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BIRDS' BILLS (BEAKS)



I remember Biology 11 when I learned about the life cycle of mosses. I don't think I had ever really looked at a moss plant closely before. I was hooked on the natural world! Later, I worked as a BC Park Naturalist and had



the chance to show a budding naturalist

moss capsules and explain the moss life cycle. A Beautiful BC Magazine photographer was along on my walk and captured this picture for her magazine. Now, fifty years later it excites me to be able to keep on sharing biology stories and activities in the pages of Nature WILD. Children shouldn't have to wait until Grade 11 like I did! The natural world is open for inspection now!

Brian Herrin (aka Dr. Eucan Doowitt) photo: Brian as a BC Park Naturalist







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NatureKIDS BC is THE club for children and families who love to be outdoors, Members discover nature on Explorer Days organized by volunteer leaders and guided by experts, participate in stewardship projects, earn Action Awards and receive NATUREWILD magazine 4 times a year.

Come join us! Family membership: \$35 per year. Schools membership: \$50 per year. Or subscribe to NATUREWILD magazine: \$20 for 4 issues per year. For more information and to sign up online go to: naturekidsbc.ca

**Thank you** to our sponsors and supporters who share our vision that all children be connected with nature.



This project was undertaken with the financial support of Ce projet a été réalisé avec l'appui financier de :



Environment and Climate Change Canada

Environnement et Changement climatique Canada



TD Friends of the Environment Foundation

vancouver foundation

The Gosling Foundation

Elders Council for Parks











We acknowledge the financial assistance of the Province of British Columbia





Paper for NATUREWILD is sustainably sourced and printed by Benwell Atkins an RR Donnelley Company, Vancouver. Please share NatureWILD with others and give it to your school when you are finished.

Front Cover photo: Stoat: jaffa\_tamarin, CC inset Images: Yellow rumped warbler: Rosemary Taylor, B.C.

ISSN: 1492-7241

Volume 18 Issue 3, 2017



## beaf bitter

By Terry Taylor (adapted with permission)

Every fall, in gardens, parks and forests, leaves float down from the trees and lie thick on the ground. We call this layer of dead leaves "leaf litter". Yet, amazingly, by spring almost all the leaves seem to have disappeared. What happened?

What happened is one of nature's most important activities – the leaves were being made into new soil!

Leaf litter quickly becomes food for **decomposers** such as bacteria, fungi and many small animals. As the decomposers digest the **nutrients** (food) in the leaves that were once part of trees, they return those nutrients back into the soil. The nutrients in the soil feed the trees and become part of the trees once again. This recycling of nutrients is what keeps a forest alive and growing.

Dead leaves
that fall into lakes and streams
also have an important
job. Special aquatic fungi help
break down the leaves so they
can supply nutrients to small
invertebrates. These
invertebrates then
become food for fresh

water fish.

### Or. Eucan Doowitt invites you to join him in a 'Small Game' Safari through the world of Leaf Litter.

We're on the hunt for decomposers and other 'small game' so the first thing we should do is to print out the **Life in the Leaf Litter ID card** on the NatureKids website www.natureKidsbc.ca.

Then pack up some 'inspectigating' tools such as a magnifying glass, some small clean containers (with lids), a plastic spoon, a soft paint brush, a trowel, a sheet of paper towel to lay out the tools and a white plastic tub to store it all in. And your camera!

Now to find a good area for our Leaf Litter safari, for instance under a grove of trees where the leaves have been piling up and have often been rained upon. This has created the perfect habitat for decomposers, those tiny "recycling-crew" members we are looking for. They find the damp, dark environment with lots of hiding places amongst the fallen leaves and twigs just perfect for doing their work.

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When you have found a good shady spot, lay your tools out on the paper towel and see if you can find any 'action'. Sit quietly for a few minutes until your eye catches some movement.





Badger and the Wolverine all belong to the same family, the 'Mustelidae', the largest family of carnivores (meat-eaters) with 65 species. They are all slinky with sharp claws and teeth - perfect predators!

The Least Wease is the smallest of all carnivores in BC - only a little bigger than a mouse. It is also one of the fiercest. It can catch animals as big as itself – it prefers mice but will also go after rabbits, birds, frogs and insects. Because it is so active hunting, mating and burrowing, the Least Weasel has to eat as much as half its own weight in food every day just to keep going.

In winter black has shown the Signature. Vegs

When its fur is white, Stoom is

ealled Ermine

In winter its fur turns completely white, with just a few black hairs in the tail, as does the fur of its cousin the **Short-tailed Weasal**. Another cousin,

the **Stocie**, also turns white in winter, with no black hairs.



In the past, these little animals were trapped so that their fur could be used to decorate royal robes. These days royalty has to make do with fake fur instead.

The Mikes to live close to water,

usually alone, and to hunt at night, especially near dawn and dusk. It is an excellent swimmer, with feet that are partly webbed and soft thick fur with oily outer hairs that keep the fur dry. The Mink can swim a long way underwater and can dive as deep as 5 metres (like diving to the bottom of the deep end of a swimming pool) chasing after crayfish, frogs and fish. In winter, if the water is frozen, it hunts small mammals. The Mink is a digger - it digs its burrow in the banks of rivers, lakes and streams and makes it cosy by lining it with dried grass and leaves. Some may even use fur from animals they have killed and eaten.

The American Backer is another digger, long and slinky like the rest of the family, but wider and flatter. It is black or brownish with white stripes from its face down its back, a bit like its relative the skunk, but not so fluffy. The Badger lives in open grassland areas where its short legs and powerful claws can dig out tunnels and make its den. Using its claws, the Badger can go after prey that also live in burrows, such as gophers, marmots, ground squirrels, voles and mice.

#### **Important Conservation** information

The **American Badger** 

(Taxidea taxus) is a **Red-listed** species. Red-listed means the badgers are endangered and their numbers are going down. This is because so much of their habitat has been lost, either to farming (grasslands get ploughed up to grow crops) or urban sprawl (badger habitat gets houses built on it).

For more information about badgers, go to http://badgers.bc.ca/

If you should be lucky enough to see a Badger report it to 1-888-BADGER6

(1-888-223-4376)

read about **Badger** in Wind in the Willows. He is a European Badger. The two badgers look alike though the European Badger is friendlier.



The Wolfering is the largest and least slinky of the weasel family. In fact it looks like a small bear. It is powerful, cunning, fearless and always on the hunt. The Wolverine likes to live and hunt alone; it travels long distances through the boreal forest and tundra, as much as 25 kilometres a day, looking for prey such as rabbits. It also attacks sheep, deer and small bears. The wolverine will feed on any animal carcasses (dead bodies) it finds and, when it is really hungry, digs into the dens of hibernating animals. It may also follow trap-lines to a trapper's cabin and steal food.

There is no connection between the real Welverting and the action character Wolverine except they are both bad-tempered and have long sharp claws.

Wolverine

# ECLOPASS

By Kamil Szlochta and Serena Moore

Along the coast, in places where rivers meet the ocean, you may see sheets of long, bright green ribbon-like leaves floating quietly in the water. This is eelgrass.

Eelgrass is an important habitat that gives all sorts of creatures a place to hide and feed. Crabs, tiny shrimp, snails and many kinds of fish make this a happening place. Other creatures that may be found hunting for food in the eelgrass are ducks, geese, gulls, and larger animals like harbour seals and river otters.

At low tide, when the eelgrass leaves lie exposed and flat, you can often see tall herons wading through the eelgrass, hunting for young salmon, pipefish and other tasty food.

Eelgrass grows in thick underwater forests that can spread over very large areas. From their roots in sand and mud the eelgrass plants stretch up through the water toward the light. The gently waving leaves or 'blades' may grow to be a metre long!

Eelgrass beds calm the water, which helps other plants and algae to grow. This helps keeps aquatic ecosystems clean and healthy.

One of the most important things that eelgrass does is to provide a sheltered nursery for young salmon. Salmon are born in fresh water and migrate down the rivers and lakes to the ocean where they will grow into adults.

Before they enter the ocean, the eelgrass protects them from predators while they get used to salt water and grow bigger, feeding on many kinds of marine life such as young crabs and sea worms.

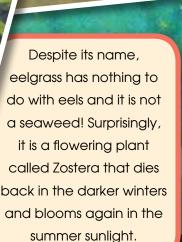




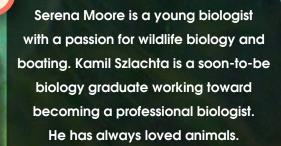
photo credits: Background - hooded nudibranc
Ruth Foster, B,C. • 3) Eelgrass underwater: eclec
• 5) Eelgrass low tide: Ingrid Taylor, CC • 6) hood



The place where a river meets the ocean, mixing fresh water and sea water together, is called an estuary.



(5)



Both Serena and Kamil are avid scuba divers who volunteer at the Mossom Creek Hatchery in Port Moody. Serena's secret second life is on screen on the movie sets in Vancouver. Kamil also happens to work as an actor and a stunt performer in the movie industry. These two have a lot in common!

#### Protecting eelgrass

Eelgrass is a finicky plant that likes lots of sun and clear water. It is sensitive to chemicals and hungry herbivores (like geese and worms), who like to nip on its leaves. Eelgrass can also easily be damaged by propellors, dragging boat anchors and by shoreline construction that may dirty the water making it too shady for eelgrass to grow.

Once damaged, an eelgrass bed can be very difficult to re-grow.

Nevertheless, with patience and care over time it can be done.

There are many volunteer groups working to replant eelgrass beds. You can help too, by always obeying the signs posted in marine areas and by taking part in a shoreline clean-up. (see page 10)

7/8



# Teritoge Site or Garbage Dump?

Tiny Henderson Island lies in the middle of the Pacific Ocean. It is a special place because humans have never lived there, so its ecosystems have not changed much.

Many plants, birds and insects found on Henderson Island are found nowhere else in the world.

Sounds like paradise? Well, maybe not. Though humans don't live on the island, their litter certainly does. This year researchers visited the island and found the beaches covered with 38,000,000 pieces of trash!

Most of the trash was made of plastic – hard hats, cigarette lighters, toothbrushes - you name it, it was there, including a baby's pacifier!

Plastic has many excellent uses – the problem is what happens to plastic items when they stop being useful. In Canada, there are many ways to recycle plastic, but in other countries around the world people

have no choice but to put it in the garbage. Sadly, much of it then ends up in rivers, lakes and oceans. Here it causes great damage to marine animals and

birds, which often eat it or get tangled in it.

The oceans circulate the plastic around the world and a lot gets washed up on the beaches, while rivers and streams spread the plastic along their banks.

#### The Amazing Waxworm Caterpillar that Eats Plastici

Waxworms live in beehives where they eat the beeswax. One day a beekeeper cleaned out her beehives and put the waxworms in a plastic bag. She was amazed to find later that they had eaten holes in the plastic!

Scientists are studying how waxworms break down plastic, so one day we can get rid of plastic trash round the world.

Your family, your nature club or your school can take part in the Creat Canadian Shoreline Clean-up any time of the year.

Contact: www.ShorelineCleanup.ca Make it a fun outing - spend an hour or two cleaning up the shoreline, then have a picnic to celebrate your clean-up.



00's of plastic bags blown onto a tree

> Wash plastic bags for re-u

### Plastic Bags so Useful, so Deadly

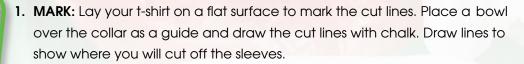
Around the world shoppers use 500 billion plastic bags every year - about 150 bags per person! To get some idea of what 500 billion looks like, that's more than there are stars in the Milky Way.

About 10% of plastic bags get recycled (in Canada about 30 - 50% get re-cycled). Most of the rest go into the landfill and many just blow away, ending up in the ocean where they harm many marine animals. Plastic bags look like jelly fish to turtles, whales, seals, gulls and other sea-birds so they try to eat them.

When you do have to take home some plastic bags, wash them and re-use them. If you can't re-use them, tie them in a knot so they won't blow away. Try to use cloth bags for ALL your shopping.

You can be sure of having enough cloth bags if you make the 10-minute t-shirt bag.

You will need: old t-shirt; sharp scissors, chalk, bowl, sewing machine (optional)



- **2. CUT:** Using your scissors cut through both layers of fabric using your cut lines as a guide.
- 3. **SEW:** Now you will make the bottom of the bag. First, turn the t-shirt inside out. Decide how deep you want the bag to be. Mark your sewing line. Stitch by hand or with a sewing machine.
  - If you stitch by hand, make sure to use LOTS of stitches to make it strong enough to carry your things.
- **4. USE!** Now that you've sewed the bottom, turn the bag inside out and use it!



there are organizations working to get rid of plastic bags and other trash from our oceans. You could start a fundraising drive to help those organizations.

**Living Oceans** (livingoceans.org) is a BC-based organization and the **Surfrider Foundation** (surfriderfoundation.org) is an international organization with chapters in Vancouver and Vancouver Island.

Plus you can take part in the Great Canadian Shoreline Clean-upl (See page 10)



Mole was a small furry mammal with a short tail, wide hands with strong claws and a very sensitive nose that could feel and smell worms. She made tunnels in the earth and left mole hills every so often to get rid of the extra earth. She very rarely came above ground and never in the day!



Spring, Summer, Fall and Winter - she lived underground in her tunnels that she dug with her powerful claws. Up above, the sun might shine or rain could fall or the wind could blow, but in Mole's tunnels it was always cosy and dry.

Mole was very proud of her tunnels – every day she snuffled along them, looking for something to eat, and making sure the tunnel walls were strong and safe.

Mole could not see – there was skin over her eyes to protect them while she was digging – and after all it was always dark in the tunnels. She did have a good sense of smell and delicate whiskers to help her find beetles and worms to eat. She was particularly fond of worms.

One day, as she was sleeping, something fell on her head. It was a big juicy worm. 'Supper!' said Mole.

"That's not polite," said Worm (who was a wise old Worm and had no wish to be anyone's supper). "I just dropped in to admire your tunnels."

"What do you know about tunnels?" asked Mole rather rudely. "You can't dig tunnels – you don't have claws to dig with."

"Oh, I make excellent tunnels – I dig with my mouth. I swallow soil and send it out, and the tiny hairs on my body help push me along," said Worm, "I can go anywhere."

"Are you saying your tunnels are better than my tunnels?" said Mole. "If you say so," said Worm. "No, I don't say so,' said Mole.

"Then let's see who can dig the best tunnel," said Worm, "and if you win, you can eat me." "You're on!" said Mole and started digging with her strong claws.

Worm worked quickly and quietly, chomping through the soil, wriggling deeper and deeper, eating his way as far from Mole as possible.

When Mole finally stopped digging to boast about her tunnel, Worm had wiggled far away.

"AARGH!" cried

Mole, "I've been tricked!" And she never again tried to out-dig a worm.

Adapted from
Wild Times SeptemberOctober 2010 with
permission from RSPB
Wildlife Explorers

**photo credits:** background: Stramyk, istockphoto.com

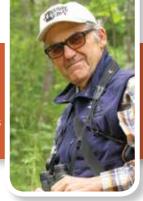
- worm: wikipedia
- mole: Old Farmers Almanac
- worm: bazlifoto, istockphoto.com
- mole: GloballP, istockphoto.com



#### Have a Nature Question?



Al Grass has worked as a career park naturalist and ranger throughout BC. Now he is a well-known nature tour leader and photographer. Al especially likes birds, insects and spiders.



### Q: Why do American Robins and Varied Thrush like to dig around and turn over dead leaves?

Robins and Varied Thrush are not the only birds that flip over fallen leaves – crows, towhees, fox sparrows, song sparrows and ruffed grouse, to name a few more, also do 'leaf tossing' or simply scratch through the leaf litter, hunting for tasty treats like insects, spiders, worms and seeds.

Leaf litter is a rich source of food for Robins, Varied Thrush and other birds. This is why I ask all of you who have gardens to please leave the fallen leaves under trees and bushes – i.e. don't rake them all up – leave some for birds to 'turn over' and find a feast.

Varied Thrush are very good at flipping leaves and it's exciting to watch them do this. For birds however, it's all in a day's work!

### The Right Beak for the Job-an Experiment.

Ever tried to eat soup with a fork? No! Forks aren't meant for eating soup – spoons are. Like spoons and forks, birds' beaks are designed for different types of food. Let's try it out.

Imagine you are a hungry bird. You've found different kinds of 'food'. Use the different 'beaks' to collect food. Which is best? (Look at the back page for hints.)

#### Step One: you need

- 1. 'Beaks': clothes-pins, toothpicks, tweezers, chopsticks and pliers.
- 2. 'Food': sunflower seeds, cereal, gummy bears or mini marshmallows, nuts with the shell on.
- 3. 'Crop' (where birds store food before digesting): a small bowl.
- 4. Notepad and pen to track your experiment

#### Step 2: Dinner time!

- 1. Spread out the food and choose a 'beak. For one minute pick up as much food as you can, storing it in your 'crop'.
- 2. Write down which 'beak' you were testing, how much and what kind of food you 'ate'.
- 3. Put the food back where it was; try out all beaks in turn, making notes each time.

#### Step 3: Results of your experiment.

Which kind of food did each type of beak pick up best? Which species of bird might use each kind of beak? Can you think why birds evolved to have different beaks?



# NATUREWILD-MENS

#### **Passports to Nature**

Passports completed: Troy (Nanaimo), Kelton (Cowichan Valley), Rhys (S. Okanagan), Tanya and Lucas (North Okanagan), Anna (Nelson) and Grace (Delta Home Learners) - passport #1; Lucas (Victoria) passport #2 and earned his NKBC cap; Caitlin (Victoria) passport #3 and earned a butterfly poster. Janel (Nanaimo) passport #5 and earned a packsack. Maya (Delta Home Learners) passport #7 and earned a NKBC packsack. Morgan (Victoria) will soon be leaving NKBC and was given a special award for outstanding participation during the 6 years that he has participated in NKBC Victoria Explorer Days and other activities. Congratulations, all!

**Note:** NatureKIDS Completing Passport 2 will continue to earn a NKBC cap. Completing Passport # 4 will now earn a NKBC packsack. Members who complete passports 5 (and up) and who have not previously received a packsack for passport #4 can also be awarded one if they wish.

What is a NATUREHOOD? NatureHood means looking for, learning about and protecting the wildlife that we find around us in our own neighbourhoods. This is what NatureKIDS are doing all the time! Some places are being named as special Nature-Hood sites. This summer BC's Lieutenant Governor, Judith Guichon, dedicated the grounds of Government House in Victoria as a NatureHood site. NKBC Victoria leader, Stephanie Weinstein, was invited to take part in this exciting ceremony.

Photo Credits: Government house garden, CC • Lieutenant Governor with certificate: Jessica Bate, B,C.

In July, **Victoria NatureKIDS** went for a "Moon Walk" with CRD Regional Parks naturalists, searching for Moon Snails and other intertidal life at Coles Bay Regional Park in North Saanich. Leanne Cadden, an artist with the Bateman Centre, led the NatureKids in sketching some of the amazing creatures that were seen.

Photo Credit: Sandra Gabaglia, B.C.



Photo Credit: Paula Rodriguez de la Vega, B.C.



North Okanagan
NatureKIDS had many interesting
Explorer Days this year such as rock
hunting, pond exploration, flying kites
and building a shelter. Photo Credit:
Megan McMillian, B.C.

Nelson NatureKids went out with the Kootenay Native Plant Society to learn about native wildflowers. They even sucked up some pollinators with a bug vacuum. It was fun!

Photo Credit: Jenni Stol, B.C.



### Birds' bills (beaks) are shaped to make it easy for them to find and eat their food.



Seed eaters sparrows and crossbills - have short, strong bills to help them crack open seeds. photos: Rosemary Taylor, B.C.

**Insect eaters - warblers** and wrens - have small fine bills to poke into bark and other places to dig out spider eggs and bugs. photo: Rosemary Taylor, B.C.

#### Scoopers - ducks and

teal - often feed in murky water. They have special sensors on their wide bills that can tell the difference between insects, seeds and plants so the ducks know what they are eating. photo: Rosemary Taylor, B.C





Fruit eaters - Robins, waxwings and blackbirds

- have largish bills that let them grasp and swallow berries whole or break through the outer skin of larger fruit, like apples and plums to get at the soft fruit inside. Waxwing birds: watts\_photos, CC • Robin: Lucina M, CC



hawks - have powerful bills to grab their prey and strong talons to hold it down. The hook at the end of the bill is used to pluck off the fur or feathers and tear the flesh. Eagle: Rosemary Taylor, B.C. Kestrel: nichollsoftheyard, CC



Stabbers - herons and oystercatchers - have long bills to grab their prey. Herons then toss up and catch the fish or frog and finally swallow it whole. When the prey is quite large you can see the lump as it slowly slides down in the heron's throat. Oystercatchers bash the shellfish they catch on rocks to open them.

Oystercatcher: Rosemary Taylor, B.C. • Heron: flythebirdpath, CC

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