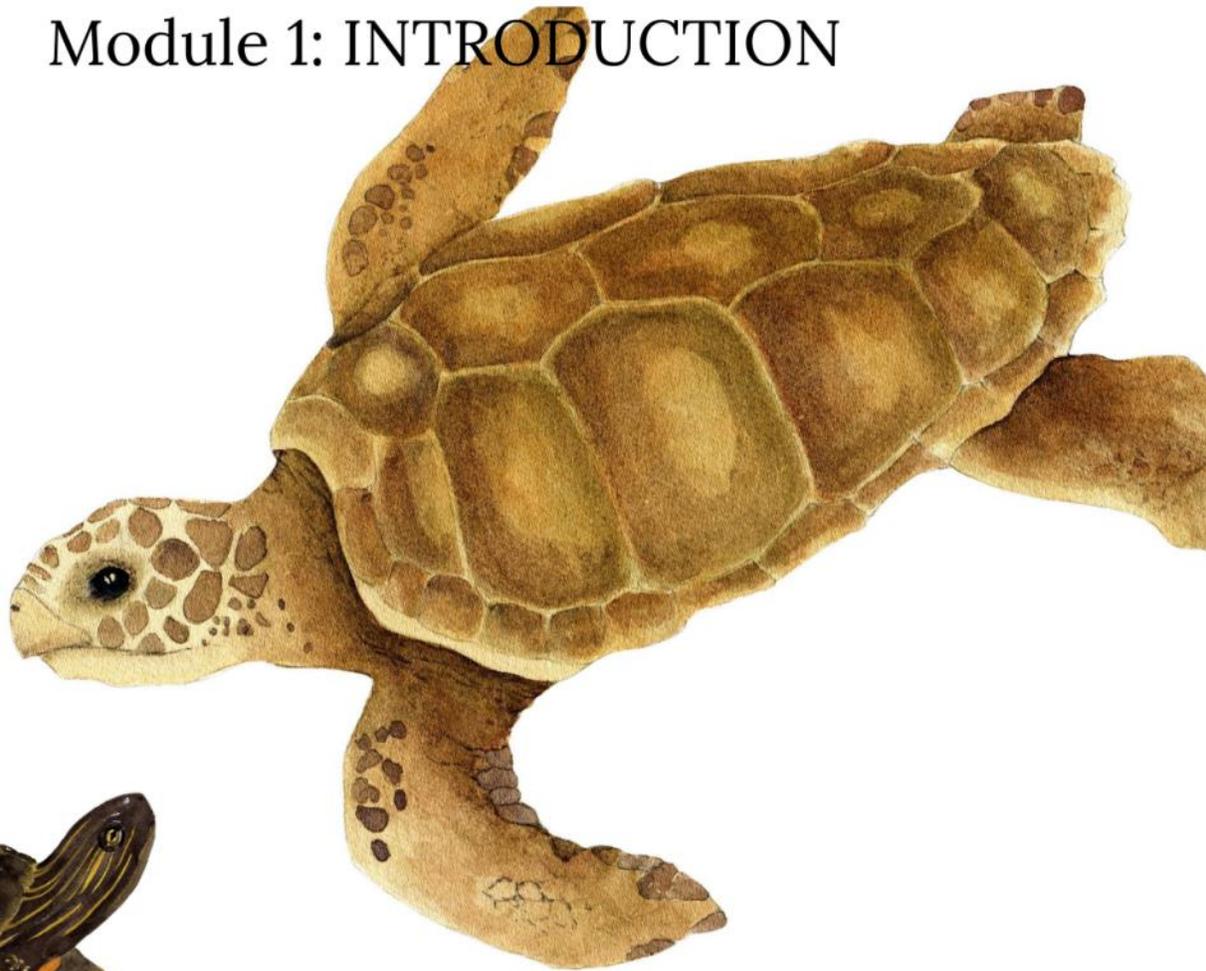




Pacific Northwest Plants and Animals

Module 1: INTRODUCTION



*Alfred W. Bowers Laboratory of Anthropology
Palouse Wildlife Rescue and Rehabilitation*

Module 1. Welcome to the Northwest

There is more to the Pacific Northwest than Portland, Seattle, and Vancouver, B.C., but most people think of rain-soaked coastlines. Who would imagine there are deserts within a few hours drive of rainforests?

How big is the Pacific Northwest? What else is out there besides Pike Place Market and the Space Needle? Well, it depends on who you talk to, or what kind of question you are asking. Although its definition changes, the core area of Washington, Oregon, northern Idaho, British Columbia, and southeastern Alaska covers the basics. Did you know this area has more land than all of France? (Figure 1-1).

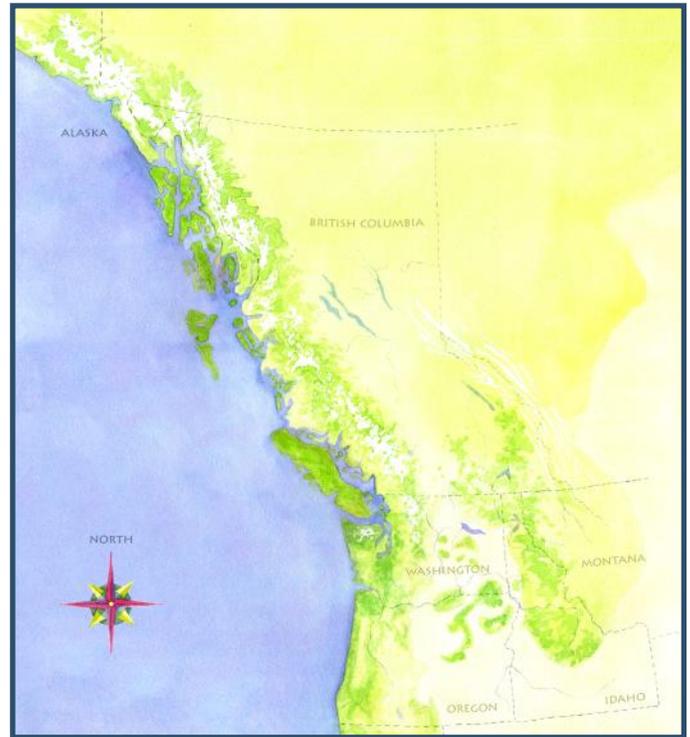


Figure 1-1. The Pacific Northwest as we are discussing it here. The rest of Alaska has large arctic and subarctic areas.



The Collared Pika is a member of the rabbit family. Mostly found in high elevations, they are dependent on cool temperatures and flowering plants and grasses. Their populations are declining. The species is at risk because the climate is changing too quickly for them to adapt.

However you describe it, the Pacific Northwest is a tapestry of interconnected landscapes. Here we can easily roam from rain forests to deserts, ocean shores to towering mountains, and cities to farms. These varied ecosystems provide for some of the most recognizable species on the planet like salmon, bald eagles, bears, whales, caribou, and wolves. But there are thousands of other lesser known species who call the region home too, like the marbled murrelet, desert nightsnake, and Vancouver Island marmot. There are about 172 threatened, endangered, or at-risk species in the region.

While we are just now learning who these species are and what role they play in the world, they have been living on these lands and waters, or flown these skies, for thousands of years. Without humans around, these species would likely have carried on, uninterrupted, for thousands of years to come.

People in the Pacific Northwest

Compared to native animal species, humans are new to the region. Recent archaeological excavations near the Idaho and Oregon border at Cooper’s Ferry tell us that humans were well established in the Pacific Northwest by about 16,000 years ago (Figure 1-2). No one is quite sure how long people were here before then – maybe you will be the one to find out!

Getting to the Pacific Coast wasn’t an easy job. There are two popular ideas on how it was done: by boating along the coast or by crossing over the Bering Land Bridge. The land bridge was an open corridor between the Cordilleran and Laurentide ice sheets. Natural temperature dips and spikes caused the ice sheets to grow or melt. In warm times, the ice

sheets melted, and people were able to walk from Siberia into the Pacific Northwest. It wouldn’t have been a fast trip. It may have even taken centuries. Whichever method people used, one thing is for certain – the land and its inhabitants changed forever.



Figure 1-2. This map shows hundreds of archaeological sites in the Pacific Northwest—and it doesn't even include most of what is out there! While these modules were built using information from sites occupied by Native Americans, some data came from European settlements too. Some of those are on this map also—like forts and commercial fishing villages.

Between 10,000 and 13,000 years ago, extraordinarily large animals, or megafauna, began dying off in a massive extinction event. Here again, no one knows why but there are a lot of ideas. Theories like an asteroid impact, or overhunting by humans, are pretty exciting – but hard to prove. Another theory, natural and rapid climate change, is more provable and gaining in popularity. Researchers who study ancient soil are using pollens, seeds, and other plant matter to figure out what the world looked like when the plants were alive. What this biological record, or plant fingerprint, tells us is that the climate went through some extreme changes in a short time making it hard for megafauna to adapt. Like most complicated topics, there probably isn't a single answer behind the last big extinction.

Sadly, trying to understand the megafauna die-off taught us some harder lessons. We learned that when the climate changes quickly, plants and animals (including the human ones!) have a really hard time adapting. In some cases, adaptation to the new world is possible and sometimes it isn't. When the megafauna died out, Africa kept its elephants, giraffes, and hippos, but in the Americas, large animals didn't do so well. Although the giant ground sloth was able to survive longer than most, it and many other species like the saber-toothed cat were lost forever (Figure 1-3).

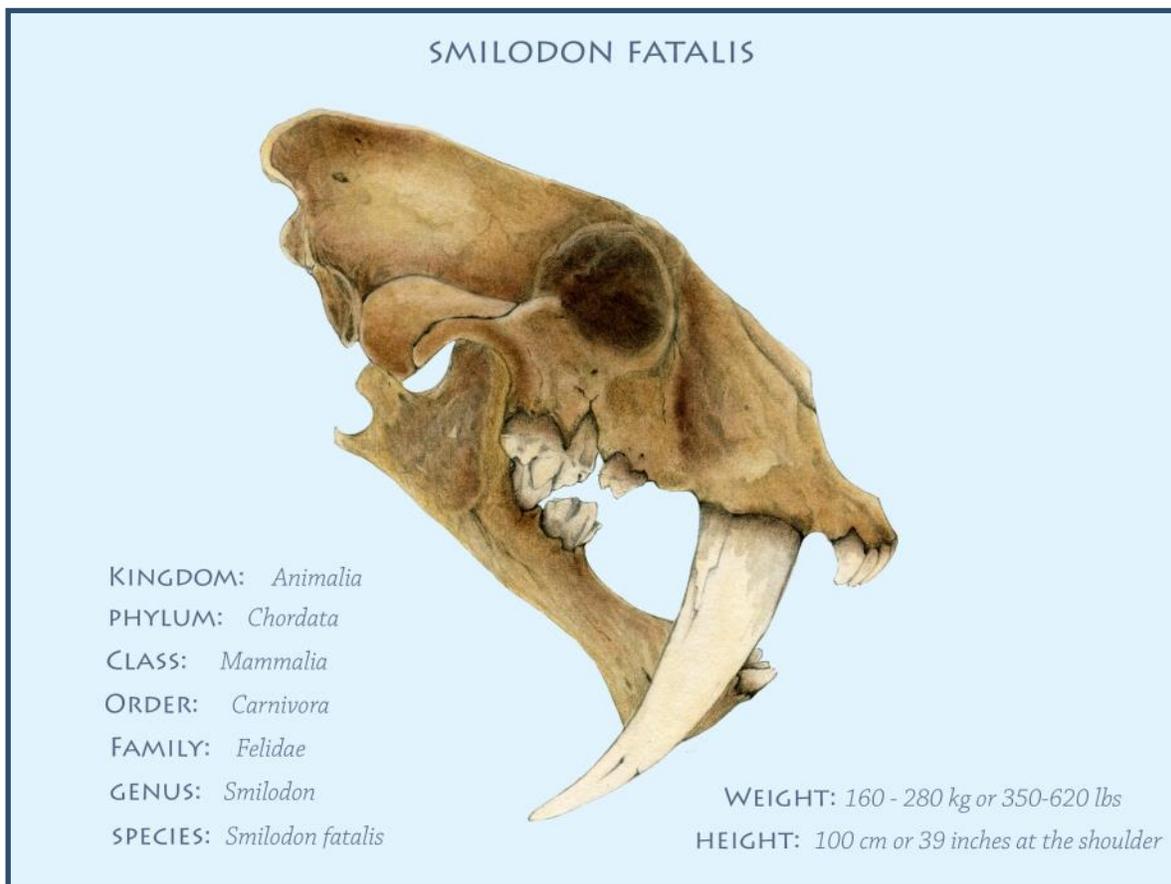


Figure 1-3. The legendary saber-toothed tiger wasn't really a tiger at all! They really should be called a saber-toothed cat.

Humans may not have intended to change the Pacific Northwest when they arrived, but they certainly did. Like the researchers studying soil, archaeologists use a wide variety of tools to understand the past. By pulling together information from hundreds of sites across the region, archaeologists can understand what life was like before and after humans arrived.

Native American tradition is also used to help interpret the past. Although methods for hunting, fishing, or plant gathering, might have changed Native Americans have followed the *seasonal round* since their first days in this land – or at least 16,000 years ago (Figure 1-4). The “seasonal round” is a formal way of saying that people had to move to get resources in season. How people moved and harvested would have depended on where in the Northwest they lived. In the Columbia Plateau and Southern Snake River, the round would have been a lot alike. But on the Oregon coast, it would have been geared more toward animals and plants from the sea.

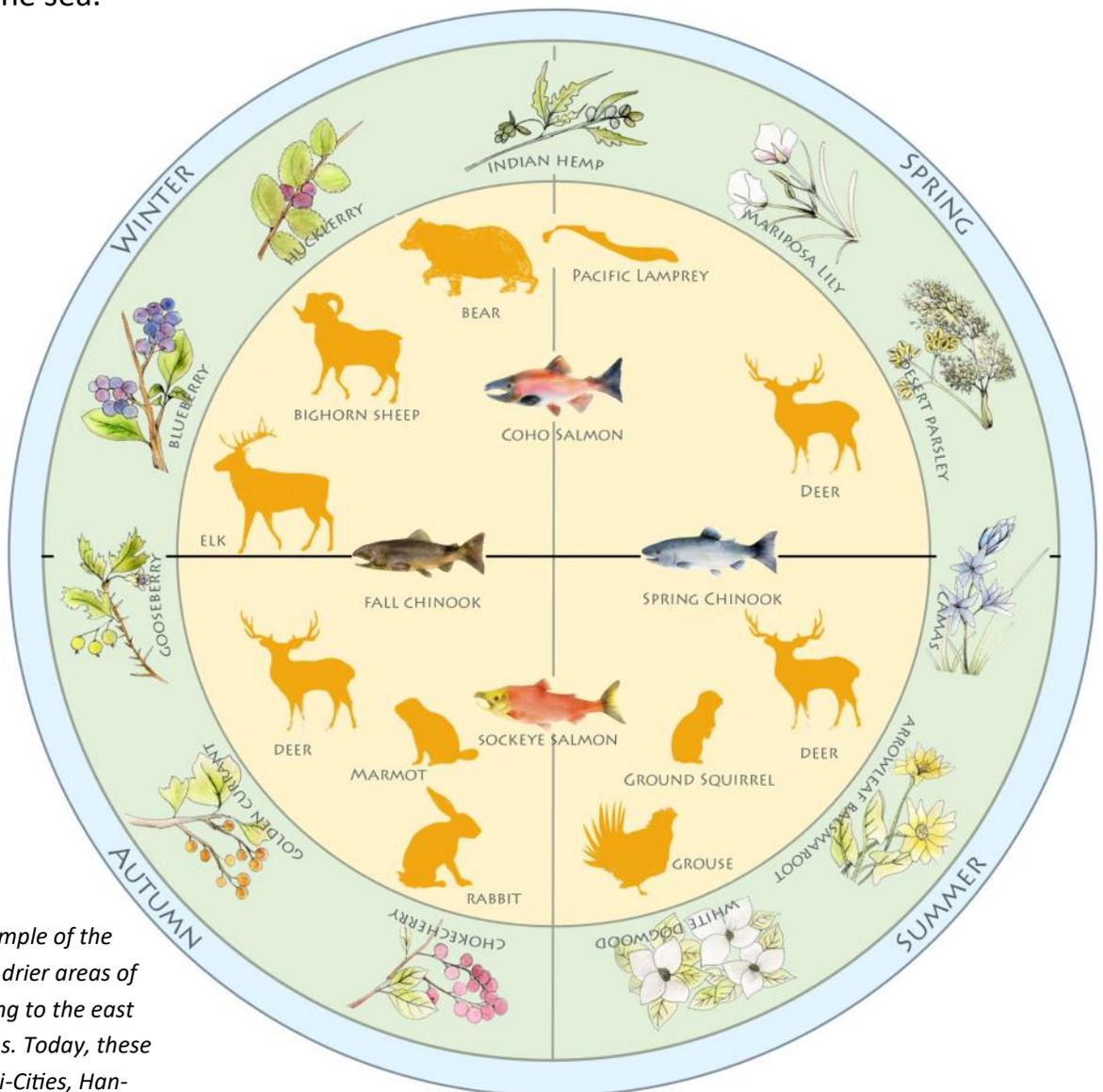


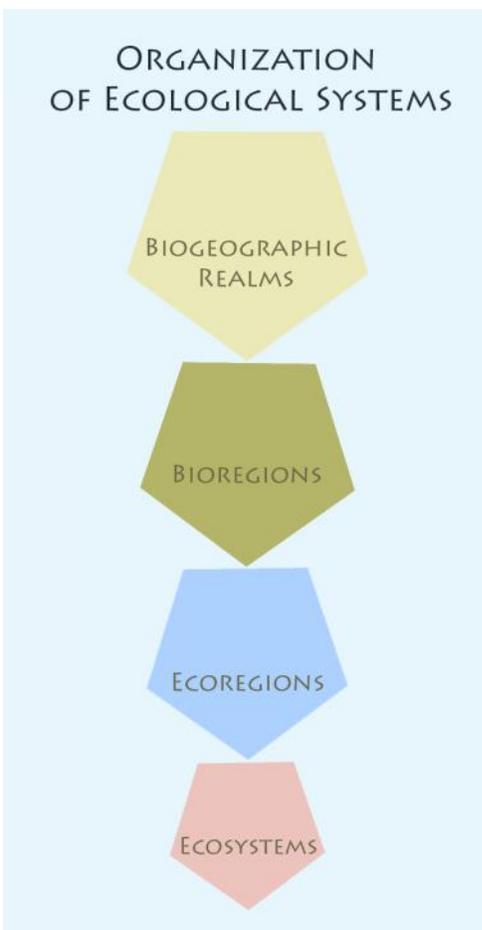
Figure 1-4. This is an example of the seasonal round from the drier areas of the Pacific Northwest lying to the east of the Cascade mountains. Today, these areas are home to the Tri-Cities, Hanford, Lewiston, Clarkston, Lapwai, and even farther south.

On the Palouse, people would go to where roots and bulb crops had matured or hunt deer in the spring. Summers were spent collecting fish along the rivers and meeting other tribes. Autumn brought people to herds of deer, elk, and other large game. Knowing Native American tradition helps archaeologists see patterns in the past. This is how they recognize shifts in food choices, land use, and so on.

When European settlers arrived in the 1700s, the entire region changed again. Settlers brought new technologies and beliefs that damaged established life cycles and lifeways. Plants, animals, and minerals were all harvested with little consideration of the future. The cost to human and natural life was so high that it is hard to understand.

Looking back, we can see that some choices that seemed like good ideas at the time have had long term consequences for the other organisms in our ecosystems. Now, we are acting to make better choices - but time is running out for threatened or endangered species.

When we see ourselves as better than other species, we create a divide between ourselves and the natural world. But, if we remember that we are just one piece of a deeply complex whole we make the world better for all species, not just humans. So, while our actions – or even inactions, make us the most dangerous species on the planet, we can choose not to be.



The Big Picture:

Think of a map of the world. It is hard to find a specific place without a bit of help. While we each have our own way of understanding information, one way is to move from big to small. It might be easiest to start by seeking a continent, then a country, then state or province, then city or town before closing in on a specific place.

In the same way we divide earth up by countries, states, or provinces, we use a similar method for the natural world. So instead of continents, or countries, the earth is organized from biggest to smallest like this: biogeographic realms, bioregions, ecoregions, and lastly, ecosystems.



Figure 1-5. The eleven ecoregions of the Pacific Northwest. Where do you live? Do you have family or friends in a different ecoregion? What is it like where they are?

Ecosystems are regions where living (biotic) and non-living (abiotic) things work in predictable and balanced ways to ensure the survival of their members. If you think of your town as an ecosystem, it is made up of roads, buildings, homes, and so on. But each area within the ecosystem has a slightly different flavor. A little snooping around will help you identify the specific parts of your local ecosystem.

Here's how you find the *communities*, *populations*, and *species* that define individual ecosystems. Imagine a forest, park, or even your own backyard. Who lives there? Trees? Birds? Squirrels? Each plant or animal probably groups together with others of its own kind, or species. These groups form a *population*. Clusters of mixed populations create a *community*. So, every place you look there are individual plants and animals working with others in their population to make a community.

Ecosystems also have abiotic elements like the landscape and weather that provide water, soil, and other things living individuals need to survive. All together, these elements exchange food (energy) and necessities like water, to contribute to the survival of the ecosystem. The Pacific Northwest is home to eleven ecoregions that are made up of numerous ecosystems (Figure 1-5).

How to Use These Modules:

By now, you might have heard of Carolus Linnaeus and the system he used to describe all living things. Just in case you haven't, here are the most important things to know. In the early-to-mid-1700s, Linnaeus brought the many ways to describe the natural world into one system. Since then, Linnaeus's system has changed a lot as we have learned more about the seen and unseen parts of life. Because researchers in the 1700s mostly relied on what they could see without a microscope, all living things were sorted into the *Plantae* (plant), or *Animalae* (animal), Kingdoms.

Today, the system allows for all the new species discovered using microscopes. Some other categories have been added too. Now the system has more options, but the basics are still the same. Rather than starting with Kingdoms as the broadest category, a new level was added to include bacteria. Now, we organize living things this way: Domain, Kingdom, Phylum, Class, Order, Family, Genus, and finally Species (Figure 1-6).

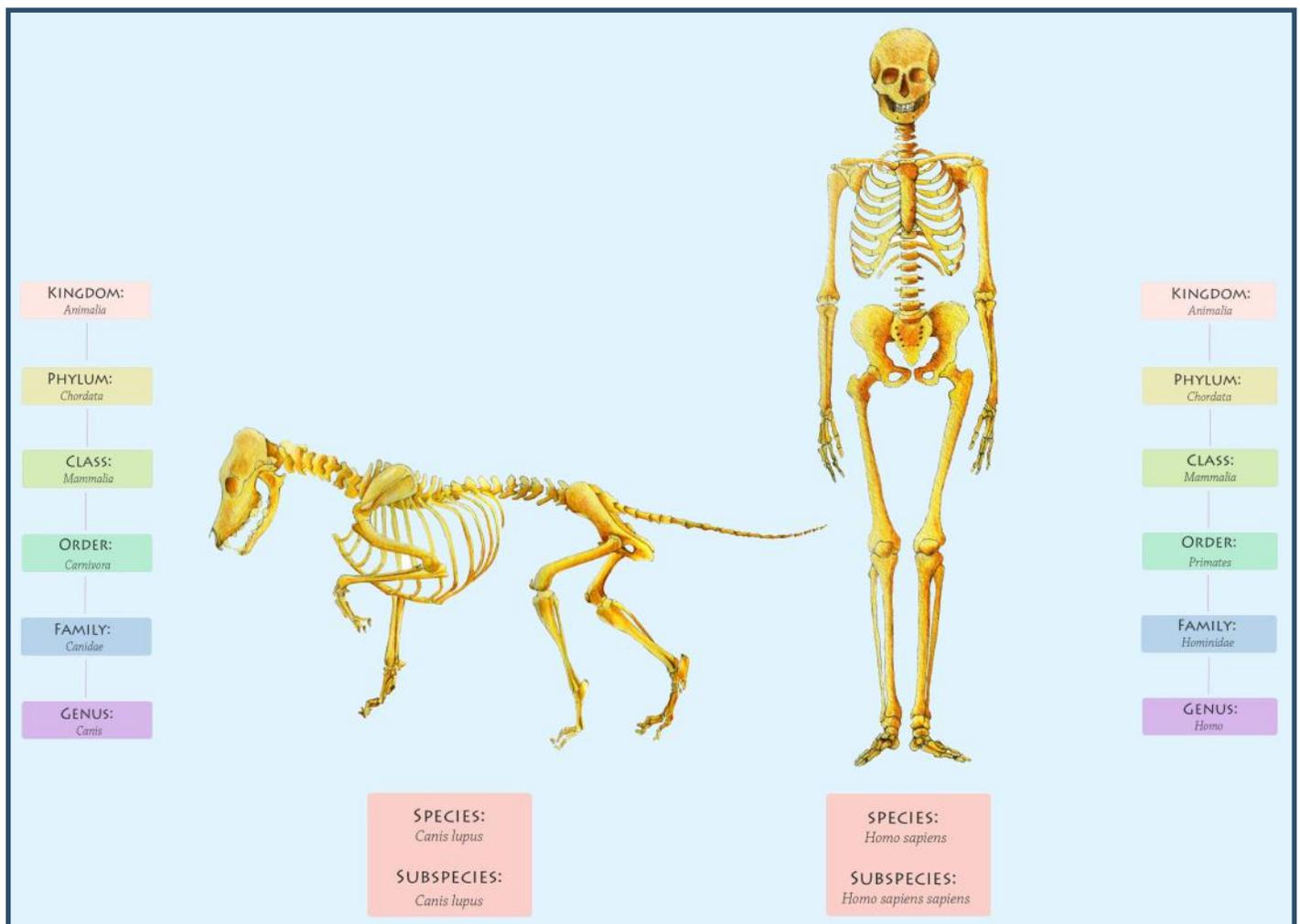


Figure 1-6. The classification of species shows us how closely humans are related to everything else on earth—and where we differ. Those differences are surprisingly small!

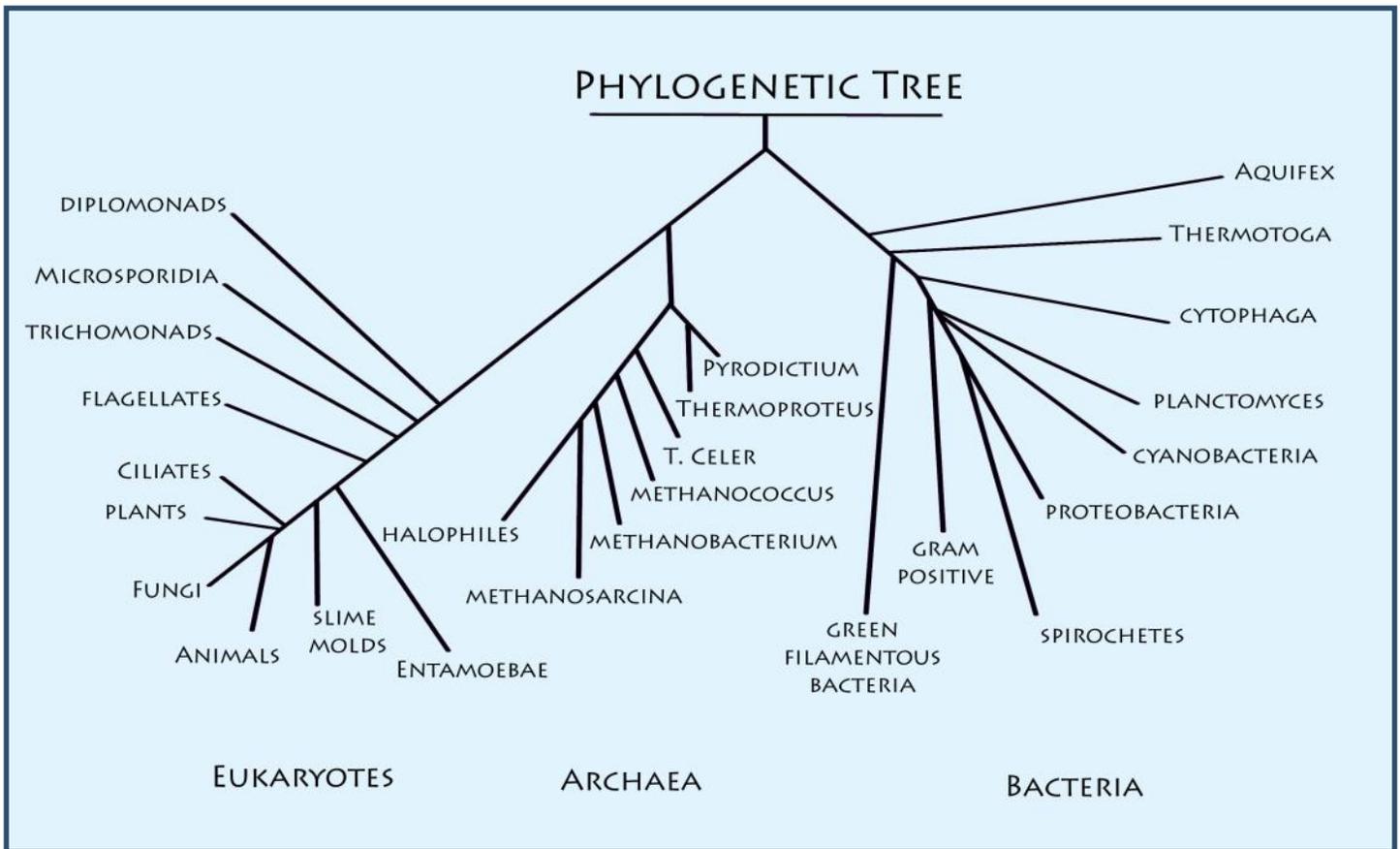


Figure 1-7. This tree shows how you are related to every other thing on earth. All animals, including the human ones, are part of the Eukaryote family.

Domains are broad categories separating all the bacterial organisms in our world. We will spend our time examining the remaining domain, Eukarya.

There are ten branches on the Eukarya family tree, including: Entamoebae, Slime molds, Animals, Fungi, Plants, Ciliates, Flagellates, Trichomonads, Microsporidia, and Diplomonads. We will keep our focus on plants and animals (Figure 1-7). Each module will focus on different members of the Plant or Animal families. A brief overview of each species, or group of related species, will help explain how these individuals contribute to our world.

Sometimes, it feels like too much to learn about so many different species that seem so similar. We might even be tempted to think that because there are a lot of similarities between species we could do without some. Well, it might seem like a good idea now, but remember those “good ideas” of the past that turned out to be devastating? What if we didn’t save a species because we didn’t know how important it was? As it turns out, at least *four* of the sea turtles species can live in the same ecosystem because they need different resources. Leatherback and Loggerhead turtles eat so many jellyfish, they are one of the main reasons jellyfish don’t take over the ocean! And Green turtles control grass and algae growth in their waters.

It's our job as to be good stewards of the Earth and mindful of our impacts. We're still learning so much about our natural world, it's a mistake to assume we know all there is to know about any given species or ecosystem. We need to preserve species and habitats while we learn.



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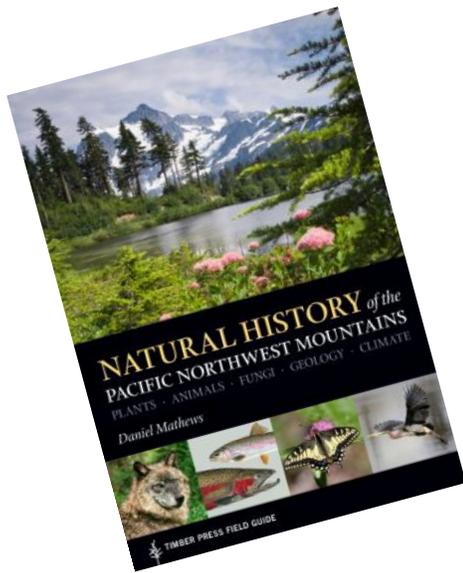
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Canine skeleton based image found at <https://www.behance.net/gallery/5019361/Anatomy-of-a-dog>

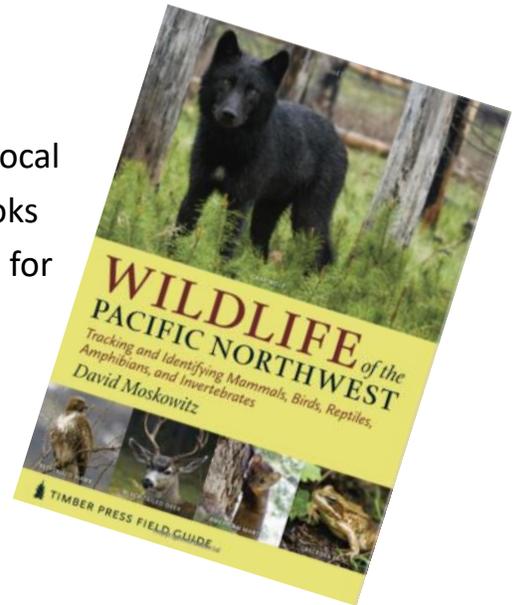
***A special thank you to the SCBWI writers group of Moscow,
Ariana Burns of Palouse Anthropology,
and Marco Seiferle-Valencia of the University of Idaho Library.***

Want to Know More?



Try these books!

Full of information about our local plants and animals these books are easily readable and suited for most family members.

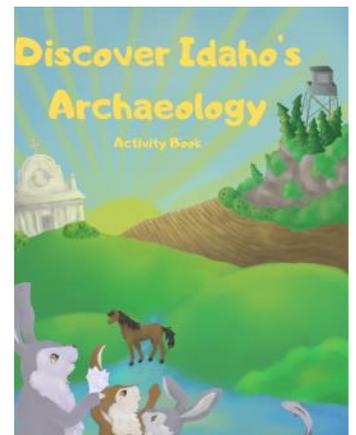


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Palouse Wildlife Rescue & Rehabilitation***

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