Puniw *(It is Winter)*
December 2011

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HBMI Natural Resources Department

When The Stars Align

by Cara O'Donnell, Water Resources Specialist

Sometimes the stars align just right. Figuratively speaking we say this if everything falls into place -which is very rare. But sometimes the stars - literally - the stars above our head - align.

Recently I experienced a bit of both. A conversation with a new friend from the Mashpee Wampanoag Tribe in Massachusetts led to an all day outing in the Rocky Woods, through an old Wampanoag ceremonial cite. The area that we walked was a flat hilltop located on top of a glacially deposited **esker,** (see box on page 3) where no rocks are found.

As a result of the melting process of glaciers, no rocks are found on these features. This made the boulders found on top of the Rocky Woods esker very distinctive. On our outing, we met with Ken, the property owner, a retired NASA astronomer, who walked these woods for years with his grandmother. Years ago he decided he would like to make a map of the rock walls on his property. What he discovered by mapping the rocks was profound. Perhaps only a NASA astronomer would be able to draw the skylines from the maps he made, because the rocks placed on top of the esker were precisely lined up with constellations and dates of importance to the native tribes. By standing at the Primary stone, for example, someone could observe the sun rise on the winter and summer solstices, equinoxes, and observe constellations aligned with other stone features placed at precise locations on the horizon. These marked important calendar dates, dates of harvest and ceremony.

Turtle Effigy

The calendar was a ceremonial place for many people. Other features of the area include a sweat lodge site, turtle rock effigies, god stones, donation piles, serpentine rows, manipulation of a stream channel, and stones marking dancing circles. It is a very special place, called Manitou. Manitou is an Algonquin religious belief that a supernatural power permeates the world, possessed in varying degrees by both spiritual and human beings. The beginning and closing of our day was graced with a hawk, which are believed to be visionaries and messengers.

(continued page 3)

Bacteria Source Tracking in the Meduxnekeag

by Rhonda Smart, Water Resources Technician

The Water Resources Department has been monitoring the Meduxnekeag River, it's tributaries, and storm drains in the watershed for *E.coli.* Escherichia coli, or *E.coli* for short, is found in the lower intestines of mammals and is also sometimes known as gut flora. *E.coli* has proven itself to be a good indicator of fecal contamination. It is used for detection since there are a lot more coliforms in human feces than there are pathogens and exposure to it is much less harmful when testing.

This summer season we focused on storm drains in Houlton to identify any possible cracks or misconnections of the sewer lines throughout town. The presence of *E. coli* is usually attributed to fecal contamination from untreated sewage or the feces of pets and livestock. In high amounts, *E. coli* is dangerous as it can cause adverse health effects through bacterial infections. It has also been linked to increased gastrointestinal and upper respiratory tract disorders.

In addition to tributaries and storm drains, another potential source of *E.coli* is a wastewater treatment plant flowing into it approximately 3 miles upstream of Lowery Bridge. Another example of a bacteria source is a tributary that flows into the Meduxnekeag upstream of the bridge; a site we call 1LOW, has grazing livestock in or near the water.

In the Spring of 2011, we changed our testing method for bacteria from our old method, in which we counted bacteria colonies growing on gridded filters after they were placed in an incubator. A purple halo around the colonies indicate a positive test for *E.coli.*

This summer we used a new method of testing for *E.coli* using Idexx/Colilert Qaunti-tray 2000 system (shown here). Using this system to confirm the presence of *E.coli.*, samples turn yellow when coliforms are present, and fluoresce under a black light to indicate the presence of *E. coli.* This new system made it possible to run the same amount of samples in less time.

We will continue to monitor for *E. coli* as it is very important to keep our rivers and streams clean so we can enjoy our native traditions now and in the future.

Winter Word Search Puzzle

Find these English and Maliseet Words in the puzzle

Cheese	Ocis
Chimney	Cimoli
Christmas	Nipayimiyan
Cookie	Sukolopanis
Fire	Sqot
Frost	Wastewoton
Fur pelt	Piyehsuwew
Gift	Miluwakon
Indoors	Lamikuwan
Mitten	Molocess
Scarf	Skahp
Snowball	Wastapskonut
Solstice	Apacuhse
Soot	Mokos
Wool	Ahsuhuney
Wreath	Rits

C	O	O	K	I	E	W	W	S	Q	F	W	E	R	T	C
X	A	Z	A	E	S	R	E	O	D	R	F	L	G	G	H
C	H	W	A	S	T	E	W	O	T	O	N	A	I	V	R
B	S	O	N	E	M	A	U	T	S	S	L	M	F	K	I
J	U	O	M	E	S	T	S	H	N	T	R	I	T	S	S
Y	H	L	O	H	C	H	H	U	O	I	O	K	P	Q	T
F	U	P	K	C	A	O	E	I	W	U	Y	U	T	O	M
I	N	D	O	O	R	S	Y	R	B	E	S	W	W	T	A
R	E	O	S	Q	F	A	I	S	A	D	O	A	Y	F	S
E	Y	C	G	F	U	R	P	E	L	T	L	N	E	P	M
H	C	I	M	O	L	I	J	K	L	L	S	M	N	H	I
W	A	S	T	A	P	S	K	O	N	U	T	N	M	A	T
N	I	P	A	Y	I	M	I	Y	A	N	I	B	I	K	T
M	O	L	O	C	E	S	S	A	P	A	C	U	H	S	E
S	U	K	O	L	O	P	A	N	I	S	E	V	C	C	N
X	Z	Q	A	Z	M	I	L	U	W	A	K	O	N	W	S

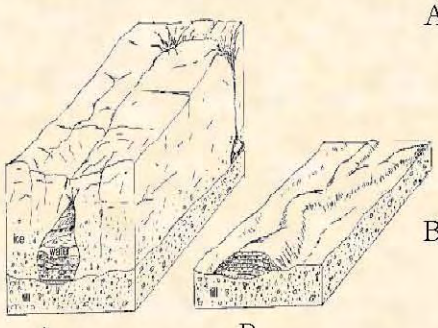
When The Stars Align (continued)

Since the natural resources crew spends so much time tromping through the woods, over eskers, at river confluences and headwaters we are going to keep our eyes ready to spot any of these curious features. If any elders or tribal members are interested in seeing photos from the trip there will be a photo album at the Elders Center and in the Natural Resources Department. For more details about Rocky Woods or to learn about other areas of stone landscapes, please find me at the Natural Resources offices.

Esker: Geology. a long, narrow, winding ridge composed of stratified sand and gravel deposited by a subglacial stream. Eskers may range from 16 to 160 feet in height, from 160 to 1,600 feet in width, and a few hundred feet to tens of miles in length. Eskers are considered to be channel deposits (left by streams that flowed through tunnels in and below the ice) that were let down onto the ground surface as the glacier retreated.

What a Glacier may look like in our landscape, a long, narrow, hill-like feature with steep sides

What an esker can look like on a topographic map



A B

A.) 3 dimensional view of an esker forming in a "melt-water stream" below or within a glacier

B.) Remnants of sand and gravel left behind by the "melt-water stream"

EPA Environmental Conference

In October, Chief Commander, Cara O'Donnell, Sharri Venno and Sue Young travelled to Portland, Maine to participate in the EPA Region 1 Tribal Environmental Training Conference jointly hosted by the Houlton Band of Maliseet Indians and the Penobscot Nation.

Sharri Venno moderating a session

EPA regions around the country sponsor these training conferences to bring tribes together to showcase the environmental work each tribe is doing. The conference also provides a forum for federal agencies to come together to speak to the tribes with the goal of improving tribal relations and to inform tribes as to what resources are available. These resources can include funding, internship possibilities and technical assistance. The conference also included a closed session meeting for the tribal leaders throughout the region.

In addition to an elders panel, this conference also included a native scholars panel. This panel spoke of their studies, their love of the environment and their tribal culture, as well as some of the hurdles that they are faced with. Suzanne Greenlaw *(photo left)* represented the tribe and spoke of her studies regarding black ash and the work she has done with basket makers. Not everyone who participated in the panel is currently pursuing an undergraduate or graduate degree. One panel member, Erik Sappier from Penobscot Nation is working to learn the traditional skills and crafts of his people.

Native Scholars Panel:
Moderator - John Daigle, Univ. of Maine, (Penobscot), Chief Commander (HBMI), Danny Rodriguez EPA, Chief Kirk Francis (Penobscot Nation) Erik Sappier (Penobscot), John Pells (Mashpee Wampanoag), Suzanne Greenlaw (HBMI), Cassius Spears (Narragansett), John Banks (Penobscot)








Restoring
31st

nnual Recognition Day
Celebration
Saturday
eptember 17, 2011

Summer Internship Opportunity

Since 1994, the Institute for Tribal Environmental Professionals (ITEP) has offered summer internships for Native American and other college students with funding from the U.S Environmental Protection Agency (USEPA). This program provides the opportunity for students to gain hands-on skills with EPA or other governmental and tribal environmental offices.

The internship is designed to give current college students an opportunity to:

- Assist EPA/Tribal agencies with environmental issues.
- Acquire ready-to-use skills.
- Gain actual experience while contributing to a project
- Earn $4,000 during the ten week experience.
- Receive a limited housing allowance.
- Receive a limited travel allowance.

Eligible students must meet the following:

- Be a US Citizen.
- Possess at valid driver's license.
- Be a full-time student during Spring 2012 (12 hrs undergrad, 9 hrs grad) with at least a 2.5 cumulative GPA Be majoring in an environmental or related field like science, engineering, planning, policy, law, management, political science, anthropology, health, etc and have an interest in pursuing an environmental career upon graduating from college.
- Possess proficient verbal and written communication skills.
- Have a strong interest in working with Native American tribes or topics.

Application Process:

- Submit an online application
- Submit a current resume
- Submit two recommendations
- Submit your unofficial college transcript(s)
- Submit a one-page, double spaced essay on your interest in environmental careers and working with tribes.

Email documents to: **Graylynn.Hudson@nau.edu**

Or mail or fax to

ITEP-EEOP Internship Program
PO Box 5768
Flagstaff, Al 86011
Fax 928/523-1280

Application Deadline: February 22nd, 2012. Mailed items must be postmarked by February 15, 2012.

For more information:
www4.nau.edu/eeop/internships/ssi_internship.asp

EPA Environmental Conference (continued)

The conference also included a field trip to DeMillo's Restaurant where saw first hand a vertical wind spire (*photos left and below*) that the restaurant is using to generate a portion of their electricity. This wind spire, mounted on the pier as you approach DeMillo's is very quiet and blends in with the surrounding marina to the point that it is very easy to walk right by and not notice it, unlike the other wind generators we are beginning to see all across America.

EPA Region 1 Tribal Operations Committee
From left: Sharri Venno, HBMI
Steve Crawford, Passamaquoddy (Sipayik)
John Banks, Penobscot Nation
Fred Corey, Aroostook Band of MicMacs
Dan Kusnierz, Penobscot Nation

Dendrology Corner

Dendr = tree ology = study of

Prepared by: Matthew P. Edberg, HBMI Natural Resources Specialist

Balsam-fir (*Abies balsamea)* abies=a fir tree, balsamea= balsam

Native US Range:

Balsam-fir is a common tree species found throughout the state of Maine and other northern states.

Habitat: Commonly found growing on acidic soils in uplands as well as swamps it prefers a cool climate such as that found in the Northeastern U.S. & Canada

Natural History: Balsam-fir is classified as very shade tolerant and is a small to medium sized tree that has a very narrow spire like crown designed to shed snow. It achieves a hgt. of 40'-60'and a dbh (diameter @ breast height = 4.5') of 1'-2' . It is a short lived species with a maximum age of 200 years typically 50-70 years. It is prone to attack by a variety of pathogens and insect pests one of the most notable being the spruce budworm (that predominately attacks fir unlike its name suggests) that killed 822,000 cords of spruce-fir over a 3 million acre area in Maine alone between 1972-74.

Wreath by Kylie Pederson as seen on Admin building

Special Uses: The wood is used along with Eastern Spruce as dimension lumber (stud wood) and paper pulp. Balsam-fir is the king of Christmas trees in the Northeast. Balsam firs make good Christmas trees since it has excellent needle retention. In Maine there are 4000-4500 acres of land planted to Christmas trees (mostly balsam-fir) with an annual harvest of 130,000-170,000 trees valued at $6-$8 million dollars US. Fir boughs are also used to make wreaths, garlands, potpourri, incense and pillows. Maine produces 2-3 million balsam-fir wreaths annually. The resin or pitch is used as a medium for mounting microscope slides as well as in turpentine production.

Medicinal Uses: One of the unique characteristics of fir trees is that the bark of the trees is covered with numerous blisters full of resin or pitch. The resin has antibiotic properties and can be spread on cuts, sores, burns etc. as a salve. It is also rich in vitamin C and can be used to treat scurvy (a disease caused by a deficiency of Vitamin C) there are many more medicinal uses than those listed here.

Edibility: The resin is an energy rich food, the inner bark (the phloem) is also edible and the young tips can be made into tea.

***Remember,* when collecting any wild plant species for medicinal or edible use be absolutely sure you have identified the species correctly. Also, be respectful of nature and use a hunter-gather ethic, leave some behind for the future and for others.**

Utilitarian Uses: roots used as lacing material, resin used as glue and an accelerant for starting fires, fuel wood, provides bright light, burns fast /hot for boiling water or for kindling. Fir boughs make excellent bedding or thatch for an emergency shelter.

Ecological Values: Balsam fir is an important species for browse for deer in winter as well as a myriad of other insect, mammal and bird species.

Literature Cited:

- Silvics of North America Vol. I Softwoods, USDA, Handbook 654
- Foster, 1990, Medicinal Plants, Peterson Field Guides.
- Wilbur, 1990, Indian Handicrafts, The Globe Pequot Press.
- The National Christmas Tree Association, 16020 Swingley Ridge Road, Suite 300, Chesterfield, MO 63017
- http://www.survivaltopics.com/

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May the beauty of nature surround you and yours this holiday season.

Happy Holidays from
HBMI Natural Resources
Matthew Edberg
Rhonda Smart
Cara O'Donnell
Sharri Venno
Sue Young

Word Search Answers