

A close-up photograph of tall, thin grasses with feathery seed heads, illuminated by warm sunlight. The background is a blurred landscape with trees and a body of water.

Lesson 3: Biodiversity

Student Objectives

Today I will:

- Describe what a **native plant** is and their benefits
- Understand the importance **biodiversity**
- Understand that humans and animals are **interconnected**

LA River History Review

The **Tongva, Kizh, and Tataviam** were the **first inhabitants** of Los Angeles.

Indigenous people relied on the LA River for survival, and live in harmony with nature.





If the Tongva are considered
Native Americans,
what might a **native plant** be?

What is a **native** plant?

A plant that has **existed naturally in an area for thousands of years**



California Wild Rose

What is a **native** plant?

A plant that has **existed naturally in an area for thousands of years**

Native plants were not brought to a place by humans, they were already there.



California Wild Rose

What is a **native** plant?

A plant that has **existed naturally in an area for thousands of years**

Native plants were not brought to a place by humans, they were already there.

They are well adapted to the **climate**.



California Wild Rose

What is a **native** plant?

What is our climate like here in Los Angeles?

What conditions would a native plant here need to be used to?

They are well adapted to the **climate**.



California Wild Rose

What is a **non-native** plant?



What is a **non-native** plant?

A plant **introduced to an area by humans**

A plant that did not originally grow in an area



Black mustard

What is a **non-native** plant?

Some non-native plants are harmless or even beneficial for our ecosystem.

Some non-native plants like this one are also considered **invasive** -- they 'invade' the area and take water and space from valuable native plants.



Black mustard

What are some benefits of native plants?



Benefits of native plants

- Provide food and habitat for native **animals!**

FRIENDS OF THE L.A. RIVER

L.A. River Wildlife Field Guide

Family: Herons



Great Blue Heron
Large and tall with long neck. Gray-blue with long yellow bill.



Green Heron
Short and stout, with a large bill and thick neck. Juveniles are brown.



Snowy Egret
Medium-sized. White body, black bill, and yellow feet.

Osprey



Osprey
Large, dark body with white underparts.

Stilts



Black-necked Stilt
Black above and white below with long pink legs.

Cormorants



Double-crested Cormorant
Large, with long tail and neck. Orange skin around bill.

Crows



American Crow
Pigeon-sized, all black bird. Flies in distinctive rowing motion.

Pigeons



Rock Pigeon
Most commonly: gray with blue-gray head.

Rails



American Coot
All black with white bill.

Ducks & Geese



Cinnamon Teal (female)
Males have solid, brownish-red body. All have black bills.



Mallard (male)
Females have a similar blue wing patch, but no green face.



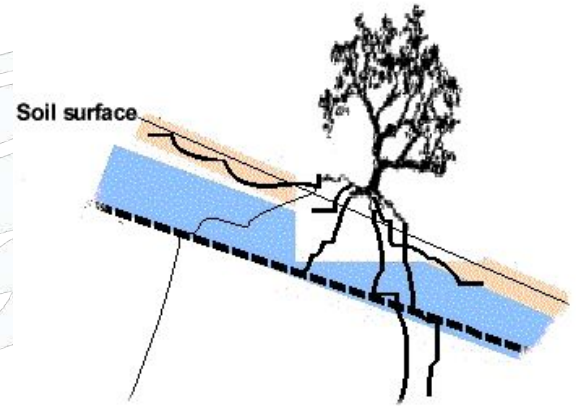
Canada Goose
Large, brown body with white under. White cheek patch.

non-native

Benefits of native plants

- Here in Los Angeles, native plants are **drought-friendly** because they require little watering once established. They have adapted long roots that allow them to reach the water that is underground.

This could be a mature oak, manzanita or ceanothus.



A few roots penetrate the hard pan and go deep to get water for the plant and its friends



GAME TIME!

native and non-native plants





Do you think this
plant is **native** or
non-native?

If you don't know, guess!





**Coast
live oak**
native





How do animals
benefit from this
tree?





How do animals
benefit from this
tree?

**Food (acorns), shade,
habitat**





How do **humans**
benefit from this
tree?





How do **humans**
benefit from this
tree?

**Food (acorns!),
shade, oxygen**





Do you think this
plant is **native** or
non-native?





Mexican fan palm

non-native





How do animals
benefit from this
tree?





How do animals
benefit from this
tree?

habitat





How do humans
benefit from this
tree?





How do humans
benefit from this
tree?

aesthetics





Do you think this
plant is **native** or
non-native?





prickly pear

native





How do animals
benefit from this
plant?





How do animals
benefit from this
plant?

**Food source,
habitat**





How do humans
benefit from this
plant?



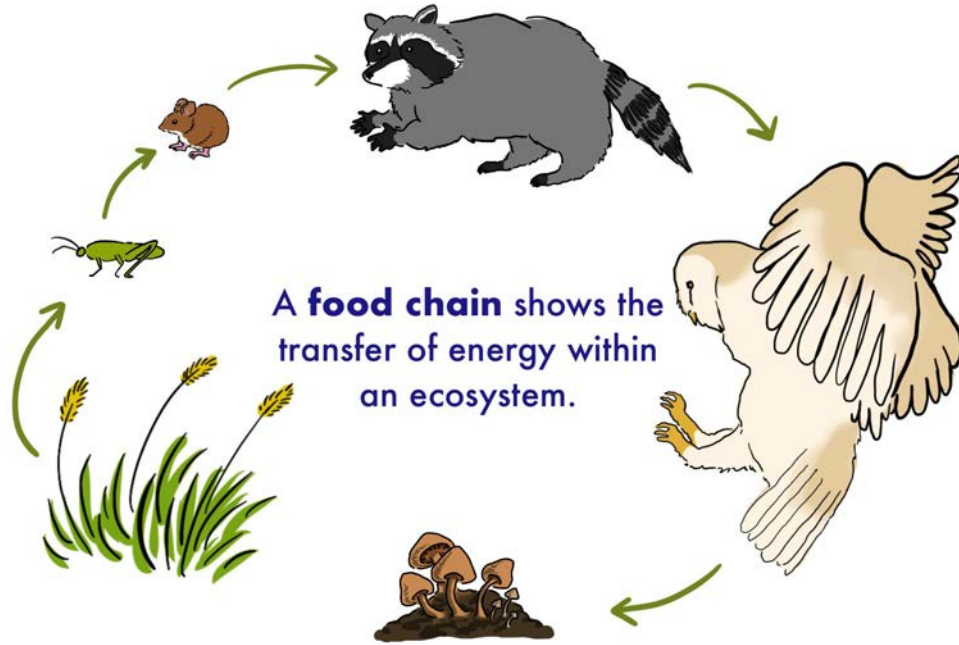


How do humans
benefit from this
plant?

**Food source,
natural dye,
aesthetics**



Food chain



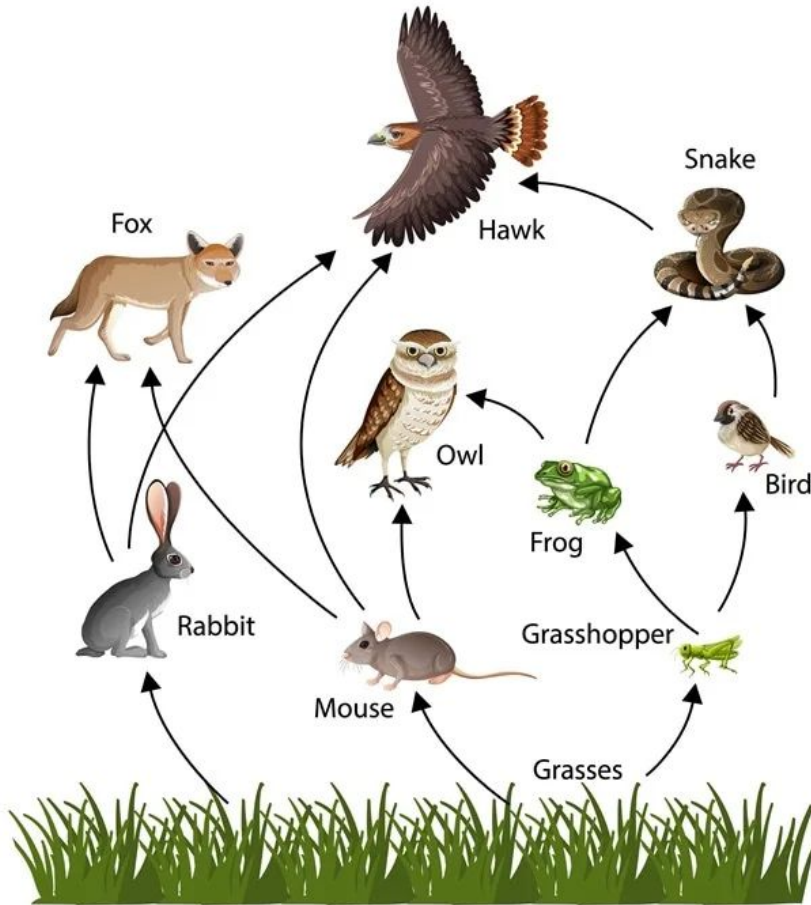
A **food chain** shows the transfer of energy within an ecosystem.

Energy is transferred between organisms when one organism eats another. A food chain is a simple, linear series of steps while a **food web** is more complex.

Food web

A food web consists of interconnected food chains.

Food webs show what-eats-what in an ecosystem.



What is biodiversity?



A vibrant, cartoon-style illustration centered around a blue and green globe. The globe is the focal point, with the text "bio = life" written across it in a bold, black, sans-serif font. Surrounding the globe are various tropical animals: a jaguar with orange and black spots is perched on a branch above the globe; a large black toucan with a bright orange beak is on the left; a smaller black toucanet is above it; a colorful macaw parrot is on the right; a green tree frog with red eyes is on a branch below the globe; and a brown monkey is at the bottom right. There are also two yellow and green parrots at the bottom left. The background is white with some green foliage and brown branches.



**diversity =
variety**

A collage of various nature images including flowers, insects, and butterflies, with a central text overlay. The images are arranged in a grid-like pattern around the text. The text is in a bold, white, sans-serif font on a black background.

**biodiversity =
variety of life**

Biodiversity

High biodiversity means having a wide variety of plant and animal species in an ecosystem

Biodiversity

The LA River was once home to so much biodiversity.

But many animals were not able to adapt to the concrete River.

Biodiversity



Red Legged Frog

<https://www.youtube.com/watch?v=1KhZnssGKHU>

Threatened species: are any species which are vulnerable to endangerment in the near future



Yellow Billed Cuckoo

https://www.youtube.com/watch?v=1_GZb4iYArw

Endangered Species: a species of animal or plant that is seriously at risk of extinction.

Biodiversity



Steelhead Trout

Endangered Species: a species of animal or plant that is seriously at risk of extinction.

Biodiversity

Steelhead trout are unique because they swim from a river (fresh water) to the ocean (salt water).

They are native to the LA River and were an important food source for the Indigenous people.

When the River was filled with concrete, they were no longer able to swim from the Ocean back to the River.

They are no longer found in the River.



Fishing in the LA River



Only non-native fish are found in the River today:

- common carp
- largemouth bass
- tilapia
- green sunfish
- Amazon sailfin catfish
- bluegill
- black bullhead, brown bullhead,
- channel catfish
- fathead minnow
- Crayfish
- mosquito fish

However, plants and animals are resilient and many of them have made their way back to the River!

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FRIENDS OF THE LA RIVER

L.A. River Native Flora Field Guide



Arroyo Willow SASHAT
A widespread deciduous tree or shrub.



Coast Live Oak WET
An evergreen oak tree, varying in size from very large to shrubby.



Cottonwood AVAKHAT
A fast-growing tree found in riparian areas.



Western Sycamore SHAVAR
A deciduous tree, with leaves turning yellow and orangish-brown in the fall.



Tule
A large bulrush that is abundant in marshy areas of California.



Mule Fat TOKOR MAMA HAR
A flowering shrub commonly found along stream beds.



CA Buckwheat WILAKAL
A flowering shrub with pink and white flowers.



Mugwort KWIASH
A tall, aromatic perennial with many medicinal uses.



White Alder TUKUUNET
A flowering tree found in chaparral regions.



Purple Sage KASILI
An aromatic sage which attracts birds and pollinators.



Elderberry KU.UT
A large bush or shrub that produces bluish-black berries.



Toyon ASHUWET
An evergreen tree with white flowers in the summer and red berries in winter.



CA Wild Rose OTSUR
A deciduous shrub with beautiful pink flowers.



Cattail MIISH
A perennial herb that grows in marshes and shallow water.

The 3 Soft Bottom Locations



Sepulveda Basin



Glendale Narrows



Long Beach Estuary

These areas of the River have no concrete on the bottom. This means plants are able to grow through the ground. And since there's plants, you can see lots of animals here too!

The 3 Soft Bottom Locations

What are they?

Areas with a **natural or soil bottom, not concrete.**

Because there was too much **groundwater** in these areas, **the concrete was never able to harden.**

Great example of nature's resiliency!



Pollution in the LA River continues to threaten biodiversity.

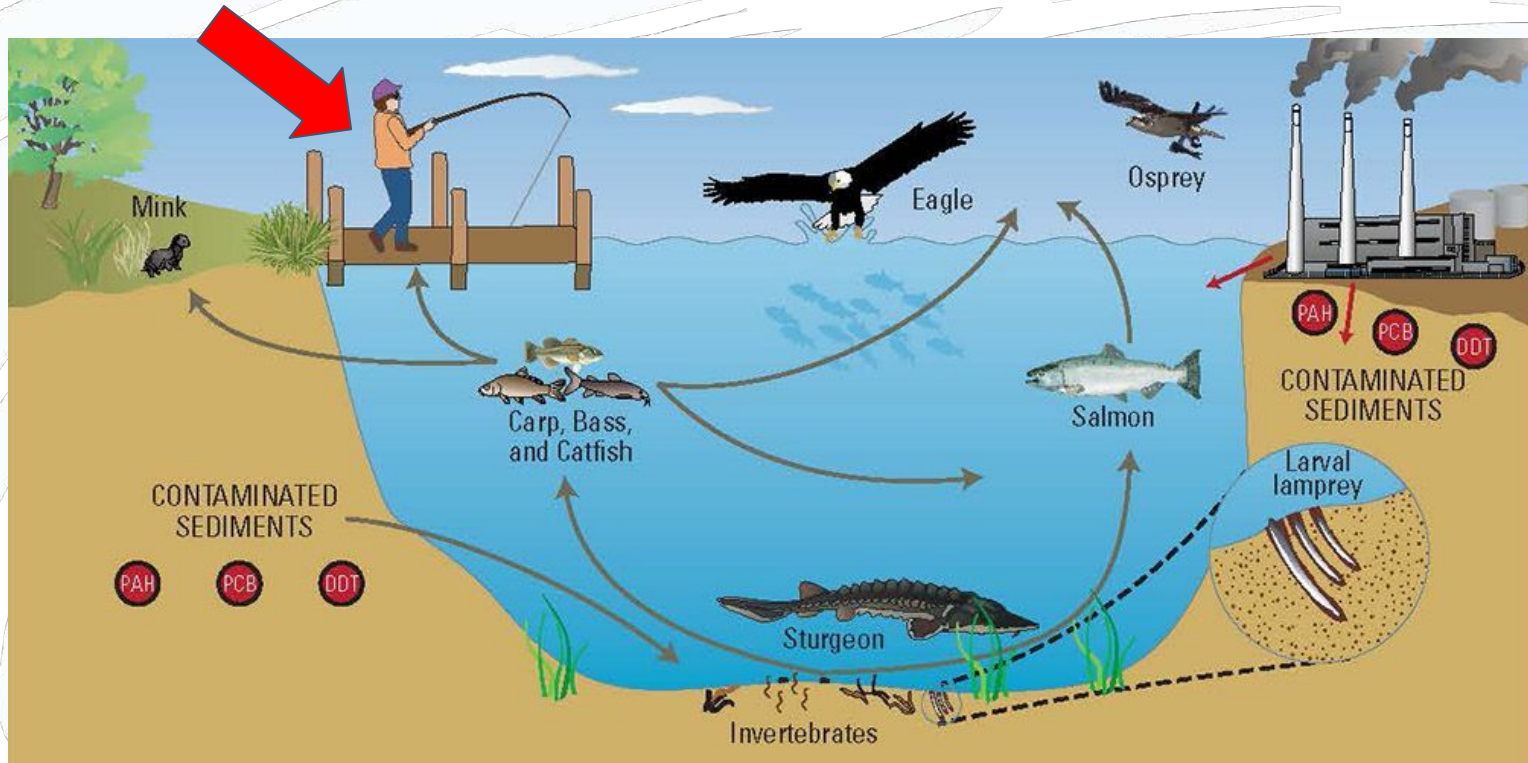


Discussion

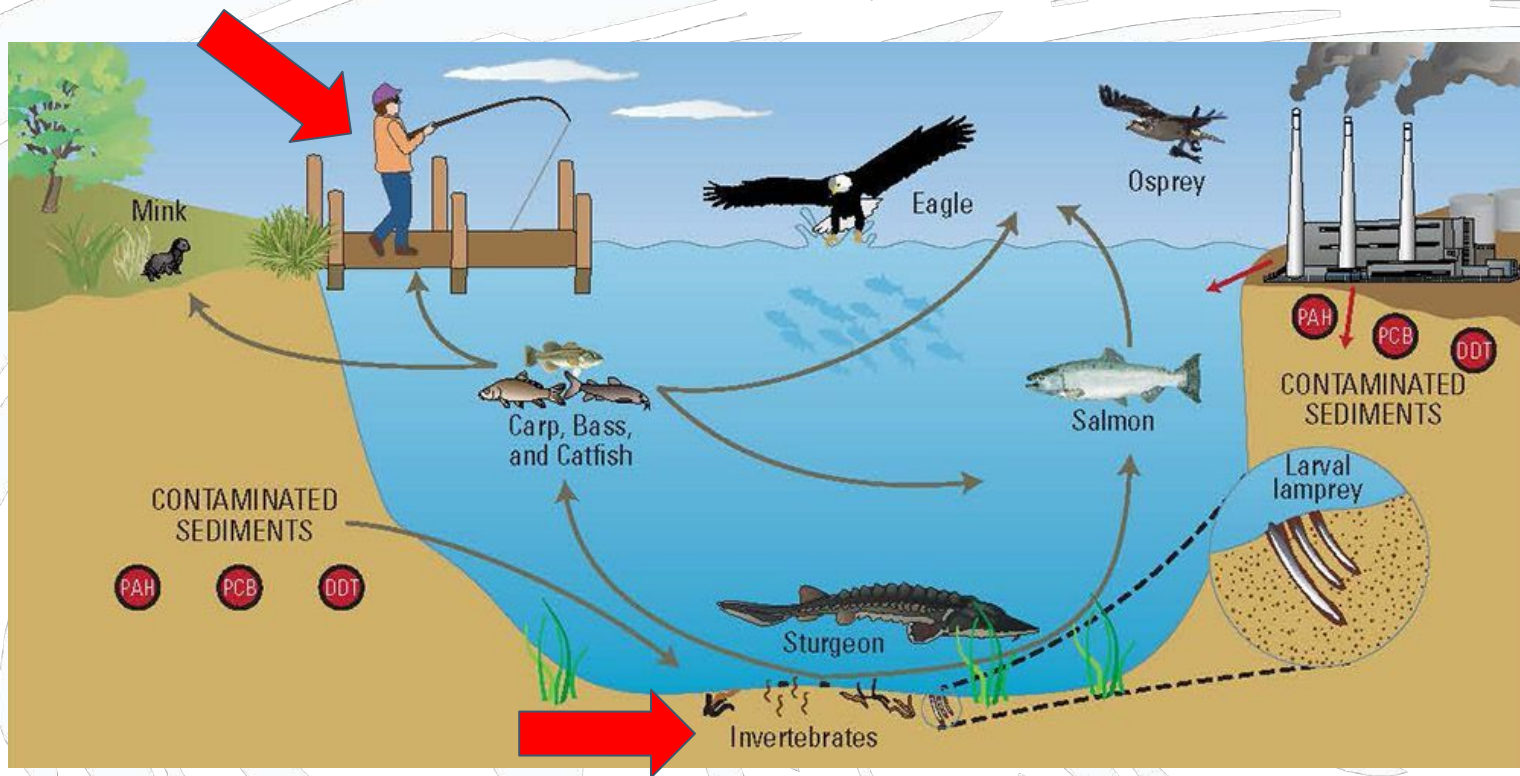
What are some ways humans can impact biodiversity, positively and negatively?



Humans and animals are **connected!**



Protecting even the smallest organisms matters.



Web of Life Activity



Let's make a web of life!

What you'll need:

- Web of life cards
- String or yarn

Web of Life

1. Read the back of your biodiversity card.
2. You represent this resource.
3. Start with the SUN.
4. Show your picture and read card aloud .
5. Hold your end of the yarn.
6. Pass yarn to a resource that you need OR needs you.
7. Repeat to make web of life.

Web of Life

8. What happens if one species becomes extinct?

How are the other species affected?

See you at the River!



Thank you!

