

Glenrose Watershed Gazette

Brought To You By

Chase Middle School Nature Mapping Students

Spring 2001

Special Edition

Volume 4, Number 1

A Trip To the Pond

By Shannon Camp

On nature mapping mornings, both cold and hot,
Jan Reynolds arrives and is ready to spot.

With binoculars and field guides ready on hand,
The students wait patiently for Mrs. Cassidy's command.

"What habitat will we visit today?
Wind speed? Direction?" the students say.

"Off to the pond!" their teacher replies.
"To look for plants and birds in the sky."

The group is off now to the pond far away,
to record all the wildlife that they spot today.

The trail is long and the kids start to tire.
But wait, their first sighting on the

telephone wire.

The bird is black with the same colored beak,
And on its wing is a blinding red streak.

The name of the critter is still unheard
Until one of the kids yells "Red-winged blackbird!"

The recorders write down in perfect handwriting
The details they know of their first bird sighting.

On to the pond, everyone's eyes are alert.
Their ears quite the same straining to hear a faint chirp.

Oh wait, what is that way up in the sky?
Its black and white, its surely a magpie.

A killdeer. A mallard. A California quail.
All added to the list on the sightings from the trail.

The group reaches the pond and there is wildlife waiting,
Several birds and insects are in the water wading.

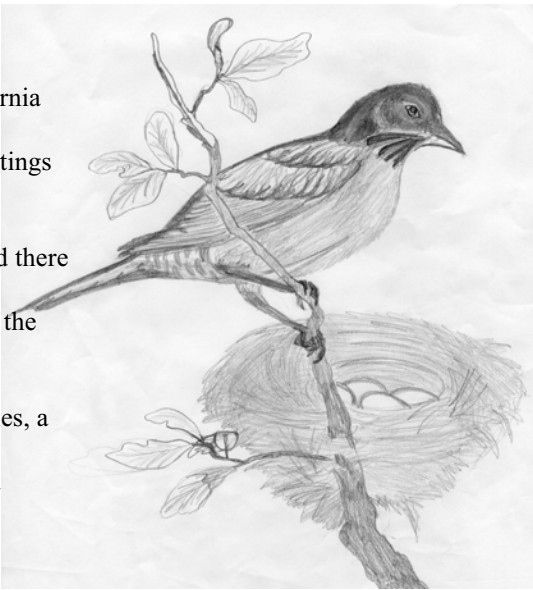
There are water mites and beetles, a backswimmer too
And overhead there is one loud "Cuckoo!"

The recorders continue to track these great creatures,
Then they hear a disappointing message come from our teacher.

"Time to head back kids, our trip here is done.
We'll come back again and have some more fun!"

American Robin by Yelena Korovina

Their naturemapping experience has been successful indeed.
The kids will always remember the wildlife they've seen.

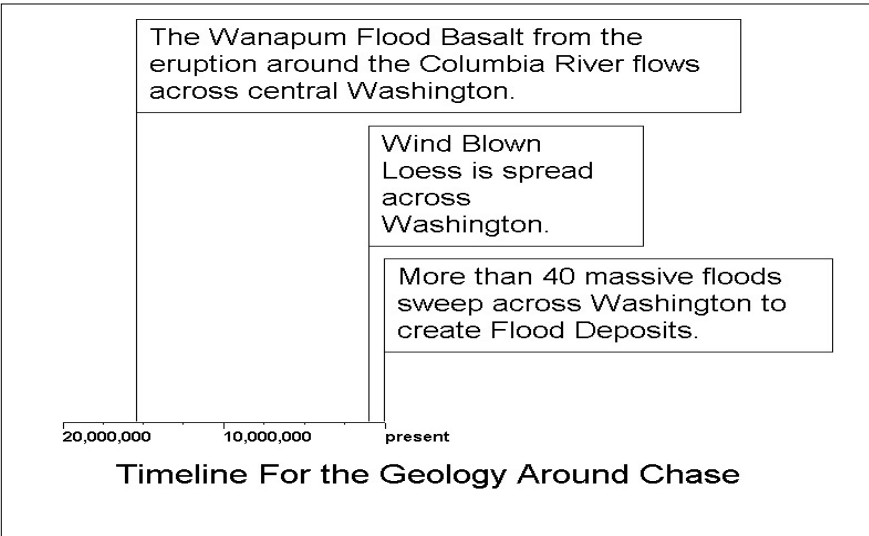


Does Geology Affect Ecosystems?

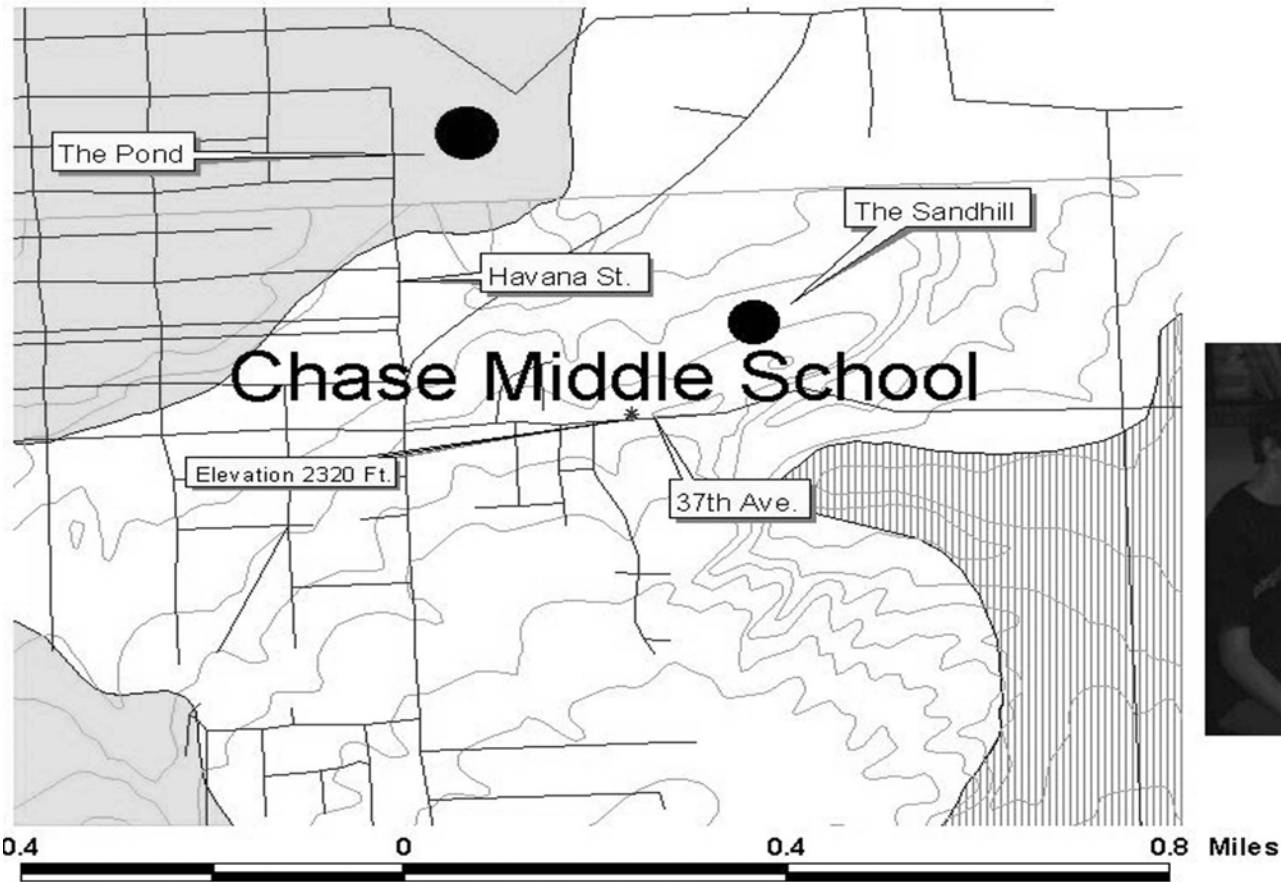
By Chris Burgraff and Camron Miller

In most cases, geology affects ecosystems. As shown on our map, the basalt northwest of Chase Middle School catches rainfall and makes small bodies of water which provide habitat for many species. The pond our class visits is a "perched wetland" on basalt. On the other hand, the flood deposits from the Ice Age, found south

and east of Chase, are sandy and permeable. This allows water to seep through, providing another type of habitat for wildlife. The loess, or windblown dust, came from the Columbia Plateau and makes good farmland and good habitat for deer. The timeline shows when these geological layers were deposited.



Geology of Chase Middle School



By; Chris Burggraaf and Camron Miller

- Roads
- Elevation (contours)
- Schools
- Geology
 - Eolian Loess
 - Flood Deposits
 - Wanapum Basalt



Bird Mapping

By Alexis Lewis, Amanda Heagy, and Mary Villanueva

The students at Chase Middle School in Mrs. Cassidy's class were extraordinarily lucky to have Jan Reynolds come to our class and help us NatureMap. We did many activities to help us improve our knowledge about birds and why it is important to save wildlife habitat.

First of all, we walked around the Chase Middle School area and identified many different species of birds. The equipment we used to identify birds were binoculars, to scope out the many different types of birds, and field guides to determine what type of birds we had found. The specific types of birds we found near Chase Middle School include, Black-Billed Magpies, Killdeer, Red Crossbills, Ring-Billed Gulls, Northern Flickers, American Robins, Red-Tailed Hawks, California Quails, European Starlings, Violet-Green Swallows, Sharp Shinned Hawks, Brewers Blackbirds, Osprey, Western Bluebirds, House Sparrows, Ring-necked Pheasants, Mourning Doves, and Pygmy Nuthatches.

Next, Jan walked us over to the vernal pond on 29th and Havana. We discovered numerous new bird species that we hadn't seen at Chase. With the help of Jan Reynolds, we saw Downy Woodpeckers, Red-Winged Blackbirds, Mallards, and Soras. We noticed these species of birds at the vernal pond, but not around Chase because of the two different habitats. The birds we listed reside at the pond because it's a body of water, which many birds need for nesting and hunting for their prey.

We interviewed two students from Mrs. Cassidy's third period class to determine their opinion about Nature Mapping. "It was great and a wonderful experience," exclaimed Amber Wagner.

"I loved NatureMapping, it helped me understand more about the birds that are in our community," reported Jeremy Walmsley.

Other students have learned that birds are very important and are needed in the world today. Students also believe that birds are important for many different reasons including their ability to keep insects under control. Finally, birds are important to the structure of our ecosystem.



By Megan Harnetiaux, Erin Swagel

As students of Chase Middle School in Mrs. Cassidy's class, we are studying which birds have migrated and nested in our area. We have created a GIS map that shows where we saw birds. The vernal pond at 29th and Havana is an important habitat where birds migrate and can make their nests. Our GIS map shows aquatic and terrestrial creatures as well as birds. Our GIS map also tells where certain animals and birds have been sighted. We think that this is a good way to keep track of the birds and animals.

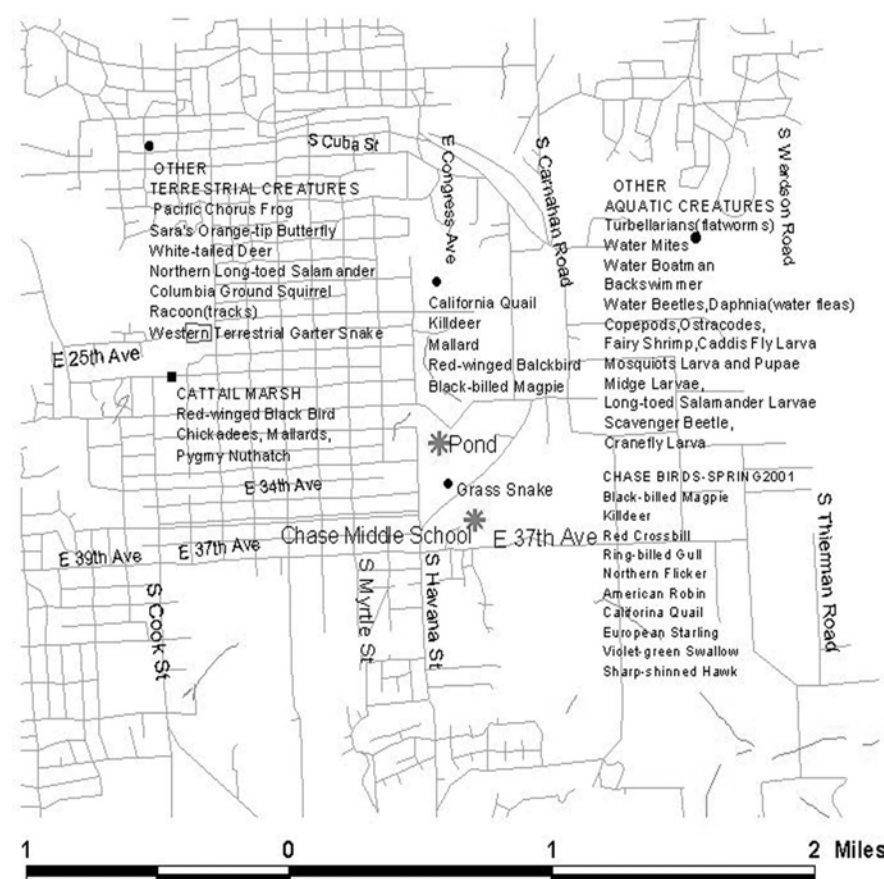
Our GIS map was made by exploring the vernal pond as well as finding out where certain types of bird are. When we found a bird or any other animal, we would write down where we found it and how many we saw. Our GIS map explains where birds were found and how many there were.

As bird watchers we admire birds. Birds are a wonderful part of nature. The two birds we enjoy most are the European Starling and Violet-green Swallow. These two birds have been seen numerous times in our area.

We think that they are both small and delicate. They are beautiful and both come from unique families.

In conclusion, we would like to encourage people to use our map to find certain birds as well as be aware of the creatures in certain areas. We think that this GIS map will help you understand places to find these birds and animals.

Pond, Bird, Aquatic and Terrestrial Creatures



GIS Map
By:
Megan Harnetiaux
Erin Swagel

Wetlands
Roads
More roads
Hydrology



Soot Trays- The Experience

By Andrew Hoy

On April 9, Karen Dvornich and Dan Hannafious from the NatureMapping Program at the University of Washington took students from Ms. Cassidy's classes who wanted to stay after school outside. We made soot trays and collected tracks that certain kinds of animals left behind. We wanted to see what kinds of animals would be in the area around Chase Middle School.

We took some rectangular aluminum pans, filled them with bits of cotton and pieces of old T-shirts, soaked them with kerosene and started them on fire. Then we put another half-cut aluminum pan over the pan to catch the soot.

Once the pans were completely covered with soot, we took them to different locations where we thought animals would seek shelter. These areas

included under trees and away from the high winds. We put cookies and trail mix on the pans as bait, took them to the shelters away from the winds, and left them there for the night.

The next morning, we came back to see if we had tracks on any of the pans. One tray looked like it was visited by a coyote because it had a tongue print and a paw print with claw marks out in front of the toes. The tray that I prepared was visited by a mouse because it was in a low area on the ground. It had little tracks all over it, and it had one more thing, yes, you guessed it, MY TRAY HAD ANIMAL DROPPINGS ON IT!

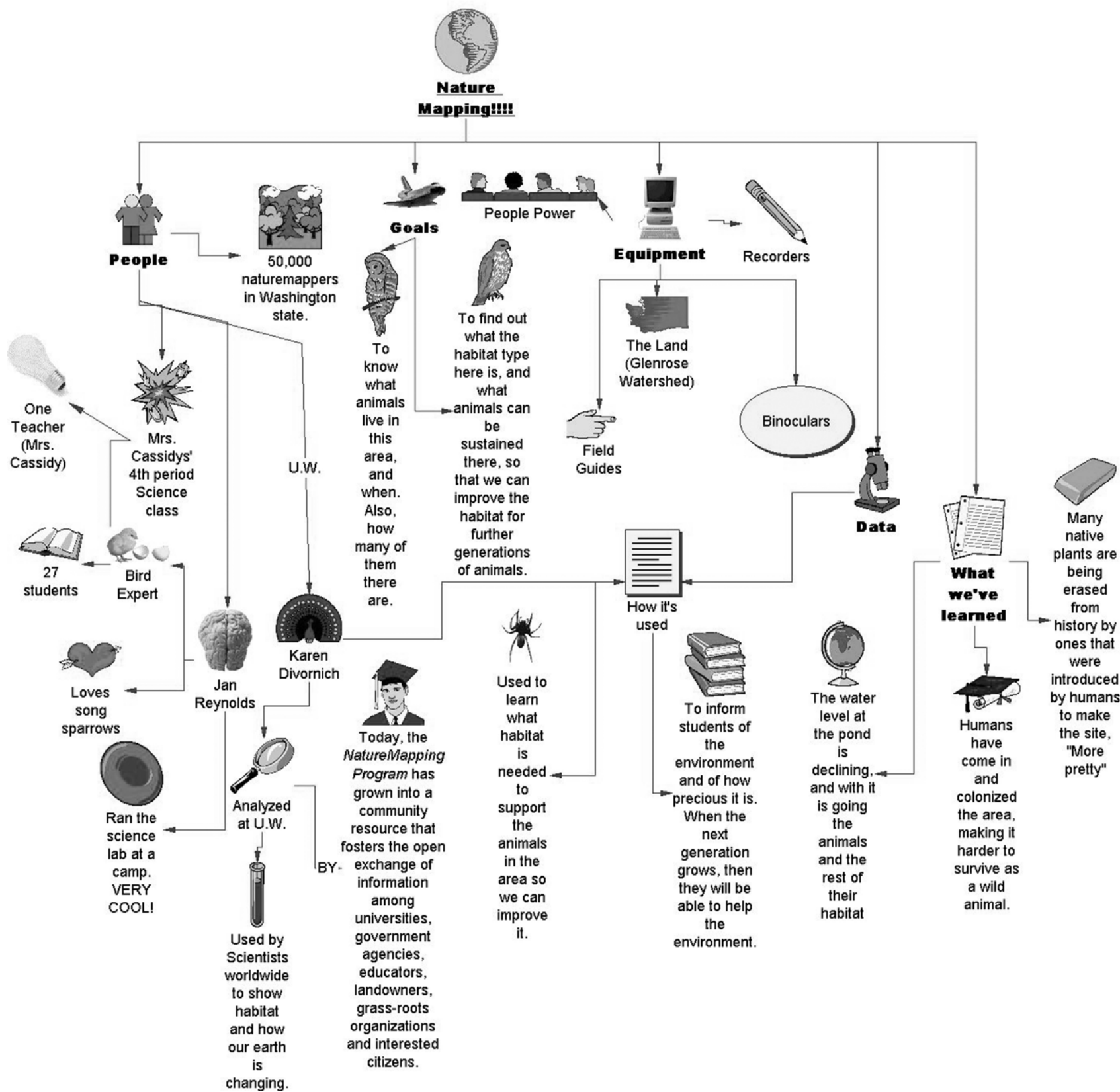
I enjoyed this activity and I think this is the best experience that I have done all year. I liked going outside and learning more about animals.

Osprey by Amanda Heagy.

Nature Mapping Website: www.fish.washington.edu/naturemapping/

Nature Mapping of the Glenrose Watershed

By Cody Waldroup and Justin Burnett



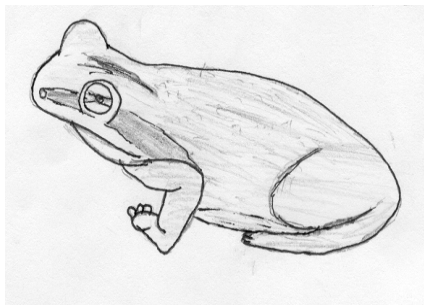
Graph Analysis

By Kiril Barrett & Derek Whitbeck

This graph shows the population of selected birds from the Glenrose Watershed/Chase area. We gathered our information from the data collected by Mrs. Cassidy's classes from 1998-2001. To get our numbers we took the highest number of sightings for each species that was seen at least four times or more.

Analysis: Some of these birds, with the highest populations, were able to adapt to more than one habitat so they flourished better than other birds that can only adapt to one habitat. For example, the European Starling was introduced from Europe and had to adapt to the different conditions of the Glenrose Watershed area. This bird population increased greatly because it could excel in different habitats. Another type of bird that flourished in this area was the Red-winged Blackbird. One of the reasons this bird can do well is because we have a cattail marsh

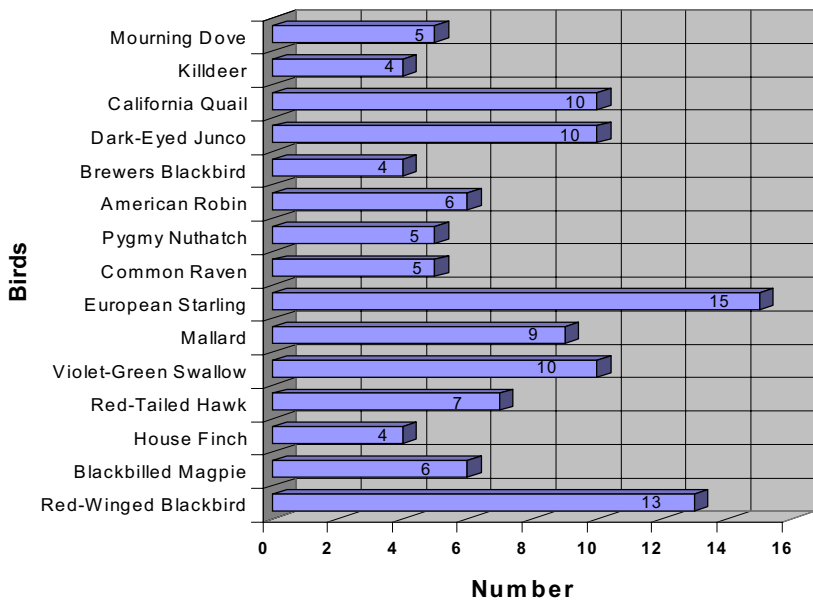
habitat for nesting and breeding. The other three of the top five most frequently seen birds were the California quail, Dark-eyed Junco, and the Violet-green Swallow. The reason why the population of these three birds is high is because they need a wooded to semi-wooded area as their habitat. There is quite a large amount of this type of habitat in the Chase/Glenrose Watershed Area. The birds with four to five sightings obviously had specific needs for their habitats so they did not increase greatly in population.



Pacific Chorus Frog by Angie Kent

Populations of the Most Frequently Seen Birds from 1998-2001 in the Chase/Glenrose Watershed Area

By: Kiril Barrett & Derek Whitbeck



Western Bluebirds in Glenrose Watershed

By Ben Galloway and Ian Bray

We observed a pair of Western Bluebirds that had been nesting in a bird box near Chase on May 16th, May 18th, and May 23rd. We have witnessed a series of changes among the bluebirds in the area.

The first day of observation, both the male and the female showed up (the female is much less colorful than the male). At first, the male was a little wary of all the people, but the female was comfortable enough to stick around long enough for us to take a few pictures. Later, she went into the nesting box to feed her chicks a caterpillar that she had previously caught.

While the female was feeding her babies, the male had other jobs to do. An intruding House Sparrow (an introduced species) wanted to use the box as her nest site. The male Bluebird

was busy chasing her away and defending the nest. Several times he was required to chase off the intruding Sparrow.

Finally, the Bluebirds were forced to give in to the pressures of the Sparrow. The Bluebirds experienced much competition as the introduced Sparrows fought off the Bluebirds for the nest. Introduced species cause many problems all over the world, not just here in Spokane. These species are not meant to be here and they can severely impact the food chain. On May 18th, we observed the house sparrow entering and leaving the same bird box that the bluebirds had been using the last few days. The most logical explanation for this change is that the Sparrow took over the nest site.

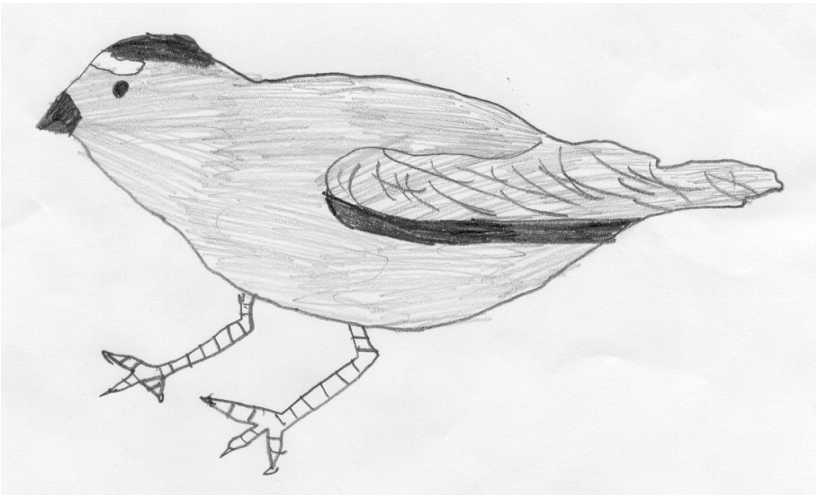
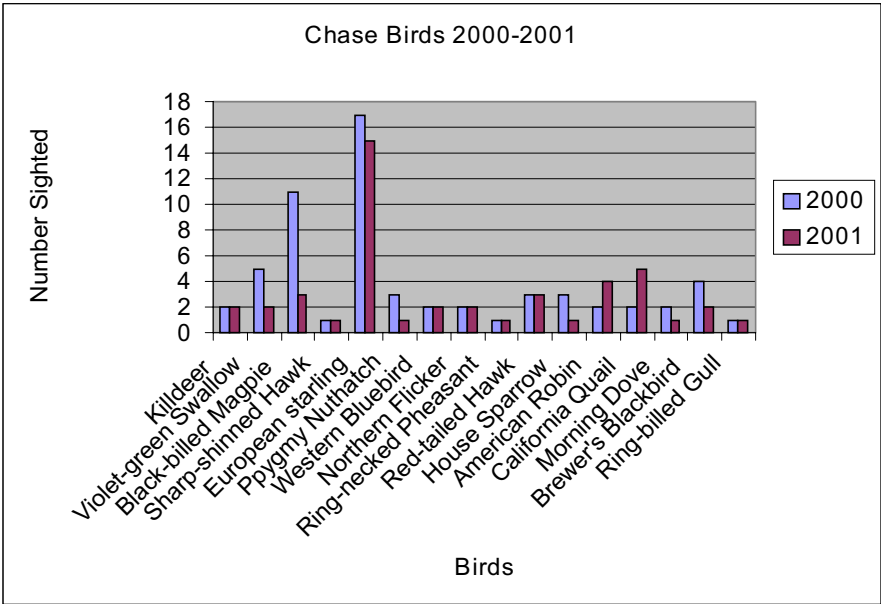
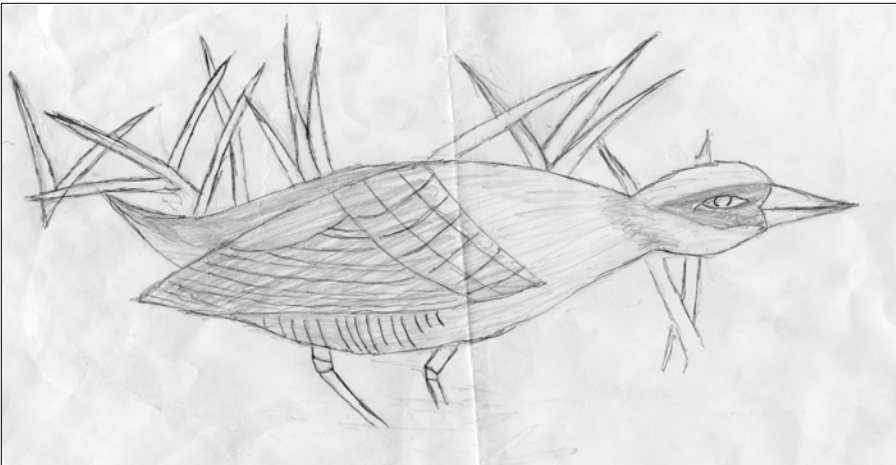


Illustration of an Evening Grosbeak by Dustin Dougherty



By Kalyn Coombs, Teddy Thompson, Carrie Randall

This graph shows that certain birds in the Chase area appear to be declining. We took this information from the data the class collected for the past two years. Every day a class went outside nature mapping and they wrote down all the birds they had seen that day. We took the highest number of each bird seen that year and constructed this graph. For example, in 2000 there were more Black-billed Magpies. This may be because the habitat is decreasing.



Sora by David Olson

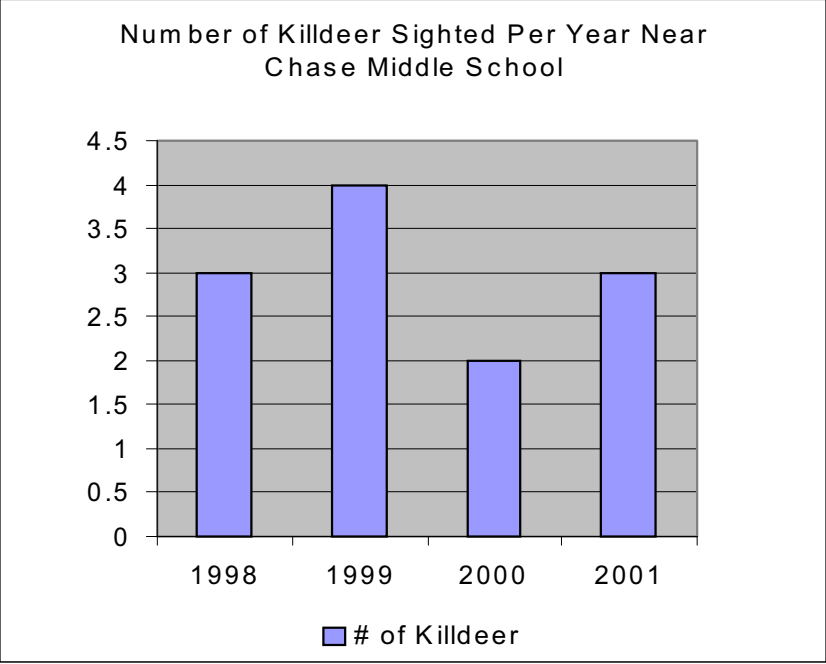
Birds Killdeer

By Dima Zheltkov & Josh Howell

Did you know that killdeer live right outside of our school? Well, if you didn't we'll tell you about it. As one of our classmates said, "The killdeer lives in no-man's land." In case you're wondering where that is, it's the field outside Chase Middle School's fence. Mrs. Cassidy's 1st period class had an encounter with a Killdeer up close. As we got closer to the mother defending her nest, she started chirping an angry chirp that sounded like, *kill dee kill dee*. When we got closer, it puffed its wings out. The Killdeer fakes injury by dragging a wing to draw predators away from its nest. The Killdeer that we saw lived by our school, and by the pond. They feed on insects. Killdeer lay 4

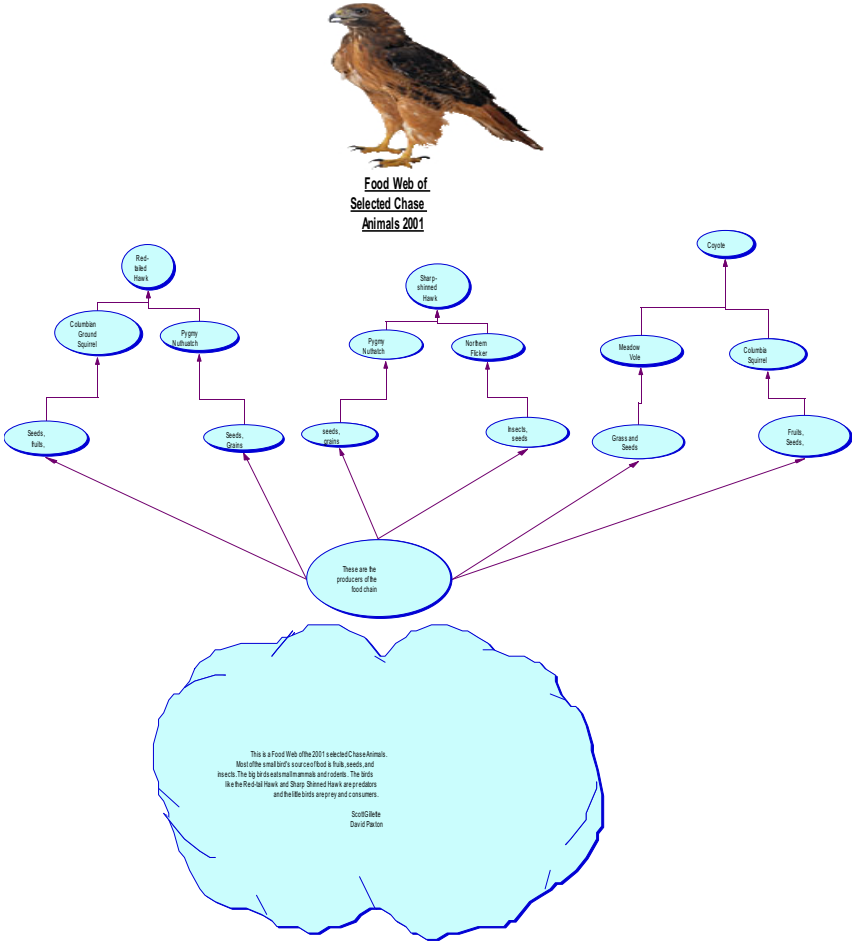
eggs at a time and nest on the ground. The Killdeer is a very interesting bird because of what it does to save its babies.

The number of Killdeer fluctuated between 1998 and 2001. The graph we had went like this; 1998=3, 1999=4, 2000=2, 2001=3. We think that the class saw the most Killdeer in 1999 because the Killdeer were getting ready to migrate for the 1999 ice storm in groups. We saw the least in 2000 because the Killdeer had not returned from their migration. The number between 1998 and 2001 was the same because there was no ice storm to interrupt the Killdeer in their migration.



Graph by Dima Zheltkov and Josh Howell

Food Webs



How to Identify Birds

By Andy Rehwald

There are many ways to identify birds. The best way to identify a bird is to observe them. Binoculars are used to look at birds up close.

Another way is, to look at them through the binoculars, then at a bird guide. Then you can compare the one you saw with the binoculars to the one in the guide. If the features of the birds match, then you found the correct bird.

Some birds are easy to identify by their underside in flight. The Red-Tailed hawk for instance it is easy to identify, because when it's in flight the tail is red.

The Great-Horned owl is effortlessly simple to identify because of its horned head. You can name so many animals by their features. Some birds are named after their features.

The other way to identify a bird is by its size. A sparrow is very small: it's the size of a fist. An owl's height is the same as measuring to the knee of a human.

Ninety percent of identification of a bird is its sound. The killdeer sounds like it's saying its name, killdeer-killdeer. A male owl's sound is a low long hoot. A female owl's sound is a deep hoot. The female has a deeper hoot than the male's hoot. A pheasant sounds like a very fast chick-chick-chick.

There are many birds around the world surely you can identify them all.



Calliope Hummingbird by Nadia Yurkin

Bird Migration of Spokane

By Cyrielle Criscione

This year Ms. Cassidy's class saw many different species of birds while visiting the pond. Some of them were migratory birds, and others were year-round residents. After doing a little bit of research, we were able to determine which birds migrate here and when people would most likely see them arrive. This is a list of the migratory birds that we saw. The dates are when they usually arrive in Spokane, according to the Spokane Audubon Society.

March 1-7
American Robin
Song Sparrow
Western Bluebird
Red-winged Blackbird
Killdeer
Western Meadowlark

March 8-15
Red-tailed Hawk

March 16-23
Violet-green Swallow
Spotted Towhee

March 24-31
Brewer's Blackbird

April 8-15
Ruby-crowned Kinglet

April 16-23
Chipping Sparrow
Mourning Dove
Orange-crowned Warbler

April 24-30
Calliope Hummingbird
White-crowned Sparrow



Northern Flicker by Vinh Nguyen

20 years of Bird

by Ashley Palmer and Mary Phillips

On Wednesday May 23, four students from Mrs. Cassidy's science class interviewed, Marje Benander, a long time resident of the Glenrose Watershed area. She lives right on the edge of the Chase property. The questions we asked her related to bird watching.

Student- How long have you lived in the Glenrose Area?

Marje Benander- Since 1950, about 51 years.

Student- How long have you been keeping a bird list?

Marje Benander- About 20 years.

Student- Could you explain bird counting to us?

Marje Benander- You watch as many birds as possible while keeping a list for 2 days. Then you take the largest amount you saw in the 2 days and that's your final number of birds for that time.

Student- Which birds do you see the most?

Marje Benander- Magpies, House Sparrows, and Starlings.

Student- What birds have you seen lately and what are they?

Marje Benander- Pheasants, Robins, Red-Tailed Hawks, California Quails, and Nuthatches.

Student- How often do you see new

birds?

Marje Benander- About every 5-10 years, The population changes because of what we plant. The Goshawk is an example of a bird that comes because of the change of habitat.

Student- Is it hard trying to keep track of all the birds you see and/or hear?

Marje Benander- Sort of, I have a checklist, and I can tell when the birds on the checklist are declining.

Student- Are we the only people you share your information with?

Marje Benander - No, I also share my information with the state, as a part of the Backyard Bird Survey. This event happens during the last week of November through the first week of April, you pick 2 days every 2 weeks.

Student- Would you like to share anymore information with us?

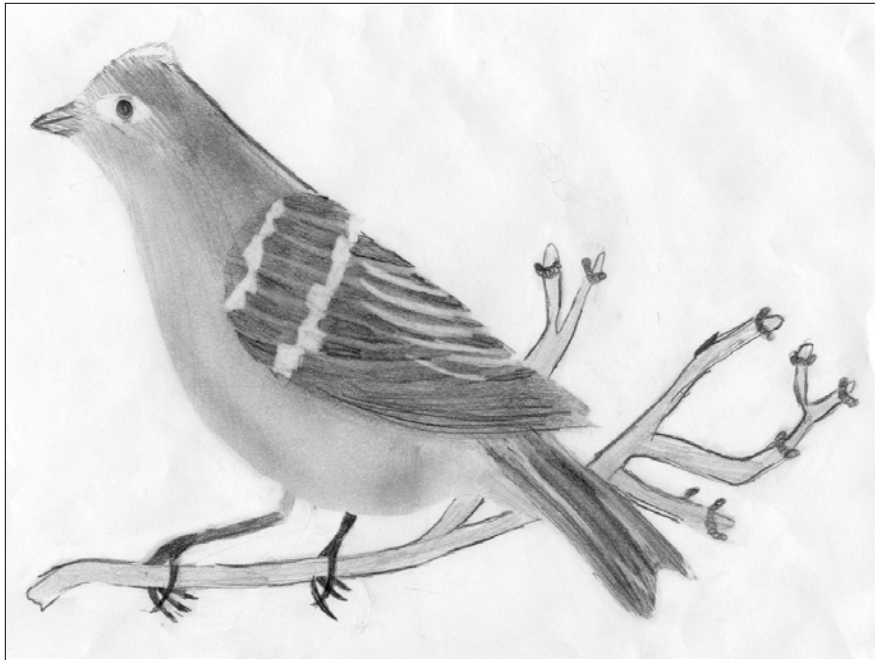
Marje Benander- Yes.

When Chase was built, some of the birds that lived in this area disappeared.

Birds will stick around your yard if you have a variety of foods for them.

Cats and hawks are a major threat to birds.

Bird feeding is something to do all year round, especially during fall and winter.



Ruby-crowned Kinglet by Courtney Gottberg

Save Our Birds!!

By Charles McNitt

I have run around the South Hill for four years and the thing I notice the most is the birds. They're disappearing from the area of 29th and Havana, up to Morning Star Boy's Ranch, across Myrtle, and back to 29th. There is a great change in the area on 29th and Havana by the pond. The water is vanishing because of the drought this year.

Another problem is, there is a part of the road on 29th and Havana that splits the forest in two and the Quail have a hard time getting across while avoiding cars without getting hit. The birds do not have enough room to roam, so they wander into

neighboring yards and into schoolyards. On the roads sometimes you can see the birds try to cross, then a high speeding car goes by and the birds run away. The birds may be trying to get to their nests and can't. If these actions keep up, the birds will die in that area, and that will be bad.

The reason I think this way is that the birds on the South Hill are very important to older people like my dad. In the morning he will sit with his cup of coffee and watch the birds play, eat, and sing. This is their amusement. So this is the reason I think we should preserve the areas for the birds.

Wildlife

Wild Wise- Woodland Park Zoo



Roger Crafts, one of the presenters from the zoo poses for a picture.

Quotes

"I couldn't stop telling people in my school about this presentation." ~Casey Groh 1st period

"I enjoyed the presentation immensely!" ~ Kiril Barrett 4th period

"I had a great learning experience and hope they continue sharing with Chase Middle School." ~ Chase Langalis 6th period

"Personally I think the presentation was the best my class has had." ~ Susie Salgado 6th period

"The fake cockroaches were really cool!" ~ Stacey Cox ~ 4th period

"I enjoyed learning about the sounds, the appearance, and the habitats of all the animals." ~ Derek Whitbeck 4th period

"Your presentation gave me a clear understanding of how animals live in a different habitat." ~ Carrie Randall 2nd period

Collected by Sara Chambers and Susie Salgado

Mountain Caribou

By Stacey Cox

On April 19, 2001 Don Katnik visited Chase Middle School to teach about the endangered species, mountain caribou. He came to many science classes to share his knowledge with 8th grade students. Did you know mountain caribou are the most endangered large mammal in the lower 48 states? Currently, there are about 250 mountain caribou in Eastern Washington, Northern Idaho, and Southern British Columbia. Scientists have been researching the decline in population of these animals and what might be causing mountain caribou deaths. The most likely reason is because of their biggest predators, the mountain lion. Fortunately, these mountain lions prey on white-tailed deer more than they prey on caribou. Unfortunately, the white-tailed deer population has been increasing. This causes a growth in the mountain lion population as well. With more mountain lions, the threat towards mountain caribou increases.

Caribou have a very slow reproductive system, therefore the females often die before they have time to give birth. The death rate for mountain caribou increases in the summer because mountain lions travel towards the caribou in higher elevation.

In the winter, mountain lions live in low elevations to avoid snow. Therefore, there is no over-lap between the mountain lions habitat and the mountain caribou habitat during the colder months.

People are learning more and more about these endangered species and there have been several attempts to protect the animals. There have been no successful techniques to save the mountain caribou from extinction. Most students claimed that they really enjoyed his presentation. "I learned a lot from the presentation. I think it is interesting how they track cougars with the special collars that they showed us," said Eric Burke.

"I was surprised to find out how elevation and seasonal temperatures can effect cougar hunting patterns," said Greg Kleweno.

"I did not realize that two animals who have never seen each other before could have such a large impact on each others lives. An example of this would be the relationship between the white-tailed deer and the caribou," said Christine Wahlstedt.

Kiril Barrett stated, "I always wondered why there weren't any caribou down by my house!"

Life Through Different Eyes

By Tara Falkner

You judge him as a sinner
You're sure that there's no doubt
But what if you were the cougar
On the inside looking out.

You say the cougar has no innocence
He's partners with the gray wolf in crime
He must pay or he'll destroy us
It's only a matter of time.

The cougar has adapted
A taste for caribou
But killing the cougar off
What will that do?

He has as much right to the land as any
And yet this we deny
And the air is just as much his
As it is the birds who fly.

We all try to interfere
And end up doing worse
So maybe we should just sit back
And let nature take its course.

By Stephanie Smith & Ashley Dillon

The lights went out as animal sounds began to fill the classroom with the boom of a cougar's roar. This was the beginning of the exciting, heart-pounding presentation by the Woodland Park Zoo. When we first walked in to class that morning we were very impressed with the high-tech equipment that they used for their presentation. Roger Crafts and Jen Wilkinson from the Zoo came to Chase on April 12, 2001.

Roger's and Jen's goal is to improve wildlife habitats in Washington. They also want to try to inform people about the environment and how to save it. Roger and Jen taught us that we could help by cleaning up the environment in many different ways and places.

One of the Zoo's goals is to improve classroom and community interest in wildlife by talking to the students about the value of natural things. Another goal is to turn the students ideas into actions by providing many opportunities to explore good career paths and life decisions involving animals and habitats.

Jen and Roger explained to us how animals interact in their habitats and how to identify field marks. One interaction that they explained was about how a foreign species of frogs was introduced into a habitat that contained turtles. This introduction began to cause a sudden and devastating disappearance of the turtles. This disappearance was then linked to the frogs, which began to eat the turtles, causing them to become endangered.

One of the birds that they talked to us about was the Black-Crowned White Heron. It has white spots all over and pointy ears, which make good field marks. Their bill is crossed to tear up food, and they hunt during the day. They also explained to us how the introduction of foreign animals to another habitat could also destroy many of the natural species that had previously inhabited an area.

In conclusion, the presentation by the Woodland Park Zoo was very informative and "greatly enjoyed", as said by Ms. Cassidy's eighth grade students. Roger and Jen taught us many things about how to interact with our environment, how to save the environment, and what kind of ecosystems are in Washington State.

Ponderosa Pine

By Natalie Murguia and Adam Oles

As we took a walk outside Chase, we spotted the Ponderosa Pine. As some of you already know, Chase is located at an area where there are Ponderosa Pines growing. We noticed the bark is like a puzzle, and kind of sappy. The trees don't grow next to each; other they grow apart. The tree provides many insects for the birds to feed on. One of the birds that feed on the insects in the tree is the Northern Flicker. Ponderosa Pines are just one of the many different types of trees in the Glenrose Watershed.

*Squirrel by Seth Tyler*

Squirrel Day

By Seth Tyler

Cattail emerged into the warm morning sunshine. The golden rays were just peeking over the gray mountains in the distance. Cattail sniffed the air for any possible predators and rotated her ears to take in any dangerous sounds. When she was satisfied that she was not in danger, she bounded out over the rocky soil looking for something worth eating. She came upon a sprouting fringe cup but decided that she was not in the mood for that particular plant and moved on. Shortly she came upon a patch of wild strawberries and stopped. She began nibbling the plant and was pleased to discover stores of water in the stems and berries. It was a good plant for a squirrel. She heard the birds chirping as they fluttered through the air, landed on the branches of nearby trees, and fluttered off again. She called out to a passing robin that alighted beside her and began pecking for seeds.

"Hello robin," greeted Cattail.

"Hello squirrel," responded the robin.

"How's the weather up there?"

"Not bad. There is a small storm to the East, but I think that it will change course before hitting us. Either way, it won't rain on us."

"Thank you. Also have you seen anything dangerous?" asked Cattail.

"The coyote pups in the den to the South are out scavenging and may enjoy a morsel like yourself." The robin began picking at the seeds again.

"Thank you very much."

"Of course," and the robin flew off. One thing Cattail liked about robins is they were always willing to help. That's why she'd called one of them instead of a sparrow or a blackbird or even a killdeer.

"Hmm," thought Cattail in the typical squirrel fashion, "I shall have to watch out for those coyote cubs". Many of Cattail's friends and acquaintances had fallen prey to the coyote mother in past months (which is as far back as any squirrel can remember unless they think very hard—in which case their head may start to hurt).

Just then a strange smell caught Cattail's attention. It smelled like the smoke that people gave off when they flew over the road in their metal boxes. But as Cattail again thought in her squirrel fashion she realized that it was much too close to be coming from the road. Her instincts told her to run, but her squirrelish curiosity got the best of her and she went to inspect the smell. In no time at all she found the source of the smell. A pair of metal, human boxes that made lots of loud sound made it. These boxes were mounted on black

round thingies like all human boxes, but they were smaller than most. There was a large field here and at the end of the field was a crowd of humans. Many of the humans were burning white sticks in their mouths and they were talking amongst themselves. Then one of the humans raised a hand and the crowd quieted immediately. The human made a long speech in human talk and then two of the humans ran down to the boxes. They mounted and then the human that had been talking before raised a flag with lots of black and white squares on it. He began chanting strange words in human talk and then lifted the flag. When the flag was raised the humans sped off across the field in their boxes. When they passed the man with the flag he began waving the flag wildly, which is something that Cattail found very amusing. Then the humans turned their boxes around and came back to where Cattail first saw them. Cattail was infatuated and watched the humans steer the boxes back and forth for many hours. Eventually all the humans left and so did Cattail. Cattail had just witnessed the annual lawn mower races and couldn't remember anything more amazing (Though she had seen them the year before, but squirrels can't remember that far back).

It was while she was lost in thought that it happened. Two small dog-things jumped out of a nearby bush. Cattail was quick to realize that these were the coyote pups. She kicked herself for not being more careful. She first looked at her immediate surroundings, just to get an idea of where she was. She found that she was only about fifty yards from her hole; near the strawberry plant she'd nibbled earlier. She also realized that the coyote pups were right in her way. She couldn't outrun them. She could outmaneuver them though, since the pups still weren't very sure on their feet. She darted to her left and so did the pups. When they almost had her she darted to her right and ran past the pups who were stumbling over themselves and each other. After a quick run she was back at her little hole-in-the-ground home.

She took one last look outside. The sun was just starting to hide behind the towering mountain peaks, and darkness was creeping over the land. The pups, disappointed with their failure, began the trek back home. Cattail was pretty sure that their mother would have plenty of food to share. At last, with a contented sigh, Cattail retired for the night.

Mountain Caribou a Don Katnik Specialty

By Casey Groh and Olivia Brown

Don Katnik came to our classroom from Washington State University and talked to us about his caribou research in Northern Washington. In Northeastern Washington there is a herd of about 42 caribou. He answered our questions about why and how they are going extinct.

The first reason why the mountain caribou are going extinct is because of the cougar to deer ratio. The white-tailed deer population increased causing the cougar population to increase also. The deer population increased because of logging. The deer live on the forest edge. Since there are more forest edges due to clear-cutting there is more room for the deer.

Don Katnik told us on his visit, "the cougars feed mainly on the white tailed-deer, but there are some who feed on caribou. Since there was more food there were more cougars." The increase of cougars meant the increase of the cougars that eat the caribou. This causes the caribou to decrease.

Another reason the caribou are endangered is because of their low reproduction rate and the calf's vulnerability. A female caribou can produce one calf every other year. They start breeding at three and a half years of age. Their reproduction rate is among the lowest in the deer family. Newborn

calves are very vulnerable to predation. The calves normally avoid predators during this stage because they are born in the high hills. The mothers do this to avoid predators, but this provides another problem for the calf. The rain, snow, winds, and low temperatures kill seven out of ten calves each year.

In the winter, caribou eat arboreal lichen. The lichen grows on trees and it takes about fifty years until the tree can support the lichen. This is bad because in the summer logging takes place in the caribou's habitat. Then it takes about another fifty years until the lichen are abundant enough to feed the caribou. So if we cut down one of the trees it will take another fifty years to feed the caribou.

What are we doing to save the caribou? We are transporting cougars to a different habitat so they don't eat all the caribou. This is helping some, but it might just be time for the caribou to become extinct.

Some further information about the caribou you can find on the Internet: www.wa.gov/wdfw/wlm/research/caribou/trackboul/ http://nrsgis.wsu.edu/IMCTC/general_info.html

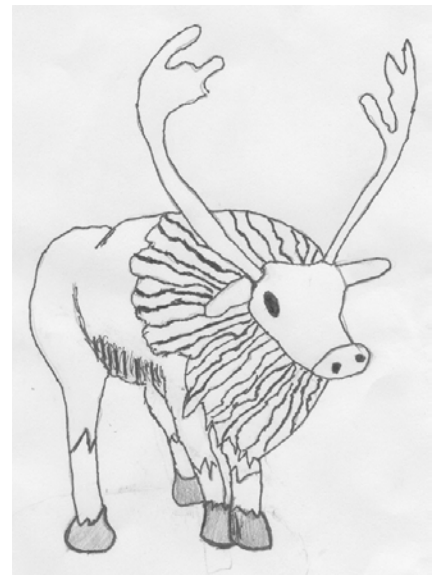
Elk: A Long, Almost Lost Memory

By Greg Kleweno & Neil Walther

To begin, we would like to thank Zita Myers for her contributions to our research. She has observed nature in her area in the last few years. One of her favorite animals is the elk.

Elk in Eastern Washington have been an enjoyable sight for a long time. About 10 or 15 years ago, the herds of elk would seasonally come to south Spokane to spend some time. From April to mid-fall, a group of twenty to thirty elk would populate Browne's Mountain. In the last two to four years, it seems that the elk have not returned. Gardens of the Glenrose Watershed have not been grazed in, and fields have not been roamed.

Turnbull Wildlife Refuge in Cheney is where the elk used to spend much of their summer time. The solid development in the southern part of Spokane may have caused change in the elks' customs. The huge deer-like animals have probably decided to discontinue their yearly expedition. Most likely the new development of homes in

*Mountain Caribou by Casey Groh*

the area have scared the animals away.

The new change is saddening for the local watchers. Zita Myers, a Glenrose citizen, has said, "Turnbull and Browne's Mountain's development could have caused them [the elk] to alter their route. I do hope not. I have missed the drama of a visit from these magnificent animals for over two years." One event that stands out is when Zita's son took a picture of a clump of elk. Eventually it was noticed that a coyote was watching the beasts from nearby attempting to attack a calf. The adult elk were surrounding the calves to protect them from immediate danger. This behavior was amazing. Another great sight was when the 1,100-pound animals were leaping gracefully over 4-foot fences.

It is truly saddening to think that these unique actions might not be seen any more. It remains to be seen if Elk family behaviors will be observed around the Glenrose area in the future.

Pond

Why is the Pond Important?

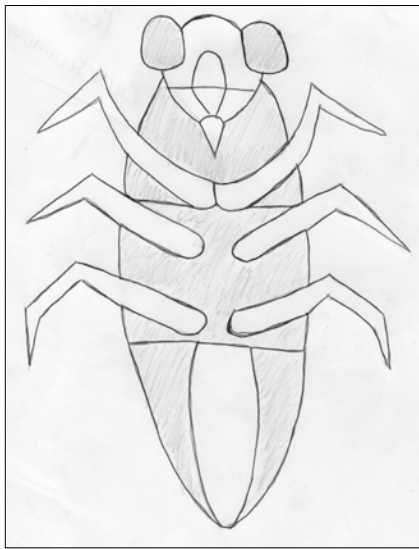
By Nick Hartman and Austin Dodds

There are many birds that depend on the pond on 29th and Havana. Some of these birds are the Red-winged Blackbird, the Red-tailed Hawk, and the Pygmy Nuthatch. What would happen if the pond disappears? An example of a bird that would disappear is the Red-winged Black bird. It is one of the birds that depends on the pond, because it nests and feeds here. The cattails serve as a nest for the Blackbird, (which grow three to eight feet off the ground.) If the pond disappeared we wouldn't see the Red-winged blackbirds anymore.

Another bird you wouldn't see is the Red-tailed Hawk. This bird is a predator and it depends on the pond for part of his source of food, which are small mammals and other birds. If it disappeared there would be a population bulge in other species. That would disrupt the natural order of things.

An example of a bird that nests right near the pond in dead trees is the Pygmy Nuthatch. It would disappear for two reasons. First, if the pond was gone its nesting area would also be gone. Second, if the pond disappeared its food supply of bugs that live in the pond would be gone.

If the pond disappeared the birds mentioned above plus many other species would vanish from this area. It's incredibly important that these birds remain in this area because a more biodiverse ecosystem is a stronger ecosystem. Also, if the birds were gone the other populations would rise rapidly, therefore affecting other species. So, we need to protect our pond because what happens to one species, affects another.

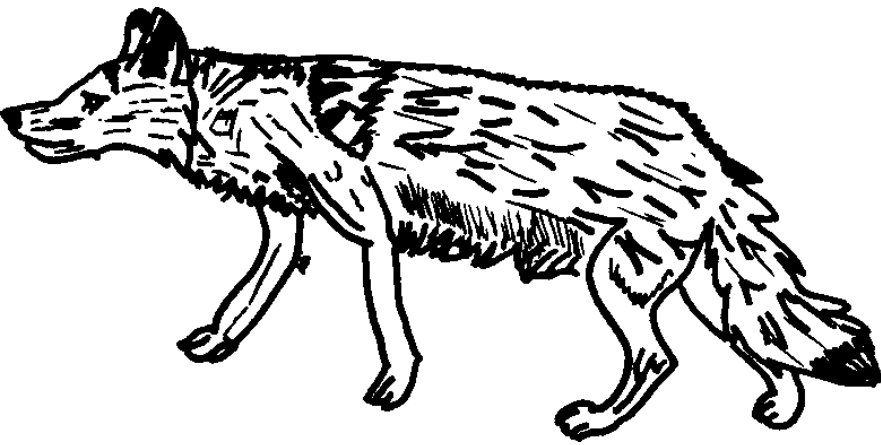


Backswimmer by Anne Pew

Going to the Pond

By James Tillett

Walking fast,
With the class,
Watching birds at last.
Recording stats as we pass,
At the pond with everyone.



Coyote by Josh Davis

Birds

By Matt Richardson

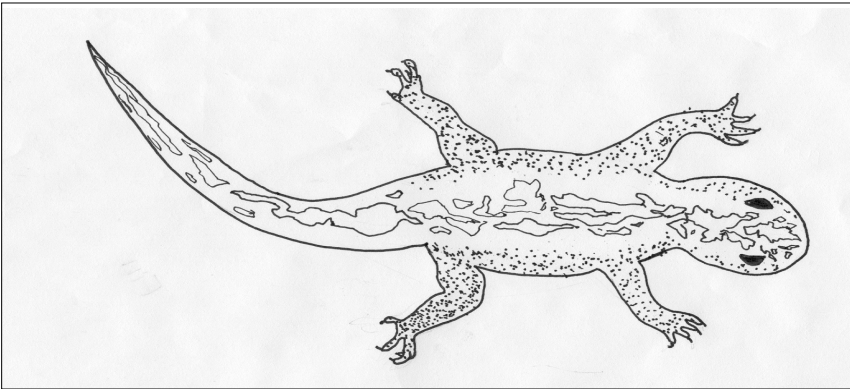
When I go outside,
I see the sky,
And in the sky,
Are things that fly.

Those things I see,
They are the birds,
A quail, a gull,
Some bright mallards.

Those fast sleek birds,
They roam the sky,
And fly so high,
They are of god just shy.

After winter goes,
They come so soon,
Through early spring,
And the heat of June,
But when autumn strips the trees,
That's when the birds begin to leave.

Even though they are gone,
I can almost hear,
Those now gone bird songs.
That were so pleasant to the ear.



Long-toed Salamander by Olesya Churkina

Long-toed Salamander

By Daniil Topov and Olesya Churkina

I was walking in the forest with the class and I saw a piece of wood lying on the ground. I picked up the piece of wood and I saw a little salamander. It was a Long-toed Salamander. The salamander was lying on the grass. The grass under the piece of wood was wet. I found another salamander lying under another piece of wood in wet grass.

They were all found in the same area. They were dark green and had four little legs and feet with four toes each. They also had little tails.

At the nearby pond we found salamander larvae swimming in the



Salamander Larva by Olesya Churkina

pond. They were dark brown and one inch long. The gills were on the outside of their body. They are slow swimmers. We found many but kept only three. We have been watching them grow in an aquarium in our classroom. The larvae eat fairy shrimp, which we also found in the pond.

The Havana Pond

By Laura Martin and Brian Hunt

The Havana pond of 29th Ave. is very important to the Chase area because it is a home to many different species of animals. This habitat is a wetland. What is a wetland? Well, a wetland is an area where water covers the soil all or part of the year for long periods of time.

The species that live in this wetland are part of the food chain. If the wetland disappears, because of extension of human habitat, the whole food chain will be affected. The frogs will disappear because there will be fewer insects. The reason there will be

fewer insects is because there will be few ponds to lay their eggs. Another example is the mallard duck. If the wetland is gone, they don't have a place to lay their eggs, or a place to eat.

There are ways we can help to protect the wetland. We can buy the wetland before housing companies build on it, and we can learn more about the wildlife and how they interact. We can also set up fundraisers. These fundraisers can help save the wetlands. If we help the wetlands, we can keep the food chain in working order.

Pond Poem

By Rachel Rubens

Violet-green Swallow, Red-winged
Blackbird
Mountain Chickadee, Calliope
Hummingbird.

Birds big and small, migrant or non,
Came from above, came to the pond.

Birds were not the only ones there,
There were many animals that do not
fly in the air.

We caught a salamander that was
under a rock,
The squirrels jumped from tree-top to
tree-top.

There were armies of ants and lots of
tracks.
We could hear bird calls and see
animal scat.

Most of the birds that we saw at the
pond,
Were migrant and wouldn't stop for
long.

If the pond was gone and nothing was
left,
The birds would have no home and
none would be left.

Violet-green Swallow, Red-winged
Blackbird,
Mountain Chickadee, and Calliope
Hummingbird.

Biodiversity

By Garth Hill and Alek Lewis

Throughout the world we are losing habitat. The habitat loss is not as bad as in some places in the world, like the rain forests in South America and Australia, but in the United States we have lost more than half of our original prairies and wetlands. What are the threats against the habitat in the Chase area?

At Chase, when they log the forests they are killing the habitat and source of food for some of the wildlife. The animals move or die because they do not have the correct habitat to live in anymore. The loss of habitat affects the biodiversity of the species in the area. One of the many reasons for the decrease in biodiversity is the increase in housing development.

One reason biodiversity is decreasing is that we are not protecting the animals. If we were thoughtful and considerate we would be careful and aware of where we are building. Another way we can protect habitat is to use less fertilizer on our lawn and gardens. We saw that very few birds land on Chase's lawn because of the spray that is used. We need to continue to protect biodiversity around Chase. If we do not start protecting our biodiversity, who will?

How has the Drought in Spokane Affected Wildlife?

By Lindsey Person and Katie Guyer

There has been a drought in the Spokane area this year. The pond on 29th and Havana is a vernal pond. This means that it dries up seasonally. This time of year, there is usually quite a bit of water there, but the water level has fallen due to the lack of snow in the mountains in the winter, less precipitation this spring, and high, record-breaking temperatures.

Many species depend on the pond as a place to feed, rest, and raise their young. Those that depend on the pond have declined in numbers because of the loss of habitat conditions that they need. At this point, there is no water in the main section of the pond at all. We believe that it will probably remain that way until next spring.

From 2000 to 2001 certain birds have decreased in number. These species were very numerous last year.

The Red-winged Blackbird and the Violet-green Swallow are two examples. The Swallow flies around eating mosquitoes that have hatched from the mud. In the hot weather the mosquitoes don't hatch; therefore swallows have nothing to eat and the ecosystem cannot support as many of them. Now there are very few Red-winged Blackbirds and Violet-green Swallows living within the cattail marshes.

We figure that if the drought continues for a long period of time, there will be an even larger decrease next year. There is not much we can do to prevent these changes. It is all up to Mother Nature. If we continue to use Nature mapping to count the species in our area, then scientists can figure out what is going wrong besides weather and how to help.



Grass Widow by Katie Greer



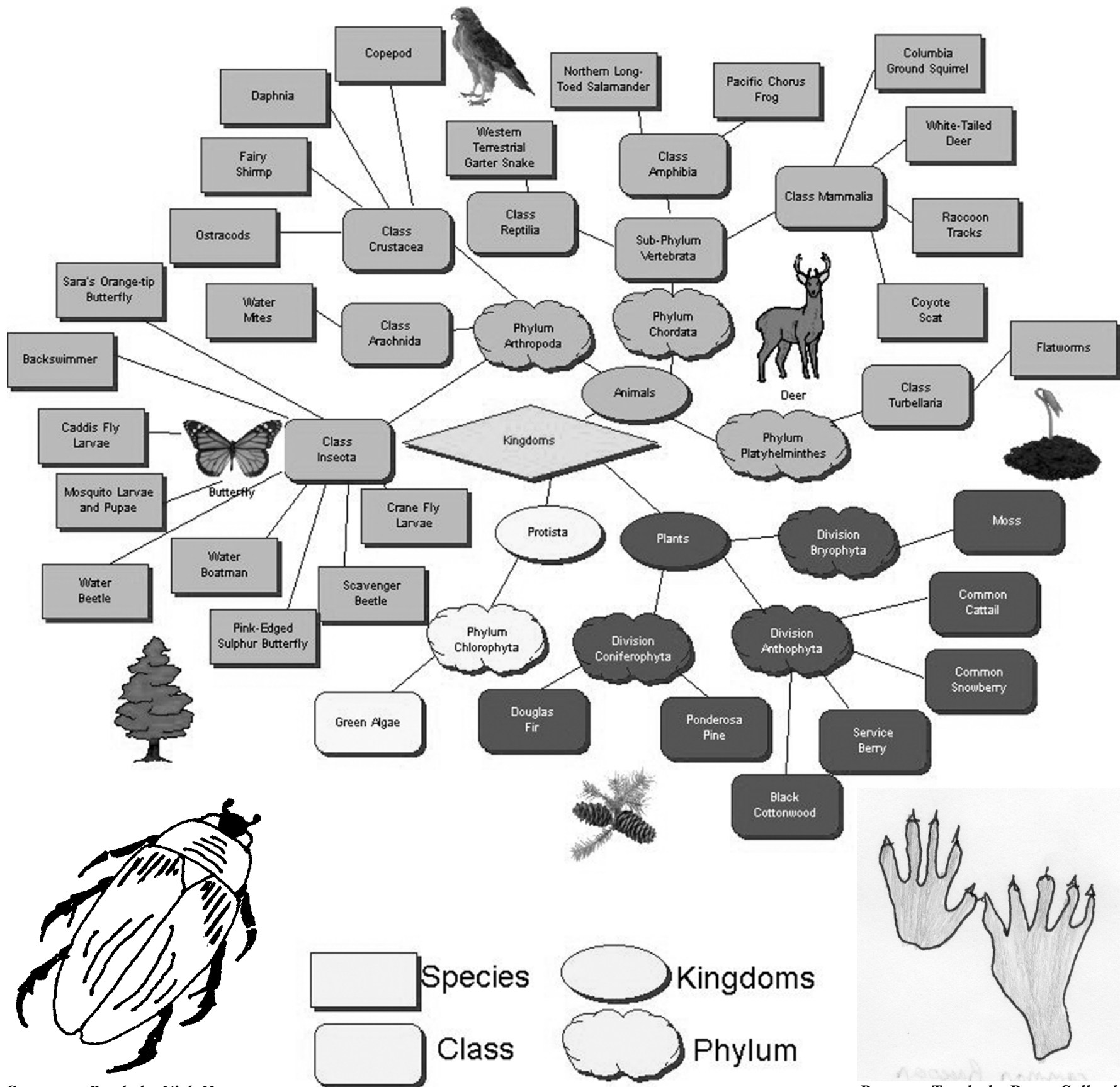
Pocket Gopher by Melissa Pieper



Western Terrestrial Garter Snake by Max Barnett

Diversity of Life at the Pond

By Kristyne Westermann and Shannon Camp



Scavenger Beetle by Nick Hartman

Raccoon Tracks by Bryan Solbach

Gates Grant

By Ashley Sellers

The Bill and Melinda Gates Foundation supports the Teacher Leadership Project. It's basically a statewide network of public and private teachers working together to integrate technology into the classroom. The goal is to provide technology as a tool for student learning and to see how students use it in reaching the Essential Academics Learning Requirement Benchmarks. Teachers are also studying the impact technology is having on students.

In May of 2000 our teacher, Mrs. Cassidy, was accepted to the Teacher Leadership Project. Since then she has attended a one-week course in the summer and several weekend seminars. Since May, we have received six additional computers, a scanner, a printer, and a digital camera. This added technology has definitely made a big impact on our class learning. For instance, we have a lot more hands-on projects. We have been able to take information about our community and put it into maps, graphs, and news articles. We have also been able to take pictures with the digital camera, so that all of our pictures are original and are of actual species in this area. The scanner and the printer have helped a lot as well because it makes things go faster, but still come out the best. For more information about the Teacher Leadership Project go to: <http://tlp.esd189.org/>

GIS????

By Nadia Yukrin & Roman Oberemok

GIS stands for "Geographic Information System." GIS maps are made on a computer, using ArcView GIS software. The maps can show the elevation, population, federal lands, population density, precipitation, farmlands, total population, rivers and streams, and a lot more. GIS helps you access and study information in the form of maps, tables, charts, and reports.

Road makers need GIS mapping to help them find the exact location of where a road is to be built. Ambulance workers use GIS maps to find where the patient is. So you can see how important GIS is in people's lives.

GIS helps you find answers to questions in the form of maps. It also can help you find answers to patterns, trends, and locations of anything that could go on a map. It can even show you where you live.

GIS also helps to keep track of animals and different species. By using GIS, Don Katnik, a wildlife researcher from Washington State University, keeps track of cougars and caribou. Don visited our classroom and told us about his research. By keeping track of the animals using GIS, Dan can tell if the animals are endangered.

This year, our class used ArcView GIS to make maps on our classroom computers. Tracy Grover, GIS specialist, came to help us. Each student made a map of our school. Students also found the location of their houses, elevation of our school and elevation of each of students' house, the distance between the students' houses and our school, and a lot more. The maps we made were fun and we learned a lot from doing them.

For more information on GIS, go to www.esri.com.

Technology

The GIS Experience

A provocative story about the uses of GIS in the field of ecology

By Yan Derkach and Seth Tyler

Picture yourself in the beautiful mountains of Pend Orielle County. The evergreen pines and firs reaching up towards heaven, threatening to disturb the peaceful ocean of blue sky watching over our realm of mortality. The sloping valleys cowering away from this immortal ocean. Then you look to your right and behold the beautiful herd of mountain caribou foraging for their evening meal, silhouetted against the golden sunset.

Seeing this picture in your head

would place you in the shoes of Don Katnik, only one of many people fighting to save this herd of mountain caribou living in the mountains of Pend Orielle County. Don and his colleagues have been trying to save these mountain caribou for years from predators and their biggest enemy—man.

These heroic people have an amazing ally in this impossible war—the GIS mapping system. This extraordinary mapping system could be the most valuable asset to these devoted scientists, besides a determination born of love for a species.

GIS maps help scientists in more ways than one. First, it helps map

the terrain that the herd of caribou lives on. After that, it helps map the herd itself. It also maps the territory of their worst predator in the area—the amazing, glorious cougars. Without the knowledge this program provides researchers would be in the dark. They wouldn't know when an animal died, or about the size of the herd (somewhere in the thirties). It also helps locate deceased herd members so that Scientists can travel to that spot and determine whether the animal died from predation or natural causes.

On April 19, Don Katnik and Misty Conrath came to our class to tell us about how GIS relates to their mountain caribou research. They showed us the maps they have made that show the home territory for many cougar and how it may affect the caribou. They explained the procedures that they sometimes go through, for example, in recovering a caribou body.

So as you gaze at the majestic mountain caribou, remember all the work put into helping these miracles of nature. But don't forget GIS and the importance of technology in the battle to save endangered species.

www.wa.gov/wdfw/wlm/research/caribou/trackboul/
http://nrsgis.wsu.edu/IMCTC/general_info.html

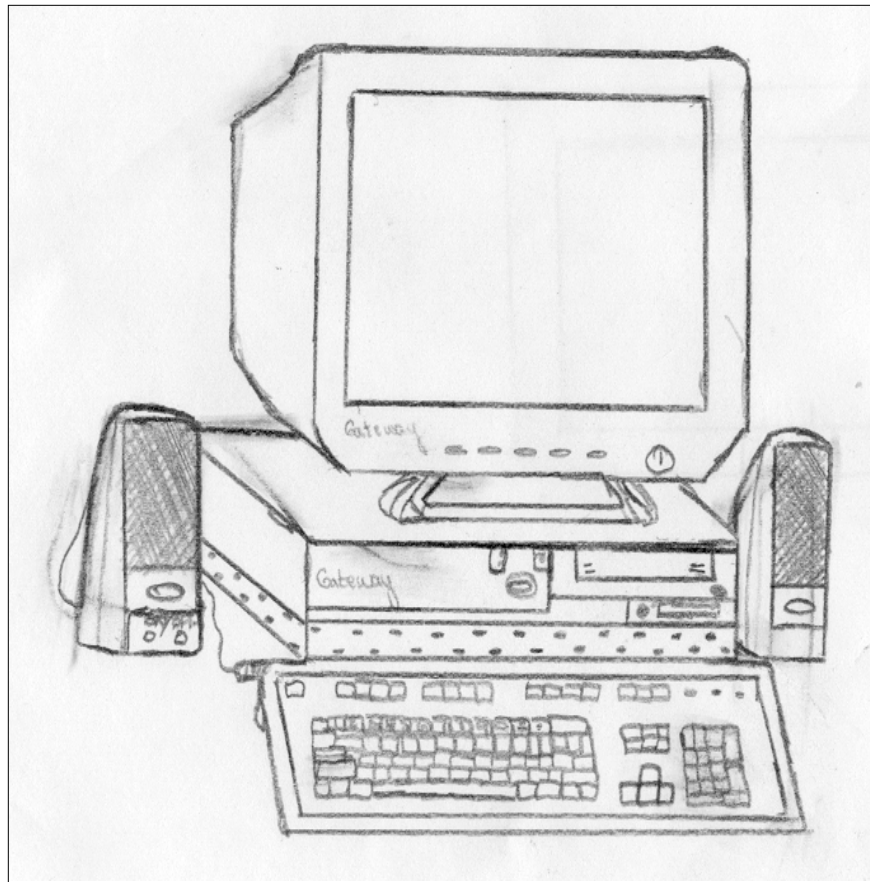


Illustration by Rudy Wegner

Our Programs

By Cody Waldroup

Recently, Mrs. Cassidy's classes at Chase Middle School have been studying and graphing the Glenrose Watershed area's animals and plants. We must first, though, learn many software programs. The following are the programs/equipment that we have been using:

Microsoft Word- The program that I am using now. This is used mostly for articles. "All of the options work well together." –Matt Richardson

Excel- Used to keep track of data on spreadsheets. Also, you may put your data into a graph on this program. "It's very versatile." –Stacey Cox

Inspiration- Used to make concept maps. These do not differ much from webs with their topic, sub-topic style of graphing data. My favorite! "It has a lot of really awesome graphics and options to work with. You learn something new that you can do on this program ever time you use it!" –Cody Waldroup (me)

Arcview GIS- Used to map the birds and animals that we find through actual mapping. "It allows me to be creative." –Tracy Grover

Photoshop- Used in conjunction with the digital camera to take pictures of the plants and animals we find. "I like it because it's the only program that works well... at least, for me." –Justin Burnett

PageMaker- A page layout program that we use to put the newspaper together. "The PageMaker program can do anything you want it to, and make any publication a good one" –Lauren Benson

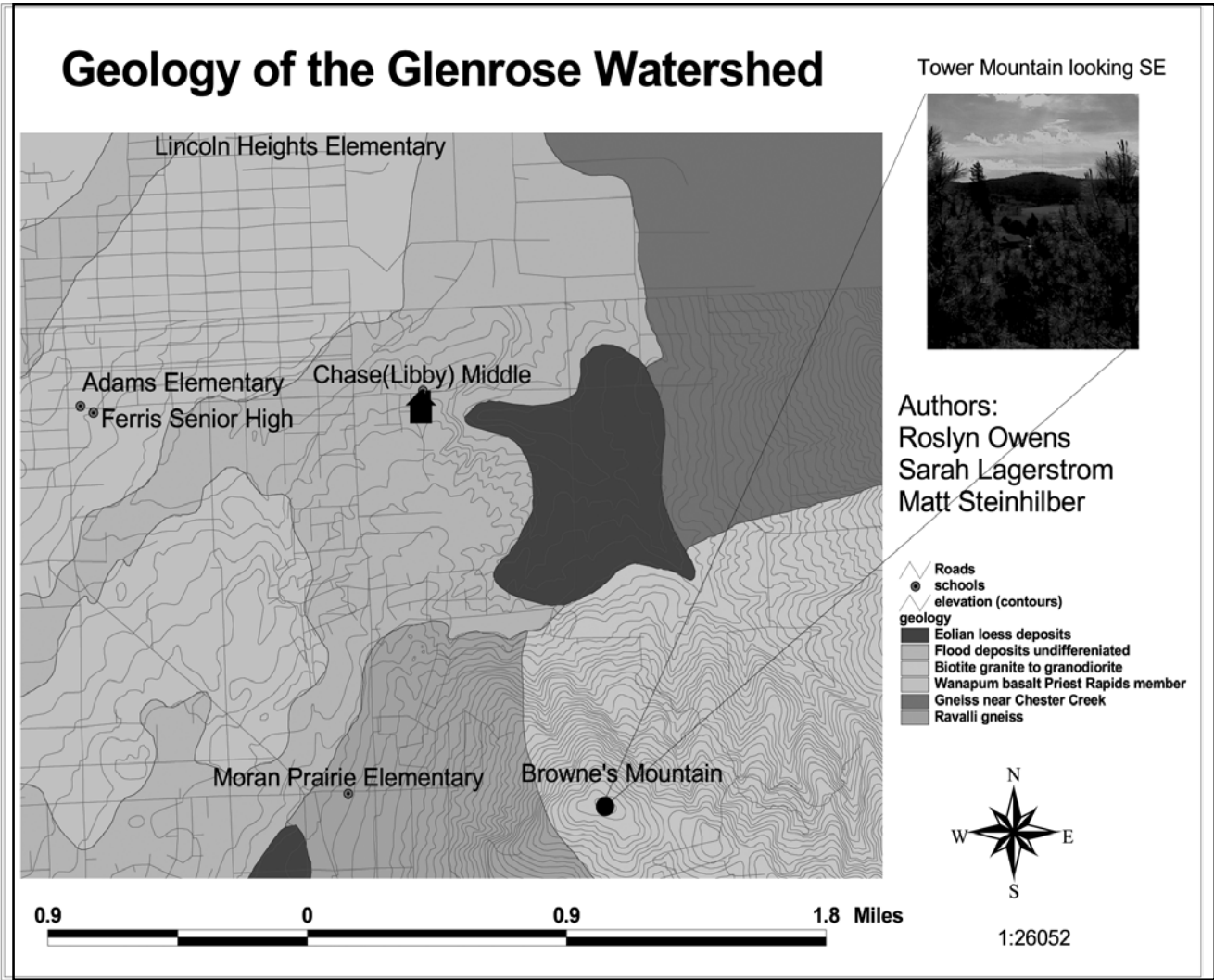
Time liner- Used to make a record of events that occurred in chronological order. "It is easy to use." Ryan Kirby

These programs have been learned, and used by almost every student in this classroom.

Newest Technology is OURS

By Branson Davis and Mark Wisdom

In the NatureMapping project that we did this year, we used a lot of newer technology. When we were outside NatureMapping we used a digital camera to take pictures of wildlife. We also scanned photos and drawings for our newspaper with a scanner. When individual people were working on their projects they used new Gateway computers to type and edit. To put the newspaper together we used a brand new Gateway and Adobe PageMaker. On the computers we used many different programs including Inspiration, Timeliner, Microsoft Word, Adobe PhotoShop, Microsoft Excel, Microsoft Publisher and the GIS program, Arcview 3.2. Branson and I were the Technology Assistants for our period. We helped people with their computer problems and edited photos and set up computers and equipment.



Hi-Tech Mapping with Arcview GIS

By Roslyn Owens and Sarah Lagerstrom

A GIS map shows a great deal of information about an area. It can show geology, elevation, schools, hydrology, and roads. Our map shows the geology and elevation of the Glenrose Watershed and the South Hill. The closer the lines are together the steeper the slope. The geology is shown with shades of gray. The map shows a great variety of geological deposits in the Glenrose watershed.

Sound Pollution in the Glenrose Watershed

By Jeremy Walmsley and Brendan Jacquemin

In Mrs. Cassidy's class we learned about the evils of sound pollution. Sound pollution is more important than you think; especially in the bowl shaped Glenrose water shed area. All the sounds in the Glenrose area are reflected off of the mountains. Most of the problems come from dirt bikes and other off- road vehicles. The main thing that sound pollution does is scare away animals, which can even ruin habitats.

Now there are only twenty-three national parks that allow off-road vehicles. Off-road vehicles rip trees and wildflowers from the hillsides and pollute mountain streams with muddy runoff.

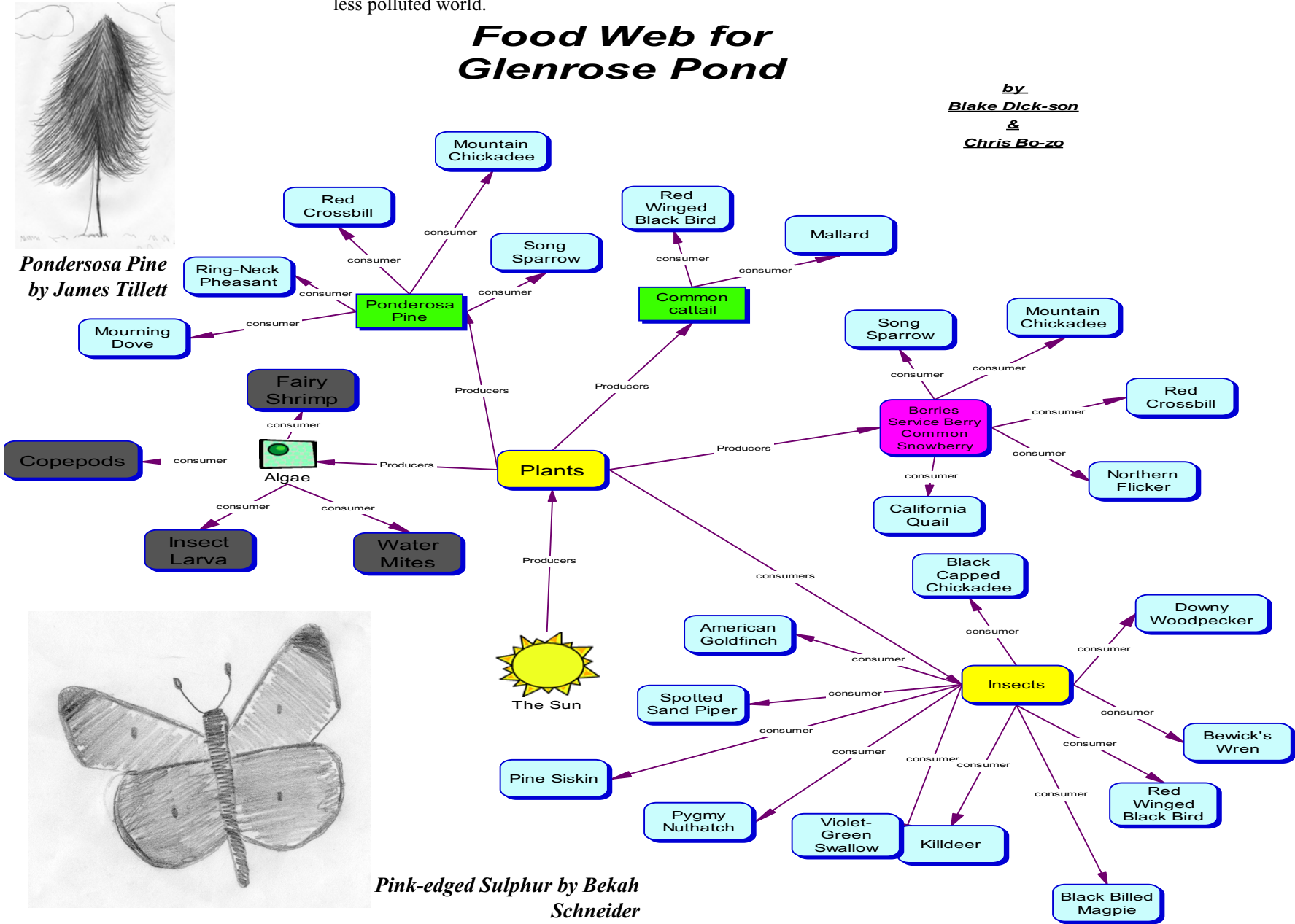
We encourage you to take this into consideration and don't drive off-road vehicles in the Glenrose area. Thank you for you time and consideration. Continue the fight for a less polluted world.



Don Katnik and Misty Conrath, WSU Caribou Researchers

Food Web for Glenrose Pond

by
Blake Dick-son
&
Chris Bo-zo



People Who Helped Mrs. Thorson



Jan Reynolds was a constant volunteer in our classroom

Jan Reynolds

By Ashley Sellers and Stacey Cox

For the past four years at Chase Middle School, Jan Reynolds has been visiting science classes to teach students about Nature Mapping. Before coming to Chase, Jan worked with many other schools, most of which were elementary schools. Jan said that she enjoyed working with the older kids and grew fond of their enthusiasm and excitement towards Nature Mapping.

Most people are unfamiliar with the Nature Mapping program that we use here at Chase. Jan Reynolds can explain it perfectly. She says that it makes you more aware of your surroundings and gives you a better understanding of how delicate and reliant your environment can be. Most

importantly, Nature Mapping is an organized way to record certain habitats and the changes they have gone through over time. For the students and Jan, Nature Mapping was a fun way to go outside and have fun while researching an important subject.

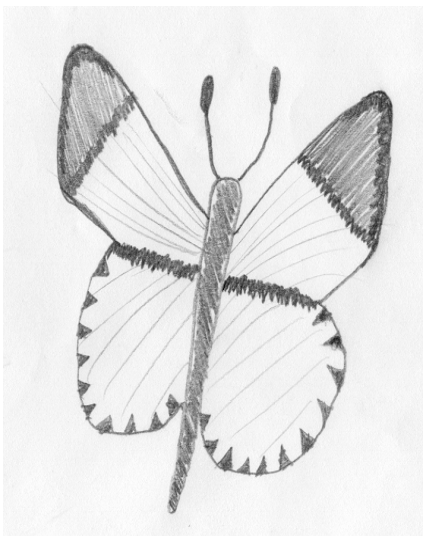
All of Jan Reynolds' visits to Chase Middle School have been greatly appreciated by the students and teachers. Everyone learned new facts about the environment around our school. Thank you very much, Jan for teaching everyone at Chase your knowledge on Nature Mapping, and we hope that you come back soon.

Mr. Bucholz

By Erin Almquist

One of the many people that have helped Mrs. Cassidy's classes go on field trips, is Mr. Vern Bucholz. Mr. Bucholz is an E.S.L. tutor, which is short for English as a Second Language. His duty is to help all E.S.L. students, but he helps with our class as well. Mr. Bucholz's favorite thing is to go out to the pond with the class and see all the changes since the last time he visited the pond. He has noticed many things such as the difference in water level, different animal tracks, and even different plants that might have grown since last time we visited the pond.

All in all, Mr. Bucholz has helped Mrs. Cassidy's class in many ways. Thank You Mr. Bucholz



Mrs. Kaplan

By Shannon Camp

There is no way that our class could complete a project as great as the Naturemapping assignment without the help of adult volunteers. One volunteer that spent a lot of time at Chase helping with the project was Carol Kaplan. Ms. Kaplan took time out of her busy schedule on several occasions, to travel to the pond at 29th and Havana with students from Ms. Cassidy's classes. When asked why she chose to be involved with the Naturemapping project she said, "I enjoy being out in nature and wanted to compare the Glenrose habitat with the West Plains habitat in which I live." She chose a great year to be involved with the project because due to the weather and student participation the mapping was successful. Ms. Kaplan thought the project went "great!" She said that she loved seeing the reaction of the students when they saw a new bird or animal. The project was not only successful because there were a lot of animals spotted, but according to Ms. Kaplan it was successful "Because the students really started to realize how fragile a habitat can be." Thanks to adult volunteers such as Carol Kaplan the 2001 Naturemapping project went smoothly.

*Sara's Orange Tip Butterfly by
Bekah Schneider*

By: Ashley Sellers

I did a short interview with Mrs. Janice Thorson. She has been a helper in our class for most of the year. This is some background information on her and what she thinks of the Glenrose Gazette.

What made you decide to come help with our class?

I've known Mrs. Cassidy through environmental classes and found out she was a neighbor of mine, so when I retired from teaching and wanted to volunteer, this seemed like the perfect place to come.

Where were you teaching before you came here?

I taught for eighteen years in Bellevue, Washington and over the last twelve years I taught at Pratt Elementary.

Do you think the Glenrose Gazette is important to our community and why?

I think it is important for a couple of reasons. First it shows how talented the Chase students are, and the topics you cover are of great interest to the community.

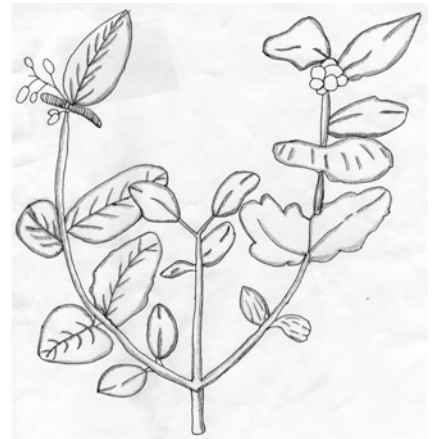
Big Thanks to Tracy Grover

By: Katie Bray and Yelena Korovina

Tracy Grover has been a very important part to our NatureMapping this past spring. Ms. Grover has come in multiple times to teach and assist us with our GIS Maps. She has been very helpful and we appreciate the time she has spent in Mrs. Cassidy's classroom.

Ms. Grover is a specialist in geology and this is her fourth year teaching, now at Spokane Falls Community College. She is a former teacher at EWU and WSU as well. She focuses on teaching students about geology and Geographic Information Systems. She also works with the U.S. Geological Survey creating GIS data.

Ms. Grover has been visiting schools for the last three years to educate younger students. GIS Maps are interesting to Ms. Grover because she can use color and creativity while analyzing scientific information. Ms. Grover stated that computers are very helpful. They offer a much faster and easier way to do the maps instead of



Snowberry by Dima Zheltkov

drawing them out by hand. With the computers you can access information from all over the world and you don't have to redraw the map each time you need to make changes. Ms. Grover says that it is important to come into classrooms and teach students about the Arcview program and about GIS Mapping. This is a new tool, that isn't in most classrooms. We are very lucky and are one of the few classrooms nationwide that a teacher incorporates GIS into the curriculum.



Arrow-Leaf Balsam Root drawn by Allison Wiks

What's Happening

Birds

Wildlife Habitat

By Jamie Freedman

Birds in the blue sky
Flying very gracefully
Making themselves seen

Land Trust

By Brenna Smith and Jamie Freedman

What is the Inland Northwest Land Trust? My partner Brenna Smith and I, Jamie Freedman, had the pleasure of interviewing Heather Bateman from this non-profit organization.

Brenna/Jamie: What is the Inland Northwest Land Trust?

Land Trust: It is a non-profit organization that works with private landowners to keep records of animal and plant sightings in the Glenrose area and to help preserve the ecosystem. We also help in protecting the land.

Brenna/Jamie: How was the data from Chase Middle School used by the Land trust?

Land Trust: The data from your school is used for the conservation project in the Glenrose area; it also gave us an idea of what types of animals are in this area.

Brenna/Jamie: What will our data help you with in the future and will it help preserve the habitat?

Land Trust: We are including your data in the many projects that we are doing in the Glenrose area. Your data will help us in protecting the land and wildlife for the landowners.

Brenna/Jamie: What are you trying to do in the Glenrose area?

Land Trust: We are trying to preserve its scenic value and its wildlife values so that the Glenrose area will stay the same for years to come.

Brenna/Jamie: What can people in the Glenrose area do to help?

Land Trust: If anybody knows of landowners that want to save and protect their land they should tell the landowners to give the Land Trust a call at 328-2939.

Although we only asked Heather a few questions we still got a lot of information from her. If you want more information about this organization and the conservation project in the Glenrose area you can go to the National Land Trust Association website at www.lta.org.

by Miranda Gouin and Chase Langlais

How can you make your backyard a better habitat for wildlife?

- Plant native shrubs for shelter and food
 - o Golden Currant
 - o Serviceberry
 - o Chokecherry
 - o Ocean Spray
 - o Snow Berry
- Add water to your yard
- Keeping the predators away
 - o Keep cats inside

For more information on birds' habitat and on how to build a birdhouse visit www.birdsource.org/ OR <http://pbs.org/birdwatch/> OR www.ornith.cornell.edu



Pygmy Nuthatch by Lauren Benson

Future of Birds

by Blake Dick-son

There aren't any birds a flyin',
Because there all a dyin',
This is our future...
Do you like what you see?
What will the world be?
With out the birds over head,
Dropin' poo on your head,
Save our future...
Plant a tree,
And the world will be better...
For you and me.

Q&A With Sally Reynolds

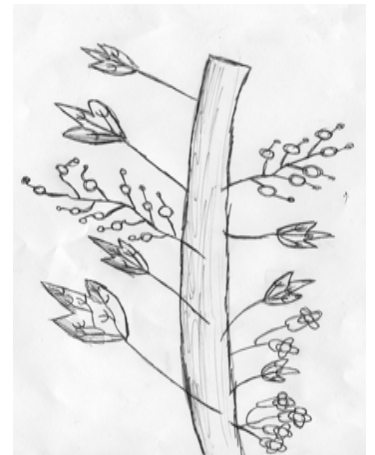
By Lauren Benson and Katie Bray

Sally Reynolds came to Spokane in 1972, and found the community preparing for the famous Expo '74. Sally and her family decided that they wanted a semi rural, community oriented area and found Glenrose. It was just what they wanted. However, when Mrs. Reynolds moved in, she didn't know that in the future she would have to fight for everything that her community stood for. She has spent countless hours talking to neighbors, attending meetings, and fighting for the aspects that brought her into the area originally.

Lately, in an interview with Mrs. Reynolds, we discussed the vernal (seasonal) pond on 29th and Havana. This pond has played an important role in our science Nature Mapping program as well as providing students with hours of educational enjoyment. Throughout the year it came to our attention that, in the future, having access to this pond might be difficult or even impossible. Mrs. Reynolds informed us on the latest she knew about the pond property. This 52 acre land area is broken up into two tax parcels, which the owner is interested in selling. The land could possibly sell for between \$10,000 and \$15,000 an acre. In addition to this particular vernal pond, the area also has several others and a cattail marsh. These are very important ecosystems and unique to the area. The pond sits on shallow soil, which lies directly above the basalt flow that covers the South Hill. Neighbors in the surrounding area are interested in preserving this important wildlife habitat for generations to come.

Due to past logging in the area, no development can begin in the next couple of years. However, a contractor could buy the property and develop the area and fit a small community on the property in the too near future.

A possible way to save this habitat could include a purchase, through Spokane's Conservation Futures Program. This program will be on the ballot for renewal in the next few years.



Golden Currant by Robbie Wilson

Plants That Help Wildlife

by Robbie Wilson

The following plants help the wildlife because of the food they grow and the shelter they make. Also, they are beautiful plants and attract the wildlife.

The Snowberry, also known as waxberry, forms a bushy thicket. It has clumps of waxy white berries from late summer throughout winter.

Ocean Spray is found in dry, open forests. This bush is covered with lots of loose, creamy plumes from May to July. In Spokane it is part of the Ponderosa pine ecosystem.

Golden Currant is a shrub with clusters of bright yellow flowers and smooth berries yellow to reddish black. The plant is common in Spokane in brushy, damp places or in bunch grass ecosystems on rocky hillsides.

Serviceberry is in the rose family. You see them blooming on the Glenrose hills in the spring. The flower is white and followed by seedy red to black berries. Birds love to eat them.

So in conclusion, these plants are helpful to the wildlife.

Build A Bird House

By Jessica Loomis & Sarah Haupt

Mrs. Cassidy's class went outside to the Glenrose habitat. We noticed that there were not very many nesting spots for the birds to lay their eggs. So we think it would be a great idea to help the birds by building birdhouses in the Glenrose area, and even in your backyard.

A great way to improve the habitat is to build birdhouses. To make a house the right way we must do the following: Make sure that the roof is leak-proof so that when it rains it won't go into the entrance hole or through the roof and it must be able to open easily from one of the sides for periodic cleaning.

Making a nest takes a lot of energy and hard work on the part of the bird. You can help them out by placing some nesting materials near the site.

Include things such as small twigs, dried Spanish moss, animal hair or fur, pieces of string, yarn or cloth. Some birds like Robins use mud to cement together the nest. Help the birds by keeping a mud puddle moist. You can also encourage some species like bluebirds to select a box by placing mealworms on a post or an up turned pail below the house.

Those are only a few things that you need. There are many more, so if you need more ideas, buy a copy of "The Complete book of Birdhouse Construction for Woodworkers," by Scott D. Campbell.

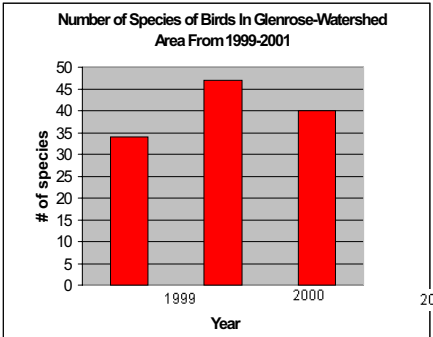
Website- http://www.pbs.org/birdwatch/info_house.html
http://birds.cornell.edu/birdhouse/bhbasics_index.html

Nature Mapping Data

by Josh Houchins and Chris McLachlan

We created this graph using Microsoft Excel. We used the Nature Mapping data that we collected this year along with the data that was collected in the previous two years. The data we used was the number of different species that were seen at the vernal pond and at Chase, totaled together. We then compared the number of species of birds seen each year using a bar graph. As you can see from the graph, thirty-four different species of birds were seen in 1999, forty-seven were observed in 2000, and forty in 2001. The seven birds that last year's class observed that we didn't were the House Wren, the Red-naped Sapsucker, Solitary Vireo, the Brown-headed Cowbird, the Vaux's Swift, the American Kestrel, and the Barn Swallow.

We offer a few reasons as to why the number of species has changed each year. First of all, the actual number of species may not have actually decreased or increased. We may have



just not observed a certain species because of how many times we went outside a certain year to look. The number of times each class went out each year varied, therefore a certain species may not have been seen, but was still there. For example, the class this year went to the pond only twice. That number may have been different last year, or the year before.

If the actual number of species did change from year to year, there are reasons for that, too. For example, this year we are having a drought. This, along with other weather patterns, change from year to year and could have effected the birds. Causes such as habitat loss and human interference are not as likely, because in 2000 the number of species seen went up, and then back down in 2001. It's not very likely that a bird's habitat improved in one year and was destroyed the next.

What Our



Comparing Birds at Chase and the Pond

by Rachel Rubens and Matt Richardson

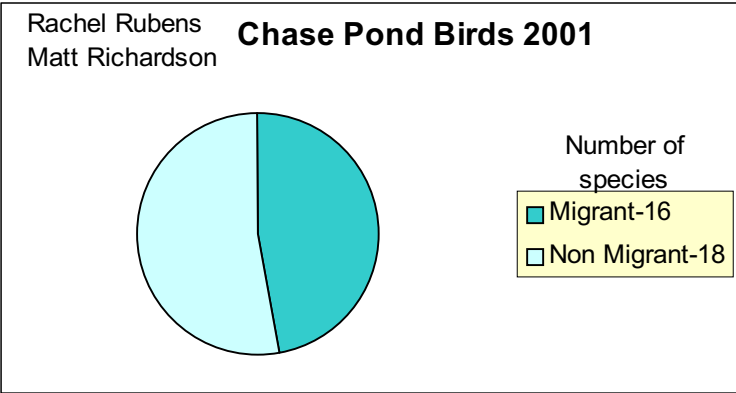
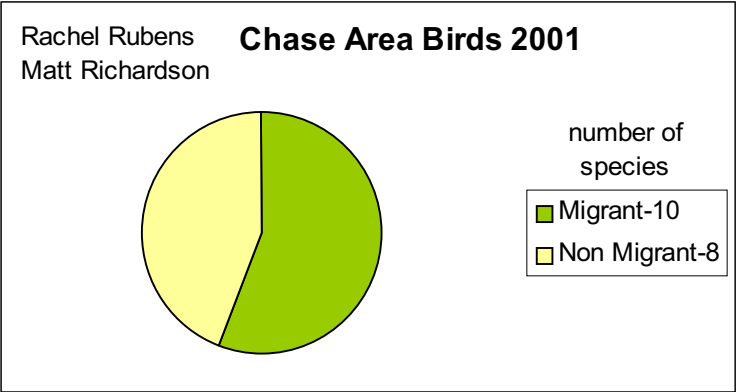
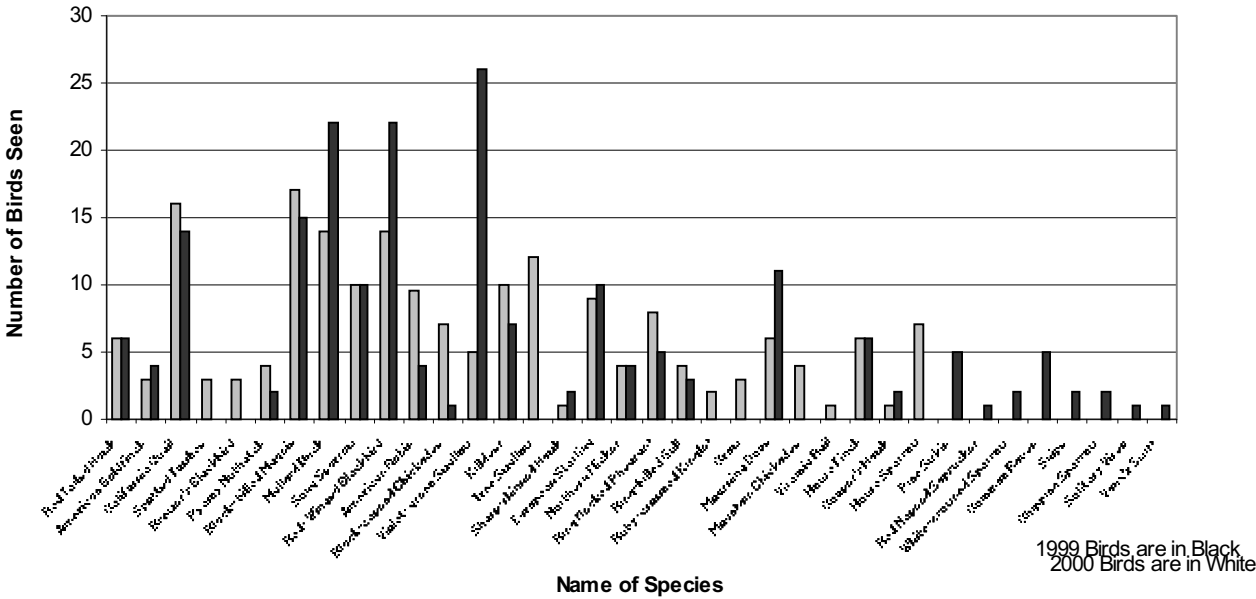
Mrs. Cassidy's 4th period class has gone out to the pond and school areas and counted the birds seen. We recorded the different species of birds and then counted them and grouped them by area. They were further divided into migrant and non-migrant groups. Migrant birds travel to the area to nest and breed by the water and the creatures that live there. Non-migrant birds are the birds that stay in the area year round.

There is little variety of bird species on the Chase grounds. There is a much larger variety of birds in the pond area even though the Chase grounds and the pond area are of similar size. Based on our study, there is a larger bird population in the pond because they require a larger amount of food that is only found at the pond. The more limited supply of food to be found on school grounds means that only a smaller bird population can be supported.

Our study recorded sixteen birds that migrate to the pond area during the year. This number is almost equal to the school ground's bird population of migrant and non-migrant birds combined at its peak. The Chase grounds number of migrant to non-migrant birds has a higher percent of migrants then the pond area. This information means that the Chase school grounds bird population is more affected by birds that migrate to the area.

Bird Populations 1999 and 2000

Birds at the Vernal Pond on 29th and Havana
By Cara Ballinger and Tara Falkner

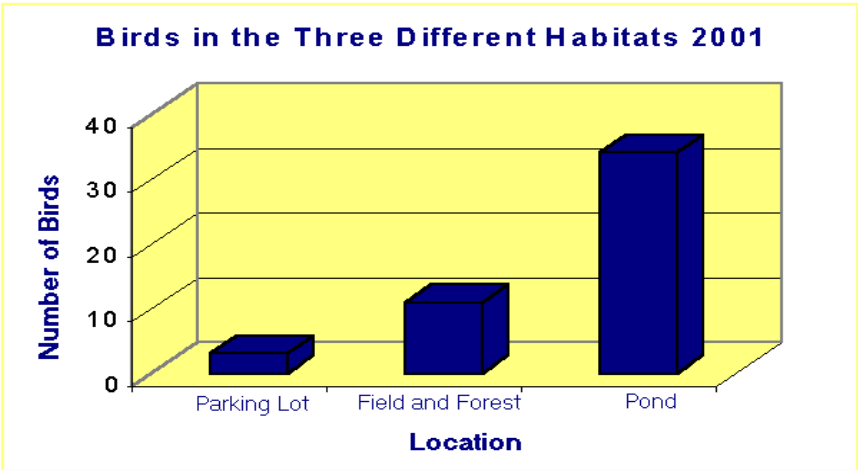


By Cara Ballinger and Tara Falkner

We created our graph by finding the average number of species of birds seen each year. We found out that there was a total of 36 species of birds combined for those two years. There were a lot of the same species of birds seen each year, but including the ones we see every year we got some new ones. In 2000 we saw a Vaux's Swift, a Solitary Vireo, a Chipping Sparrow, a Snipe, and a Common Raven, which we hadn't seen the year before. There were three birds that we saw in 1999 that we didn't spot in 2000. They were a Virginia Rail, House Sparrow, and a Mountain Chickadee.

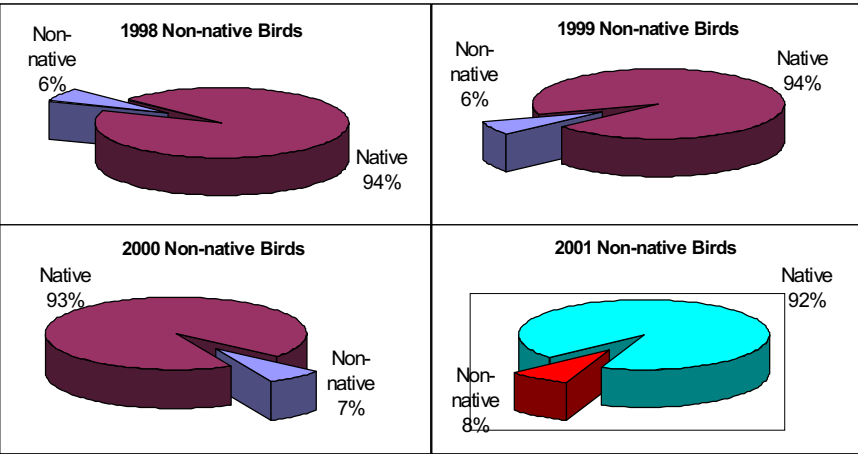
If we protect our pond then we might be able to see even more new species of birds. If we keep destroying that habitat then we won't be seeing some of the birds that we see today...including Mallards. So we should all protect this pond because it is essential to these birds' survival.

Research Tells Us



By Katie Greer and Ben Poffenroth

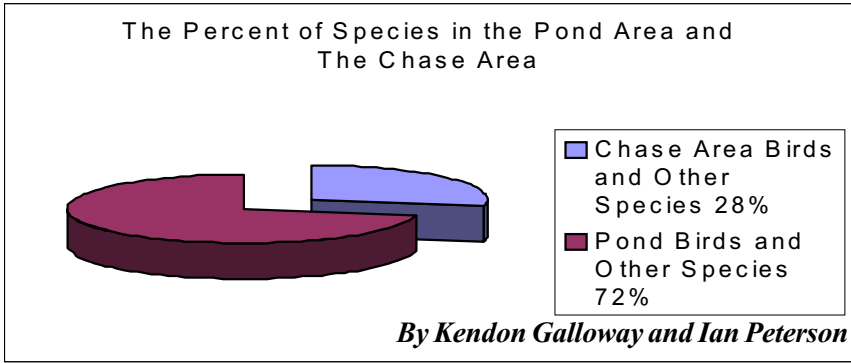
This graph was made in Microsoft Excel by analyzing the information that Chase Middle School students recorded during their Nature Mapping Project. Each class took time out of their class period to go outside and observe the birds and habitats that surround the school. This graph shows the number of different bird species that were found in the different habitats. The three habitats were the parking lot, the field and forest, and the pond. The highest number of bird species was seen in the pond area. This is because the pond had the most diverse habitat. There are more plants and creatures around the pond than in the parking lot, so more birds would want to live there. The field and the forest also are home to many birds that we saw because it has a diverse ecosystem. This graph shows that birds like to live where there are many different plants and animals.



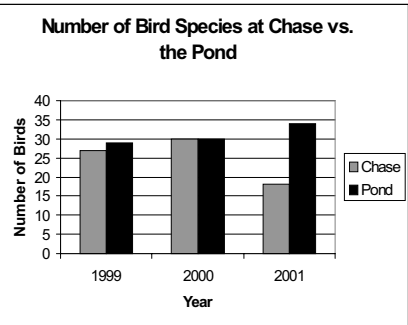
Non-Native Birds

by Eric Burke and Kyle Yonago

As you can see by our graphs, the percentage of non-native birds has increased over the last four years. We got these percentages by taking the total number of species sighted by Chase students in the Chase area. We then found the total number of non-native birds, and divided the non-native birds by the total number of species sighted. The three non-native birds were the European Starling, House Sparrow, and the Ring-necked Pheasant. The increase in number of non-native birds is not good for our environment. They are competing with native birds by moving into their land. The increase in non-native birds is caused by the human changes in the habitat. Non-native birds are adapting to new habitat and taking over native bird's habitats.

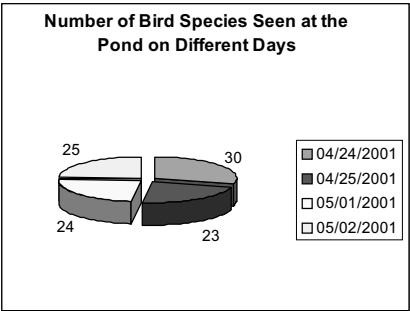


By Kendon Galloway and Ian Peterson



By Amber Wagner & Stephanie Segrest & Cyrielle Criscione

This graph represents the number of different species of birds found at Chase Middle School vs. the seasonal pond. In the year 1999 there were 27 species found at Chase while there were 29 found at the pond. In the year 2000 there were 30 species found at Chase and the same amount at the pond. In the year 2001 the amount of species that were found in Chase decreased by 13 species since the 2000. There were 34 species found at the pond this year



Graphing Our Data

By Justin Kretz and Sean Bemis

This pie graph shows how many bird species were sighted on different days. The numbers may vary because some of the groups were noisy, or maybe it was just a windy day and the birds were hiding. Part of it also could have been the time of day it was, or what kind of day it was.

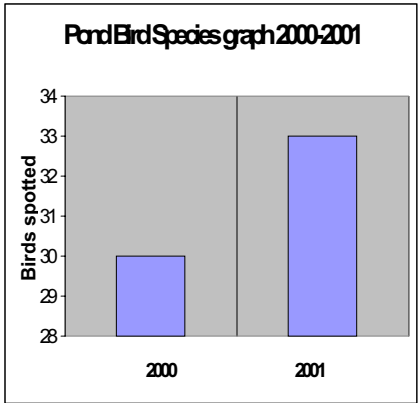
Drought Year

By Justin Shipowick, Troy Fuller

We went out to the pond as a class to see and identify birds. We noticed when we got there that the water level at the pond was a lot lower than the year before. Now we are trying to see if there was a difference in precipitation in the last three years and if that affected the bird population.

In 1998, there were not as many birds as most years even though it had more precipitation in May. That's because students only looked around Chase in 1998, but every year since, kids have gone to the pond and around Chase. In 2000 there were the most birds in all of the four years. We think there were more because there was lots of rain and it was consistent. There were 39 birds in 2001 just like in 1999. Both times there was water but not too much. We got the information about the precipitation from the Internet and the bird population came from the Chase student's records of bird populations in the last 3 years.

The precipitation did have an affect on the bird population around Chase. This seems right since most animals need water to live. Now we know just how much water affects the bird population around Chase.



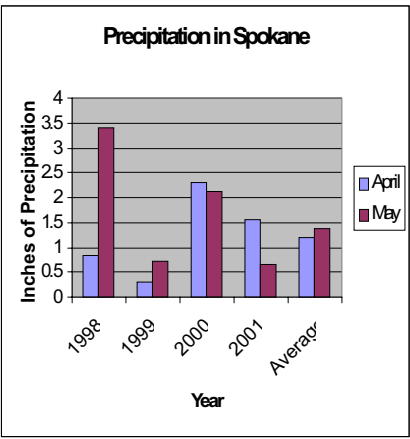
Changes

By Brian Viramontes and Mike Beil

The Glenrose watershed is a vernal pond that has always been alive with biodiversity. The pond is considerably smaller due to the lack of snow pack, spring rain and the increasing temperatures.

The first day we visited the pond, the condition was really poor, but after a heavy downpour of rain over the weekend the pond's condition improved. When we visited it the second time, after the rain, we received better samples and observations. The life variety was higher in the pond area and we saw more birds and insects.

Comparing to the information from last year to this year, noting that Brian was in this same class last year as a seventh grader, the life has increased in the area in a small amount. This year, according to the information that we collected, we learned that there are many more species of birds in the Glenrose Watershed area than last year. For example, this year we saw the species Sora. The Sora is a bird that the classes did not see last year. To show the differences from last year and this year we have constructed this graph.



Jan Reynolds on Birds

By: Danielle Olney & Amanda Snodgrass

On May 23, 2001 Danielle Olney and Amanda Snodgrass from Mrs. Cassidy's sixth period science class had the privilege of interviewing Jan Reynolds. Our main topic was changes in birds we've seen in the last two years. We asked Jan some questions about some of the changes we observed.

Danielle/Amanda- "Why do you think we saw the House Sparrow this year at the pond but not last year?"

Jan Reynolds- "House Sparrows tend to live where people live. They are increasing in suburban areas because housing developments are intruding."

Danielle/Amanda- "Why do you think we saw the Nashville Warbler this year and not last year?"

Jan Reynolds- "It was probably just migrating through."

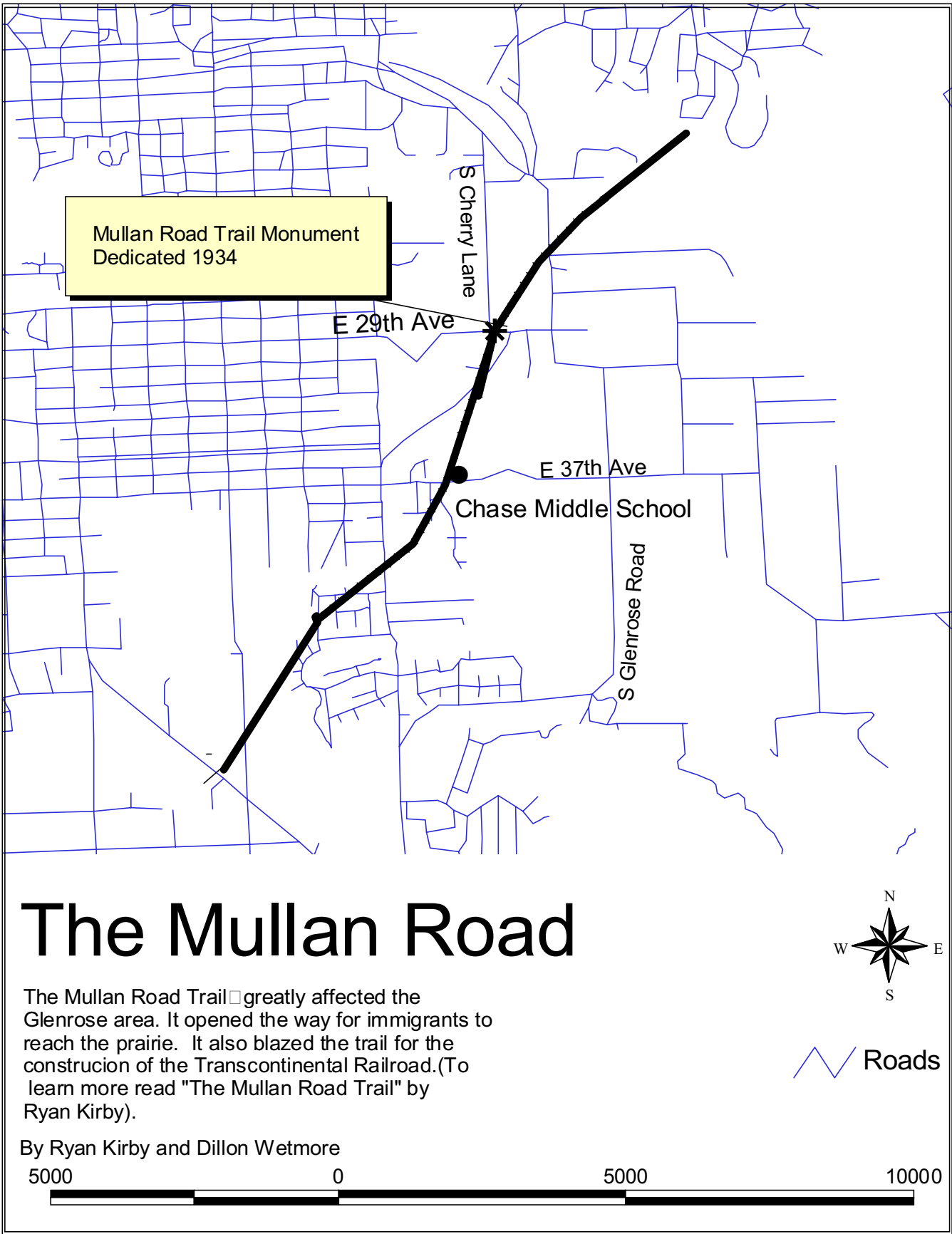
In conclusion, we have discovered that we have seen more bird species this year than we did last year.

Glenrose History

By Andy Oliver

The Mullan Road Trail, which passed through the Glenrose Watershed, plays a major part in the history of the Spokane area. In 1853, the war department ordered the exploration and survey of a route to link the Missouri River to the Columbia River, or Fort Benton to Fort Walla Walla. The 625 mile route would simplify the travel across the Northwestern part of the United States. Part of it runs behind Chase Middle School to this day. In fact, it is still visible where they had constructed a bridge for the train tracks. Located on 29th, by Glenrose road, is a plaque in memory of John Mullan and tells how he created this trail. This is a major part of Northwest History and should be preserved. It is also the habitat for birds, deer, squirrels, etc.

Near the trail are some old greenhouses that have been there since the 1940's. Bernard Bernson had owned the green house at the time. He was known as the "Orchid man." This nursery is now called "The Glenrose Nursery". It is another part of the history surrounding the trail. He started growing orchids there and it has been a successful greenhouse to this day. So, check this place out, remember the history, and see the wild life.



The Mullan Road

The Mullan Road Trail greatly affected the Glenrose area. It opened the way for immigrants to reach the prairie. It also blazed the trail for the construction of the Transcontinental Railroad. (To learn more read "The Mullan Road Trail" by Ryan Kirby).

By Ryan Kirby and Dillon Wetmore



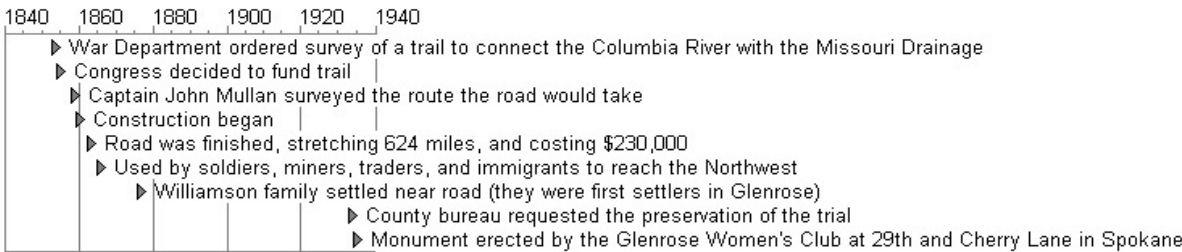
The Mullan Road Trail

By Ryan Kirby

The Mullan Road Trail was designed to link Walla Walla in Washington to Fort Benton near the Missouri River in Montana. It wound from Montana, across the Idaho Panhandle, through Spokane Valley, across Glenrose Prairie, on its way to Walla Walla. It greatly affected the Northwest because it aided the completion of the Transcontinental railroad. It also allowed traders and immigrants to reach and expand the area helping it to grow rapidly. Since the road was not well made, it began to fall apart after the completion of the railroad. The Glenrose area was deserted at the time of the construction of the trail. The Williamson family was first to settle when they arrived in August 1876. Their homestead covered 160 acres. They moved into a small cabin without a floor or a roof.

The Mullan Road Trail

By Ryan Kirby



Credits

The eighth grade students in Mrs. Cassidy's science classes would like to thank the following individuals and organizations for their valuable contributions to our project.

- Jan Reynolds – birding expert
- Karen Dvornich and Dan Hannafious - University of Washington
- Tracy Grover – USGS and Spokane Falls Community College (GIS)
- Don Katnik and Misty Conrath – Washington State University
- Roger Crafts and Jen Wilkinson – Woodland Park Zoo, Seattle
- Tom Bowers– Spokane School District 81 Printshop
- ITSC Help Desk – Spokane School District 81
- Janice Thorson – classroom volunteer
- Vern Bucholtz –ESL tutor, Chase Middle School
- Carol Kaplan –guest teacher and classroom volunteer
- Sally Reynolds – Glenrose Community Association
- Marge Benander – Glenrose resident and wildlife observer
- Zita Myers – Glenrose resident and wildlife observer
- Charlie Fitzpatrick, ESRI GIS and Mapping Software
- Garland Printing
- Hitachi Foundation
- The New Priorities Foundation and Patty Gates, Glenrose resident
- The Bill and Mary Gates Foundation Teacher Leadership Project

The Glenrose Gazette is produced and published entirely by eighth grade students at Chase Middle School in Spokane, Washington. All 128 students in Mrs. Heather Cassidy's classes are represented in the 4th annual edition of the Gazette. The following students deserve special recognition for their efforts:

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by Yan Derkach