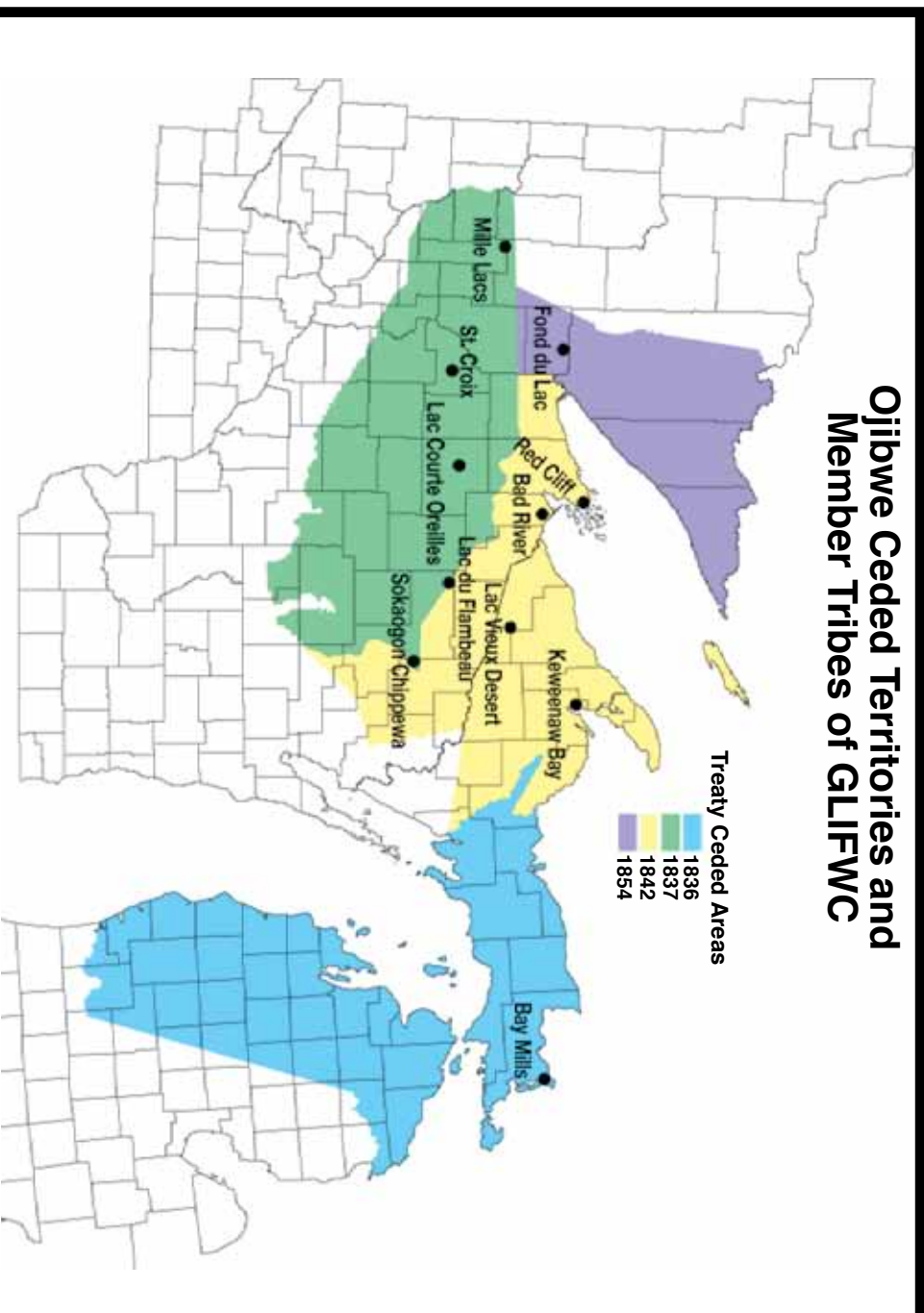
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MAZINA'IGAN (Talking Paper) is a publication of the Great Lakes Indian Fish & Wildlife Commission, which represents eleven Ojibwe tribes in Michigan, Minnesota and Wisconsin.

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Ojibwe Ceded Territories and Member Tribes of GLIFWC



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