
The Wonders of
the Deschutes River

THE DESCHUTES RIVER LEGACY PROJECT

WRITING & ARTWORK BY

MILLER ELEMENTARY
FIFTH GRADE STUDENTS

EDITED BY **KOLLEEN MILLER**

DESIGN BY **CASEY DAVIS**

FUNDED BY

Upper Deschutes Watershed Council
The Bill Healy Foundation
and Community Donations

www.UpperDeschutesWatershedCouncil.org

2017



This is their
Legacy

W.E. Miller Elementary School students in Mrs. Stirling's fifth grade class undertook a year-long project to study and explore the Deschutes River. Beginning with field studies at Ryan Ranch, the students participated in many hands-on learning activities to better understand the ecological conditions along the Deschutes River as well as the habitat needs for fish and wildlife. Each student adopted a Central Oregon plant, tree, or animal and dove into research to discover the specific characteristics that made each watershed inhabitant unique.

Mrs. Stirling's class wanted to leave a legacy of watershed stewardship for their school, for future students, and for the creatures of the Deschutes River. This is their project.

Through the River

From the mountain, through the river,
that drop of rain will make you shiver
through the air, back down below.
Repeat and there you go.

Wesley McGovern

Beautiful Deschutes

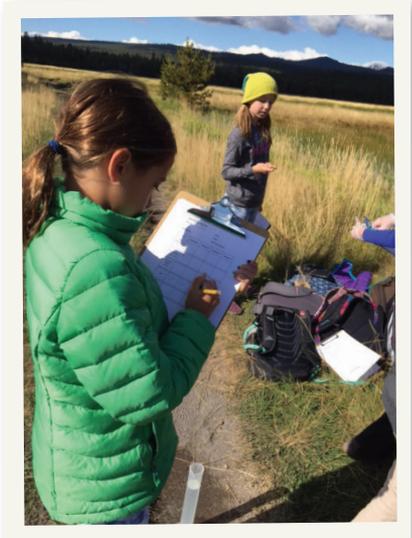
The river flows.
The sun sparkles off the water.
The moon glimmers in the night
because of the beautiful Deschutes
That will live forever.

Lucas Clark



Students

connecting to the Deschutes



Deschutes

River, so beautiful, like crystals, shining brightly.
 Animals of all kinds all around,
 floaters all summer,
 ice all winter.
 River, so beautiful, like crystals, shining brightly.

Ben Hill

Back to the River

The river is where there is peace,
 quiet and relaxation.
 The river is full of crystal water.
 You always have picnics there.
 I always go back to the river.

Nikki Trapnell



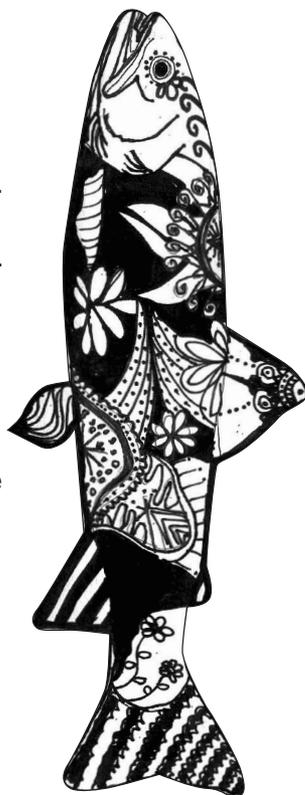
Creatures of the Deschutes



Chipmunks BY AIDAN JACOBUS & LUCAS CLARK

Chipmunks are small reddish brown to grey rodents with white and black stripes running down their backs and sides. They can be found from southern Canada to northern Mexico. However, the chipmunks in Central Oregon are chipmunks which can live anywhere from shrubby deserts to alpine forests. Sadly, these little creatures called *Tamias* only live two to three years in the wild and they have to hide from lots of predators. Some of the main ones are weasels, bobcats, snakes, foxes, and domestic dogs and cats.

When spring comes, mating season begins. The shrill bird-like call of the chipmunk is a mating call. Once mated and after roughly 30 days, a litter of two to eight is born. Now let's talk about what they eat. They eat insects, nuts, fruit, seeds, and grain. Also did you know that chipmunks hibernate but don't store fat? Chipmunks survive the cold and chilly winter by hibernating in their burrows stuffed with seeds and nuts. These little fellows do not eat a big meal before they hibernate. Instead they will eat every few days to get their body temperature up with food.

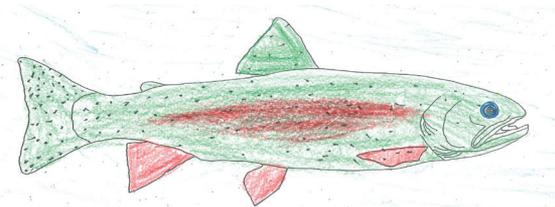


Reese O'Brien

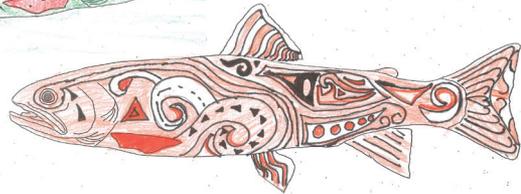
Great Blue Heron BY AIDAN JACOBUS, GAVIN WILLARD & LUCAS CLARK

Gliding around the riverbend with slow, long wing beats; the great blue heron is the the largest bird in the *Ardea* family. These beautiful large birds live in Bend, Oregon's wonderful ecosystem. The great blue heron has a wingspan of 66 to 79 inches long. That is about five inches taller than the average man. They stand about four feet tall. Their feathers are a gray-blue that can be seen over most of the heron, except for the dagger-like bill which is a dull yellow. Their neck is a rusty color. They can be found in flooded meadows, rivers, or lake edges near conifer forests.

Surprisingly the great blue heron does not migrate. They rarely venture far from bodies of water. A great blue heron's diet normally consists of small fish like smelt but they can also eat rainbow and redband trout along with small mammals and amphibians. These are fairly easy catches but great blue herons have to fight when predators try taking their food. Although the sheer size of the *Ardea herodias* is huge, they still have to put up with bears, eagles, and red-tailed hawks which like to feed on their eggs in the spring as well as young great blue herons.



Savannah West



Andres Alvarado

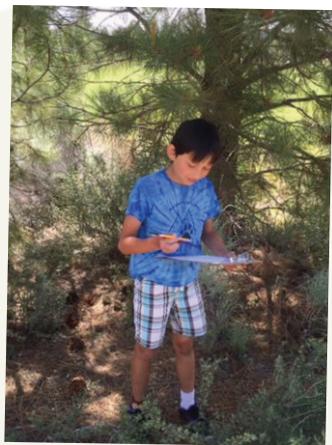
Fish of the River

Some salmon, some trout, working up the river.

Finding shade, eating food.

These are the things of the fish of the river.

Jonas Kim



Twilight

As the twilight rises,
the dragonfly shines it's
dim light next to the
shining dark river.

Osiri's Dream

Dragonflies

BY ELLA TADJIKI & NIKKI TRAPNELL

The scientific name for dragonflies is *Anisoptera*. Dragonflies are some of the first winged insects to evolve, some 300 million years ago. Modern dragonflies have been found with wingspans of up to two feet. Some scientists theorize that high oxygen levels during the Paleozoic era allowed dragonflies to grow to monster size. There are more than 5,000 species of dragonflies!

Dragonflies lay their eggs in the water. The eggs develop into larvae. At the end of the larvae stage, dragonflies crawl out of the water and their exoskeleton cracks open and releases the insect's abdomen, which had been packed in like a telescope. Then four wings come out and dry and harden over the next several hours to days.

Most dragonflies live in freshwater. They are most abundant and diverse in slow moving freshwater but can be found in many shallow freshwater habitats. Adult dragonflies often stay near water, but sometimes travel way any from water while hunting or on migration.

Predators of dragonflies prey include reptiles, bass, shrews, frogs, and fellow insects. Most dragonflies eat midges, mosquitoes, butterflies, moths, and smaller dragonflies. Dragonflies are aquatic and eat just about anything: tadpoles, mosquitoes, fish, and other insects' larvae. They even eat each other!



Rainbow Trout

Rainbow trout
Swimming about

Up and down the stream
to find the perfect meal

Swimming to the ocean
staying in their stream
their name depends on
what they do

Steelhead or Rainbow Trout

Fishing

I throw out my line onto the river.

My line goes under water, Yank!

My fishing pole almost slips out of my hand.

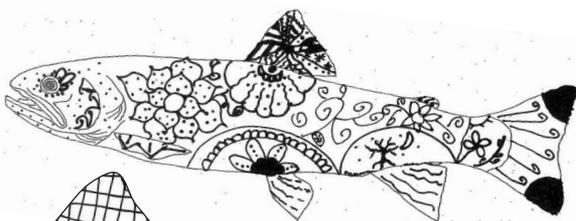
I start reeling my line in; the fish is tugging.

Finally, I get the fish in. "Phew!" I say.

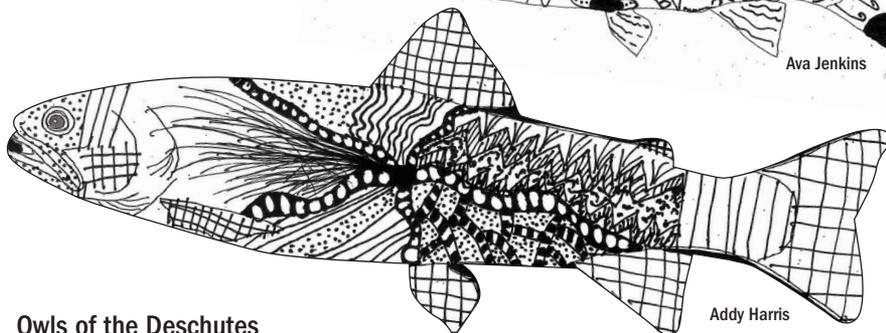
I was glad that was over.

Savannah West

Greyson Sheerer



Ava Jenkins



Addy Harris

Owls of the Deschutes

BY MAX VAN ESS & WESTON RENK

Owls are nature's most interesting predators as well as the most mysterious. There are over 200 species of owls in the world, and many, including the barn owl and great horned owl live in the watersheds of Deschutes River.

Owls are great hunters, with razor sharp talons and an even sharper beak. In addition, owls can rotate their heads 270 degrees and can hear a mouse step on a twig 75 feet away! Their prey have a pretty slim chance of going anywhere without owls knowing. This makes the owl one of nature's most feared birds. However, owls have predators too. Animals such as eagles love to eat owls for dinner. Baby owls face even more danger at the hands of snakes. Owls will sometimes even eat other owls! The barn owl is easy prey due to it's small size.

In conclusion, owls may be the coolest animals on earth, and we would like nothing more than for you to experience the owls of the Deschutes for yourself. *And who knows?* Now that you are an owl expert, you might see one firsthand!

Black Bears BY ADRIANA BULL & CORAL REED

Have you ever heard of a *Ursus Americanus*? You might think that you haven't but, you probably have. The common name is American black bear. Not all black bears are black. Their fur can range in color from pure white to a cinnamon color to very dark brown or black. The black bear has shaggy fur and a short tail. The body and legs are short. The head is broad with erect, rounded ears. The muzzle, grizzled with brown, is long and narrow.

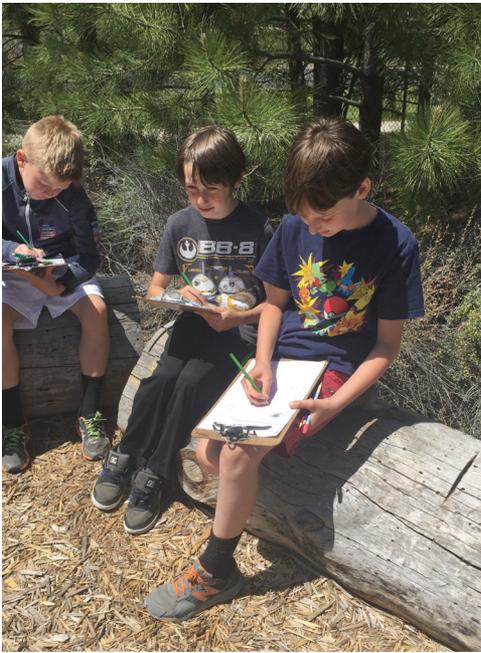
Black bears range in forty states in the United States, Canada, and Mexico. Black bears are primarily found in forested areas with thick ground vegetation and an abundance of fruits, nuts, and vegetation. Black bears are found throughout swampy areas, abandoned fields, hardwood forests, softwood forests, and mixed forests. The current population estimate of black bear is 750,000 in North America. Another interesting fact is Black bears are also good swimmers, and will enter water in search of fish. Also black bears use different sounds to express emotions. For example, when they are relaxed they combine a lot of grunting sounds and when they are scared, they make a loud blowing noise. One more interesting fact is many people think that black bears aren't able to run that fast, as a matter of fact they are excellent runners and have the ability to run uphill and downhill as well as they do on flat ground.



The Red Fox BY SAVANNAH WEST, MARLEY LEAVITT & ELLA JONES

The red fox lurks all around the Deschutes River. The red fox is also known as *Vulpes*. What is a red fox you ask? The red fox is just one of the 21 species of foxes. A red fox is the size of a small dog and is well known for its large bushy tail. They only live up to two to four years! The red fox is an omnivore; it eats grasses, birds, and small animals.

The red fox lives in dens that can be found in grasslands, forests, mountains, and deserts. Foxes mate together in their dens and each red fox has a litter that can include between one to ten kits that are usually born between March and May. The predators that red fox need to watch out for are large cats, coyotes, wolves, and jackals. Did you know that a group of foxes is called a skulk or a leash? Also, foxes have whiskers on their legs and faces and they have about 28 different calls to connect to each other! Maybe someday you will hear one of their calls or will see a red fox at the Deschutes River someday.



Rainbow Trout

Rainbow trout are cool.
They swim freely in water
Swimming really fast.

Andres Alvarado

Rabbits BY WESLEY McGOVERN & PEARSON CARMICHAEL

Rabbits live everywhere around the world except for Antarctica, but in this case we are talking about the great ponderosa pine forest rabbits that live in burrows underground called warrens. Did you know that half the world's population of rabbits live in America? The habitat where they live is anywhere from mountains to deserts. They can live almost everywhere! If a rabbit lives in the forest they will eat grass, clover, wildflowers, weeds and farm or garden crops but when winter rolls around their diet shifts to buds, twigs, bark, conifer needles and practically almost any plant.

Rabbits are small furry mammals with long ears and small fluffy tails with very strong hind legs; rabbits can jump farther than a queen size bed and as high as a dining room chair. Rabbits will usually live about a span of three years in the wild. They are scientifically called *Oryctolagus cuniculus* (ora-tig-u-las coo-nick-u-las). Since rabbits are so small they make easy prey. Luckily, they have excellent hearing and almost 360 degree vision because of the way their eyes are set. Rabbits are one of the 68 small mammals of the Upper Deschutes that inhabit the river corridor. Rabbits are native to Oregon and the most common species of rabbits are the pygmy rabbit, brush rabbit, and mountain cottontail.





Julia Kaisner

Woods Rose

BY JULIA KAISNER & MARLEY LEAVITT

Walking in Ryan Ranch you might see something pink peeking out of the forest. If you do, that is a flower called woods rose, but it is also known by its scientific name *Rosa woodsii*. Woods rose fruits are a good source of energy and protein. Animals that eat woods rose are squirrels, deer, coyotes, and bears. It also feeds bees in the summer. Woods rose is used for flavoring in tea, jelly, fruit cake, and pudding. It also has vitamin C.

Woods rose grows in western North America. Woods rose adapts to a broad range of moisture conditions. It grows in the alpine forest, and is also found on dry slopes, river banks, and disturbed sites. Woods rose really helps the riparian zone because its roots clench the soil to keep it from going in the clean river water. The color of woods rose petals are pinkish purple. The stems have prickles that are either straight or slightly curved. They grow around three to five feet. Woods rose stems are reddish brown to gray. If you go to Ryan Ranch in the winter hoping to see the beautiful pink flower but you can't seem to spot it, that's because it just looks like a bundle of twigs in the winter.



Manzanita BY MAX HIMSTREET & COLLIN BURGESS

Before I say anything else you should know the scientific name of manzanita. It is *Arctostaphylos*. In Canada they call it Arbutus. The botanical name is *Malpighiaglabra*. Other names of the manzanita are Acerola, Antilles Cherry, Barbados Cherry, Cereza Colorada, French Cherry, Puerto Rican Cherry, and Wild Crapemyrtle. There are 105 types of Manzanita. You might have seen one of them because 95 of them grow in the Mediterranean Climate. That means they grow in Washington, California, and Oregon. Not in the part of Oregon near Idaho, but the part of Oregon near the ocean. Wait, where are the other ten types? I know! They are somewhere over the rainbow in eastern California. Somehow, California is a good place for them to thrive and live in general. You might think that they would be pretty small, but they actually grow up to 20 feet tall! Unlike other plants, the manzanita bush always blooms in the winter. When they have bloomed and have grown a tremendous amount they sprout berries. The leaves are pear-shaped and are used for medicinal teas. These teas help cure diseases like diarrhea and dysentery. On a brighter note, the tea is also used as a cold medicine and to cure liver ailments.



Max Himstreet

Manzanita bark is so strong that people use it for construction and building. The parts of a manzanita bush can also be made into a cement-like substance that when dries,

can be as strong or even stronger than concrete. It requires the perfect ratio of berry juice and branches to get the strongest cement. Something else you can think about are the culinary uses! The berries are sometimes used for flavoring or intensifying, kind of like salt. The berries can be used to make jelly and juices. Yum! They can also be made into coarse meal. Coarse meal is a food that is kind of like granola, but not as chunky. Manzanita can also be used as ornamental plants.

Manzanita

- Manzanita, bright red bark.
- Manzanita, hiding in the dark.
- Manzanita, pink, flowering buds.
- Manzanita, sometimes has bugs.
- Manzanita, bright green leaves.
- Manzanita, pollinated by bees.
- Manzanita, suited to the weather.
- Manzanita, best plant ever.

Collin Burgess

Ponderosa Pine

BY ADRIANA BULL & CORAL REED

Most people know what a ponderosa pine tree is, but scientists know it as the *pinus ponderosa*. Ponderosa pine tree needles come in bundles of three. The bark on ponderosa pine trees flake off into little pieces that look like jigsaw puzzle pieces. Older trees have more of a distinct yellow or orange color. A typical tree grows around 60 feet tall with a branch spread of about 25 feet.



Ponderosa pines are home to many wildlife species but several animals are found almost exclusively in pine forests. A couple of these are the tassel eared or Abert's squirrel and the brown creeper. Few mammal species are so closely tied to a particular tree as this squirrel is to ponderosa pine. The bushy tailed squirrel uses the tree for nesting, shelter, and food feeding on the ponderosa's seeds and the tree's cambium layer. If you explore around the Deschutes River, you will likely see many tall and beautiful ponderosa pine trees providing a nice shady canopy that can help keep the river water cool. If you do see a ponderosa go smell it because, it will probably smell like vanilla.



Quaking Aspen

BY ADDY HARRIS & ELLA TADJIKI

If you have ever been to Ryan Ranch you might have seen some deciduous trees across the river. They are orange, yellow, and sometimes red. They make a sound like trembling or quaking as the wind blows through the leaves. These are called quaking aspen trees. Now, besides the unique name, there are other cool things about these trees. I guarantee that you will be an expert on these trees by the time you finish reading this.

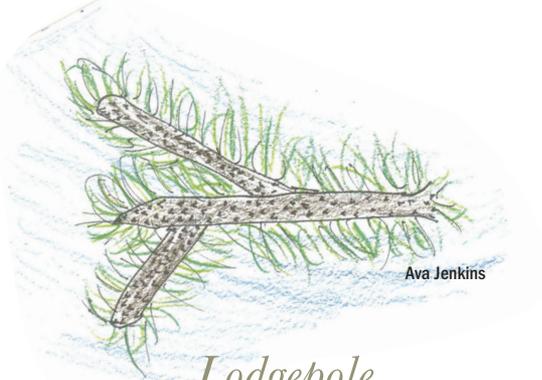
Quaking aspen trees can be orange and yellow.

They can even be green! Quaking aspens usually grow up to 50 feet. They also grow from sea level up to an altitude of 7,930 feet, and can grow 20-30 feet away from each other. Even with the smallest bit of wind, the leaves will make a beautiful sound such as a trembling sound. Also, the quaking aspen has a scientific name which is *Populustremuloides*.

Lodgepole Pine

BY NIKKI TRAPNELL & WESLEY MCGOVERN

Lodgepole pine is a special kind of tree that needs fire to open its cone to release seeds. Fire can also leave a clear bed of ash where new trees can grow. Lodgepoles grow slim, tall and straight and even today they can be used for log cabins. Many Native Americans tribes would travel to the Rocky Mountains to fasten “lodgepole” for tipis and lodges. The lodgepole pine can be expected to grow in hardiness zones 4-8. The lodgepole pine is an evergreen tree so it keeps its needles year-round. The lodgepole pine grows to a height of 70-80 feet and can have a spread of branches that span around 20 feet at maturity. The lodgepole pine tree grows at a slow to medium rate, with height increases from less than 12 inches to up to 24 inches per year. Full sun and partial shade are best for this tree to grow. The lodgepole pine tree grows in acidic, loamy, moist, rich, sandy, silty loam, well-drained and clay soils. Some attributes of this tree are that it adapts to a variety of soil types, can be quite ornamental when young, and has a long, slender pole-like trunk.



Lodgepole

O' Lodgepole, so tall and strong
 Native Americans would travel to use you.
 O' lodgepole, you are used for log cabins.
 You whisper in the winds.
 O' lodgepole, your cones open in fire burning bright.
 Your needles feed the many.

Wesley McGovern

Juniper BY ANDRES ALVARADO

Juniper trees, *Juniperus occidentalis*, live in Central and Eastern Oregon. They can survive extreme cold and heat, although fires can easily kill them. Junipers produce berries that birds and rodents love to eat and this helps to spread new juniper trees around the area. What is strange about junipers is that most trees prefer moist conditions and would not survive in dry areas. Juniper trees can live in both. They love dry conditions and will thrive in them but they can also be found in rocky places throughout the Cascade Range. Juniper wood has been described as “light as gold” and it has a wonderful smell.



Now here's the thing: true, humans should not eat the berries. However, it is false to say that we cannot use them for other resources. People use them to make gin and the berries have become popular for sauces and liqueurs. The berries have been used for medicine by Native Americans for many years and are still used to combat digestive problems.

Willows

Tall and strong

Yet soft and gentle

Tears rolling down the faces of leaves

Making their own rhythm

Willows

Standing tall in the wind

Gently swaying

Roots working like straws

Reaching for the river

Willows

Always looking long

Willows

Gavin Willard

Willow BY GAVIN WILLARD & JONAS KIM

Do you know that willow bark is effective in treating back pains? Ever heard of Salix? Probably not because most know it as a willow. The scientific name for willow is Salix and for a higher classification it is called a Salicaceae. The willow also can be known as sallow and osiers. The weeping willow got its name by the rainwater falling off its leaves that resembles tears.

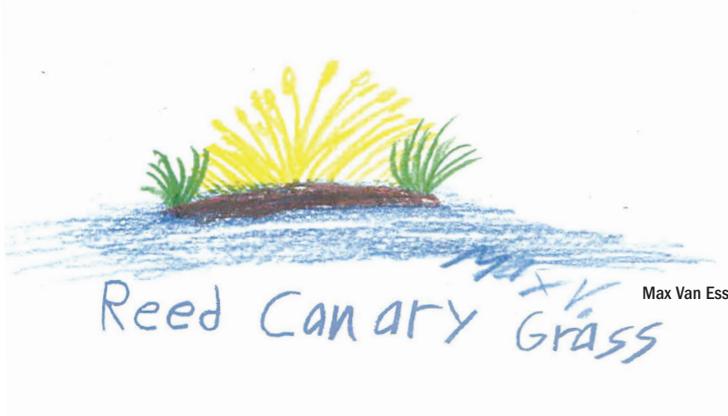
Willows are some of the fastest growing bushes and trees on Earth. Sometimes willows grow really tall-- up to 70 feet high! They are found in the Northern Hemisphere. Speaking of the Northern Hemisphere, over one hundred different types of willows grow in North America! Willows are deciduous, which means they lose their leaves in the fall. A variety of different type of willow bushes can be found growing along the Deschutes River in the riparian zone at Ryan Ranch. The roots of willow trees hold onto the streambank soil so it doesn't erode into the river. Willows can also provide shade for the river which can help keep the water nice and cool.



Reed Canary Grass

BY MAX VAN ESS, WESTON RENK & PEARSON CARMICHAEL

Reed canary grass is one of the most invasive species on the planet. Brought over from Asia, reed canary grass contains high levels of DMT (Dimethyltryptamine), a type of addictive drug. It also poses a massive threat to marshes and wetlands, due to its aggressive growth. Unfortunately, reed canary grass can be found at a variety of locations along the Deschutes River. However, with your help, we can make sure that this terrible plant ceases to plague the Deschutes any longer. You can help by making sure to throw away any reed canary grass you happen upon. It looks just like wheat, and typically is 2-9 feet tall. In contrast though, wheat is only about four feet tall. DMT has been known to cause severe hallucinations, so be careful, especially around young children and dogs.





The Deschutes River Legacy Project



Thank you to Julie Stirling for making the Deschutes River Legacy Project a reality for her students! Through this year-long watershed education project, there are now 25 more engaged stream stewards who have been inspired to explore and protect the Deschutes River. Thank you to those creative, enthusiastic, and always inquisitive students.

To the students: As you finish elementary school and move into the next incredible phases of your life, may you always find ways to step onto the trail, step into the creek, and step into your life with a positive sense of self and an inspired sense of place.

Mrs. Stirling's Amazing Stream Stewards

Andres Alvarado
Osiris Bretoi
Adriana Bull
Collin Burgess
Pearson Carmichael
Lucas Clark
Addy Harris
Ben Hill
Max Himstreet
Aidan Jacobus
Ava Jenkins
Ella Jones
Julia Kaisner
Jonas Kim
Marley Leavitt
Wes McGovern
Reese O'Brien
Coral Reed
Weston Renk
Greyson Sheerer
Ella Tadjiki
Nikki Trapnell
Max Van Ess
Savannah West
Gavin Willard



The Upper Deschutes Watershed Council seeks to protect and restore the watersheds of the Upper Deschutes River through collaborative projects in restoration, monitoring, and education.