A Field Guide To The Quick Sandy River

Created by Health and Science School 6th graders, 2011

Paintings, Habitat, Adaptations, Water Quality, Foodwebs & Poetry

PURPLE
VOLUME ONE
2011

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Introduction written by Zachary David Morello, 6th grade

In our third exhausting (but fun) trimester in science, art, humanities and math, we started to learn vast amounts about our native organisms and how they survive. We learned how humans affect the earth's organisms and how we have tried to undo that. We learned about how animals adapt to survive and sustain themselves. We graphed the water quality of the Sandy River. We made numerous drafts in art and in writing about our species and made this field guide. You may think: "how is science related to humanities, math or art?" To explain how we did this I will make a brief explanation.

Before anyone started to even make a first draft the whole sixth grade went to Camp Collins on the Sandy River for three days. When we were there we did many activities (including breaking their flag pole). One of them, probably most significant, was the Audubon Society teaching us about the local animals.

In art, my peers and I chose a species to draw and made a first draft, it wasn't a masterpiece but it was a start. We brought our drafts up to let our peers give us feedback like "you might try to add this" or maybe you could try this". Our art teacher told us to make only "kind, specific, and helpful suggestions. Not, " it looks horrible, scrap it". After peer critiques we made some revisions and finishing touches and started to paint our final/second draft which are in this field guide.

In our science class we researched our organisms, when I say organisms, I mean species like animals, insects, plants and trees. We learned about impacts, adaptations then drew our thumbnails, food webs and started typing our guide. In math we made our water quality graphs and wrote about the water quality samples we took on the Sandy River.

Finally, in humanities, we made skits based on a conversation between Theodore Roosevelt and John Muir about national parks. Our class researched characters such as oil drillers and loggers to decide how much humans are responsible for the environment. We also observed the wildlife in our schoolyard. We then started to peer review and edit all of our writing and dump our information into a sample field guide.

This measly bit of information about our field guide is just the introduction to explain the hard work behind the scenes of this field guide. Please keep reading and turning the pages to see how great all of our work turned out. -*Written by Zachary David Morello*

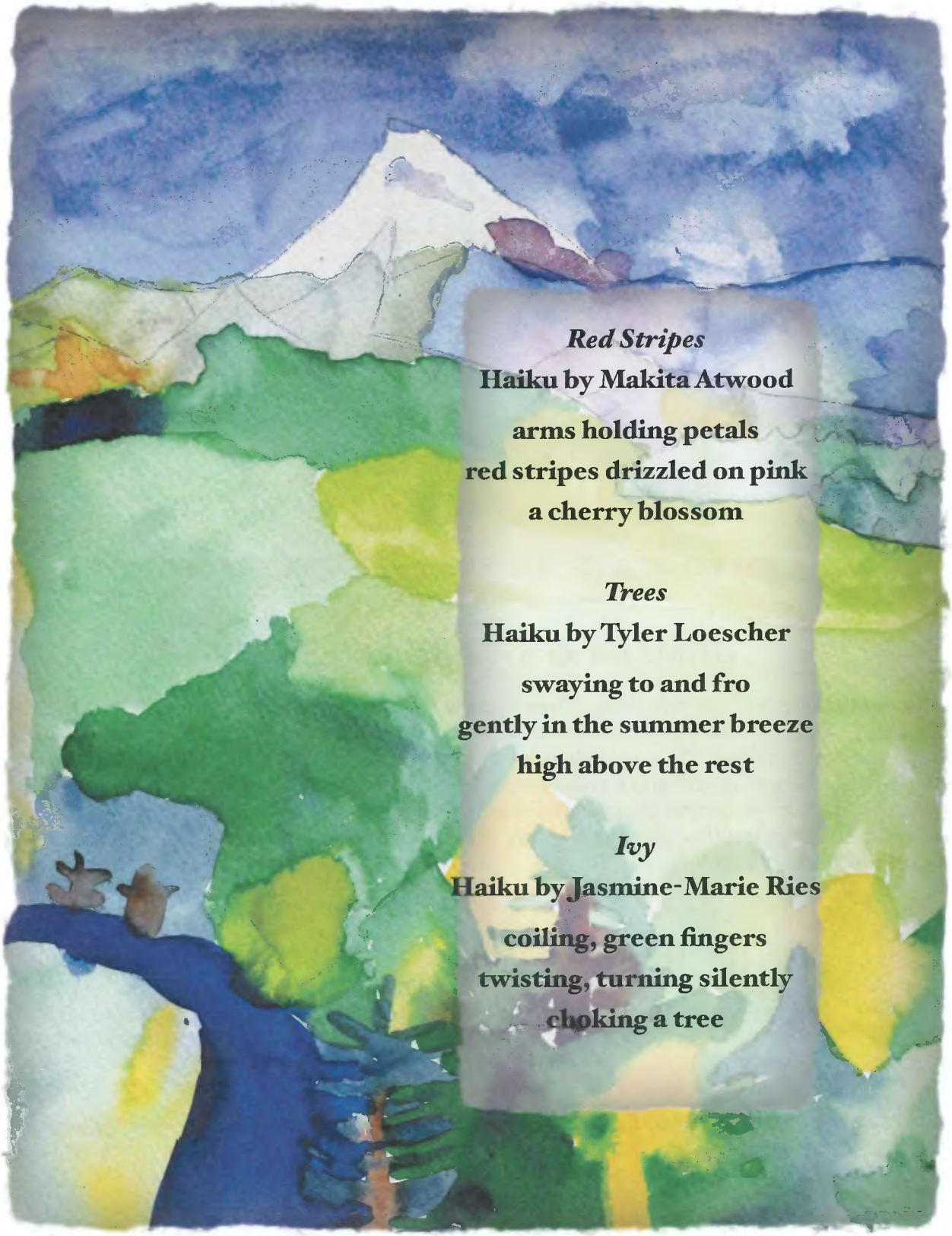
A Special Thanks!

A Special Shout out to our teachers, Ms Rybak, Mr Jones, Ms Burger, Ms Younghee and Mr Miller. Thanks especially to Ben Asbury's mom, Lynn Asbury, Anne Abernathy's mom, Ellen! Thanks to Kalea's, Joey's, Natalie's, Tyler's and Chloe's mom. Ms Quig helped too. We could not have done this with out you! Thanks to 7th grade mom, Andree Hertz too.

Haiku of the Quick Sandy River

P A U S E , B R E A T H E , L I S T E N

Painting by Justin Lu



Red Stripes

Haiku by Makita Atwood

arms holding petals
red stripes drizzled on pink
a cherry blossom

Trees

Haiku by Tyler Loescher

swaying to and fro
gently in the summer breeze
high above the rest

Ivy

Haiku by Jasmine-Marie Ries

coiling, green fingers
twisting, turning silently
choking a tree

G R O U N D B E E T L E

Scientific Name: Calleida decora

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY JEFFTA ARGAW

HABITAT & SPECIES OVERVIEW

Ground beetles are half an inch long. They usually live near large bodies of water, but they like to stay in warm areas, like the sides of a river. When sleeping, they use rocks and wood like logs for good shelter. They usually hunt at night, but when in danger they use trees for cover. They are brown or different color backs helps them camouflage in mud and leaves. They have long legs to propel them in the water. They also use their long sharp legs to mark their territory. When in larva stage, they stay under water and they have something called elx-tra to breath under water.

THREE AMAZING ADAPTATIONS

One adaptation the ground beetle has is its long legs. Its long legs help it swim fast to get away from predators. It also helps it look tough to scare other insects that could eat it, or to scare their prey so they can eat them.

Another adaptation is their elxtra. They only have this when in larva stage and 4 weeks of their early life. It helps it breath in larva stage, because it is born under water. It also helps the beetle learn how to swim.

The final adaptation is the fact that it is half an inch long. This is useful to run and stay away from bigger predators. It also makes it easy to make and stay in a home under rocks logs and trees. It even uses other bugs' home.

B A N A N A S L U G

Scientific Name: Ariolima columanes

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

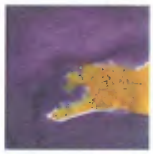
ARTWORK AND WRITING BY KAYCIE BAUER

HABITAT & SPECIES OVERVIEW

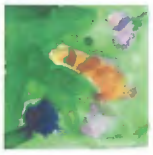
The banana slug or the Ariolima columanes are sometimes found in the redwood forest or in other places such as the Sandy River. They like their habitat to be moist and it must have the natural material to survive. They use two pairs of tentacles on their head to sense their environment. The top pair on their head senses light and movement. The second pair of tentacles sense chemicals so then they can detect other slugs. Some of their favorite foods are mushrooms, lettuce, strawberries, lilies and poison oak. They weigh 165 grams and they come in a variety of colors including brown and green.

THREE AMAZING ADAPTATIONS

The banana slug has two "eye sockets" that allow them to sense movement, and they also have two sensing tentacles that sense different chemicals so they know who passes by.



They have a mucus coat that needs a damp environment so then the mucus does not dry out. If the mucus gets too dry, then they cover themselves with leaves and twigs so then they stay moist.

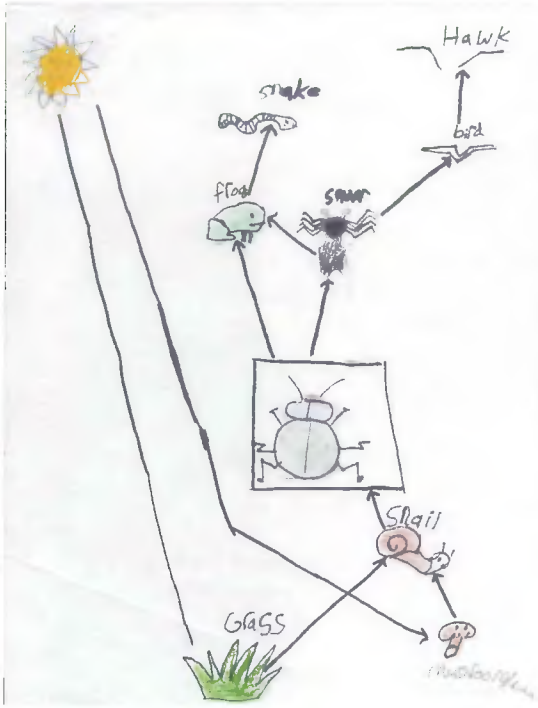


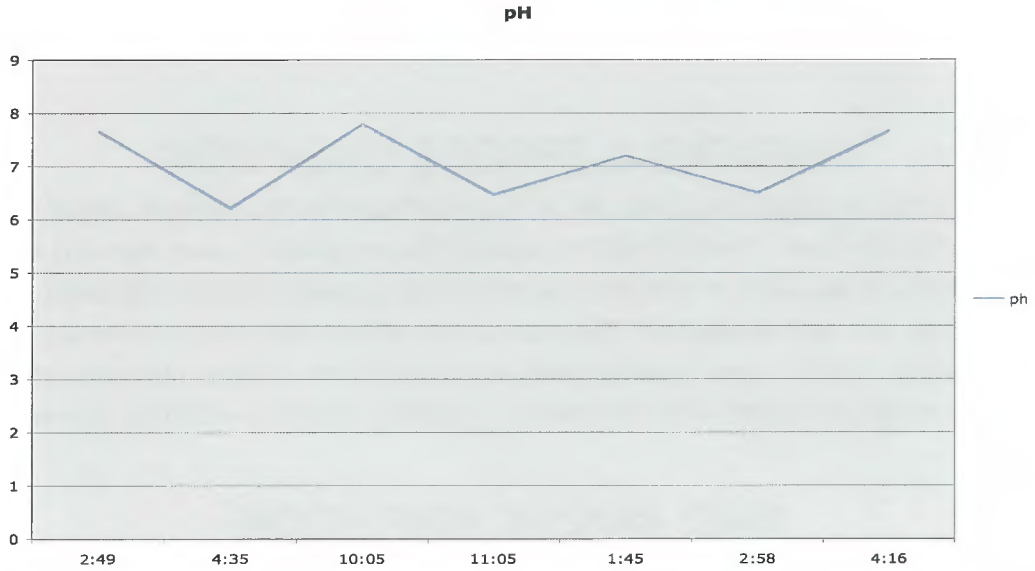
The banana slug comes in a variety of colors such as yellow, brown, green, and yellow with brown spots.

ENVIRONMENTAL IMPACTS

The ground beetle status is not endangered but is populating, although fires and big disasters. Humans affect the ground beetle when we go camping, humans might start a forest fire and destroy their homes. Another way the ground beetle is affected is when humans make buildings.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

That was my measurement. This shows how healthy the water in the Sandy River is. The water is pretty healthy compared to other waters,because evry reading is fairor close to the avredge. Some things that could of affected the measurements are littering and pollution, the residue could have been the reason for the brownness of the water.

Environmental Research conducted by: Jeffta Argaw

THE SPOTTED SANDPIPER

Scientific Name: ACITIS MACULARIA

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY: GABRIELA BERUMEN CARO

HABITAT & SPECIES OVERVIEW

The Spotted Sandpiper habitats are ponds, streams, and other waterways both in land and along the shore; also they can be found in fresh water sources like lakes and rivers. Another habitat is shallow muddy lagoons and creeks. The spotted sandpiper is a medium, 18 to 20 cm long. Another things that the chicks hatch in 20 to 29 days. They leave the nest shortly looking for food at 17 to 21 days old.

THREE AMAZING ADAPTATIONS

ADAPTION#1

Most species have a Nero beak the bill are sensitive allowing the bird to feel the mud and fined its prey eaier.

ADAPTION#2

The sandpipers long legs help them run faster and run away from large prey

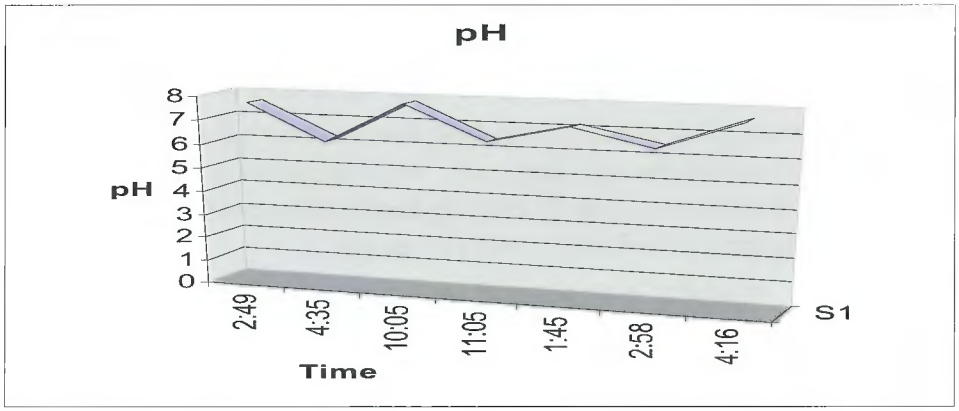
ADAPITON#3

The spotted sandpiper colors are help full for camouflaging and easier to escape from large predators and escape.

ENVIRONMENTAL IMPACTS

Since there is deforesting, the Banana slug is slowly losing its habitat. The Banana slug has become endangered because of this deforesting. If this continues than the Banana slug will become extinct. Most banana slugs live in the redwood forest, and they also live at the Sandy River. They are endangered for that some smaller areas that they live in are being deforesting and they are losing this area.

FOOD WEB ILLUSTRATION



WATER QUALITY GRAPH OF THE SANDY RIVER

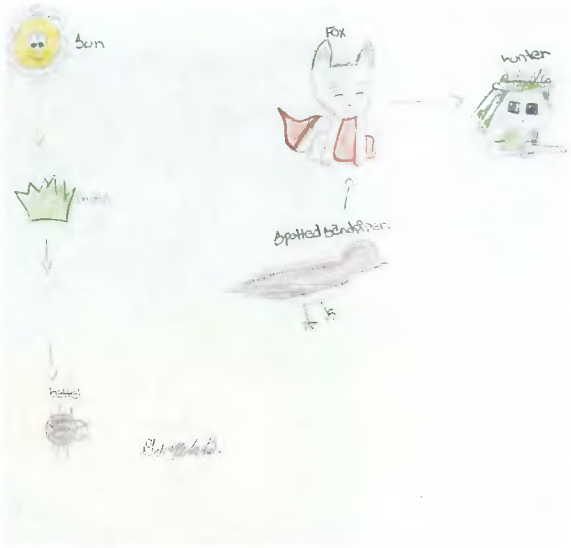
These measures are very important to the water, because if they are too high or low, then the organisms can not survive. When we did the water quality test, we found that many macroinvertebrates were mayflies. Mayflies are an indicator that the river is healthy, because they aren't very tolerant of pollution, but at the same time, the results said that the river turbidity was very high, and that it was murky. In the end, we decided that the Sandy River was healthy, and that fish and other aquatic creatures can survive in the Sandy River.

Environmental Research conducted by: Kaycie Bauer

ENVIRONMENTAL IMPACTS

People cutting the grass and putting chemicals in some grass and pollution affect the spotted sandpiper. The spotted sandpiper is also affected by the oil spill in Mexico. It affects it by when it drinks water it is hard for them because there would not be health because the microinverterbrates lives in the water and that is were the sandpiper lives and gets affected by that also other animals that eat microinverterbrates get affected too.

FOOD WEB ILLUSTRATION



WATER QUALITY OF THE SANDY RIVER

When we went to Camp Collins we each had a chance to go to the Sandy River. Down there, we all had to test the water quality. We took the river's water temperature, pH and the turbidity. The water temperature was not too hot or too cold to the touch, I guess it was just in the right temperature. The Sandy river's pH was 6.5. This is a healthy range because a healthy range is 7.5 or slightly lower. If the river's pH is too low or too high the river might be too acidic or basic which could kill or harm fish and humans. Finally, a healthy range for turbidity (the amount of particles in the water) ranges 10 or lower but the Sandy river's turbidity was 23.6. I think that the turbidity was vewas high because of the flood that happened in February. There was a lot of movement in the water increasing the sediment in it.

Environmental Research conducted by: Gabriela Berumen Caro

Y E L L O W - B I L L E D C U C K O O

Scientific Name:Coccyzus Americanus

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY Maria Briones-Acuña

HABITAT & SPECIES OVERVIEW

Yellow-billed Cuckoo birds live in North America, but during winter they migrate to South America to reach warmer weather. They are slow moving birds that live in secretive woodlands. They usually eat large insects, bird eggs, snails, and vertebrates like frogs. Yellow-billed Cuckoo birds can live up to 4 years. These birds can make at least 6 different vocal sounds, which they use to communicate. Breeding occurs in May-June so they can their eggs.

THREE AMAZING ADAPTATIONS

The Yellow-Billed Cuckoo birds use their wings to keep them warm during the icy
The wings also help it fly.

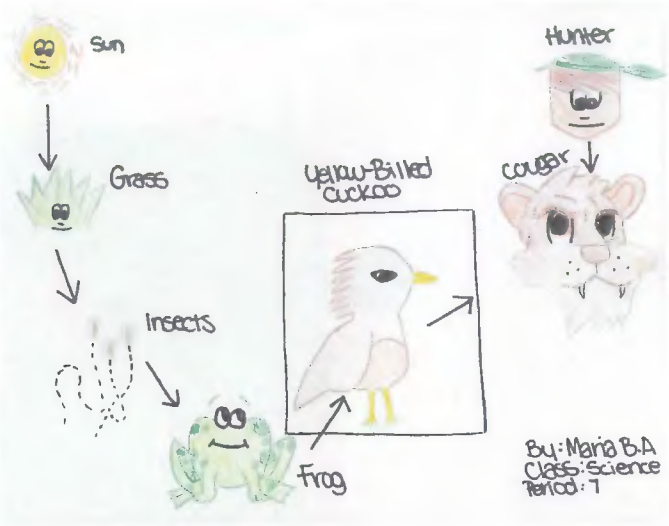
The Yellow-billed Cuckoo's 5-toed pattern was very common for many animals such as birds, \
cats, and home pets, ect. Today they have 4 toes which they use to climb, and hunt.

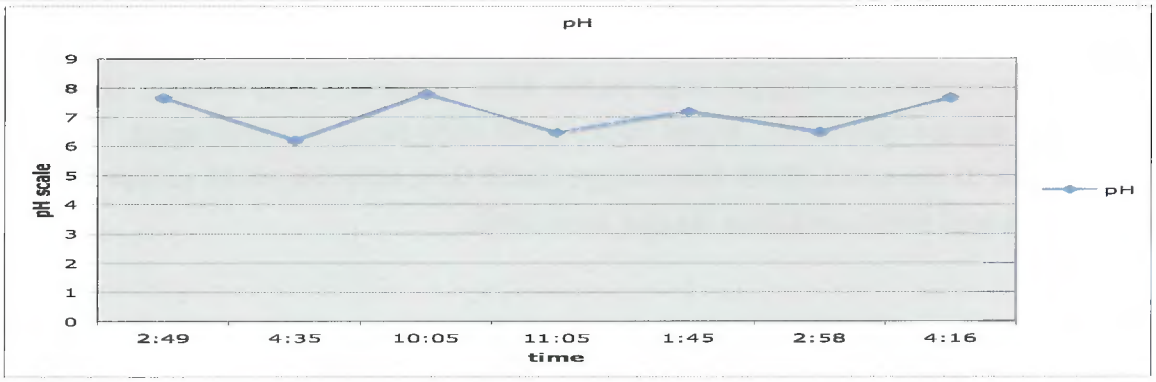
The beak helps it hunt for small animals likes insects. The Yellow-billed
Cuckoo's beak also helps it cut through and pick up things.

ENVIRONMENTAL IMPACTS

Yellow-billed Cuckoo birds are beautiful and amazing. If we don't take care of the environment, we might never see one ever again! Humans have been chopping trees down and if that keeps happening these beautiful birds will have no place to live or lay their eggs. I think that people should stop chopping trees down because trees not only help us but they are the homes for many animals! Birds are not the only kinds of animals that live in trees also squirrels, owls, and many more other animals. Also pollution hurts them because they have to breath, in the toxins in the air. I hope that we can change and not hurt Yellow-billed cuckoo's environment. I'm glad that right now they are LC. (Least concerned.) So they are not in extinction and I hope they never go like that.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

The Sandy River's pH was 6.5. This is a healthy range because a healthy range is 7.5 or slightly lower. If the river's pH is too low or too high the river might be too acidic or basic which could kill or harm fish and humans. Finally, a healthy range for turbidity (the amount of particles in the water) ranges 10 or lower but the Sandy river's turbidity was 23.6. I think that the turbidity was very high because of the flood that happened in February. There was a lot of movement in the water increasing the sediment in it. Many trees and rocks fell in to the river, this was both good and bad. It is good because the trees and rocks make new homes for fish and shade the water decreasing the temperature. Fallen trees might increase erosion which increases turbidity. The health of the Sandy River is good because 2 out of 3 test were healthy.

Environmental Research conducted by: Maria Briones

W O O D D U C K

Scientific Name: Aix sponsa

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY KYLTER BUCK

HABITAT & SPECIES OVERVIEW

Wood ducks are organisms that live near water. They need water to survive. They mostly live near wooded swamps and rivers. Wood ducks build their nests in these areas. They lay five to sixteen eggs in those nests. Once those eggs hatch they only live three to five years. They eat both plants and meat, and they do not have teeth.

THREE AMAZING ADAPTATIONS

The wood duck has webbed feet to help it swim faster and efficiently.

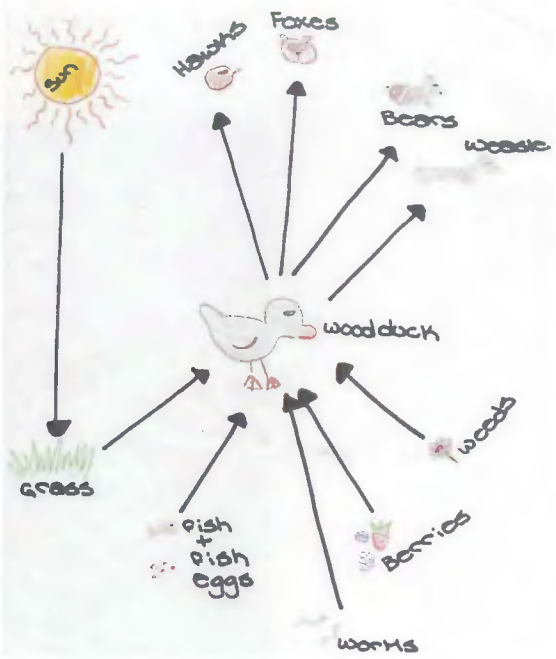
Wood ducks have large lungs with gas filled sacks connected to the lungs so they can take in a lot of air.

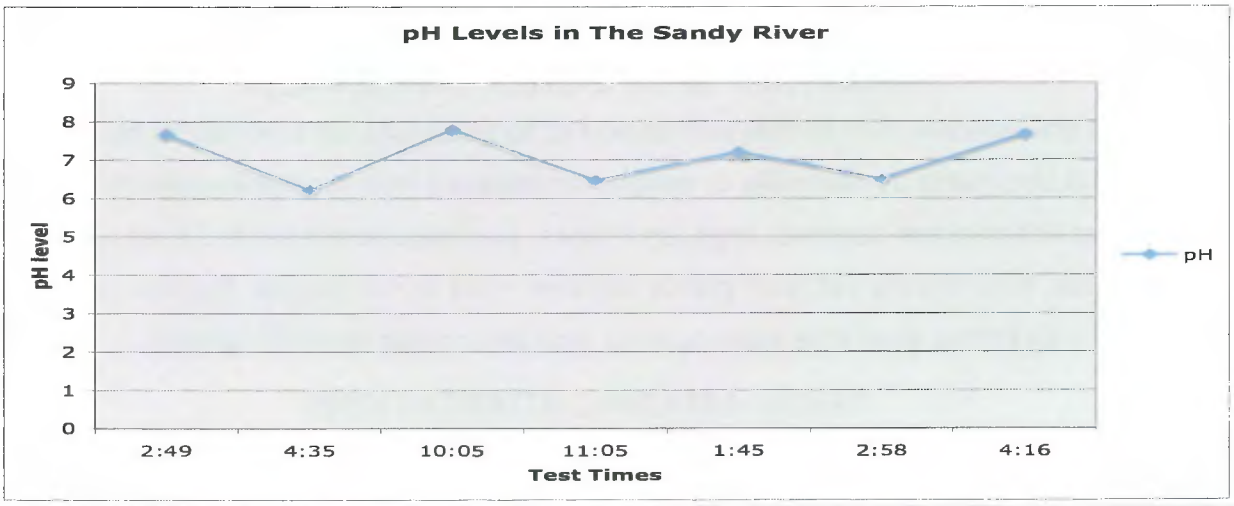
Female wood ducks reproduce in February to March and have five to sixteen eggs.

ENVIRONMENTAL IMPACTS

Wood Ducks are most impacted by pollution. They are most impacted by this because they swim a lot and if there is garbage in the water they could eat it and get sick or choke on it and die. Another way pollution effects the ducks is by all the dirty water in their habitat.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

Overall, these tests proved that the Sandy River water is healthy. All of the tests but one had very good results. The turbidity level was bad because all of the rain. In result of all the rain the water level rose and that created more sediment in the water.

Environmental Research conducted by: Kyler Buck

N U T R I A

Scientific Name : Myocastor coypus

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY EMRY CAPILLO

HABITAT & SPECIES OVERVIEW

The nutria semi-aquatic rodent that was imported to Louisiana for their fur to be made into fur coats, but they were accidentally or purposely released into coastal everglades. The nutria's natural habitats are burrows, logs, and nests, just anywhere near the river water. Nutrias are omnivores, they mostly eat river plants but they tend to eat insects. Nutrias over-harvest, which results to killing desirable plant species and destroying wetland habitats.

THREE AMAZING ADAPTATIONS

The nutria has a dark-brown kind of fur. Under the first layer of their fur is another layer of fur with the same color. All this fur keeps them warm while they are swimming in the cold river water. The fur also helps them swim smoothly in the water and the fur gives camouflage because it has the same color as most river floors.

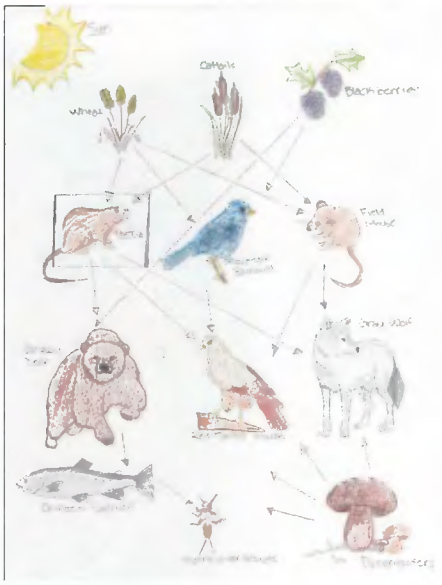
Their large teeth help them chew on their food easier. Like the beaver, it can also chew on hard thing like wood. Their large incisors also help them pick up materials on the ground... Yet, nutrias still waste 90% of their food because only eat about 10% of it. They try to trim their teeth when they get too long.

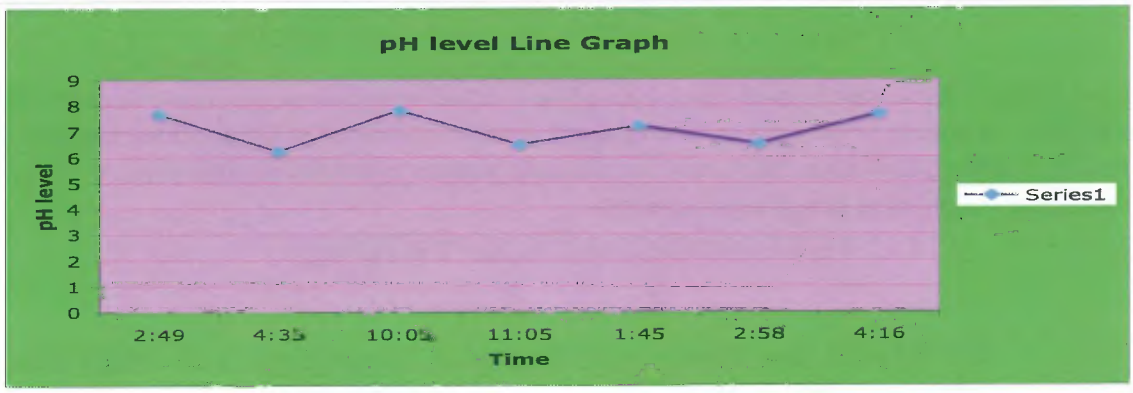
Nutrias have short legs on the front of their body and long legs on the back, because while they are swimming the front legs are trying to paddle in whatever direction, while the back legs give it a push to swim. When they are on land, the length of their legs give them an awkward, hunchback look.

ENVIRONMENTAL IMPACTS

The nutria is affected by people who hunt them. Their status is on the threatened level. There out of control eating habits drive people to hunt them because of the damage they do to their own habitat. They reduce the growth of aquatic plants but sometimes they tend to overgraze. The Nutria's overgrazing result to the vegetation and plants being removed from the marsh exterior, parting soil susceptible to erosion through tidal action. Nutrias do so much damage that the harm are up to the roots of the plants causing them to grow back very slowly. People get very annoyed and just shoot them. Also, their fur is made into coats, and other types of clothing, because they have the same glossiness and smoothness of a beaver's fur. This is one of the reasons how nutrias got released to the marshes.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

By collecting all this data it tells me that the water quality of the Sandy River is moderately healthy. The water turbidity for the river is not the best, but we got a lot of sand on the tubidity meter. That might be one of the reasons why the water turbidity measured 60.4 NTU. We took the data whileit was raining, it causes the sediment ot get into the water. Also, we determined the water quality by finding macro invertebrates in the water. Macro invertebrates can help us tell how healthy the water is because they live there. Mostly, we found a lot of stoneflies and mayflies. The rest of data tells me it is pretty good, so again I say the water quality is moderately healthy.

Environmental Research conducted by: Emry Capillo

C A S C A D E T O R R E N T
S A L A M A N D E R

Scientific Name:Rhyactriton cascade

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY LUCERO CRUZ

HABITAT & SPECIES OVERVIEW

The Cascade Torrent Salamander lives on the edges of clear , cold and shallow mountain streams . They can be abundant under gravel, at stream edges, and in spray zones of water falls. During rainy seasons, they are occasionally found on land away from streams. Cascade Torrent Salamanders inhabit cold . They love slow flowing streams that have gravel or rock rubble.

THREE AMAZING ADAPTATIONS

All Torrent Salamanders go throgh a larva stage wich helps them get external gills , but lose the gills at metamorphis.

Adult salamanders have very reduced lungs that help them breath mostly throgh ther skin.

The salamanders feet are sticky which help them stick on objects.

ENVIRONMENTAL IMPACTS

The Cascade Torrent Salamander is a unique animal . The bad thing is that its near threatened and almost extinct. The reason for this tragedy is Global warming. What global warming is doing is that ice is melting and leaves huge, ugly scree fields . This has made it so there is only 27 species of salamanders.

FOOD WEB ILLUSTRATION

WATER QUALITY GRAPH OF THE SANDY RIVER

When we went to Camp Colins we each had a chance to go in the Sandy River. Down there, we all had to test the water quality, we took the rivers ph, temp., and the turbidity. The Sandy Rivers pH was 6.5 that is a a healthy range becouse a healthy range is 7.5 or lower .The water tempeture was not to cold or to hot on the touch. If the rivers ph is too low or too high the river might be too acidic or basic which could kill or harm fish and humans. Finally a healthy range for turbidity ranges 10 or lower but the sandy rivers turbidity was 23.6. I think the turbidity was very high becouse of the flood that happened. When the flood happened, i think all the movement in the water increased the sediment in it.

Environmental Research conducted by: LUCERO CRUZ

B A N K S W A L L O W

Scientific Name: Riparian Riparian

WATERCOLOR 11X14 • MAY 2011

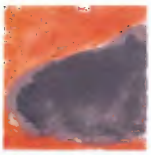
HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY HOLLY DELACRUZ

HABITAT & SPECIES OVERVIEW

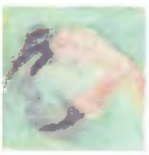
The bird I'm studying is a bank swallow and they live in holes of dirt. They started doing their holes with their claws, and then it picks up the soil until there is space. Its diet is swallowing almost or entirely of flying insects. Insects constitute like 99.8% of the bird diet. The habitat is found near water bank and closely associated with sandy also open fields. The bird arrived in high numbers to the same nesting areas they occupied the previous years. If that areais no longer, they will construct a new one. Swallows adapt to new places and their population is stable.

THREE AMAZING ADAPTATIONS



They have a long pointy wings and slender their body to help stay in the air, like the unrelated swifts and night jaws, which hunt in a similar way. They have short bills, but a wide gape.

Along time ago swallows nested in steep, Sandy River banks. Now they also nest in the side of man made excavation. For burrow digging, bank swallow have smaller, more conical bills.

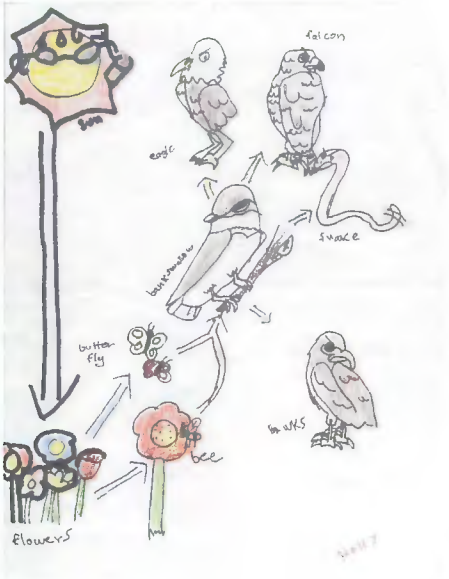


The claw help to dig a home, it has tarsal feathers that helps fly faster by tucking them under. The short length minimizes the effects of stress imposed on the legs from the bird's body weight enabling it to climb cliffs with ease .

ENVIRONMENTAL IMPACTS

The swallow is most affected by flooding, erosion, landslides and earthquakes. Some swallows live in high cliff with trees. But when there is a lot of rain, it will make a little flood and it will take the nest, too. Some humans cut the trees so they can make a house in where the swallow lives like, when they put the house there, it will hurt the nest and the bird. Also, when it rain so hard, it will fall and also will take the nest, too, because there are no longer roots to keep it from collapsing.

FOOD WEB ILLUSTRATION



B A R N O W L

Scientific Name: tytoalba

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY Aldair Ferrryra

HABITAT & SPECIES OVERVIEW

Barn Owls are found in barns, that is where they got their name. Some live in complete darkness. They also found in forests. Their nests are somewhat small compared to other birds. Barn owls are known for their heart shaped facial feature. The barn owl is a carnivore. They have sharp claws and sharp beaks that help it catch its prey. Their feathers are white and gray.

THREE AMAZING ADAPTATIONS

Barn Owls claws let them stab into their prey to kill it. Also, the claws are designed to catch its prey while flying.

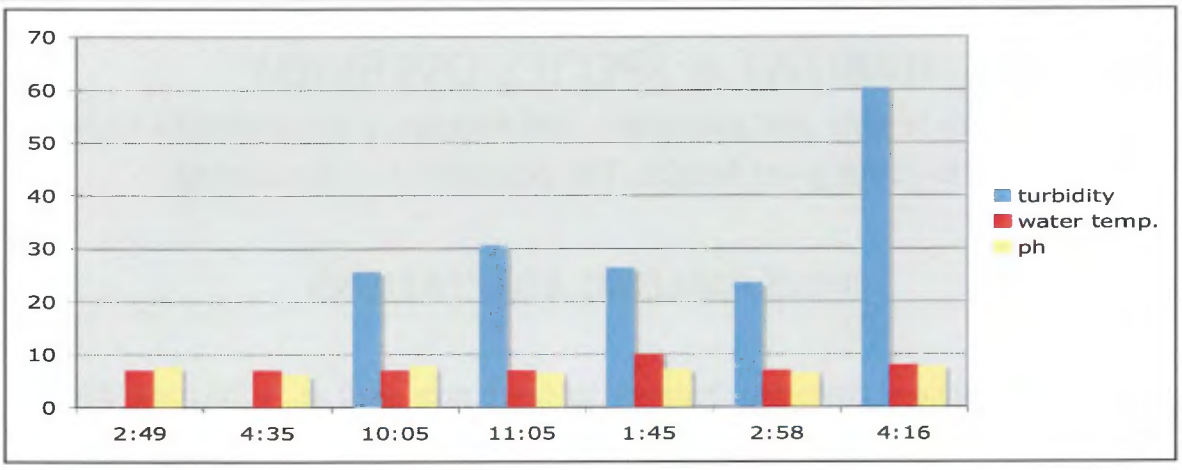
Their eyes help them look for prey in the darkness and from a great distance.

Barn owls beaks help them kill the animals they catch. The beak is also strong and designed to swallow its prey whole, bones and all.

ENVIRONMENTAL IMPACTS

The barn owl is doing somewhat well, although logging is destroying their habitat. They won't survive if trees are destroyed. They won't have where to make their nests and reproduce.

FOOD WEB ILLUSTRATION



WATER QUALITY GRAPH OF THE SANDY RIVER

The river and the animals that live in it, macroinvertebrates, are doing quite well.

Environmental Research conducted by: Aldair Ferryar:

B O B C A T

Scientific Name: Lynx rufus

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY ARNULFO BELMAN GARCIA

HABITAT & SPECIES OVERVIEW

The bob cat territory is wide and unlimited. The bob cat is an adaptable animal, it is very agile and able to jump great length. The population is decreasing.

THREE AMAZING ADAPTATIONS

Bob cats' claws are designed to catch prey such as rabbits and deer.

Bob cat are camouflaged. The bob cat's fur changes color, depending on the season.

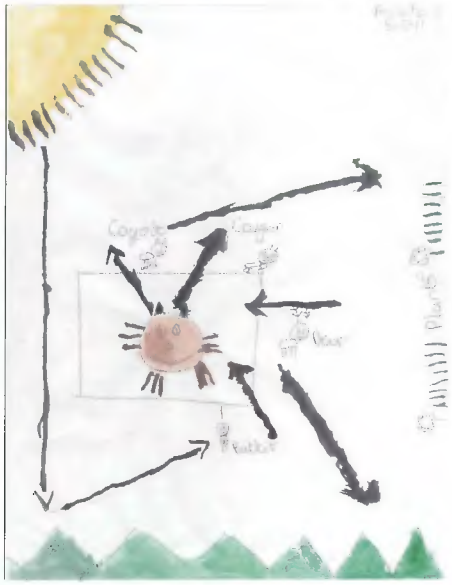
Bob cats have canine teeth designed to eat and chew through carcass.

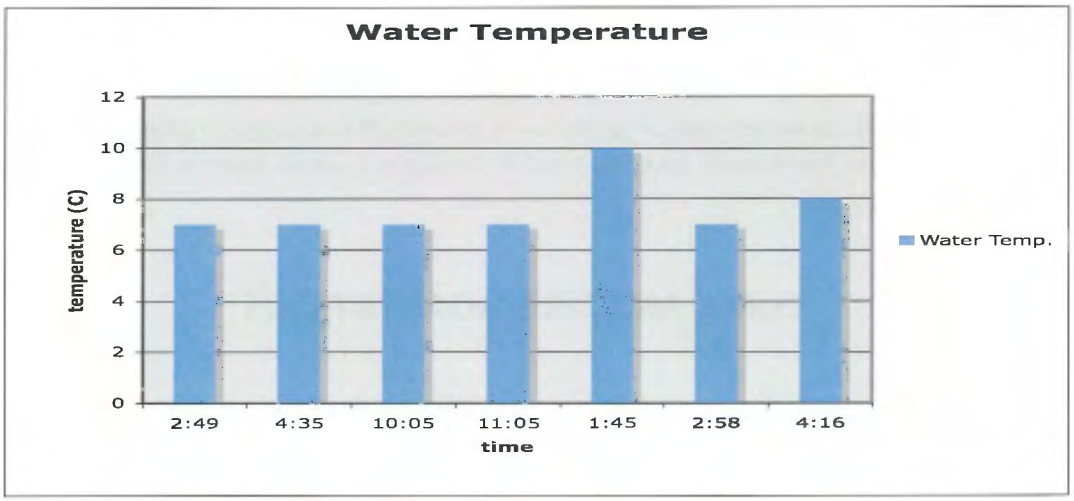
ENVIRONMENTAL IMPACTS

Bob cats species are least concern, but it could beaeffected by different ways. Bob cats can maybe be affected by their species status.

Bob cats are impacted by humans from overhunting poaching. Humans also impact their habitat.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

Overall the Sandy River is healthy because the water temperature and the pH were the healthy ones and those are the most important for the Sandy River. The non healthy was the turbidity because it went higher than 0-10 NTU. If the turbidity was high it would affect the animals because the animals would not breathe that good than what they have to and the plants would died more easily and be decomposed by bacteria in the water.

Environmental Research conducted by: Arnulfo Belman

G A R T E R S N A K E

Scientific Name:Thamnophis Ordinoids

WATERCOLOR 11X14 • MAY 2011

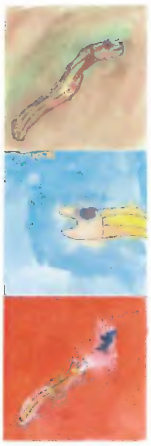
HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY ALEX GARCIA

HABITAT & SPECIES OVERVIEW

A Garter Snake lives 4,000 ft above see level. They eat other animals like rats, mice, rabbits, chicks, and quails. Female common Garter snake can have as many as 3 to 20 young in a single litter!. It lives in grassy patches or in moist meadows North America.

THREE AMAZING ADAPTATIONS



Camouflage: A Garter Snake uses camouflage to hide from its predators.

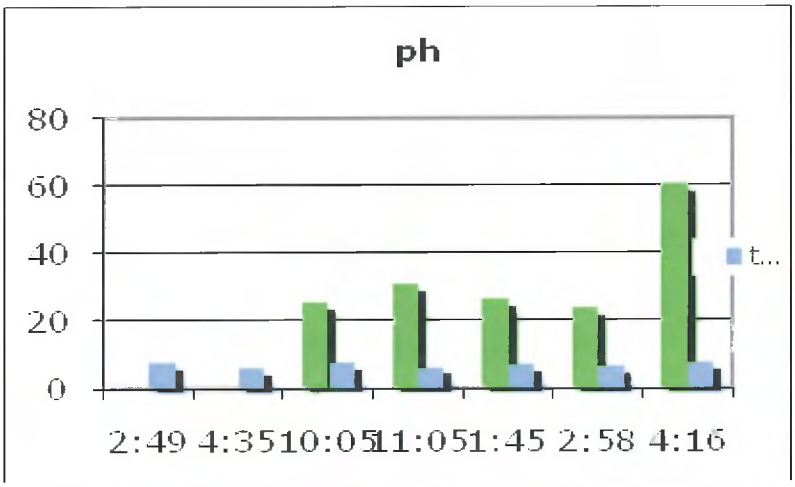
Fast bite: A Garter snake has a fast and kind of strong bite to catch their prey fast like mice and rats.

Fake venom: Garter snakes have special glands in their mouth which act like venom that scares its predators like mongoose and hawks.

ENVIRONMENTAL IMPACTS

Even thought the North Western Garter snake isthe least concern animal but it is still killed.They are killed by other animals eating the Garter snake. Or humans destroy there habitatby burning there habitat. Mostly a Garter snake dies by getting hunted by a bigger animal like a Cobra or a Hawk. It is rare because a mongoosewhich is a smaller animal than a Garter snake likes to eat Garter snakes. But part of the environmental impact is that humans kill them because they have fear.

FOOD WEB ILLUSTRATION



WATER QUALITY GRAPH OF THE SANDY RIVER

The water quality was very good because the ph, water temperature, and the turbidity where all very good. You can also notice it is healthy because of the mayfly. You can tell the river was healthy because mayflies only live in very clean rivers like the Sandy River.

Environmental Research conducted by: Alex Garcia

W E S T E R N P O N D T U R T L E

Scientific Name:Pacific fresh water turtle

WATERCOLOR 11X14 • MAY 2011

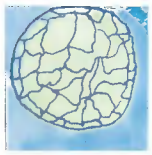
HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY Ingrid Guzman

HABITAT & SPECIES OVERVIEW

Western Pond Turtles live in stream, ponds, lakes, and permanent wetlands. Also the Western Pond Turtle live in Baja California. The Western Pond Turtles are 1 to 1.2 inches in length and 6 to 8 inches long. They weigh of the Western Pond Turtle is 1 to 2.4 pounds. A turtle egg hatches into 80 to 130 days. The Western Pond Turtle can live up to 70 years.

THREE AMAZING ADAPTATIONS



Adaptation: Shell

The shell of the Western Pond Turtle keeps it safe from other animals and predators. It lives in its shell.

Adaptation: Water

The Western Pond Turtle swims in the water. Also, it blends in so the preda-tors doesn't eat it its shell looks like a rock so the predatores won't see it.

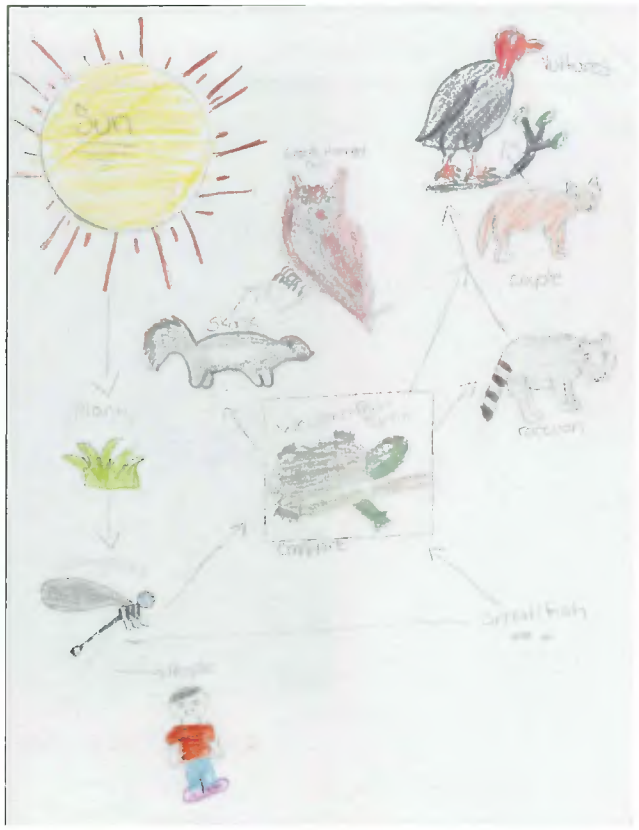
Adaptation: How it catches its food

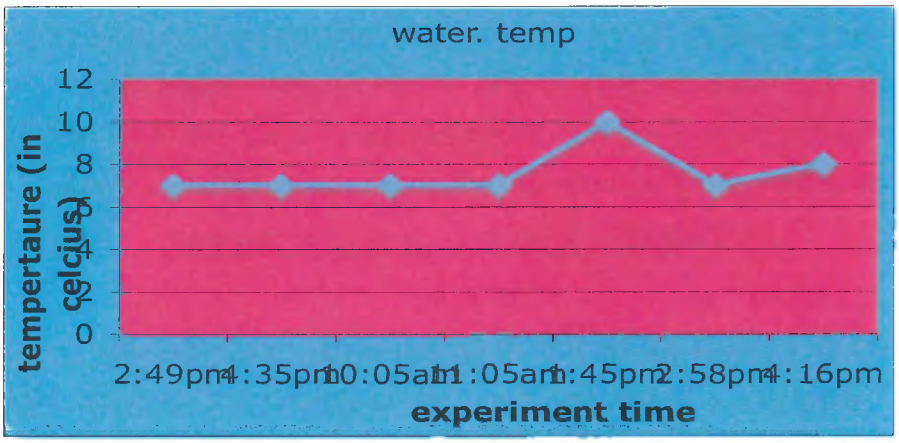
They catch their food by sight and smell. They can't swallow their food they need to catch their prey in the water.

ENVIRONMENTAL IMPACTS

The factories and people that spill oil in lakes, rivers and makes animals like the Western Pond Turtle die. Also, when people drop or throw garbage's in the ponds, lakes and rivers turtles can get tangled in the plastics and die. The water pollution can make animals like the Western Pond Turtle have a low rate of birth.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

Last, the rivers health of pH I think it was not that healthy because it went up and down in the whole measurements of pH. In water temperature I think that is not healthy because the temperature was the same 4 then it went up because of the weather then it went back to 7 then one up. Lastly, for turbidity I think that it not healthy because sometimes the water gets really high then it changes the turbidity. the water temperature changes because of the weather. pH changes because of the flood.

D A M S E L F L Y

Scientific Name: Zygoptera

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY VICTORIA GUZMAN

HABITAT & SPECIES OVERVIEW

Damselflies average size is ¾ to 1-¾ inches long. They can be found mostly anywhere in rice fields, ponds, forest, lakes, or in any clean water source. They hatch in shallow water and tend to stay in the shallows with weed beds where there is lots of food. They are also weak flyers but are able to fly through the fields looking for their food for miles and they can detect movement 15miles away.

THREE AMAZING ADAPTATIONS

Males have claws that they use to hold the female Damselfly when they are **mating.** Females use ovipositors that help them lay eggs.

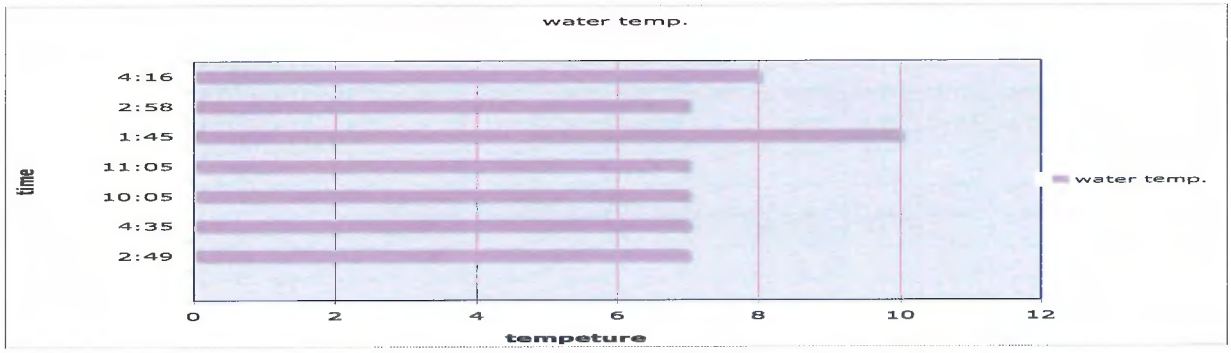
Damselflies nymphs live in fast flowing streams and they use their **claws and legs** to hold on so they don't get swept away, and also to hunt.

They have compound **eyes**; each eye is made of one thousand ommatidia, which are receptor cells that capture the portion of an image.

ENVIRONMENTAL IMPACTS

The Damselfly is a beautiful creature, but there are lots of things that humans are doing that are affecting them. Like pollution in the water, they are not able to eat part of their diet; they would not be able to reproduce either because they prefer to lay their eggs in the water. The destruction of the forest is also threatening them. These creatures are forced to evacuate and may not make it to wherever they need to go. Still people seem not to care about it, because it may seem like a small useless insect. That is not true all insects are needed and it does not matter if they are big or small.

FOOD WEB ILLUSTRATION



WATER QUALITY GRAPH OF THE SANDY RIVER

Macroinvertebrates show how clean the water might be. Some macros eat pollution and they help the river a lot. They don't like being in the water that is dirty but not in the too clean water either. They are not able to float if the water is too dirty. The sandy river has good water quality. The measurements were 23.6 for the turbidity, which is ok. Then we got 7 degrees Celsius for the water temperature, which is great. The colder the better. For the pH we got 6.5, which is good. Based on this data I could say that the Sandy River is a very healthy river.

G R E E N H E R O N

Scientific Name: Butorides Virescens

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY ANDREW HANG

HABITAT & SPECIES OVERVIEW

Fish are the Green Heron's primary food source. Crayfish and crustaceans are also a food source. The Green Heron live near water sources where they can hunt at the same time. A weird thing about the Green Heron is they mate in monogamous paits each season. And to make this happen the males have to attract the female by flexing their necks and beating their wings to make noticeable sounds. An interesting fact is the Green Heron could live in both salt and fresh water.

THREE AMAZING ADAPTATIONS

The Green Herons have long legs for wading in shallow waters. their orange yellowish legs can

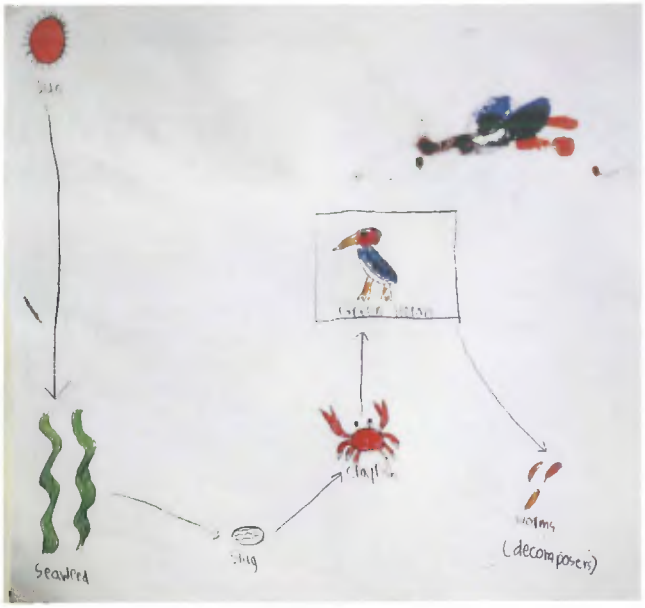
The green Heron's long and heavy bills help it catch and contol large preys.

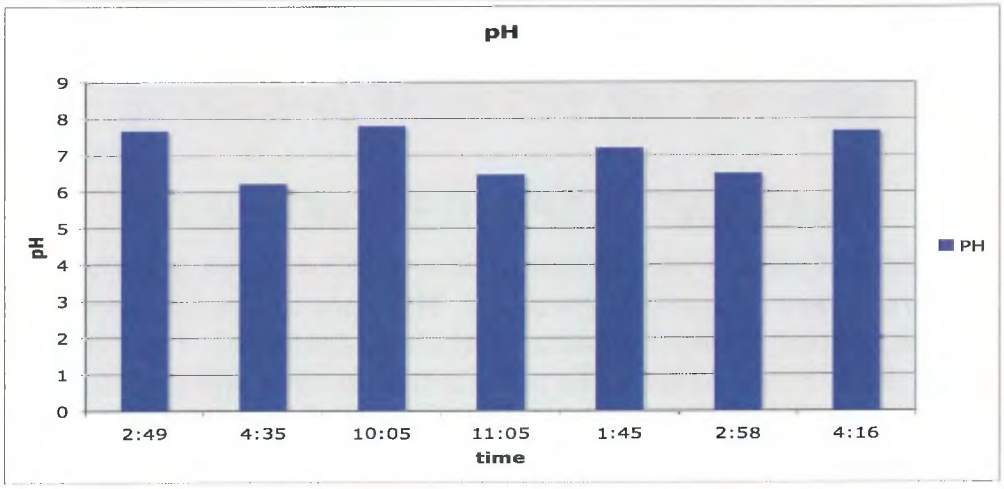
The Green Heron have long neck to stand there patently to catch a prey.

ENVIRONMENTAL IMPACTS

Although the Green Heron is not endangered we could still affect it by polluting water killing fish and building dams. Although the dam generates electricity it also kills fish because they get caught in the generator and die. Fish hatcheries also hurt the Green Hero habitat by preventing them from eating their young fish.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

Based on the measurements, the river condition is moderately healthy. There was a lot of sediment in the river at the time and the river was also flooded at the time. Those factors made it harder to determine the health of the Sandy River. There were also a lot of macroinvertebrates living in the Sandy River, another sign indicating that the Sandy River is moderately healthy.

Environmental Research conducted by:Andrew Hang

N O R T H E R N S P O T T E D O W L

Scientific Name: Strix Occidetalis Caurin

WATERCOLOR 11X14 • MAY 2011
HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY LUKE JESTER

HABITAT & SPECIES OVERVIEW

The Northern Spotted Owl is a very different animal. They have greatly adapted to the habitat so they are a very dangerous predator. They are at the top part of the food chain. They are very good hunter because of their adaptations. They have very sharp talons. They use them to stand on trees and to swoop over and pick up their prey. They have serrated feathers, which makes for silent flight while stalking prey.

THREE AMAZING ADAPTATIONS

Owls have a huge wingspan to make them fly faster. They also have serrated wings, which make for silent flight while hunting.

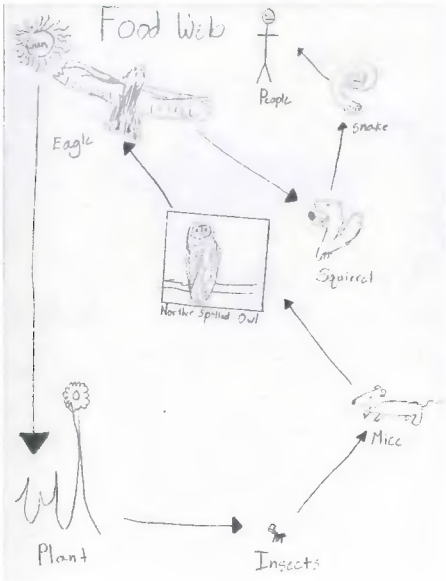
Owls have very extreme vision that can let them see in complete darkness and in very bad weather. They're able to see very far away in complete clarity.

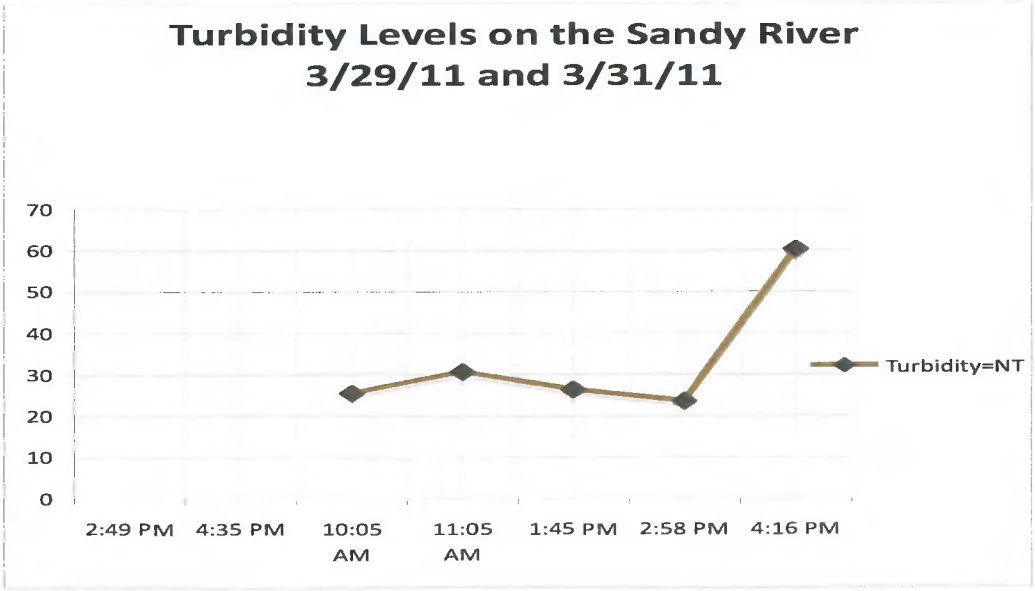
Owls have the largest talons out of any other birds. It is used to latch onto tree branches and when hunting to swoop over and grab their prey.

ENVIRONMENTAL IMPACTS

Unfortunately, as human populations grow and use more of the worlds resources, organisms of all kinds are negatively impacted. Animals like the cheetah are endangered because of poaching and habitat loss. Other animals like the chimpanzee live in habitats that are being deforested, while other animals like the otter are going extinct because of pollution in their habitat.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

I think that the water in the sandy river is not clean enough to drink but clean enough to sustain a proper food chain and life. I think that I was wrong when I said that the sandy river is not very clean because it has a lot of life and even though it is not clean enough to drink it is still clean enough to have life.

Environmental Research conducted by: Luke Jester

H O R S E T A I L

Scientific Name: Equisetum Arvense

WATERCOLOR 11X14 • MAY 2011

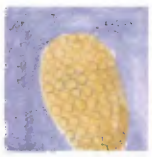
HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY GABRIELA KANEVA

HABITAT & SPECIES OVERVIEW

The Equisetum arvense, also known as the horsetail is found in tropical religions expect New Zealand and Australia. This plant can be poisonous to some gazing animals(the ironing in this) including horses. They usually occur in the woods, fields, meadows, swamps, and moist soil alongside streams, rivers, lakes, and in disturbed areas. One thing you might not know is that in Japan they would boil and dry it and polish woodcraft with that, and is also used to drink tea. It spreads rapidly and reproduces by spores that look like yellow powder. this plant is also used as medicine in Rome and Greek to stop bleeding, heal ulcers and wounds and treats kidney problem, and also strengthens bones. Something you might not who is that it can be used as shampoo, it would strengthen hair. This plant is one of the oldest plants on the earth and that is the horsetail.

THREE AMAZING ADAPTATIONS



It can be poisonous to some animals(not humans). It contains toxic alkaloids which is well known for livestock poison.- Its branches are horizontal to drooping, rather than ascending.

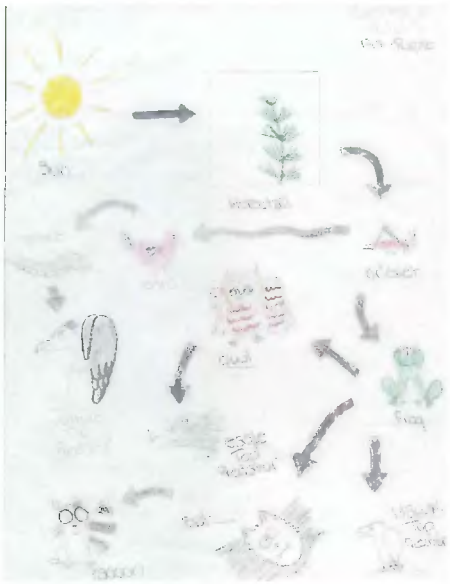
They reproduces by spores. They are homosporous, which means that they have only one type of spore. It is conceded a dimorphic which means that it can produce both vegetative spikes and fern fronds.

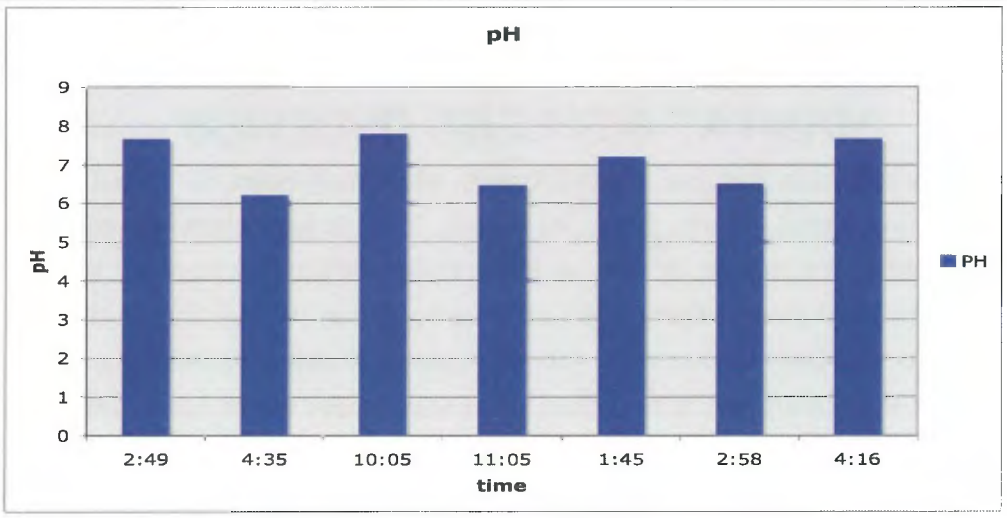
It has a green to dark-green color which makes it blend in with is surrounding. Even though it does blend in it can still be poisonous..but remember, not to all animals.

ENVIRONMENTAL IMPACTS

The horsetail is not really in danger of becoming extinct since all it need to grow is the sun and a lot of water. The only way they can go extinct is if all the water would evaporate and there is non left, but I do not think that would happen. The horsetail grows rapidly and in large quantities which helps its species alive. And after all the horsetail is one of the oldest plants.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

I would say that the sandy water quality is good because the pH natural potable water is between 6.5 and 8.5 and our graph was between 6 and 8. The turbidity was higher than the normal healthy range because if the turbidity level is low the water is clear and on our graph it was pretty low except for the second day it went high. The water temperature stayed low at 7c which is good except for at one point it went up to 10c, that's not really high but it was higher than the average than we were getting. So I think that the water quality is good.

Environmental Research conducted by: Gabriela Kaneva

M U S K R A T

Scientific Name: Odantra Zibethicus

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY BRANDON KHO

HABITAT & SPECIES OVERVIEW

Muskrats are mostly found in Canada, United states, and small parts of Mexico. They are in or near salt water marshlands, rivers, lakes, or ponds. That is why plant materials make up 95% of a muskrats diet. In streams, ponds, or lakes they will burrow into the bank with an under water entrance to their home. Muskrats continue to thrive in their native habitat. Interesting fact about about muskrats is that they can swim up to 5 miles an hour they can alo swim backwards. Another intresting fact is that they ccan stay under water for as long as 15 minutes.

THREE AMAZING ADAPTATIONS

The muskrats body is covered with 2 layers of long thick brown fur so they don't get cold when swimming.

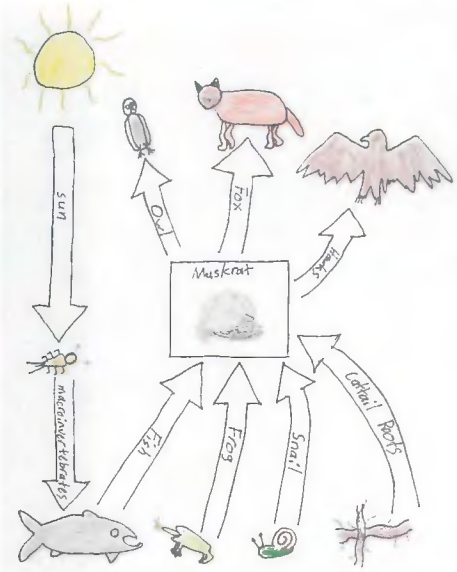
They have an exceptionally long tail that is covered with vertical scales all over to steer itself thruogh the water.

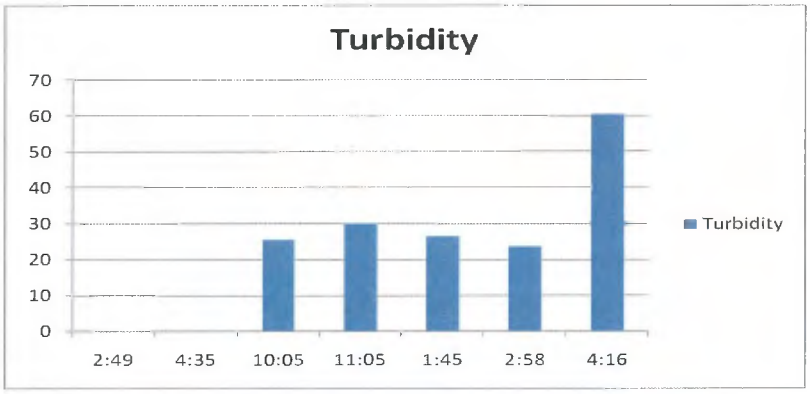
The muskrat's webbed feet move itself through the water. They can swim up to 5 miles an hour.

ENVIRONMENTAL IMPACTS

Muskrats' habitat are bieng destroyed. Muskrats' homes are half submerged in under water so when people ride boats or fish the muskrats home might get destroyed. A muskrats' habitat also might get destroyed by other aquatic animals.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

The Sandy River is moderately healthy because if turbidity were in between 0-10 the water would have been healthier. Some of the things that might have affected the water quality would be rain and some sand may have been included into the measurements and that would change the turbidity. In Mrs. Burger's rotation there were many macroinvertabrates stonefly and mayflies that were caught and that effect the water quality because they eat bacteria and other unhealthy things in the water. On the data that was collected from Camp Collins the Sandy River is moderately healthy.

Environmental Research conducted by: Brandon Kho

C A N A D I A N G O O S E

Scientific Name:Branta Canadensis

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY Alejandra Mondragon

HABITAT & SPECIES OVERVIEW

The Canadian Goose live in ponds, lakes, rivers, grain fields, fresh and salt water, and marshes. They live in cold places like Canada. Their favorite food is insects, aquatic plants, grass, cracked corn, berries, and food scraps. Canadian Geese are year-round residents from Pennsylvania, New York, to North Caralina and in the west from Nevada to Washington. The Canadian Goose also lives on the Aleutian Island chain of Alaska. Another thing is that the Canadian Goose likes to be in wide open, grassey areas with low plants and open water like parks and Golf courses. Their length is 22 to 48 inches depending on subspecies . They weight 6 to 13 pounds.

THREE AMAZING ADAPTATIONS

Their feet have webs that help them swim better in water

The bill of the Canadian Goose is serrated to strain water from their food.The edges are also used to cut the grasses.

The hollow bones allow the Canadian Goose to fly.

ENVIRONMENTAL IMPACTS

The Canadian Goose is not endangered but they are listed as least concern by the International Union of Conserrvation for Nature, or the IUCN. The Canadian Geese were seriously over hunted with out any real regard for their numbers through out the 1800 and early 1900.

FOOD WEB ILLUSTRATION

WATER QUALITY OF THE SANDY RIVER

I know that the Sandy River is healthy because they show the results and its saying that its kind of good and kind of bad because for ph it shows 6.5 and 7.5 and water tempature is 7 to 50 but the bad one is 23.6 and 10 and the one that"s lower than ph AND water tempature.

Environmental Research conducted by: Alejandra Mondragon Diaz

B E L T E D K I N G F I S H E R

Scientific Name: Megaceryle Alycon

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY ANISH NATHAN

HABITAT & SPECIES OVERVIEW

The Belted Kingfisher is found in many places such as; Iceland, Ireland, the United Kingdom, Clarion which is a Oceanic island, inland bodies of water of coasts across most of Canada, Alaska and the United States along with Mexico, Central America, West Indies and northern South America, Great Lakes, Atlantic Coast to New England rivers, lakes and saltwater estuaries. Even though these birds' habitats are disappearing, there are 93 different species of these birds! They are also related to many different kind of birds such as blue jays and Green and Ringed Kingfisher. To avoid getting hunted down by one of its predators, the hawk, it dives straight through the water to avoid getting eaten. Sadly these birds cannot avoid a deadly encounter with raccoons, skunks and snakes. These birds also disgusting because they regurgitate, pellets of bones, scales and other indigestible material. They also rely on humans because we dig gravel pits and build roads where they dig a burrow and build nests.

THREE AMAZING ADAPTATIONS

They use their beak to spear medium-sized, and then they jump out of the water, fling their prey into the air and swallow it whole. Without their beak, they would not be able to survive.

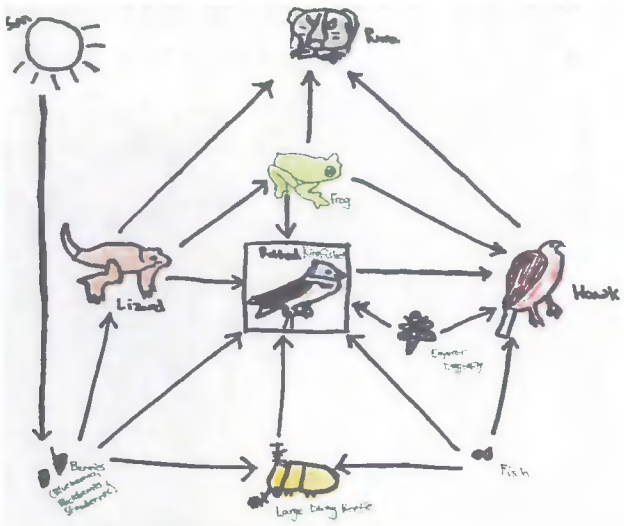
The talons are important to a Belted Kingfisher because they dig burrows to help keep warm in the winter. They also have these talons so they can travel long distances because they have a lot of stamina.

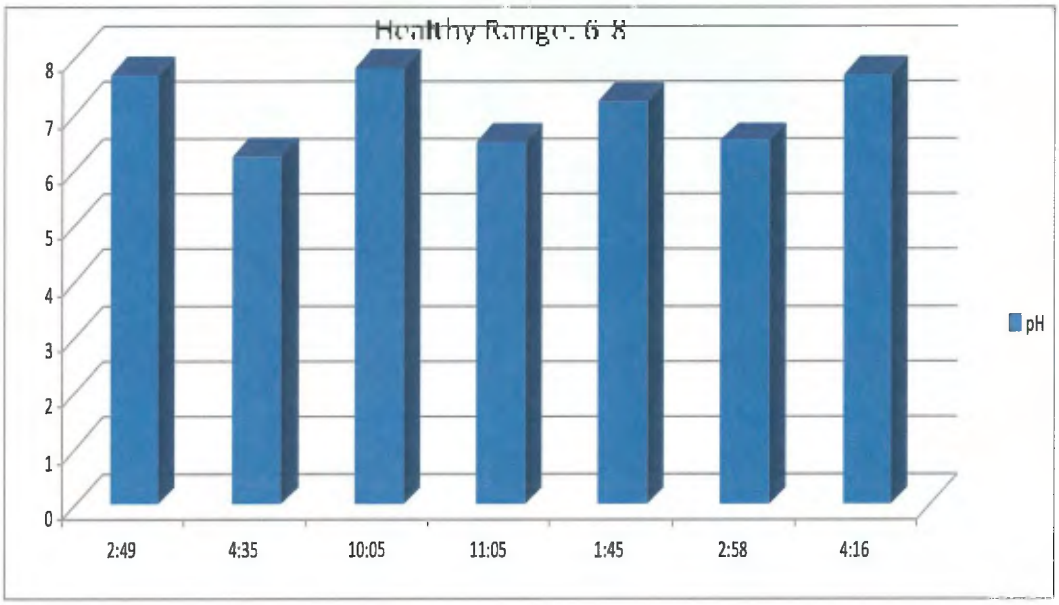
Their wings are one of the most essential adaptations they have they use them to hover over the water looking for prey. They also use them for long distance migrations.

ENVIRONMENTAL IMPACTS

The Belted Kingfisher is a species that is close to extinction. Humans are affecting their existence by deforestation. They cut down multiple trees just for money, without thinking of the animals. They destroy the nests of the Belted Kingfisher. If we stop harming the environment, these birds will not go extinct.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

Looking at the information given, the quality of this river is moderately healthy. I hypothesize this because of the fact that 2 of the 3 measurements were in a healthy range. I think something that may have affected the turbidity of the Sandy River is rain washing sediment into the river. It could not have been ridiculously high like 60.4 NTU. We also looked at a chart of macro invertebrates, we classified them as 4 different levels. Most were in the first level, which is the most important and indicates that the water is healthy. If it did not rain the turbidity could have been at a healthy range. Overall, the Sandy River is quite healthy.

C L A R K ' S N U T C R C K E R

Scientific Name:Nucifrag Columbia

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY: FRANCISCO NAVA

HABITAT & SPECIES OVERVIEW

Nutcracker's live high places, for example they live at mountain range of 900-3,900 meters in pine trees. They grow up to 12-13 inches.Nutcracker lay two to four eggs ,incubation usually occurs in 16-18 days. Young one leave the nest at about 24-25 days.Meanwhile they have protection from their dad.

THREE AMAZING ADAPTATIONS

BEAK

Nutcracker's mouth can hold up to 100 seeds.Also its beak is sharp and curved so it can take meat from the inside of a pine nut.

BRAIN

Even though their brain is smaller than the nuts they gather ,they can remember where they put all of their nuts.

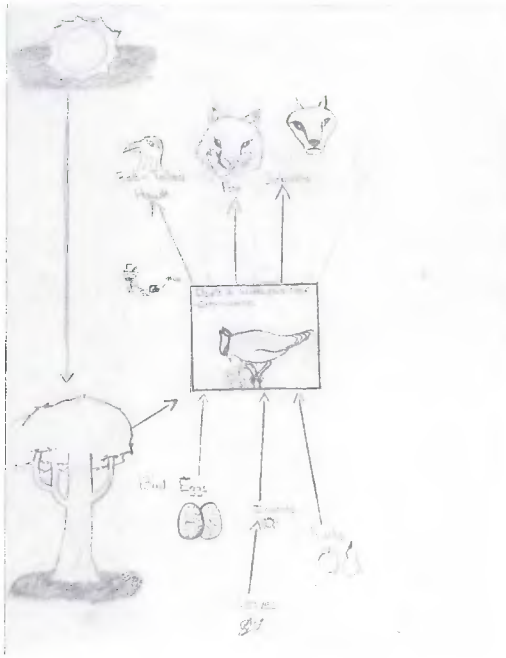
NEST

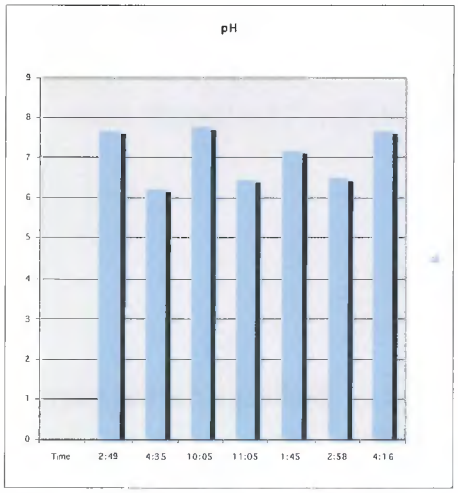
Nutcrackers build their nest in the side of the tree which no air blows . It does this so the nest does not get blown away.

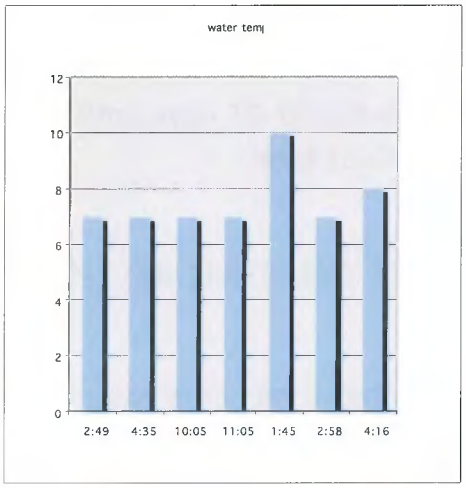
ENVIRONMENTAL IMPACTS

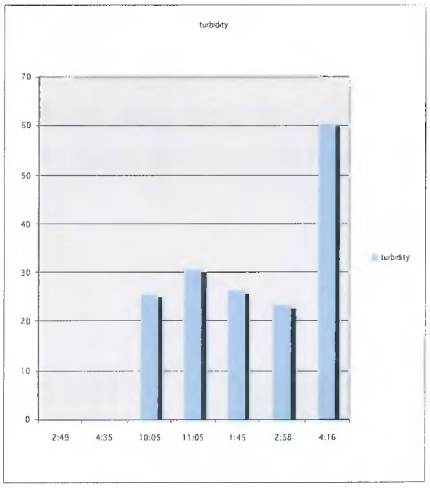
Even though Clark's Nutcrackers are the least concern we can still affect its territory by cutting trees near the tip of a mountain.Also we are not the only ones thet affect it. Global Warming also affcet it by as the earth gets hotter they will go up to find a better place.

FOOD WEB ILLUSTRATION









WATER QUALITY GRAPH OF THE SANDY RIVER

By the charts which are underneath, I think that Sandy River is good because it mostly has a lot of macroinvertebretes plus ones that live in salt water and clean water.

Research conducted by: Fransico Nava

C O O P E R S H A W K

Scientific Name: Accipiter Cooperii

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY Hoang Nguyen

HABITAT & SPECIES OVERVIEW

The Coopers Hawk usually lives in deep wooded forest in Southern Canada, U.S.A and Mexico. They hunt on small birds and mammals such as squirrels and blue jays. Like other birds of prey the Coopers Hawk also glide and soar with quick wing beats. The coopers hawk lay 2-5 eggs per year and incubate them for 30-35 days until the egg hatches. The female take care of the young while the male finds food.

THREE AMAZING ADAPTATIONS

The Coopers hawk has very long tails for easy gliding and steering so it can pursuit prey through dense covering.

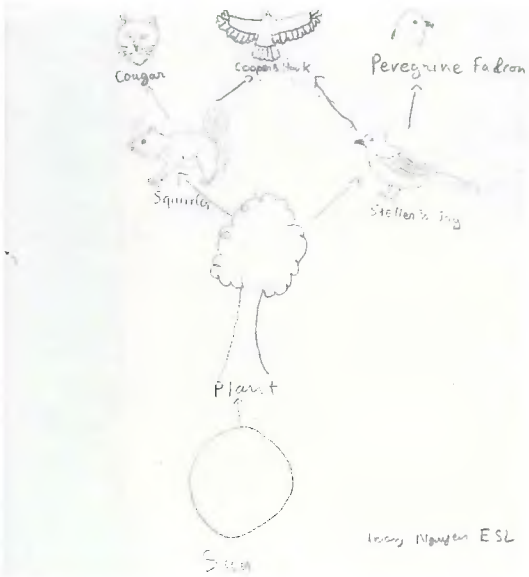
A Coopers hawk's broad, rounded wings for sustained gliding and excellent soaring. They fly with quick wing beats and sustain gliding.

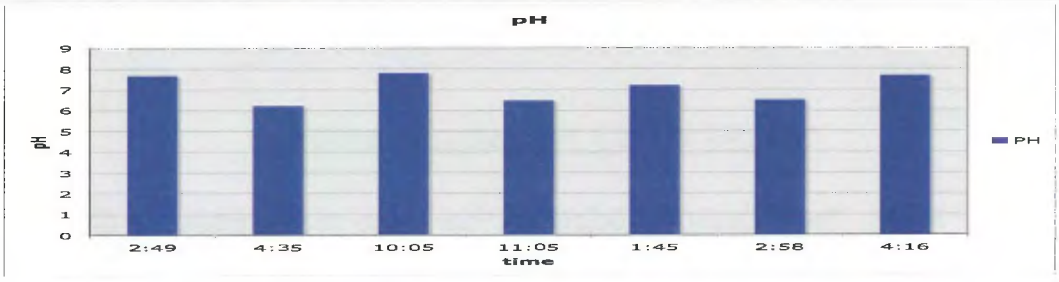
Coopers Hawk's hooked bill can tear flesh off small bird or mammal

ENVIRONMENTAL IMPACTS

Coopers hawks are very adaptable but they are being affected by deforestation. Over logging destroy the trees the Coopers hawk live in forcing them to move away from their formal habitat to quiet parks and woody areas near the city because their formal habitat is becoming unsuitable for building nest for breeding. The coopers hawk can survive in quiet neighbors and woody areas Coopers hawk have been seen hunting near the city and sometimes near birdfeeders. Some peoples put traps in their birdfeeders to stop Coopers hawk from hunting the birds near there. Despites the bad affects humans have done to the coopers hawks they are doing fine their status is Least Concerned meaning they're doing fine and not endangered.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

In math and science I collected datas for the Sandy River. In science I collected macroinverterbrate in the river there were stoneflies and mayflies which live in good water. In math I collected Ph, turbidity and water temperature. The Ph measured the amount of acid or alkaline in the water. The Ph level is 7, about the level neutral water . The turbidity it was 20-30. In conclusion the Sandy River is healthy.

Research conducted by: Hoang Nguyen

P I L E A T E D W O O D P E C K E R

Scientific Name : Dryocopus Pileatus

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY JAMIE NGUYEN

HABITAT & SPECIES OVERVIEW

The Pilaeated Woodpecker is the largest woodpecker in the United States. It's found in the deciduous or coniferous forests with large trees. These woodpeckers builds nest in dead trees. They have large beaks to dig rectangular holes in trees to find food. They also use their beaks to attract mates. Together they build their nest in the dead trees and live in it with each other.

THREE AMAZING ADAPTATIONS

Beaks: The Pileated woodpecker has large strong beaks to dig rectangular holes in the trees. While digging the holes in the trees it creates a rhythm that attracts its mate.

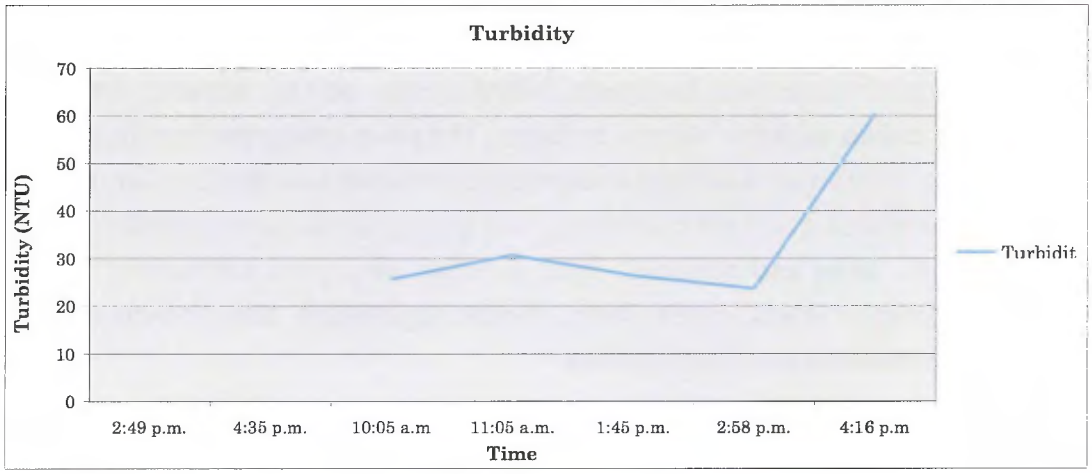
Claws: The Pileated woodpecker has special feet with two backward toes and an extra sharp thumb to help them hold on to the branch when they are looking for food.

Tail: The Pileated woodpecker has a long tail. The tail so a Pileated Woodpecker is use to balance on a tree when it predator out trying to attack it and to whack the predator away.

ENVIRONMENTAL IMPACTS

These woodpeckers are in the category of least concern. They eat different kinds of foods from berries to nuts to insects and ants. One of the ways that humans effect their populations is we cut down the trees that they use to look for food and use for shelter. Shooting them is now illegal in the United States.

FOOD WEB ILLUSTRTION



WATER QUALITY GRAPH OF THE SANDY RIVER

After seeing all the results I think that the water in the Sandy River is really healthy. There were many macro invertebrates that indicate the water is healthy. The temperature of the water and the pH level is at the right measurement. The turbidity was a little too high but it could be a mistake with the NTU meter the river could also be high in turbidity because it was raining during the first 1-2 days we were at Camp Collins. Everything else looks great and clean.

Environmental Research conducted by: Jamie Nguyen

P A C I F I C J U M P I N G M O U S E

Scientific Name: zapus trinotatus

WATERCOLOR 11X14 • MAY 2011

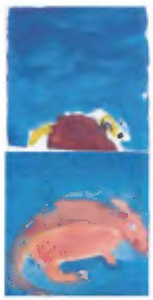
HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY SHELBY OCHOA

HABITAT & SPECIES OVERVIEW

The Pacific Jumping Mouse lives in groups called a nest, colony, harvest, horde or mischief. Their babies are called pinkies, kittens or pups. They live along the Pacific Coast, southwest British Columbia, Northwest California, Olympic Peninsula and the Cascades. Their habitat is dense forest or wooded areas with thickets, wet grassy areas, and woodlands with ferns and near ponds, rivers, lakes and streams. They are also very good swimmers. Some of the things that it eats are: seeds, grass, fungi, tender vegetation, fish, insects and fruit, like strawberries, blueberries and blackberries.

THREE AMAZING ADAPTATIONS



Some interesting things about the Pacific Jumping Mouse are that it has large back feet and a tail that is longer than its body. It is best at jumping and can jump up to 8 feet high from a standing position. It also uses its long tail like a parachute to slow its fall down through the branches in the tree.

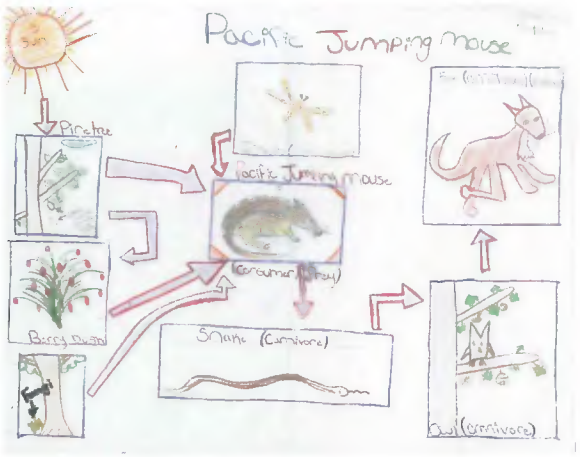
The color of its fur is blended dark browns to a golden brown and white underbelly. This helps to blend in with the colors around it so its predators will not see it. During the summers it makes a ball-like nest out of grass. And during the winter it makes a nest out of moss and hibernates till spring. They eat a lot during the summer mouths and do not store foods for the winter.

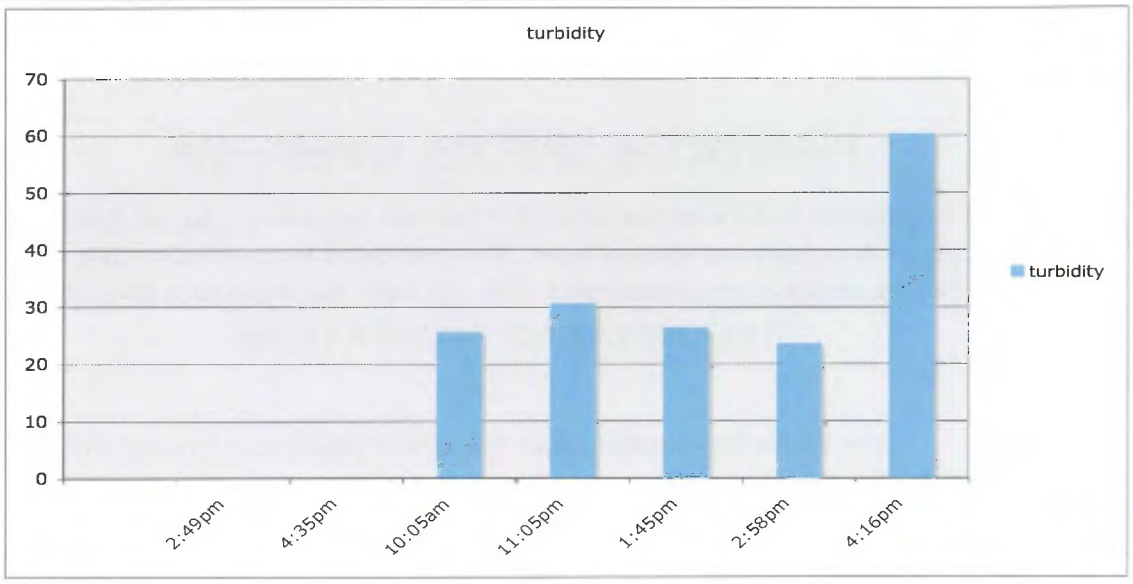
The third adaptation is babies. This important because there are not a lot of them left so they try to make more of their species. They have 1-6 babies so there will be a big population.

ENVIRONMENTAL IMPACTS

The impact of humans on the Pacific Jumping Mouse is that we are filling in or taking over the land where they live so we can build houses and other buildings. This limits the amount of space for the Pacific Jumping Mouse to live as we take over their habitat. The Pacific Jumping mouse is now listed as near threatened (NT). It is likely to qualify for the threatened category in the near future.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

To conclude our pH measurement of 7.67 was a little above the normal healthy limit, and meant that the rivers health was moderately healthy. Only 1 came close to the healthy limit at 7.2. Some conditions that might affect our measurements would be what the weather was like, sunny, warm, raining and water temperature.

Environmental Research conducted by: Shelby Ochoa

P A C I F I C G I A N T
S A L A M A N D E R

Scientific Name: Dicamtodon

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY ALEXANDER ORTEGA LARIOS

HABITAT & SPECIES OVERVIEW

A Pacific Giant Salamander looks a lot like a lizard. It has four legs and a long tail. Salamanders are nice because they can live both on land and shallow water. They are found in the Western USA and Southwestern British Colombia, Canada. Unlike other salamanders, they can make noise and bark like a dog.

THREE AMAZING ADAPTATIONS

The Pacific Giant Salamander has very big eyes so it can see well during the night.

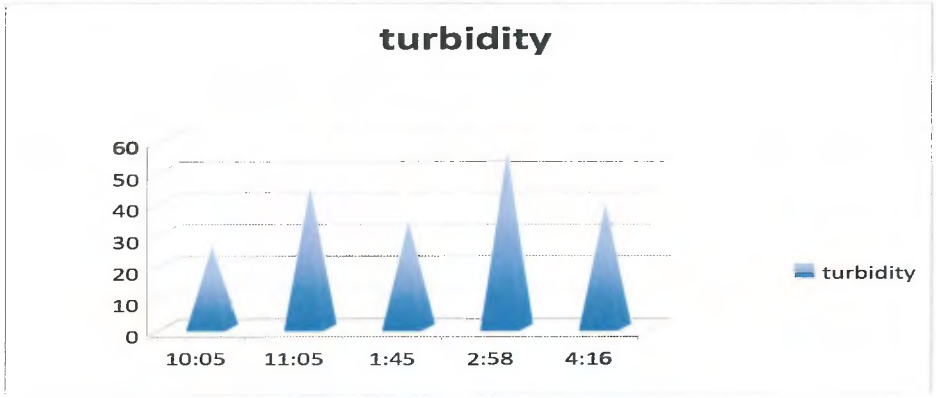
the giant salamander changes colors by camouflaging its skin. This helps it hide from main predators the turtle. The color they change to matches the ground.

some of the smaller pacific giant salamander ar. This helps to kill their prey faster that the non poisonous salamander

ENVIRONMENTAL IMPACTS

the health of the pacific giant salamander is very bad can kill them. Sadly' some salamander are dying in health **y forests and rivers because of viruses , fungi and bacteria. One pssible theory of why this might be happening is that the increased level of ultraviolet light coming into the atmosphere because of the loss of the ozone layer.**

FOOD WEB ILLUSTRATION



WATER QUALITY OF THE SANDY RIVER

The water quality of the Sandy River is healthy because it has lots of macorinvertabrates. For example, the mayfly and the water skipper were captured in nets when we were at Camp Collins. Some of the macroinvertabrates are really delicate and they only live in clean water.The pH level means that the water can't be too hot or too cold so the microinvertabrates can live. The turbidity two numbers but was to hi so is was not l good because we were at a sandy river. The water quality was pretty good also because it was at a good ranch. Also it was bad because there was two much sand.

E L K

Scientific Name: Cervus Elephus

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY CHRISTOPHER PARKER

HABITAT & SPECIES OVERVIEW

Elk are herbivores well adapted to a forest environment. They are about the size of an average human man. They are fast runners and eat only plants. During mating season, male elk, called bulls, fight each other to impress a female. They sometimes fight to the death. Elk live to be about twenty years old, if not eaten or hunted before then. Sadly, because of hunting games, elk had a very hard time living, but now there are laws that say Americans can only hunt in certain places.

THREE AMAZING ADAPTATIONS

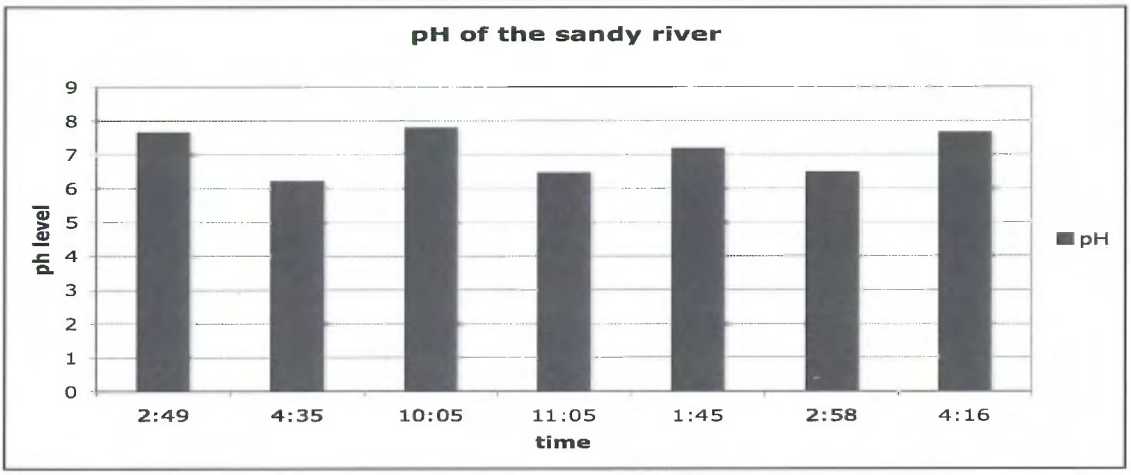
Male elk have large antlers on top of their heads. The females do not have antlers and they have smaller heads than bulls. Bulls use their antlers to fight each other to mate. An elk will also use its antlers to push things aside to clear a path or to be able to reach berries.

An elk being hunted has a slim chance of survival but to survive it needs to run. An elk can run at speeds up to 60mph. They have special hooves to provide traction in a forest.

Elk have to have special teeth to eat leaves and grass. Unlike human teeth, an elk's teeth are flat. They have stomachs designed to digest only plants. An elk's stomach cannot digest meat, thus making elk herbivores

ENVIRONMENTAL IMPACTS

FOOD WEB ILLUSTRATION



WATER QUALITY GRAPH OF THE SANDY RIVER

Overall the water came out pretty good. The pH was good for fish. Not too acidic or alkaline. The water temperature was perfect. The only problem was turbidity. It should be a turbidity of ten or less not 23 NTU. The last reading of 60.4 NTU was probably inaccurate. Any way this shows that the Sandy is a healthy river.

Environmental Research conducted by: Christopher Parker

C A L I F O R N I A C O N D O R

Scientific Name:Gymnogyps Californianus

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY DAVID RANGEL

HABITAT & SPECIES OVERVIEW

The California Condors live in rocky scrublands and coniferous forest, but they prefer mountains and gorges. They are also found in caves and cliff clefts. They're carnivores because they eat meat. They don't hunt for their food; Instead, they are scavengers. They eat deer, sheep, donkeys, and bison. The California Condors are about 9½ feet.

THREE AMAZING ADAPTATIONS

The California Condor has a hooked beak so it can tear off flesh of the other animals to eat.

The California Condor has keen eyesight to help them spot food from great heights.

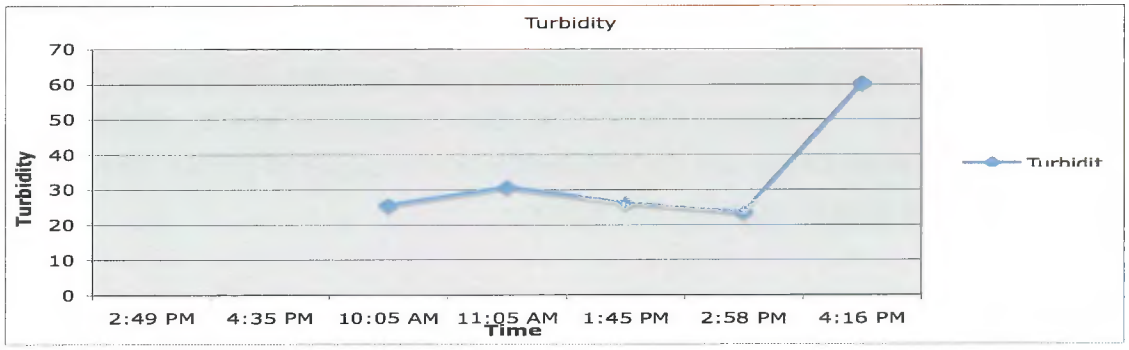
The skin of the California Condor's head and neck is capable of noticeably changing so they communicate.

ENVIRONMENTAL IMPACTS

California condors are being affected by humans because they keep hunting them. Hunting them makes them low in population that is why they are critically endangered. There are not much California condors in the wild anymore. They took the 22 condors left. The birds that were left were bred at the San Diego Wild Animal Park and the Los Angeles Zoo. The population grew after breeding and beginning in 1991, condors have been reintroduced into the wild.

FOOD WEB ILLUSTRATION

WATER QUALITY OF THE SANDY RIVER



By looking at the table of the Sandy River's water quality the results say that the water is clean. One of the things that we checked for was the pH, which has to be between 6-8 and the results were good. Another thing that we checked was the water temperature, which has to be under 25C. The last thing we recorded was the turbidity which has to be between 0-10 and the results were way off. Also we found macroinvertebrates like mayflies and that means it's clean.

Research conducted by: David Rangel

S O R A B I R D

Scientific Name: Porzana carolina

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY HAYDN SHARP

HABITAT & SPECIES OVERVIEW

The Sora bird is a small secretive bird that is very common but it hides so it is rarely seen. They live in fresh water marshes, flooded fields and, swamps. They are averaged 20-25 centimeters long and 1.7- 4.0 ounces heavy. Their diet consists on snails, crustaceans, spiders and, insects. Sometimes they will eat vegetation or the seeds of plants. Their wings are short and their legs are long to stand in the water.

THREE AMAZING ADAPTATIONS

They bury themselves with mud to keep them warm in the winter if they do not migrate.

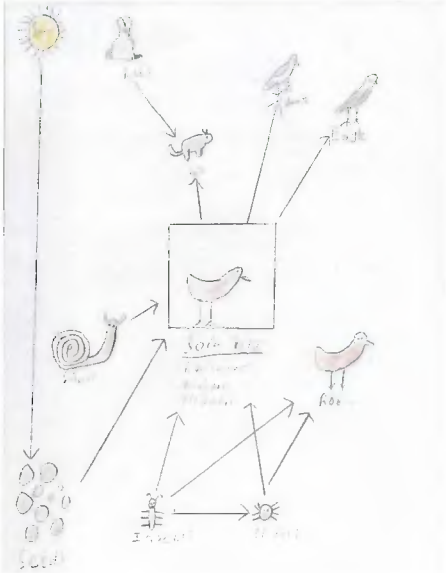
They migrate in large groups to scare or fight off predators. The predators get overwhelmed so they fly away without eating any birds.

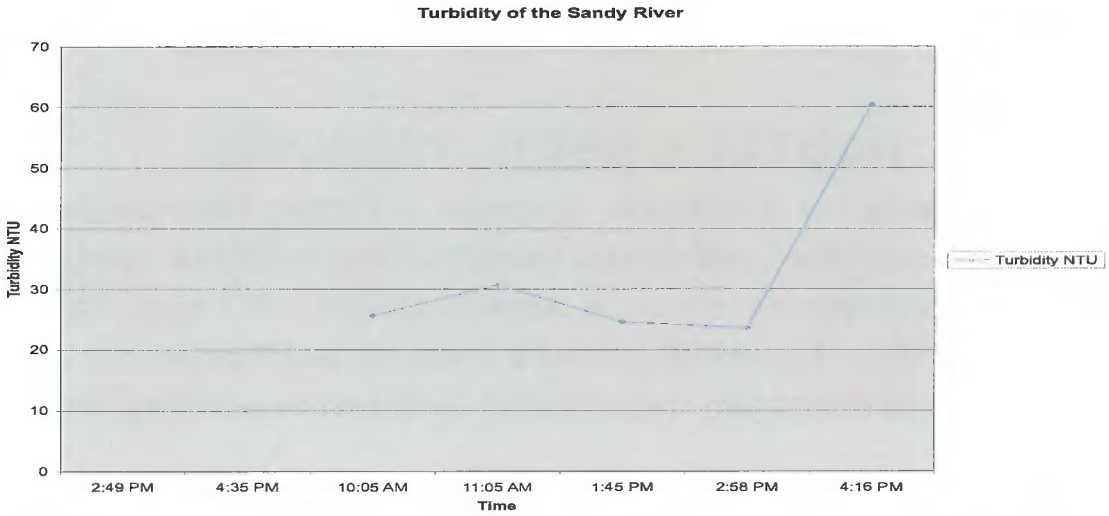
Soras have long legs that help them stand in their environment because they live in watery environments. They live in marshes and flooded fields so if they want to stand up, they have to have long legs.

ENVIRONMENTAL IMPACTS

Sora birds are of least concern. It is affected by the trash we through in the water. That trash can be inhaled and choke them. Pollution has affected them also. The factories dump their waste into the water.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

Depending on the results the Sandy River was very healthy. There were a lot of indicator macroinvertibrates and that means that the water was healthy. If I were to do it again then I would have done it in the summer. In the summer there is less rain so that means the river will not flood. I am guessing that if I did that then, it would have been somewhere between four and seven.

Environmental Research conducted by: Haydn Sharp

P Y G M Y O W L

Scientific Name: Glaucidium Gnoma

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY: Alyssa Smith

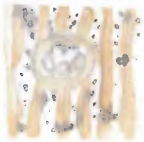
HABITAT & SPECIES OVERVIEW

Pygmy Owls mostly live in forests in mountains in Europe. They can also be found in meadows, lakes, coastlines, and forests clearings. They mainly eat mice, shrews, and small birds. When they breed there is normally around 5 to 7 eggs. Their wings span is 14.5 - 16 inches. They weigh around 2 ½ ounces and they are 6 ¼ inches long. In the winter the Pygmy Owl stores food in caves just in case they run out of food.

ADAPTATIONS

They have large eyes , with thick corneas that are designed like magnifying glasses. These help the owl catch its prey.

The owl also has excellent hearing. This is due to a large **ear** opening on each side of the head.

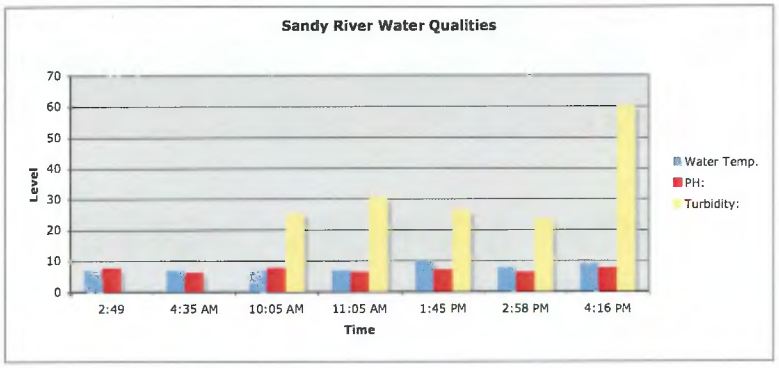


The coloration of the owl's plumage plays a key role in its ability to sit and **blend** into the environment.

ENVIRONMENTAL IMPACTS

One of the endangered animals is the **Pygmy Owl** in the Pacific Northwest. The owl was put on the endangered list in 1997 but was removed from the list as a result of litigation. Then, in March 2007 different groups filed a petition and relisted the Pygmy Owl as endangered. To help save the owls people want to put them in a **National Forest**. Also people are wanting to educate students on their habitat because it is being destroyed.

FOOD WEB ILLUSTRATION



WATER QUALITY GRAPH OF THE SANDY RIVER

How Healthy is the Sandy River - LT6

Seeing what kind of macroinverdatbrates that are in the Sandy River determine how healthy the river is. The bugs help me find the water qualities because certain bugs live in water that is not healthy. The pH balance of the Sandy River is a healthy range for the organisms that live in the river, and I know that because the pH is not below 7.0 and if it was then it would not be a healthy place for the organisms. The turbidity is not healthy for the organisms because a good range for the organisms would be 0-10 and all of the data we took from the river was way above the range.

B A L D - F A C E D H O R N E T

Scientific Name: Dolichovespula Maculata

WATERCOLOR 11X14 • MAY 2011

HEALTH & SCIENCE SCHOOL • 6TH GRADE

ARTWORK AND WRITING BY KEATON SPRINGER

HABITAT & SPECIES OVERVIEW

A Bald-faced hornets' life starts when a female queen after surviving the winter starts a colony on the West coast of America, or Canada starts a colony. She starts a colony by planting eggs in small cells where they will hatch as larvae, and then grow into a worker, or a drone depending on their gender. The worker guards the hive, and collects pollen, while the drones simply turn it into honey. In the fall, the hornets will mate, and restart the process.

THREE AMAZING ADAPTATIONS

The Bald-faced hornet uses its sticky saliva to build a strong basketball sized, weatherproof nest for many other Bald-faced hornets.

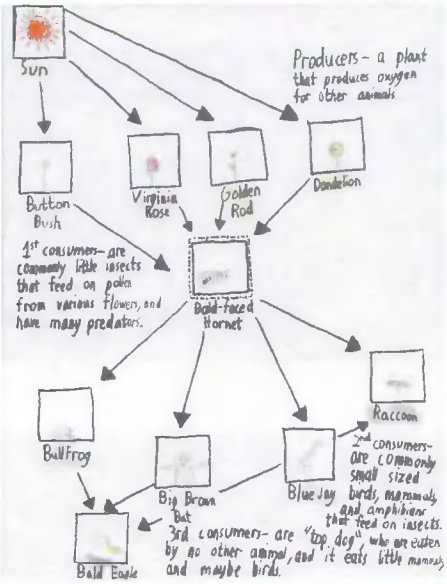
The Bald-faced hornet has a stinger that can sting many times before it falls off. It is commonly used to kill other insects or to kill a predator who is threatening the hive

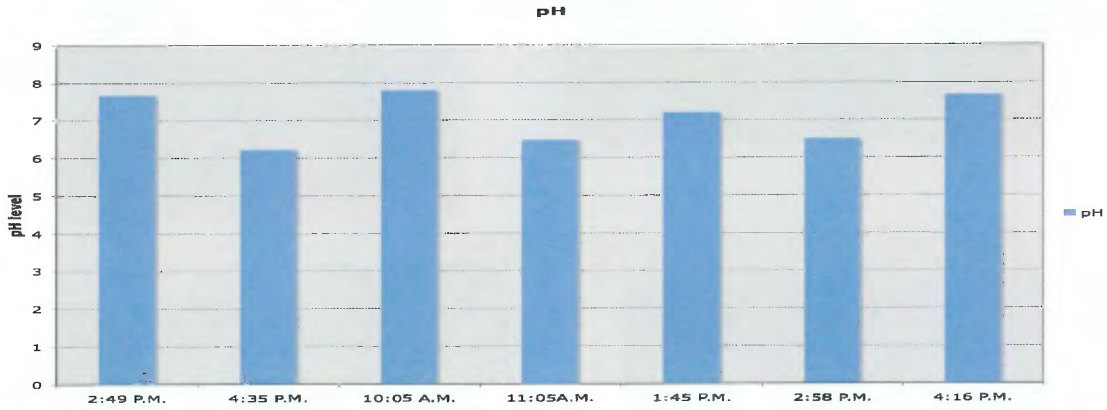
The Bald-faced hornet's colors are used to blend in with trees, leaves, in their natural habitat. Another word to describe the Bald-faced hornets blending in colors is camouflage.

ENVIRONMENTAL IMPACTS

According to our notes, this animal's habitat is currently being destroyed. The trees being cut down are commonly a Bald-faced Hornets' nesting ground. Although the tree is my animal's common nesting ground it is finding other spot to live. Bald-face Hornets have been rarely found creating nests in attics or under gutters in/out of people's houses. While my animals' home is being cut down its "natural instincts" are kicking in, and helping my animal survive through the summer. I would say based on all this that my animal, the Bald-faced Hornet, is safe.

FOOD WEB ILLUSTRATION





WATER QUALITY GRAPH OF THE SANDY RIVER

The overall health of Sandy River to me is moderately healthy. The pH level helped the fish in the river by being good. The water temperature also assisted the rivers' health by keeping an appropriate amount of oxygen in the water for the animals to breathe. Finally the turbidity, it was out of control with how much sediment was in the river, 60.4 NTU meant that the sediment in the water was too high, and a threat to the rivers' animals. I believe that this high turbidity is a temporary thing because it can't stay so dirty without rain. Going back to the macroinvertebrates there was an appropriate amount of Mayflies we found in the water, which make a big effect in keeping leaves, and other plants out of the water. Based on all this data I would say that the Sandy River is a moderately healthy river, because everything, but the turbidity checked out to be pretty good.

Environmental Research conducted by: Keaton Springer

Jose Espinoza
Jazmin Perez
Kevin Williams

Orion Webster
Susanna Beruman
Nicolas Stewart

Darjon McCully-Massie
Jazmine St. Clair
Taylor Heiden

Sean Gilbert
Sopheaj Carlson
Luke Limon

Juan Vasquez Pasqual

Jose Sanabria