

# Keisha's Preserve Nature Guide



Natural history of Kiesha's Preserve and the surrounding areas.



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# Wildlife Corridors



The Western Wildway connects the Brooks Range of Alaska with the Southern Occidental Range of Mexico. It is over 6,000 miles long.

## What is a wildlife corridor?

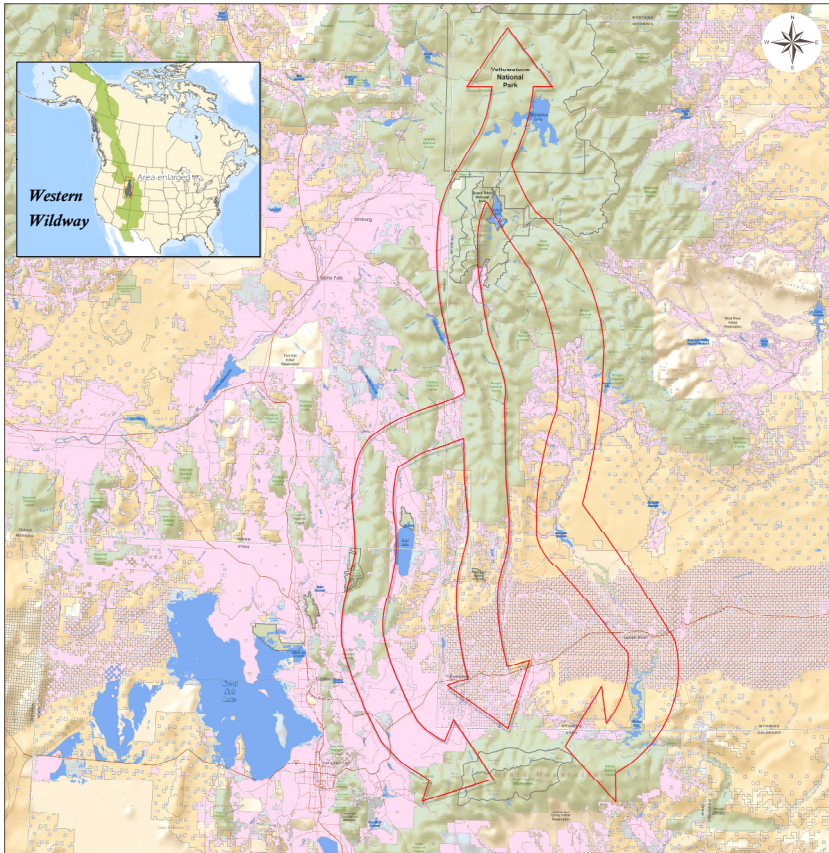
A wildlife corridor is a link of wildlife habitat which joins two or more larger areas of similar wildlife habitat. Corridors are important for helping maintain genetic diversity by allowing wildlife populations to cross breed. As humans construct cities, roads, mines and other developments, wildlife corridors become fragmented. It is important for people to help protect these corridors so that we can continue to enjoy the many wildlife species in our region and beyond.

# Yellowstone to Uintas Wildlife Corridor

The Yellowstone to Uintas Wildlife Corridor connects the Greater Yellowstone Ecosystem in Northwestern Wyoming to the Uinta Mountains in Northeastern Utah. The corridor is over 350-miles long. The three arrows represent three common pathways that wildlife species take as they travel through this corridor.

## Yellowstone to Uintas Wildlife Corridor

[yellowstoneuintas.org](http://yellowstoneuintas.org)



### Yellowstone to Uintas Wildlife Corridor

Wildlife Corridor

Protected Areas

Yellowstone National Park, Grand Teton National Park, Fred Beale National Monument, Bear Lake National Wildlife Refuge, National Elk Refuge, High Uintas Wilderness, Mount Nebo Wilderness, Teton Wilderness, Wingate Hole Wilderness, Snakehead Mountain Wilderness, and Bear River Migratory Bird Refuge

### Boundaries and Land Ownership

Town Boundaries  
National Park Service, US Forest Service, and US Fish Wildlife Service  
Bureau of Land Management  
State Lands  
Private Lands

### Other References

Interstates  
Other Highways  
Intermittent Streams  
Rivers and Streams

### Map Inset Legend

Yellowstone to Uintas Wildlife Corridor Location  
Western Wildway Wildlife Network  
US States and Canada Provinces

Scale: 1:50,000  
Map Date: 1/2010  
Coordinate System: NAD 83  
Data Source: Various  
Map Projection: UTM  
Scale: 1:50,000

Map Data: Various  
Map Design: Various  
Map Production: Various  
Map Distribution: Various

# The Bear River Range

The Bear River Range is a 75-mile long mountain range that runs north-south through Idaho and Utah. Logan Canyon bisects the mountain range and is a popular route for motorists and recreationists.

These mountains are a critical wildlife corridor within the larger Yellowstone to Uintas Wildlife Corridor. Predator species like mountain lion commonly use the higher elevations of the range to travel from north to



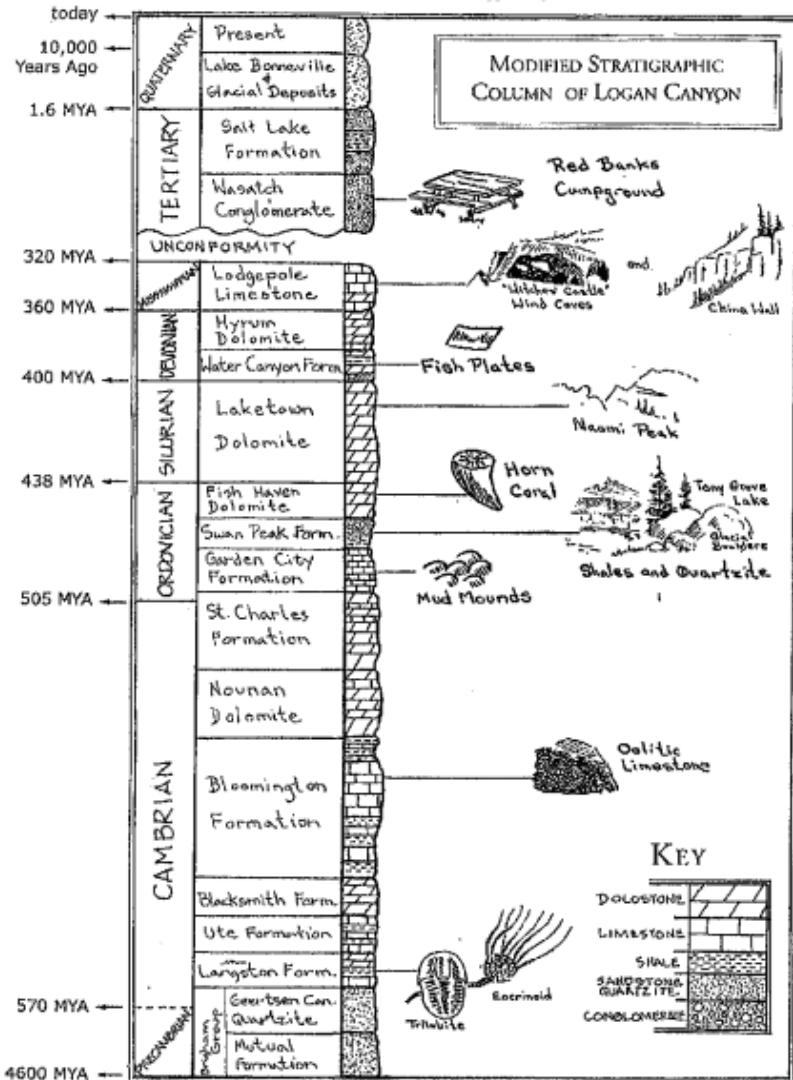
south. Along with predators, the range also provides habitat for prey species like elk and deer, as well as many streams and tributaries that are home to Bonneville cutthroat trout and other aquatic species. You might even find a Golden Eagle or Boreal Toad! While many wildlife species use this mountain range, so do people. Many ranchers graze cattle on public land within the Bear River Range while others come from all around to hike, fish, hunt and camp.

The Bear River Range and Logan Canyon have a unique history, plants, animals and geologic formations. Read on to learn more!

# Geology of the Bear River Range

Our mountains are evidence of millions of years of history. The Bear River Range contains fossilized proof of an ancient lake that once filled Cache Valley and most of western Utah. The types of rocks and the ways they are layered also tell a story of the historic past.

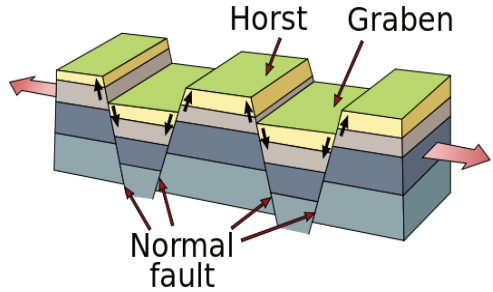
## Geologic Layers of Logan Canyon



\*MYA = millions of years ago

# Geology of the Bear River Range

Graben - Did you know that Cache Valley slowly sinking? This is because the valley has faults on either side, so the valley sinks as the mountains continue to rise. This is known as a graben.



Limestone cave at Rick's Spring.

Karst geography - Limestone and dolomite rock layers are eroded by water, forming underground caves. This is known as karst geography. Over a hundred caves have been discovered in the Bear River Range. Some of these caves are over 1,000 feet deep!

## A Geologic Mystery

Did you know that the Bear River Range contains a massive geologic mystery? The range is made of many layers of rock, but one is missing! There is a 400 million year old rock layer that has 40 million year old layer on top of it. These mountains are missing a rock layer layer that consists of over 300 million years of geologic time! Where this material now resides is unknown.

## Major Rock Types



Limestone  
(calcium carbonate)



Dolostone  
(calcium magnesium carbonate)



Sandstone  
Quartzite



Shale



Conglomerate

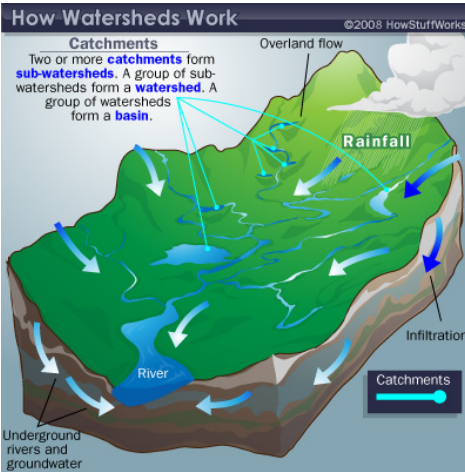


# Watersheds

A watershed, also known as a drainage basin, is an area of land where precipitation collects and drains off into a common outlet such as a river, bay or other body of water. These drainage basins

include surface water such as rain runoff and snowmelt, as well as ground water underneath the Earth's surface.

Many small watersheds can make up a larger watershed. The Logan River Drainage (580 square miles), for example, is part of the Bear River Watershed (7500 square miles).

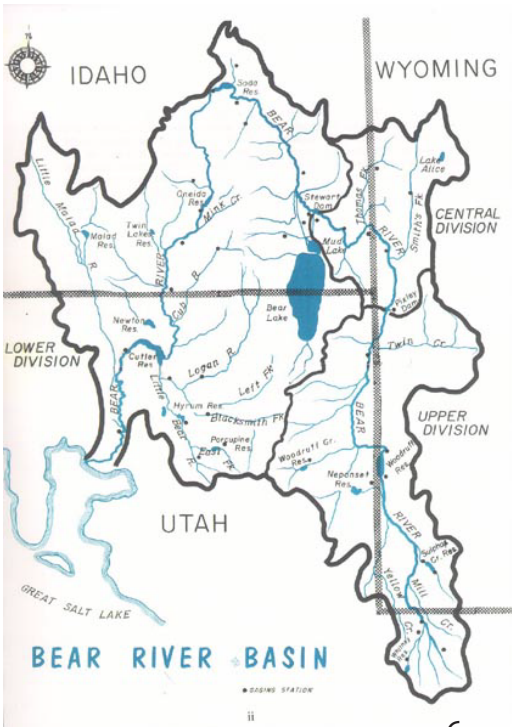


## Why are watersheds important?

For both the people and wildlife living in a watershed, what happens upstream can have impacts downstream. Activities such as livestock grazing, mining and road construction can introduce pollutants to streams.

The Bear River Watershed encompasses parts of Wyoming, Idaho and Utah. This means what another state does can impact the water quality of Utah.

What human activities impact the watershed you live in?



# Riparian Areas

The Bear River Watershed is 7,500 square miles and encompasses both high mountain peaks and low valley bottoms. The locations where water collects provide critical habitat to many organisms.

## What is a riparian area?

A riparian area is the land along a body of water. One key characteristic of a riparian area is hydrophilic, or water-loving, plants like willows. These areas provide habitat for many species.



Riparian restoration area in the northern Bear River Range.

Riparian vegetation stabilizes stream banks and filters pollutants. It's important not to trample or excessively disturb these areas.

## Disappearing Wetlands

50% of historical wetland areas in the US have been destroyed. Wetlands are often filled so that the area can be used for agriculture, or paved over when new roads, parking lots, businesses, and homes are built.



After previous failed attempts at crop production in this area, the original wetland is being restored.

## Ecosystem Engineers

The American beaver was almost trapped out of existence in the United States in the 1800s. Now, science is showing that the dams created by these busy rodents lead to many ecosystem benefits including increased water storage, flood prevention, and habitat for insects, birds, and fish.



Utah State University researchers count beaver dams in Temple Fork.

# Bear River Range History

**4,000 BC** - Early nomadic Native Americans first arrived in Northern Utah

**1770** - Shoshone Native Americans acquired horses and occupied parts of Utah

**1827** - Excessive hunting and a cold winter killed off many bison

**1800s** - European trappers began storing beaver pelt caches up Logan Canyon

**1840** - Fashion trends change and trapping declines

**1855** - First LDS pioneers arrive in Logan

**1869** - Toll road is built in Logan Canyon



Temple Fork Sawmill - 1880



Flock of Sheep in Logan Canyon

**1870s** - Sheep and cattle grazing begins throughout Logan Canyon

**1880s** - Timber is hauled from the canyon to construct buildings, make railroad ties, and build the Logan tabernacle

**1895** - First hydropower plant is built at second dam

**Early 1900s**- Overgrazing by sheep and cattle devastate vegetation and cause unprecedented topsoil loss.

**1903** - President Roosevelt creates the Logan Forest Reserve

**1927** - 79,000 cars pass through the canyon in summer 1927

**1930s** - The Civilian Conservation Corp is created to help pull America out of the Great Depression. CCC employees work to improve outdoor recreation opportunities in Logan Canyon.

**1932** - USU agriculture college holds a competitive ski tournament at Tony Grove

**1939** - First ski lift at Beaver Mountain runs on car engine, the main ski resort is built 10 years later

**1939** - Logan Canyon road is now open year round

**1953** - A C-47 airplane crashes near Beaver Mountain, killing 40

**1984** - Mount Naomi Wilderness designated by U.S. Congress

**1985** - Massive Woodcamp avalanche blocks U.S. highway 89



Woodcamp Avalanche - 1985

# Story of Old Ephraim

In the early 1900s, a massive, 9 foot 11 inch tall bear became very well known in Logan Canyon for preying on sheep. Named Old Ephraim, he was known for his deformed foot, which had only 3 toes, making it easy to recognize his prints.



In 1913, a trapper named Frank Clark set out to catch and kill Old Ephraim. After 10 years, Clark finally shot and killed the bear. Old Ephraim's skull is still on display in the Merrill-Cazier Library at Utah State University.

## Should predators be reintroduced?



Since the US was colonized by European settlers, our country has had a long history of hunting predators like wolves, coyotes, cougars and bears, in some cases almost to extinction. Today, scientists recognize that predators play an

important role in their ecosystems. For example, predators often eat the sick and unhealthy deer, helping maintain the health of the herd as a whole. For this reason, predators have been reintroduced to some areas in the Western US. Wolves from Canada were reintroduced in Yellowstone National Park in 1995.

What do you think about predator reintroduction? Should humans bring back predators to places like the region?

# Recreation

The Bear River Range has outstanding scenery, wilderness, and many endemic species found nowhere else on earth. This makes the region a great place for recreating!



Tony Grove Lake

## How do you recreate?

Circle the ways that you recreate or put a star by the ones that you want to try!

- |                     |             |              |
|---------------------|-------------|--------------|
| Hiking              | Backpacking | Camping      |
| Horseback Riding    | Birding     | Hunting      |
| Fishing             | Rapelling   | Climbing     |
| Skiing/Snowboarding | Sledding    | Snowmobiling |
| Snowshoeing         | ATV/OHV     | Other _____  |

## Hiker's Log

Date: \_\_\_\_\_ Trail: \_\_\_\_\_

Date: \_\_\_\_\_ Trail: \_\_\_\_\_

Date: \_\_\_\_\_ Trail: \_\_\_\_\_

Date: \_\_\_\_\_ Trail: \_\_\_\_\_

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Date: \_\_\_\_\_ Trail: \_\_\_\_\_

Date: \_\_\_\_\_ Trail: \_\_\_\_\_

# How do Humans Impact Ecosystems?

The Bear River Watershed is made up of land that is owned by many different entities and used in many different ways. This map highlights private and federally owned (public) lands. Public lands are managed for multiple uses such as harvesting timber, mining for phosphate, grazing cattle, and providing people with places to recreate.



All of these different land uses can have different impacts on the plants, wildlife, and water within the Bear River Watershed. Toxic substances from motorized vehicles can pollute water and soils. Noise and light can be a source of pollution too, which scare and confuse animals. Creation of new trails as well as overgrazing livestock can lead to erosion of soils.

What are some other ways humans impact ecosystems?

It's important to think about how we can use and manage land so that people can continue to enjoy the great outdoors.

## Leave No Trace Seven Principles

1. Plan Ahead and Prepare
2. Travel and Camp on Durable Surfaces
3. Dispose of Waste Properly
4. Leave What You Find
5. Minimize Campfire Impacts
6. Respect Wildlife
7. Be Considerate of Other Visitors



**Leave no trace.**

# What is Conservation?

Conservation is the preservation or protection of the natural environment, natural ecosystems, vegetation, and wildlife. Sometimes restoration, helping an area become healthy again, must occur in order for conservation efforts to be effective.



Y2U Director, Jason Christensen, and Forest Service employees survey a recently-restored section of Paris Creek. These headwaters were closed to grazing as part of an effort to restore and conserve the critical riparian habitat.

There are over 7 billion people on the planet, with more on the way. Because of this, it is important to find a balance between the needs of humans and the ecosystem.

There are many ways to practice conservation. Consider challenging yourself to make these easy changes in your daily life that contribute to conservation:

- Practice the Leave No Trace Seven Principles
- Turn off the faucet while you brush your teeth
- Turn lights off when you leave the room
- Bring reusable bags to the store
- Recycle plastic, glass, and metal

There are many people in your community who have made conservation a priority in their lives, some have even made it a career! Have you ever considered becoming a wildlife biologist, a geologist, a science teacher, a fishing guide, or another environmental steward?

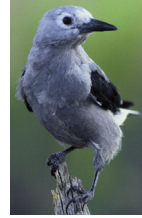


Y2U summer research technician sets up trail cameras for a wildlife survey in the Bear River Range.

# Wildlife of Kiesha's Preserve

Have you ever seen an animal while out on a hike and wondered what it was? Knowing your local wildlife can make your time spent outside even more exciting! Use this section of your field guide to learn about some interesting Logan Canyon wildlife species and what they look like.

**Clark's Nutcracker** - Black and white bird with long, dagger-like bill used to dig into pine cones and extract seeds. They create large underground stashes of seeds for winter.



**Golden eagle** - This powerful hunter has been known to take on foxes and cranes. They were important to many Native American tribes who ascribed mystical powers to the bird for its strength and courage.



**American dipper** - Common in fast-moving high mountain streams, the Dipper can be seen flying low over the water or perched on a rock bobbing its body up and down as it searches for aquatic insects.



**Dusky grouse** - This bird, about the size of a small hen, often startles hikers when it suddenly springs out of the bushes to escape a perceived threat. Listen for a series of deep hoots in spring when male Dusky Grouse are singing to attract mates.



**Beaver** - Nocturnal mammal that feeds on riparian vegetation. Beavers are "ecosystem engineers," meaning they build dams that create wetlands, thereby making habitat for other aquatic species.





# Wildlife of Kiesha's Preserve

**Striped skunk** - This nocturnal mammal is about the size of a house-cat. It eats insects, small mammals, fruit, nuts, grass and dead animals. Skunks often live in abandoned burrows and dead logs.



**Uinta ground squirrel** - This small mammal resides in a burrow system with several dozen other squirrels. They are usually active during early morning to mid-afternoon. There is a Uinta Ground Squirrel subspecies near Tony's Grove.



**Chipmunk** - Chipmunks are small, striped rodents of the family Sciuridae. Chipmunks are found in North America, with the exception of the Siberian chipmunk which is found primarily in Asia.



**Bobcat** - This carnivore hunts in solitude across 25-30 square mile territories. They feed on small mammals, birds, and occasionally, young deer. Bobcats have one primary den with multiple sub-dens. Look for their short-cropped tail.



**Cougar** - Also called a mountain lion, these carnivores range from Canada to South America. They are an ambush predator that mainly feeds on deer.



# Wildlife of Kiesha's Preserve

**Coyote** - Coyotes are hunted in Utah for bounty. However, they play an essential role in the ecosystem by keeping small mammal populations in control.



**Elk** - These ungulates are also called "wapiti". Male elk are known for their characteristic mating behaviors which include antler wrestling (sparring) and bugling.



**Moose** - Moose are often found feeding on riparian vegetation in streams, wetlands and wet meadows. Look for the characteristic broad, plate-like antlers that differentiate them from other ungulates.



**Rubber boa** - This illusive snake is rare to see in Logan Canyon. If you're lucky enough to spot one, you're sure to notice the smooth, glossy scales and rubber-like texture that give it its name. This snake is nonvenomous.



**Great Basin gopher snake** - This nonvenomous snake is often mistaken for a rattlesnake. While it has neither venom, nor a rattle, it can produce a very loud hiss using a filament of flesh in it's mouth.



# Trees of Kiesha's Preserve

**Limber pine** - This tree grows at high elevations and often lives over 2,000 years. Their needles are clustered in groups of five. The tree is called a Limber Pine due to its flexible branches.



**Lodgepole pine** - This tree usually grows straight and thin. This is a fire-dependent species, needing the heat of fire to open its pine cones and release seeds. Its needles are clustered in groups of two. The cones are asymmetrical, closed, and remain attached to the tree for years.



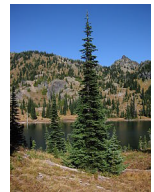
**Engelmann spruce** - This tree has a spire-like crown (top of the tree). Native peoples used the root fibers to sew the seams of bark baskets. Look for loose, scaly, reddish-brown bark. The cones are 1" to 2 1/2" long and the needle tips are sharp.



**Douglas fir** - Although not a true fir, this tree resembles true firs with its flat-tipped, single needle. The distinct cones are often said to resemble the back end of mice that have crawled up under the scales of the cone.



**Subalpine fir** - This tree is found just below the treeline, or the alpine zone. The needles are less than 2" and a dark blue-green color. The tree is adapted to live most of the year under snow. They can even survive being bent in half by snow!



**Utah juniper** - This tree has small grey-blue fruiting bodies that look like berries. Native Americans found many uses for this tree, using the twigs and berries to treat burns, colds, worms, and even smallpox and measles.



**Quaking aspen** - These trees can reproduce asexually by producing clones from one massive root system. The largest living organism is "Pando", a clonal aspen stand in Utah.



# Shrubs of Kiesha's Preserve



## **Serviceberry**

Red/purple berries and serrated, ovular leaves



## **Snowberry**

Important winter food for quail, pheasant and



## **Rabbitbrush**

Can be used to make yellow dye.



## **Currant**

Distinct leaves have 3-5 lobes. The flowers and fruit are set in a line under the branches.



## **Chokecherry**

The tart chokecherry berries are range in color from red to black and are edible.



## **Sagebrush**

The dominant plant in arid parts of the Western US. It provides habitat for species like sage grouse and deer.

# Grasses of Kiesha's Preserve



## **Mountain brome**

Can grow as tall as five feet, often establishes easily in disturbed sites



## **Great basin wild rye**

Excellent nesting cover for upland birds.



## **Bluebunch wheatgrass**

Drought tolerant, good forage for livestock, elk and deer.



## **Smooth brome**

Seedheads are purple-brown at maturity.



## **Kentucky blue grass**

Widely cultivated for lawns, needs lots of water.

# Flowers and Forbs of Kiesha's Preserve



**Silvery lupine**

This purple flower often re-colonizes disturbed areas.



**Indian paintbrush**

Flower petals can be used to treat joint pain.



**Wasatch penstemon**

These dense, blue flowers usually bloom in late May.



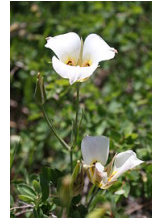
**Tall butterweed**

Serrated leaves, grows along streams and lakes.



**Buttercup**

Small yellow flowers bloom April-July.



**Sego lily**

State flower of Utah!



**Western yarrow**

Dense white flowers with hairy, fern-like leaves.



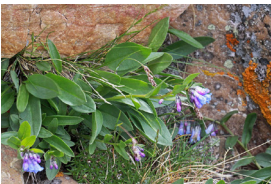
**Richardson's geranium**

Small purple flowers with hairy stems. Flowers are edible.



**Arrowleaf balsamroot**

This plant resemble a sunflower and has arrow-shaped leaves.



**Mountain bluebell**

The flowers resemble little blue bells. Both the flowers and leaves are edible. Often grows in moist areas.



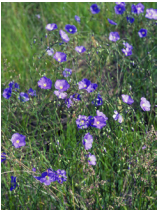
**Wild rose**

The fruits of wild rose are called rose hips. This plant is a shrub.



**Purple aster**

Grows 3 to 5 feet tall. Excellent attractant for pollinators.



**Blue flax**

Grows 18-20 inches tall with many small blue flowers.



**Ladies tresses**

Native orchid with small white flowers that grow in rows spiraling



**Foothill death camas**

Small white flowers grow in cone shape. This plant is toxic!



**Larkspur**

These pretty purple flowers are very toxic.



**Poison hemlock**

Clusters of small white flowers with fern-like leaves. Poisonous!



**Stinging nettle**

Serrated leaves. Stems and leaves contain chemicals that cause a painful stinging sensation.



**Dogbane**

This poisonous plant causes cardiac arrest when ingested. The redish stems can cause skin blisters.

## Invasive Plants

Invasive species are non-native plants. They spread across the landscape and often out-compete native species. Many of these plants thrive in areas of disturbance.



**Canada thistle**

Aggressive perennial weed with sticky flowers. Usually infests in disturbed areas (along roads and ditch banks).



**Cheatgrass**

This grass does well after wildfires and changes the way fires spread in the west.



**Hound's tongue**

This species is invasive to North America. Its name comes from the roughness of the leaves. It is toxic to cattle.

# Wildlife Log

Put a tally next to each critter you see. When you run out of space, start your own Wildlife Log in a separate journal.

## Birds

- \_\_\_\_\_ Clark's nutcracker
- \_\_\_\_\_ Golden eagle
- \_\_\_\_\_ American dipper
- \_\_\_\_\_ Peregrine falcon
- \_\_\_\_\_ Dusky grouse
- \_\_\_\_\_ Sage grouse
- \_\_\_\_\_ Redtail hawk
- \_\_\_\_\_ Chickadee
- \_\_\_\_\_ Flicker

## Mammals

- \_\_\_\_\_ Bobcat
- \_\_\_\_\_ Cougar
- \_\_\_\_\_ Coyote
- \_\_\_\_\_ Red Fox
- \_\_\_\_\_ Moose
- \_\_\_\_\_ Elk
- \_\_\_\_\_ Mule deer
- \_\_\_\_\_ Beaver
- \_\_\_\_\_ Weasel
- \_\_\_\_\_ Mink
- \_\_\_\_\_ Cottontail
- \_\_\_\_\_ Red squirrel
- \_\_\_\_\_ Flying squirrel
- \_\_\_\_\_ Badger
- \_\_\_\_\_ Striped skunk
- \_\_\_\_\_ Uinta ground squirrel
- \_\_\_\_\_ Chipmunk
- \_\_\_\_\_ Rockchuck
- \_\_\_\_\_ Porcupine
- \_\_\_\_\_ Muskrat

## Reptiles & amphibians:

- \_\_\_\_\_ Great Basin gopher snake
- \_\_\_\_\_ Great Basin rattlesnake
- \_\_\_\_\_ Common garter snake
- \_\_\_\_\_ Rubber boa
- \_\_\_\_\_ Yellow bellied racer
- \_\_\_\_\_ Fence lizard
- \_\_\_\_\_ Sage lizard
- \_\_\_\_\_ Boreal toad
- \_\_\_\_\_ Leopard frog
- \_\_\_\_\_ Tiger salamander

## Insects:

- \_\_\_\_\_ Tiger swallowtail butterfly
- \_\_\_\_\_ Blue butterfly species
- \_\_\_\_\_ White butterfly species
- \_\_\_\_\_ Sulfur butterfly species
- \_\_\_\_\_ Morning cloak butterfly
- \_\_\_\_\_ Angel wing butterfly
- \_\_\_\_\_ Tortoiseshell butterfly
- \_\_\_\_\_ Dragonfly species
- \_\_\_\_\_ Damselfly species

## Other:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

# Plant Log

Identify these plants using your field guide. Check off each plant when you find it. *Italicized plant names indicate plants that aren't in your guide, but are common in the region.*

## Trees

- \_\_\_ Limber pine
- \_\_\_ Lodgepole pine
- \_\_\_ Engelmann spruce
- \_\_\_ Douglas fir
- \_\_\_ Subalpine fir
- \_\_\_ Utah juniper
- \_\_\_ Quaking aspen
- \_\_\_ *Mountain mahogany*
- \_\_\_ *Boxelder*
- \_\_\_ *Bigtooth maple*
- \_\_\_ *Cottonwood*

## Shrubs

- \_\_\_ Snowberry
- \_\_\_ Sagebrush
- \_\_\_ Rabbitbrush
- \_\_\_ Current
- \_\_\_ Serviceberry
- \_\_\_ Chokecherry
- \_\_\_ *Elderberry*
- \_\_\_ *Mountain ninebark*
- \_\_\_ *Mountain ash*
- \_\_\_ *Coyote Willow*

## Grasses

- \_\_\_ Kentucky blue grass
- \_\_\_ Great basin wild rye
- \_\_\_ Mountain brome
- \_\_\_ Bluebunch wheatgrass
- \_\_\_ Smooth brome

## Flowers/Forbs

- \_\_\_ Silvery lupine
- \_\_\_ Paintbrush
- \_\_\_ Wasatch penstemon
- \_\_\_ Sego lily
- \_\_\_ Dogbane
- \_\_\_ Larkspur
- \_\_\_ Tall butterweed
- \_\_\_ Richardson's geranium
- \_\_\_ Arrowleaf balsamroot
- \_\_\_ Western yarrow
- \_\_\_ Ladies tresses
- \_\_\_ Purple aster
- \_\_\_ Mountain bluebells
- \_\_\_ Blue flax
- \_\_\_ Buttercup
- \_\_\_ Poison hemlock
- \_\_\_ Foothill death camas
- \_\_\_ Stinging nettle
- \_\_\_ *English daisy*
- \_\_\_ *Mule's ear*
- \_\_\_ *Common milkweed*

## Invasive Species

- \_\_\_ Canada thistle
- \_\_\_ Hounds tongue
- \_\_\_ Cheatgrass
- \_\_\_ *Prickly lettuce*
- \_\_\_ *Western salsify*
- \_\_\_ *White top*
- \_\_\_ *Musk thistle*
- \_\_\_ *Dyers woad*



# Notes

# References

Kiesha's Preserve Photo: Jason Christensen

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"North American Wildways" map: Wildlands Network. <https://wildlandsnetwork.org/wildways/western/>

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"Yellowstone to Uintas Wildlife Corridor" map: Yellowstone to Uintas Connection. <https://yellowstoneuintas.org>

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Bear River Range map: Historical Topographic Map Explorer, USGS.

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"Modified Stratigraphic Column of Logan Canyon": Field Expeditions Naturalist Journal 2005, Stoke's Nature Center.

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"Graben" photo: US Geologic Survey (USGS), Wikimedia Commons.

Rick's Spring photo: Miami33139, Wikimedia Commons.

"Limestone": <http://sandatlas.org/limestone>

"Dolostone" photo: Wikimedia Commons

"Sandstone quartzite" photo: <http://sandatlas.org/quartzite>

"Shale" photo: <http://publicdomainpictures.net>

"Conglomerate" photo: [http://flexiblelearning.auckland.ac.nz/rocks\\_minerals](http://flexiblelearning.auckland.ac.nz/rocks_minerals)

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# Links for more information

Kiesha's Preserve - <https://kieshaspreserve.org>

Geology - <https://geology.utah.gov/>

Plants - <https://extension.usu.edu/rangeplants/>

Birds - <http://www.utahbirds.org/>

Endangered Species - <https://www.fws.gov/endangered/>

Wildlife viewing, fishing, hunting - <https://www.visitutah.com/things-to-do/nature-wildlife/>

Wildlife safety - <http://www.wildawareutah.org/>

Leave No Trace - <https://lnt.org/>

Hiking in Logan Canyon - <http://logancanyonhiking.com/Bear>

River Watershed - <https://www.bearriverinfo.org/>

Logan Canyon History - [http://hardnews.ansci.usu.edu/archive/nov1999/1107\\_can-history.html](http://hardnews.ansci.usu.edu/archive/nov1999/1107_can-history.html)











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