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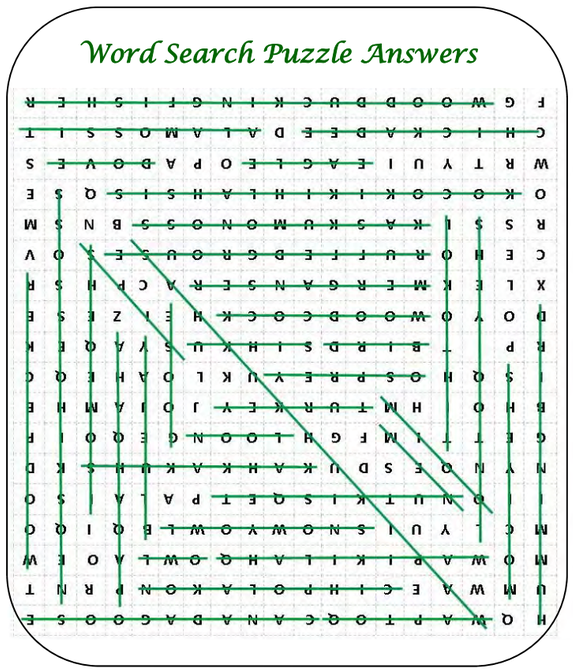
Word Search Puzzle Answers



Siqon - March 2015

Brenda Commander – Tribal Chief
Susan Young - Editor

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In this issue

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HBMI Natural Resources

How Do Birds Survive the Winter Chill?

With cold weather in full swing, many of our wildlife have made themselves scarce, waiting for warmer days to make their reappearance. One type of creature you can probably still catch sight of, however, is a bird! While some birds are migratory, skipping town to avoid the cold weather, others are with us all winter long. You might have some bird houses in your yard, but they probably don't come with heat - so how do these animals keep warm through the season?

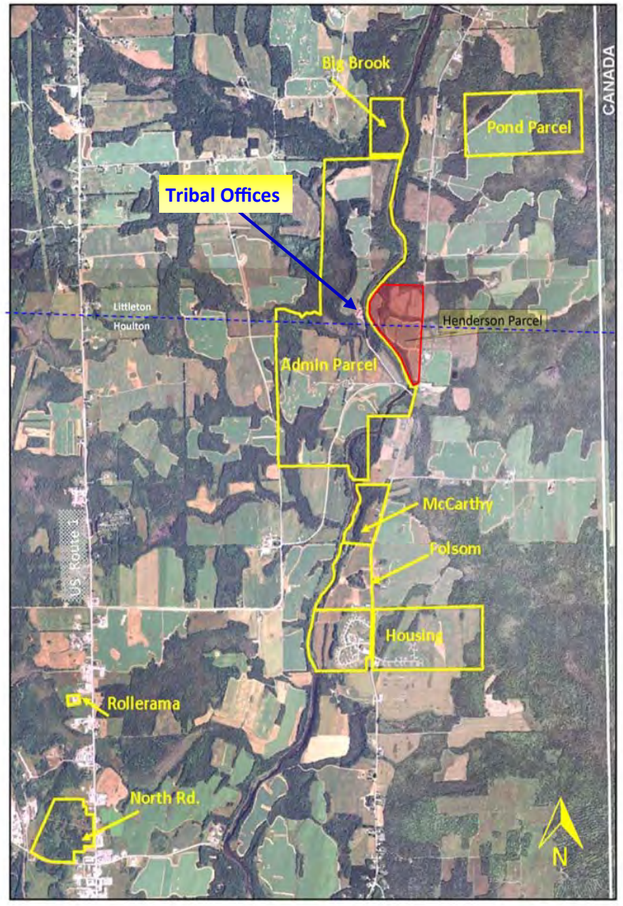
One strategy is to put on layers. Instead of donning a sweater, some species of birds such as geese and grouse, grow a layer of down or an extra layer of soft and fluffy feathers that help insulate the birds' bodies. Other species of birds become eating machines in an effort to pack on the fat, with some consuming as much as 60% of their body weight in food each day. In addition to adding another layer of insulation, this fat also fuels nighttime muscle movement…otherwise known as shivering! If you've ever paced at the bus stop on a chilly morning to keep warm, you know how helpful some physical exertion can be in fending off the cold. For birds, the same principle applies to shivering; by maintaining muscle contractions in the cold, dark nights, the birds can stay warm until morning.

Black-capped chickadee, courtesy of the U.S. Fish and Wildlife Service.

There are also some strategies employed by our feathered friends which you and I would never try, such as controlled hypothermia. Black-capped Chickadees can let their body temperatures drop in an effort to conserve their energy and make it through the nights, going from their normal 107.6°F to 80.6°F!

Continued page 11

Tribal Lands Update



2014 was a very busy year for the Real Estate program. We had 4 parcels of land go into trust. They are the Folsom parcel in Houlton, Big Brook parcel in Littleton, and the Fullerton and Jonathan Drew parcels in Monticello, bringing the tribe's current trust acreage to 1,197.

So far 2015 has gotten off to a good start with the recent purchase of 63 acres along the Meduxnekeag River. This parcel, known as the Henderson parcel (shown in red at left), straddles the Houlton and Littleton town lines, and is bounded to the east by the Foxcroft Road and to the west the Meduxnekeag River. The purchase of this parcel not only gives the Tribe more contiguous acres, it gives the Tribe control of both sides this stretch of river. This will be extremely beneficial as we continue our work to improve water quality and complete habitat restoration projects that will benefit cold water fish like trout.

The Tribal lands in Houlton and Littleton are indicated on the map shown to the left. All the lands outlined in yellow are our current trust land holdings, with the red line showing the newly purchased Henderson parcel.

The Tribe is currently working on a grant proposal to renovate the existing Folsom house into a Tribal Day Care Center.

Invitation to All Carlisle Indian School Descendants

Would you like to see a heritage center dedicated to the Carlisle Indian School? Do you want to have a say in how the stories of your family members are conveyed? What do you want to know about your family's experience at Carlisle?

The Carlisle Indian School Farmhouse Coalition have worked hard to save the old Farmhouse at the Carlisle Barracks in Pennsylvania from being destroyed. They are now working on developing plans for the preservation, renovation and use of the Farmhouse as a heritage center.

The voices of descendants are paramount to this project! If you would like to participate in this survey, or know of other Carlisle descendants, please share this link: **https://www.surveymonkey.com/s/CarlisleDescendants**

If you would like to know more about this project, contact Louellyn White, PhD (Akwesasne Mohawk) CIIS Descendant, Founder and Spokesperson for the Carlislie Indian School Farmhouse Coalition.

cisfarmhousecoalition@gmail.com

Facebook: **https//www.facebook.com/groups/CarlisleFarmhouseFriends/**

Four Faunal Forecasters

Move over, Punxsutawney Phil. Groundhogs aren't the only animals known to "predict" the weather. Phil may be the most famous, but he's certainly not the most accurate. Here are four animals that are known for their weather wisdom. Some of these proverbs are true, while others are not. Can you guess which ones are real?

Fact or Fiction? The width of a *Woolly Bear Caterpillar's* orange stripe can predict how mild the winter will be.

Fiction! According to an old proverb, if the width of a Woolly Bear Caterpillar's reddish-brown stripe is wider than usual, the coming winter will be mild. Conversely, a narrower stripe means the coming winter will be harsh. While some scientific evidence suggests that this may be related to the previous winter's severity, there's no correlation between the stripe's width and the following winter's severity.

This proverb gained traction in the 1950s when the insect curator of New York's American Museum of Natural History spent an afternoon measuring the width of several Woolly Bear Caterpillars. For fun, he used the information to make a prediction about the coming winter and forwarded it to a friend who reported for The New York Herald Tribune. When a relatively mild winter ensued, the resulting publicity solidified this folklore in American culture. He collected data and made predictions from 1948-1956 that roughly held up, but his sample sizes were never large enough to scientifically prove this relationship. The folktale stuck, however, and Woolly Bear Caterpillar events are still held around the country each fall.

Fact or Fiction? *Crickets* are natural thermometers.

Fact! All you have to do is count the number of cricket chirps you hear in 13 seconds, add 40, and violà: you know what the outside temperature is to within a few degrees Fahrenheit! Amos Dolbear first discovered the relationship between snowy tree crickets and the temperature in 1897, and his formula still works today, now known as the Dolbear Law. You can do the math yourself, but now there's even an app for that. Several good ones are just a short search away. Happy counting!

Fact or Fiction? "If *birds* fly low, expect rain and a blow."

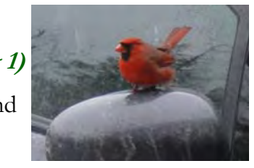
Fact! Of course, low-flying birds do not always foretell bad weather, but birds can detect the subtle decreases in air pressure that accompany storms and alter their flight paths accordingly. Birds need to fly fast and efficiently to conserve their energy, so they settle into sweet spots where the air is thin. When the weather is good, domes of high air pressure push these sweet spots up into the air, so birds fly higher. However, when the air pressure drops before the weather gets bad, so do the sweet spots and the birds that look for them. Since low pressure is associated with storms, low flying birds may indeed signal "rain and a blow."

Fact or Fiction? *Cows* lie down before it rains.

Fiction! Farmers may swear by this old adage, but there's no scientific evidence to prove that cows lie down when it's about to rain. That hasn't stopped the theories, however. Some people say that cows can sense the increased moisture content in the air and sit down to save a dry spot for themselves. Others have proposed that cows' stomachs are sensitive to lower barometric pressure and that lying down soothes it. In reality, cows may lie down more often to chew their cud than to prepare for a rainstorm.

www.earthgauge.net/2015/four-faunal-forecasters

Birds *(continued from pg 1)*



Office mascot- Male cardinal outside office window

Tip: Give feathered friends a hand this winter by adding food and water sources to your yard, then sit back and enjoy some winter birdwatching. Providing a variety of feeders and foods will attract different species of birds – try suet, cracked corn, seeds and nuts. Once a few birds find your feast, others will likely follow.

Providing a water source will also attract birds. Use a heated bird bath or place a bath in a sunny area where it's less likely to freeze over. Don't forget to clean feeders and baths regularly to prevent spreading disease, and remove old, wet seed that can breed bacteria.

For more information on this and other topics check out:

Earth Gauge
www.earthgauge.net
or find them on Facebook

Dendrology Corner

Dendr = tree ology = study of

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

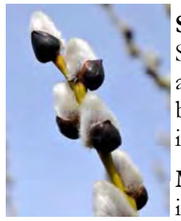
Pussy Willow (*Salix discolor*) Salix = willow, discolor = to change or discolor.

While the term dendrology refers to the study of trees it is more properly the study of woody plants, some of which are both trees and shrubs such as the willows (Salix sp.).

Native Range: See USDA Range Map at right

Habitat: Willows in general are primarily found growing in moist soils in wetlands. Pussy willow (*S. discolor*) is classed as FACW which means it is found growing in a wetland 70%-99% of the time.

Natural History: Pussy willow (*S. discolor*) is a native willow species widely distributed in the US and Canada. It is a deciduous shrub (losing its leaves in fall) and sometimes is also a tree. Willows are known for suckering (producing sprouts) and layering (branches producing roots) their bark having a built in rooting hormone. There are a few different species of willow commonly called pussy willow, known for their fuzzy male catkins (groups of flowers). It is one of the earliest flowering plants in the spring, often blooming while there is still snow on the ground.



Special Uses: Being one of the earliest flowering plants Pussy willow is a harbinger of Spring with the twigs and catkins being collected and used as floral decorations. Willows are a valuable species for stabilizing disturbed river and stream banks since their roots bind the soil to prevent erosion. It is also commonly used to make a number of useful items such as baskets fences, fiber etc...

Medicinal Uses: Willow bark is the original source for salicin which is metabolized into salicylic acid in the human body. Salicylic acid is the main ingredient in wart removers, acne treatments and aspirin. It was first synthesized (acetasalicylic acid) by the Bayer Co. in 1897. Aspirin is one of the most widely used medications in the world.

Many native peoples use willow bark tea to treat a variety of ailments such as fever, headaches and pain. ***CAUTION!** Excessive use of willow bark tea can cause kidney damage. Even aspirin should be used with caution as it can cause stomach bleeding as well as many other unhealthy side effects. (*Medicinal use information provided is not an endorsement of use for medical purposes. Use caution as many herbal remedies have not been medically tested and can be dangerous).

Edibility: The inner bark, (as in many tree species) as well as buds and young leaves are edible when not too bitter.

Note: When collecting any wild plant species for medicinal or edible use, be absolutely sure you have identified the species correctly. Furthermore, be respectful of nature and use a hunter-gather ethic, leave something for the future and for others.

Ecological Values: A wide variety of wildlife species use willow for food and cover. Willow pollen is a very important early spring food source for native bee species.

Literature Cited

Foster, 1990, Medicinal Plants, Peterson Field Guides.
Angier, 1974, Field Guide to Edible Wild Plants, Stackpole Books
Wikipedia.org
USDA Plants Database

Winter turns to spring: Vernal Pools

(and a science challenge…)

As soon as the winter rains begin to puddle in the vernal pools, tiny creatures called bacteria and protozoa spring to life. Many of them feed on detritus, bits of dead plants and animals that lie on the bottom of the pool. These detritus feeders are, in turn, eaten by many other tiny animals. Microscopic (very tiny) green plants called algae are the next to appear. They are like tiny floating food factories, providing the energy that powers most of the other species in a vernal pool.

Now that the winter pools are full of water and are teeming with bacteria, algae and protozoa, many more aquatic species begin to appear. The melt-water signals to the resting spores, eggs, and cysts of aquatic life that it is time to hatch and grow. Within a few weeks, dozens of species of invertebrates (small animals without backbones) will be living in the pools. Each aquatic species must hurry and complete its life cycle before the pool dries out in the spring.

When vernal pools are full of aquatic life, it's like putting a meal on the table. Frogs, snakes, birds, and mammals come to the vernal pools for dinner. The food web connects all the species in the vernal pool ecosystem. An ecosystem is a community of plants and animals that depend on one another and their environment for survival. For more information about vernal pools - check out http://www.sacsplash.org

Vernal Pool
A seasonal body of standing water that typically forms in the spring from melting snow and other runoff, dries out completely in the summer, often refills in the autumn, and provides and important breeding habitat for many terrestrial or semiaquatic species, such as frogs, salamanders and turtles.

The Natural Resources Program has a challenge for Maliseet youth in grades K – 12! Grab a friend, sibling or parent and go explore a vernal pool. Once you find one, it's only a matter of time spent peering through the water to the leaves below before you spot something: an egg mass, a salamander, a tadpole, frog etc. Photograph your vernal pool (with you in the picture) and also at least one vernal pool creature (from the underlined list above) that you find. Send it to us **water@maliseets.com** or bring it in to the Natural Resources Department by **June 2, 2015!** You will be entered to win a Garmin eTrex Legend GPS unit like the one shown here.

So Just What is Biochar?

When you first hear about "biochar", is it because someone around you most likely said something about it? And when you gave them that look that you didn't understand what they were talking about, they launched into a diatribe on biochar and how it can save the world. But wait, you scream. WHAT IS BIOCHAR? Where does it come from? How is it made? And why is it such a good thing? And explain these things to me as if you were speaking to your 9 year old nephew! They consider what you said for a while, and then they reply.

> "*Biochar is made by heating organic matter (wood, manure, lawn debris, cornstalks) in a closed container in the absence if oxygen, a process called pyrolysis. Instead of burning, which leaves mostly ash, the material "thermally decomposes" into charcoal. As it does, the organic feedstock - say wood - gives off gases that can be captured and turned into biofuel."*

"BioChar" is a new word from the 1990's It is a combination of "biomass" and "charcoal".

BIOMASS . . . is matter usually thought of as garbage. Some of it is just stuff lying around - dead trees, tree branches, yard clippings, left-over crops, wood chips, and bark and sawdust from lumber mills. It can even include used tires and livestock manure.

CHARCOAL . . . Is a light black residue consisting of carbon, and any remaining ash, obtained by removing water and other volatile constituents from animal and vegetable substances.

> "*Biochar is just charcoal produced by burning organic matter such as wood, grasses crop residues and manure under conditions of low oxygen (pyrolysis)."*

But the process and concept of "biochar" didn't start in the 90's. It started thousands of years ago, when farmers would roast wood and leafy greens in "smothered" fires, in which low temperatures and oxygen levels resulted in the production of charcoal instead of ash. The charcoal was then buried in fields where crops were grown.

As colonization occurred, these fields were forgotten about. In the 20th century, huge expanses of black soil were rediscovered, although at first no one knew what they were. Then, in the 1990s, scientists determined that these soils were man-made.

Why is this soil special? This 2,000 year - old practice of adding biochar to the soil, converts agricultural waste into a soil enhancer that can hold carbon, boost food security, and increase soil biodiversity, and discourage deforestation. The process creates a fine-grained, highly porous charcoal that helps soils retain nutrients and water.

"But didn't you just describe compost. That pile of rotting grass leaves, manure and yard waste in the back of the house?"

No. Compost is the natural decaying of organic matter for use as a fertilizer only. Biochar is the controlled and smothered burn of waste that can be used as a fertilizer as well as other types of energy.

Compost doesn't have charcoal: Biochar is pulverized charcoal made from any organic material (not just wood) and, when mixed with soil, it enhances its fertility. It locks carbon into the soil and increases the yield of crops. To many this appears the closest thing to a miracle.

Biochar has been shown to increase the yields of rice (by 70%), tomatoes (over 150%), sugar cane (over 75%), peanuts (over 50%) and Onions (over 50%)

To learn more about biochar, check out the BioChar Society at **www.biocharsoc.org**

HBMI Biochar Research Project

Recently HBMI was awarded a small grant from the Elmina B. Sewell foundation to conduct biochar studies. We have partnered with the Southern Aroostook Soil and Water Conservation District (SASWCD) and the University of Maine Cooperative Extension program to conduct small plots trials on a commercial potato farm located in Southern Aroostook County. The goal of this study is to determine the potential soil health effects of biochar amendment to the area's potato soil and cropping system.

The *Elmina B. Sewall Foundation* supports work in Maine to improve the well-being of people, animals and the environment while fostering relationships that strive for social equity and community resilience.

This 2 year project will be conducted using both a small grain crop and a potato rotation. The results of this project will be part of an upcoming Winter Ag School, an annual program that is sponsored by the Southern Aroostook Soil and Conservation District.

We are really looking forward to finding out just what biochar could do for farm soils in this area. Improved soil health, and ultimately increased crop yields could mean a reduction in chemicals used on the fields surrounding tribal lands and help protect water quality in the Meduxnekeag. We'll keep you posted as this project moves ahead.

Spring Cleaning Time!

Spring cleaning means more than just throwing the windows open and getting some fresh air. Sure the windows might need washing and so on, but I'm talking about Spring cleaning your closets and drawers.

Many of us seem to somehow accumulate lots of clothes, shoes, purses, belts, etc. that we never wear. There's usually nothing wrong with them, they just don't fit right anymore, we don't like them any more. . . Now instead of being over run with these items and not wanting to just toss them in the trash we have another option.

According to EPA, the average American throws away 70 pounds of clothing each year. An organization called Community Recycling is making it their goal to keeps these serviceable items out of the landfill and get them to people that need them, all around the world.

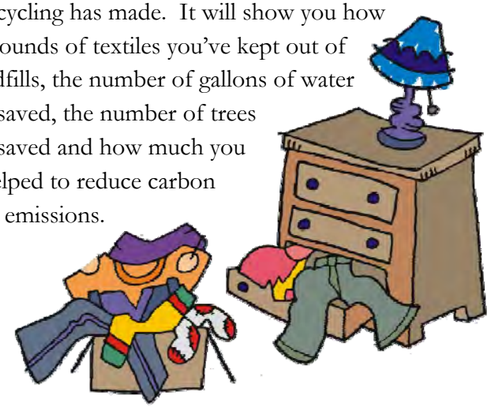
Recycling this way couldn't be simpler. All you do is pack your clean, gently used clothing shoes and accessories in a box. (Unfortunately they do not take winter coats or heavy winter boots.)

Go to their website:

Communityrecycling.biz/programs/cr-home

and print out a mailing label. Then take your box to the Post Office or leave it for your mail carrier and you're done.

You can also track your own sustainability report on line. It will show you where your recycled items have gone, currently there are 50 countries participating in this program. The site will also calculate your environmental footprint and show you what an impact your recycling has made. It will show you how many pounds of textiles you've kept out of the landfills, the number of gallons of water you've saved, the number of trees you've saved and how much you have helped to reduce carbon dioxide emissions.



Qossihtun

Maliseet Youth Summer Science and Culture Camp

The Natural Resources Department has recently received funding to put on a four day earth camp for tribal youth. This will be open to grades 5 through 8, and we are enthusiastically anticipating twenty participants.

The main purpose of this camp is to help kids who may need a little extra help in science. By combining outdoor ecological themes with activities like canoeing, nature hikes, cultural stories, meals, and teachings. We hope this will be a fun way to learn about science and Maliseet culture. The four-day camp is tentatively set for August 17 - 20, 2015.
If you have any questions or would like to be a camp volunteer or simply sign up for the camp, please call 207-532-4273 and ask for Cara O'Donnell (ext. 212 or water@maliseets.com) or Kristin Hardy (ext. 216 or khardy@maliseets.com). Parents are encouraged and welcome to join in the experience.

The grant also will support science learning for 10 students between grades 9 and 12. These students will tour Maliseet lands to observe past and current natural resource projects. Tours will include background information on projects such as sediment detention basins, buffer strip tree plantations, in-stream fish habitat restoration, medicinal plant materials center and green house, beaver deceiver, in-situ water-quality monitoring devices, and wetland medicinal plantings, to name just a few.
In addition, each student will job shadow both the HBMI Water Resources Specialist and the Natural Resources Specialist and participate in day-to-day activities including planning meetings with outside agencies. Please contact the Water Resources Program to sign up and learn more.

Spring Word Search Puzzle

Welcome back to our feathered friends.

Find these English and Maliseet words hidden in this puzzle

alamossit
cihpolakon
isomeqehs
kahkakuhs
kaskumonoss
kocokikihlahsis
lontoqiyehs
mociyehs
nem
neqskihqessoss
nutkisqet
oqim
paqahqaha
poles
sihku
sips
tihtokol
wapikilahq
wapi-kuhkukhas
waptoq
hummingbird
eagle
osprey
crow
kingfisher
chickadee
wood duck
ruffed grouse
turkey
woodcock
blue jay
loon
woodpecker
dove
merganser
bird
owl
goose
snowy owl
Canada goose

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

BIA Water Resources Technician Training

It's that time again. The Bureau of Indian Affairs has just announced the 2015 Water Resources Technician Training program. Details from the announcement appear below. The tentative date for the BIA Water Resources Native American Corps Program is July 6 through August 1, 2015 (4 weeks), tentatively at the University of Arizona, Tucson, Arizona. The BIA pays academic tuition, fees, and costs to cover dining facility and housing on campus for those individuals nominated to attend the Water Resources Technician Training Program.

Students successfully completing the training program will receives a 4 month voucher, for full-time temporary employment, with a tribal government and/or other government agency in an entry-level water resources field to aid in development of higher education/career development.

This position is for student trainees. The BIA Water Resources Technician Training Program Native American Water Corps is designed to provide technical knowledge for high school graduates, college undergraduates and possibly college graduates to gain opportunities to explore career goals in the water-based sciences with their tribal government, as well as, possible federal water resources positions throughout the country.

The Water Resources Technician Training Program is an intensive four-week block of instruction. Classes meet six days per week. The coursework exposes students to a broad array of subjects, ranging from *basic surface and ground water hydrology; dam operations, maintenance, safety and hydro-power; flood control structures; analysis of hydrologic data, groundwater movement and modeling; basic pipe and culvert design; drinking water and waste water treatment plant operations; irrigation; surface and groundwater pollution; solid waste management of hazardous waste, cleanup of hazardous waste and emergency response; wetland protection; basic fish and wildlife biology and fish hatchery operations among others.* Students spend a portion of their time acquiring hands-on experience in the field actually conducting tests and taking samples of various fluids in the environment. Upon successful completion of the Water Resources Technician Training Program you will have obtained the cornerstone knowledge of practical water science skills. If you are interested in becoming a Water Resources Technician, this is an excellent opportunity to work with and learn from skilled professionals!

To be considered for this program:

- You must be a member of a Federally Recognized Indian Tribe, Band, Village or Community;
- Must be at least 18 - 30 years of age;
- Must have an endorsement letter from their Federally Recognized Tribal Government, preferably the Chairman, Governor or Head of Nations;
- Provide <u>copy</u> of High School Diploma or GED;
- Include a brief one page statement stating reasons for wanting to join the program;
- Have plans for higher education or career development;
- Provide general information using the old Standard Form 171. (Check out our Facebook page, or contact one of us in the Natural Resources Dept.) This old SF-171 will be used for general information only, and is NOT an offer, intent, or consideration for Federal employment
- Provide a <u>copy</u> of Certificate of Membership in a federally recognized tribe, signed by a tribal official. (Do not send an original certificate)
- Submit an application for the training program on or before **May 4, 2015**
- Students are required to complete all classroom and homework assignments in a professional manner. Daily attendance and active classroom participation is required to graduate.

For the complete announcement along with required documents check out our Facebook page or email **water@maliseets.com**

Happy Earth Day!

TheCornellLab yardmap

The Story of Stories

Using three layers of vegetation to maximize habitat potential

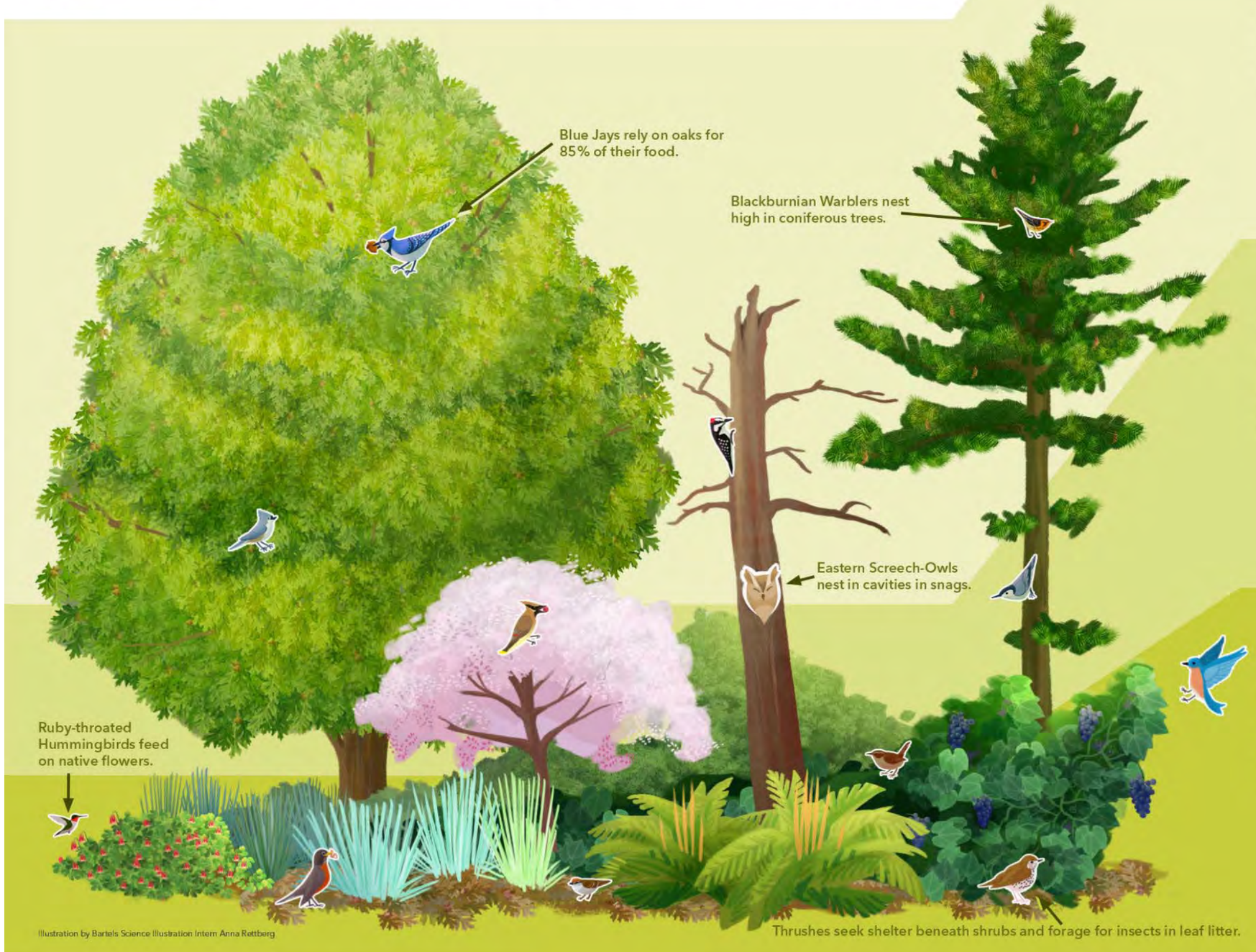

Illustration by Bartels Science Illustration Intern Anna Rettberg

Overstory
(Tall Vegetation)

Native trees such as red oak, black cherry, pine, and spruce provide birds with places to nest and roost. Birds can also escape danger or inclement weather by hiding in dense foliage or tree cavities. Trees supply fruits, nuts, and seeds for birds to eat along with opportunities to glean insects from bark and leaves. Standing dead trees, or snags, are valuable to birds because they support a great deal of insect life and contain cavities for nesting and roosting.

Red Oak (*Quercus rubra*)

White Pine (*Pinus strobus*)

Snag

Midstory
(Mid-Level Vegetation)

Clusters of shrubs, including evergreens, provide ideal cover and nesting habitat for many species. Mid-level shrubs also connect the overstory to the understory, allowing birds to safely move about, well-protected by vegetation. Many native shrubs such as serviceberry, viburnum, and dogwood, as well as vines such as fox grape, produce berries and seeds that contain high levels of fat, carbohydrates, and protein, making them an important food source for migratory and overwintering birds.

Serviceberry (*Amelanchier aborea*)

Fox Grape (*Vitis labrusca*)

Southern Arrowwood (*Viburnum dentatum*)

Understory
(Low Vegetation)

Short plants provide essential cover and food for birds. Understory is made up of various types of ground cover including leaf litter, rock piles, and vegetation–including native flowers (such as goldenrod and purple coneflower), grasses, and ferns. All of these provide either seeds or a home for insects that some birds eat. Nectar-producing plants, such as columbine, are important to hummingbirds and pollinating insects. The understory also provides a safe hiding place, especially for newly fledged young.

Columbine (*Aquilegia spp.*)

Cinnamon Fern (*Osmundastrum cinnamomeum*)

Little Bluestem (*Schizachyrium scoparium*)