

Wildlife Express

VOLUME 39 | ISSUE 4

DECEMBER 2025

IDAHO ECOSYSTEMS

INSIDE:

Know the Lingo
What is an Ecosystem?
Idaho Has 4 Main Ecosystems



Sawtooth Photo: CC-BY Idaho Fish and Game #6028783

idfg.idaho.gov



KNOW THE LINGO

People use many different words to talk about nature. You will hear habitat, community, ecosystem, ecoregion and biome. Sometimes people confuse the words, so here's the low-down on the lingo for you!

The word **habitat** means a home. A habitat has everything a plant or animal needs to survive. It contains four things: food, water, shelter and space. If one part is missing, the plant or animal will not survive. If you hear someone say "mule deer habitat" or "sagebrush habitat," that person is talking about a place that can support mule deer or sagebrush. These are areas where mule deer or sagebrush can live.

You are probably familiar with the word **community**. You live in a community. A community is a group of people living in the same place. In nature, the word community is a bit different. When scientists talk about a community, they are talking about the plants and animals that live in an area and how they interact with each other.

The word **ecosystem** is used for a community when the non-living parts (water, soil, weather,

temperature, etc.) are added to the living parts of a community.

Ecosystems can be very small, such as a pond or puddle. They can also be very large, such as a tropical rain forest. Earth can also be considered an ecosystem. More about ecosystems on the next page.

If you hear someone talk about an **ecoregion**, they may be talking about a specific large area and the types of communities that are found there. An example would be the Snake River Plain in Idaho.

Another word that is used to describe different natural areas is the word **biome**. A biome is a large area that is defined by the types of plants and animals living there. An example would be a desert. Deserts are found in many parts of the world.

Within a biome, there are usually many different ecoregions and thousands of different ecosystems. Next time you hear these words, you'll have a better understanding of their subtle differences.

WHAT IS AN ECOSYSTEM

An ecosystem is made up of many things. About everything you could think of in nature is found in an ecosystem. Ecosystems include all the living parts of a community - the plants, animals, and smaller organisms. It also includes the nonliving things, like water, dirt, rocks, sun, rain, wind, and temperature.

Ecosystems come in all sizes. Have you ever turned over a rock in your backyard or in a park? Under that rock was an ecosystem. You may have seen a beetle scurry away as you lifted the rock. What was the beetle eating? An earwig or sowbug would make a nice dinner for

a ground beetle. Was the dirt wetter and cooler under the rock than beside the rock? The beetle that was under the rock most likely needed a cooler and moister environment. When you start to think about it, you can probably think of many differences between the area under the rock and the area around the rock. It is these differences that make ecosystems so special. Just think how different the plants, temperature, moisture, wind, and sunlight would be under the rock than above or around the rock. There are even differences between rocks that are right next to each other. It is amazing! Who knew it could be so special under a rock?



People who look at and study ecosystems are called ecologists. They like to see how everything interacts with each other. Everything in an ecosystem depends upon everything else. If people change one small part of an ecosystem, they change more than that one part. Think about the rock again. If people put out a chemical to kill the earwig, will the beetle find any food? It may have to look under another rock to find food. What if it wasn't wet enough under that rock? The beetle could die. In the end, there could actually be more earwigs because all the beetles eating the earwigs died. Sometimes things are more complex and tricky than they seem. Changing one thing can change the whole ecosystem.

Some ecosystems are in danger. Scientists break the dangers into five categories. They call these dangers HIPPO. HIPPO is not short for hippopotamus.

HIPPO stands for:

Habitat loss – Sometimes habitats are used for other things. People may cut down a forest to use the wood for paper or to build homes.

Snake River Breaks Photo: CC-BY Alison Meyer for Idaho Fish and Game

Introduced species – Often people put a plant or animal in an ecosystem that is not supposed to be there. Have you ever heard of cheatgrass? It was brought to Idaho by accident. Cheatgrass has long seeds that get caught in your socks. Cheatgrass catches on fire more easily and more frequently. This makes it harder for sagebrush to grow. Cheatgrass has changed many of Idaho's ecosystems.

Pollution – Pollution means any human caused change. It may be seen, like litter, or it could be unseen, like chemicals in the water.

Population growth – Every day more people are born. All of these people need food, clothing, and shelter which come from ecosystems.

Over consumption – Over consumption means using natural resources, like oil and trees, faster than they can be replaced in nature.

People are looking at all of the effects that **HIPPO** has on ecosystems. They are trying to come up with ways to get everything people need to survive and also keep ecosystems healthy. This is a difficult thing to do, but it can be done. Remember that people need ecosystems, too. If we protect and care for ecosystems, we are also caring for ourselves.



IDAHO'S 4 ECOSYSTEMS



FOREST

Our forests are found mostly in Idaho's mountains. Summers are warm with cool nights.

Idaho forests get most of their water from winter snow. Northern Idaho forests are thicker, because they get more rainfall. Rainfall averages 14-30 inches.

Idaho's forests contain pine trees, fir trees, spruce trees and aspen trees.

Some animals found here include black bear, red squirrels, chipmunks, gray wolves, porcupines, owls and wolverine.



WETLAND

Wetlands have special water loving soils and plants. Some plants found in the aquatic zone include cattails, sedges, cottonwood trees, willows and mosses.

Riparian areas are the green areas around the water's edge.

Some animals found here include fish, beaver, otters, mink, geese, ducks, dragonflies and other aquatic insects.



DESERT

Idaho belongs to the Great Basin Desert. Southern Idaho is in a high desert.

The climate is dry with little rainfall. Boise averages 12 inches of rainfall (including snow) each year.

Summer days are usually hot with cool nights. Winters are cold.

Sagebrush is the most important plant.

Some animals found here include lizards, snakes, coyotes, rabbits, grouse, marmots and ground squirrels.



GRASSLAND

Idaho's grasslands are found in northern Idaho in a area called the Palouse.

The Palouse has rich soil for grasses and wildlife to grow.

Summers and winters are mild. Rainfall averages 27 inches per year and is evenly distributed throughout the year.

Many of Idaho's grasslands have been turned into farmlands.

Some animals found here include pocket gophers, red fox, pronghorn, giant Palouse earthworm and skunks.



IDAHO FOREST



Of the four ecosystems in Idaho, forests cover the largest area. You have probably been in an Idaho forest before. Think about where you were and what the land was like around you. You were probably in or close to some mountains. Idaho's forests are found mostly in mountains. Summers are warm with cool nights in the mountains. Winters are cold.

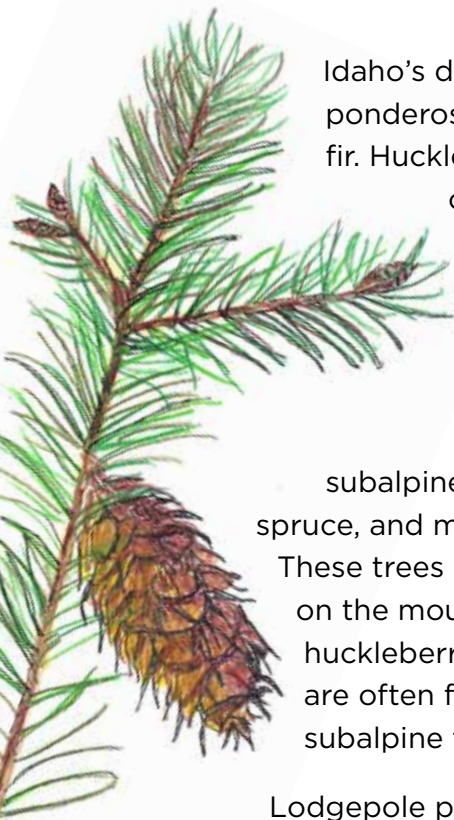
Forests in southern Idaho and northern Idaho are a bit different though. The one thing that makes them so different is water. Northern and central Idaho forests get most of their water from winter snow. Some southern Idaho forests, on the other hand, only get 14 inches of water a year! That includes all rain and snow.

Northern Idaho forests, in the panhandle, are lush and thicker because of all the rain and snow. Some northern Idaho forests average about 40 inches of water per year. That's more than double the amount of water a forest in southern Idaho will get!

Idaho's forests have mostly conifer trees growing in them. Conifers are trees that have small, thin leaves that look like needles. Their leaves usually stay green all year. Pine, fir and spruce trees are conifers. Deciduous trees you might see include aspen and birch.

The nonliving parts of an ecosystem can be a determining factor for which trees will grow. Water and elevation play a large role.

Wet forests at lower elevations will have western red-cedar, western hemlock and Pacific yew trees with ferns growing underneath.



Idaho's driest forests will have ponderosa pines and Douglas-fir. Huckleberries, snowberries or grasses might be found under the trees.

At higher elevations, you are likely to see white bark pine, subalpine fir, Englemann spruce, and mountain hemlock. These trees are found high up on the mountain side. Dwarf huckleberries and beargrass are often found growing with subalpine firs.

Lodgepole pine and western larch are not as picky. They grow in wet, dry, high or low places. Grand fir is an "in-between" tree. You will often find it growing between wet and dry and high and low places.

Many of the animals you will find living in Idaho's forests use the trees for shelter or food. Porcupines love to eat the bark from pine trees; they will also eat the pine needles. During

the winter, porcupines find shelter in the tree boughs. If the snow is very deep, they may spend weeks in the same tree. Black bears are also common animals in Idaho's forests. They eat mostly berries, pine nuts and grasses. Idaho black bears don't eat many fish or much meat.

Red squirrels are found in almost every forest ecosystem in Idaho. They eat pine nuts and find shelter in holes in the trees.

Keep an eye out for other animals like deer, owls, birds, beetles, or wolves when exploring our forests.

Think about what else you see. Is the forest wet or dry? Are you high or low in elevation? What kind of trees and animals do you notice?

Write your findings down in a journal. You will be exploring Idaho's forest ecosystems just like an ecologist.





IDAHO WETLAND



Wetland ecosystems consist of marshes, bogs, swamps, and riparian (ri-PEAR-ee-en) areas (land next to rivers, streams, lakes and ponds).

These areas include not only water, but the land around the water. Wetlands contain water, hydric soil and water-loving plants called hydrophytes. Hydric soil is created because of water saturation. This shifts the soil from being oxygen rich soil to oxygen depleted soil. This causes the organic matter to decompose more slowly and results in a large amount of organic matter near the soil surface. The hydrophytes have adapted to thrive in this environment.

Wetlands give wildlife the food and shelter they need. Some animals you will find around wetlands are beaver, muskrats, mink, otters, insects, fish, ducks and geese.

In Idaho, you may hear wetlands called riparian areas. This is the green area along the water's edge. Riparian areas are even found in Idaho's high deserts.

Wetlands around flowing water, like rivers and streams, are called marshes and swamps. Marshes have grass-like plants. Cattails and sedges are found in marshes.

Swamps are wetlands with woody plants. Cottonwood trees and willows are found in Idaho's swamps.

Idaho also has wetlands called bogs and fens. These places are from 4,000 to 60,000 years old! They grow only one inch every 100 years! Peat moss and other mosses are found in bogs and fens. Many plants have a difficult time living in bogs. The soil is high in acid and low in nutrients, so plants need other ways to get the things they need to live. Two plants, sundews and bladderworts, eat meat. These plants capture insects in long, hairy, sticky leaves. Idaho even has its own kind of Venus fly-trap!

Wetlands do many important things. They help clean water. The slower water moves, the less dirt and pollution it can carry. Wetland plants slow down water, so dirt and pollution are filtered out. They also give wildlife a safe place to raise young, rest and feed.

Wetlands sure are more than wet dirt!





IDAHO DESERT

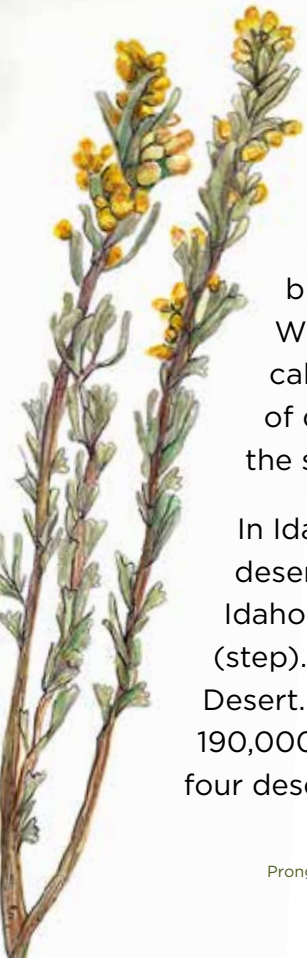
The Great Basin Desert is a cool or “cold desert.” It is cool because much of the desert is at elevations over 4,000 feet. Snow is a common sight in the winter. Our desert has cold winters and hot summers with cool nights. Like all deserts, it doesn’t get much moisture. Only about four to 12 inches of water falls during the year, and that includes the winter snow.

Plants that are adapted to living in the desert are called xerophytes (ZER-rah-fytes). Xero means desert, and remember, phytes means plants, so xerophytes are desert plants.

As you drive through this area, you see mile after mile of low, mounding gray-green shrubs. Most of these shrubs are sagebrush, but rabbitbrush and bitterbush are also there. Mixed in with the shrubs are grasses, some wildflowers, soft stemmed plants, and a few cacti, like prickly pear.

What do you think about when you hear the word “desert?” Do you think about miles and miles of sand dotted with big, tall cacti? Do you think about high, bare sandstone bluffs and tall spires of rock that Wile E. Coyote and Roadrunner called home? Well, that’s one type of desert, and it’s usually found in the southwestern United States.

In Idaho, we have a different kind of desert. It’s all around us in southern Idaho. It’s called sagebrush steppe (step). Idaho is part of the Great Basin Desert. The Great Basin Desert is about 190,000 square miles. It is the largest of four deserts in North America.



These plants often have special leaves. Sometimes they are waxy, hairy, spiny or small. Sagebrush has narrow leaves that are covered with tiny hairs. This helps to protect the plant from drying out in the summer heat and in the cold winter.

Desert plants also usually have a long tap root to reach water deep in the soil. Sagebrush developed so that it can water itself! At night, the tap root of sagebrush pulls moisture from deep in the soil to shallow branching roots that grow near the surface. During the day, the shallow roots use this water to keep the shrub alive.

Sometimes desert plants live off other plants or dry up during the dry season. When water comes, the plants spring back to life.



Sagebrush is the most important plant in Idaho's desert. This woody shrub provides food and cover for many desert animals year-round.

Our sagebrush desert is the perfect place for many animals to call home. Sage grouse, coyotes, lizards, snakes, mountain lions, and pronghorn are just some of the animals that love our sagebrush desert.

The pygmy rabbit is the smallest rabbit in Idaho. It is only found living around sagebrush. In the winter, sagebrush is the only thing it eats! Pygmy rabbits also dig their burrows under tall sagebrush. This helps to hide the burrow entrances.

To some people, the sagebrush desert is a boring landscape. For those who understand and appreciate deserts, it's fascinating and beautiful.



IDAHO GRASSLAND



Grasslands located in northern Idaho are found in an area called the Palouse, near Moscow. Our state also has a grassland in southeast Idaho called the Curlew National Grassland.

The Palouse looks very different than it did before Europeans settled the area. At one time, the rolling hills of the Palouse were covered with native grasses. The soils on the Palouse are special. They are made of rich wind-blown silt called loess (lus). Loess has a lot of dirt in it from ancient volcanoes. The volcanic soil is rich in minerals that are perfect for growing grasses. It is also good for growing crops. Much of the native grassland has been turned into farm fields.

The grasslands in the Palouse are one of the most endangered ecosystems in the United States. A little over 1% still exists. Plants that live on the Palouse are grasses, like bunchgrass, wheatgrass and fescue, and wildflowers, like camas.

A very interesting worm also calls the Palouse home - the giant Palouse earthworm. It has only been found living under native Palouse bunchgrass and has been seen less than 10 times in the last 115 years! The worm is said to reach lengths of three feet and live in burrows 15 feet long. It is a white-pink color. Reports from the early 1900s said the worm smelled like lilies when handled and spit at predators! Scientists who found the worm in 2010 said they didn't notice a lily smell. The idea that the worm smells and can spit may just be tall tales, but the worm is still intriguing. Who would have thought that such an amazing creature would be living in Idaho's grasslands!





CURLEW NATIONAL GRASSLAND

Idaho also has a grassland in southern Idaho called the Curlew National Grassland. Dotted with homesteads built by early European settlers, the Curlew National Grassland is the only National Grassland in the Intermountain West. Established in 1960, it consists of over 47,000 acres of land covered with sagebrush and non-native seed grasses. Of special interest is the Sweeten Pond area developed especially for waterfowl and shorebirds. Many bird watchers visit the area in the spring to watch the sharp-tail and sage grouse perform their courtship dances.

Grasslands can be windy places. There are not many trees to help break up the wind. Plants that grow in grasslands have developed ways to survive. Many grassland plants are wind pollinated. Instead of relying on insects to pollinate their flowers, they let the wind blow the pollen to and from plants. They also have long, narrow leaves to reduce evaporation in the wind.

Summers and winters are mild in the grasslands. Rainfall averages 27 inches per year, and it is evenly distributed throughout the year. To catch rain and surface water, many grassland plants have shallow, fibrous roots. If you have ever pulled a bunch of grass from your lawn, you know what these roots look like. Grass roots are made to absorb water from the surface of the ground.

Since rainfall is spread out during the year, most grassland plants in Idaho don't need to have long tap roots to get water deep in the ground.

Animals that live in grasslands often seek shelter in the ground. There are not too many plants to hide in or under. Pocket gophers, skunks and red foxes can all dig their own burrows to raise their young and find shelter.



IT'S ALL ABOUT RELATIONSHIPS



When we hear the word relationship, we often think about human relationships. We have relationships with our family members, our friends, neighbors, and even acquaintances. Human relationships have to do with how we act around someone, how we talk with them, how we help or get help from another person. Nature relationships (or ecological relationships) are the same way! How do animals interact with each other and their surroundings? How do they help

each other, need each other, or work together? Relationships in an ecosystem are what ecologists study and want to know about. The more we know relationships, the more we can protect an ecosystem.



Here are some common types of ecological relationships:

Predation: one animal hunts (predator) and eats another animal (prey). A hawk catching a snake.

Mutualism: two organisms that benefit from each other. Bees pollinating flowers.

Commensalism: one animal benefits from the relationship and the other is not affected. Sagegrouse nesting under sagebrush.

Parasitism: one animal benefits from the relationship and the other is harmed. A tick on a deer.



Photos: CC-BY US Fish and Wildlife, www.fws.gov

There can be relationships between living and non-living things as well. Think about how a lizard suns themselves on the rocks to warm up. Imagine how a plant might grow faster in the sun than in the shade. A plant may bloom at a certain time of year based on temperature for the pollinator to find and get pollen. A raptor may nest on the face of a cliff.

When you look at many relationships in an ecosystem together, you can build complicated webs of interconnectedness! Relationships in an ecosystem can be linked to create a long chain of connectivity. Here is an example in riparian (wetland) ecosystem. A beaver may cut aspen trees to dam a creek and create a pond. That pond has slow water where different types of aquatic plants can grow, such as lily pads. Moose love to eat lily pads, and they will be attracted to the pond for food. Wolves could be hunting for a moose to feed their pack. Can you trace the chain of relationships from wolves all the way back to cottonwood trees? Studying relationships in an ecosystem is like putting together a very complicated, but interesting puzzle.





EXPLORE IDAHO

Idaho's ecosystems give people many places to enjoy wildlife. Knowing what makes each ecosystem special is a big help when you are observing wildlife. You can learn what species live where so you know what to look for in certain areas. When you know about ecosystems, you know that you should not look for mountain goats in the desert or pronghorn in the forests of northern Idaho!

People who enjoy wildlife often have certain animals they would like to see and reasons they want to see it.

Bird watchers look for specific birds to add to their bird lists.

Hunters look for a certain species that they can harvest.

Wildlife photographers may be interested in taking pictures of only a specific species.

Understanding ecosystems and the animals that live in them helps these different groups successfully enjoy their outdoor activity.

Getting outside and paying attention can help you become an ecosystem expert. See how many other micro ecosystems you can find in your neighborhood.

Check out the trees and other plants. Do they need a lot of water or is just a little bit of water enough? Turn over some rocks or rotting logs. What do you find underneath? Record how much rain or snow you get to see how much water your area receives.

Dig in the dirt to look at the soil. Is it dry, wet, or in between? What about the temperature? What kinds of animals do you see? Keep an outdoor journal to record all this information.

Check the library, internet, or talk to a wildlife biologist to learn the special animals that live nearby.

Take some scouting trips with your friends or family to observe these special animals.

If you take a trip to another part of Idaho, compare it with your area to observe the differences. Before you know it, you will be a real Idaho ecosystem expert!

COMPLETE THE ECOSYSTEM POEM

A diamante is a Japanese poem that is very precise and formal. Each line follows a certain pattern in content and form. The purpose to go from the subject at the top of the diamond to another totally different. (and sometimes opposite) subject at the bottom.

Line 1 - one noun (subject #1)

Line 2 - two adjectives (describing subject #1)

Line 3- three participles (ending in -ing, telling about subject #1)

Line 4 - four nouns (first two related to #1, second two related to #2)

Line 5 - three participles (ending in -ing, telling about subject #2)

Line 6 - two adjectives (describing subject #2)

Line 7 - one noun (subject #2)

Now you try! Choose two animals that live in different life zones to include in the poem. Brainstorm words to go with each animal. Fill in the blanks with the words you brainstormed for each animal.

(1st ecosystem)

(two adjectives describing it)

(three words ending in "ing" telling about the ecosystem)

(four words: the first two describe the **1st ecosystem**, the last two describe the **2nd ecosystem**)

(three words ending in "ing" telling about the **2nd ecosystem**)

(two adjectives describing the **2nd ecosystem**)

(2nd ecosystem)

Wildlife Express

Volume 39 • Issue 4
Idaho Ecosystems
December 2025

Wildlife Express is published by the Idaho Department of Fish and Game

Editor: Sara Focht, Lori Wilson

Layout: Nancy Jasper



WE WOULD LIKE TO HEAR FROM YOU!

If you have a letter, poem or question for Wildlife Express, it may be included in a future issue!

Send it to: lori.wilson@idfg.idaho.gov

or

Wildlife Express, Idaho Fish and Game
PO Box 25, Boise, ID 83707