

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

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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?

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



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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?



The background of the slide features a complex, organic pattern of light blue and white wavy lines that resemble ripples in water or a topographical map. The lines are fluid and interconnected, creating a sense of movement and depth. At the bottom of the slide, there is a solid horizontal bar with a color gradient from green on the left to blue on the right.

# 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 LA 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.

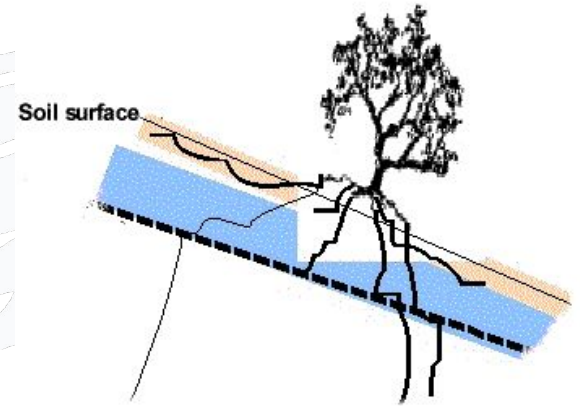
*non-native*



# 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?





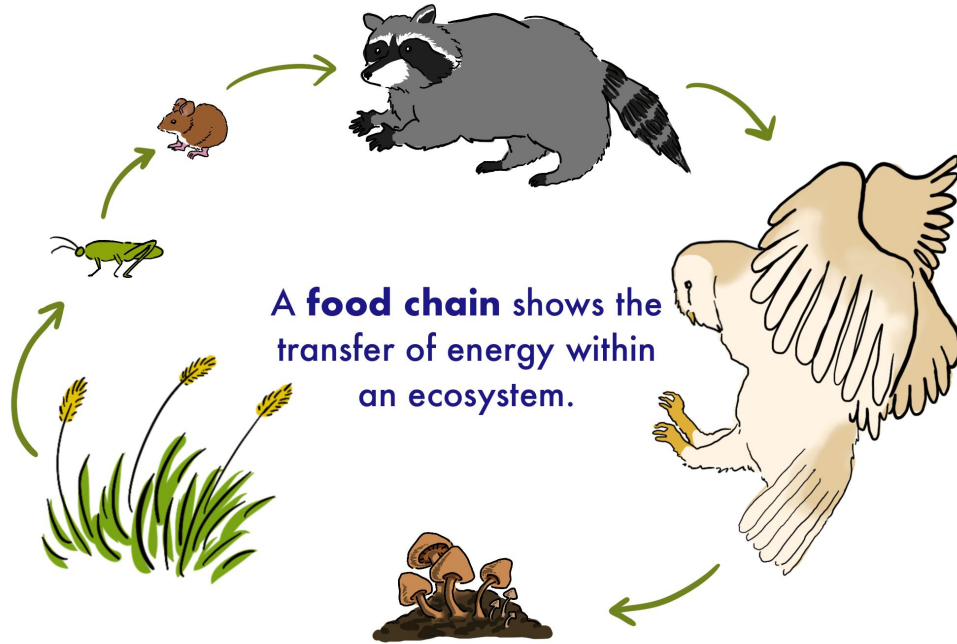
How do humans  
benefit from this  
plant?

**Food source,  
natural dye,  
aesthetics**





# Food chain



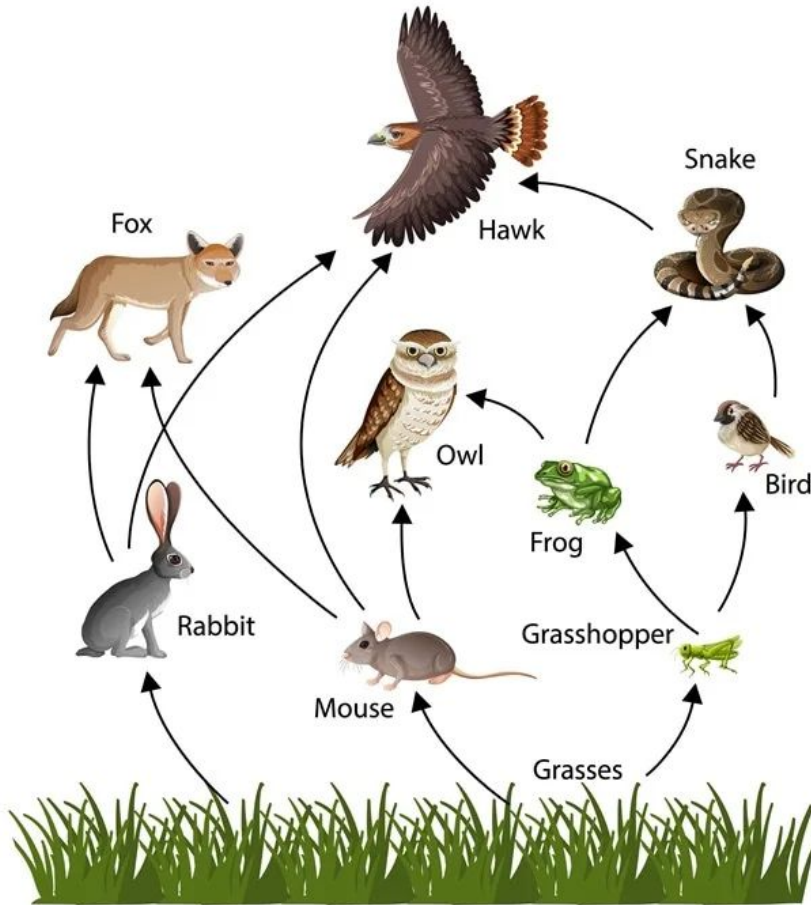
A **food chain** shows the transfer of energy within an ecosystem.

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?





**bio = life**





**diversity =  
variety**



A collage of various nature images including flowers, insects, and butterflies, with a central text overlay. The images include a large red flower, pink cherry blossoms, a brown beetle on wood, a fly on a green leaf, a butterfly, yellow and red flowers, pink flowers, a brown beetle on a leaf, a red flower, a green beetle on a yellow flower, a purple flower, a green and black striped caterpillar, red flowers, a brown moth, a white flower, a dragonfly, and a field of red flowers.

**biodiversity =  
variety of life**



# Biodiversity

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

# Biodiversity

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

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

# Biodiversity

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## 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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## 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.



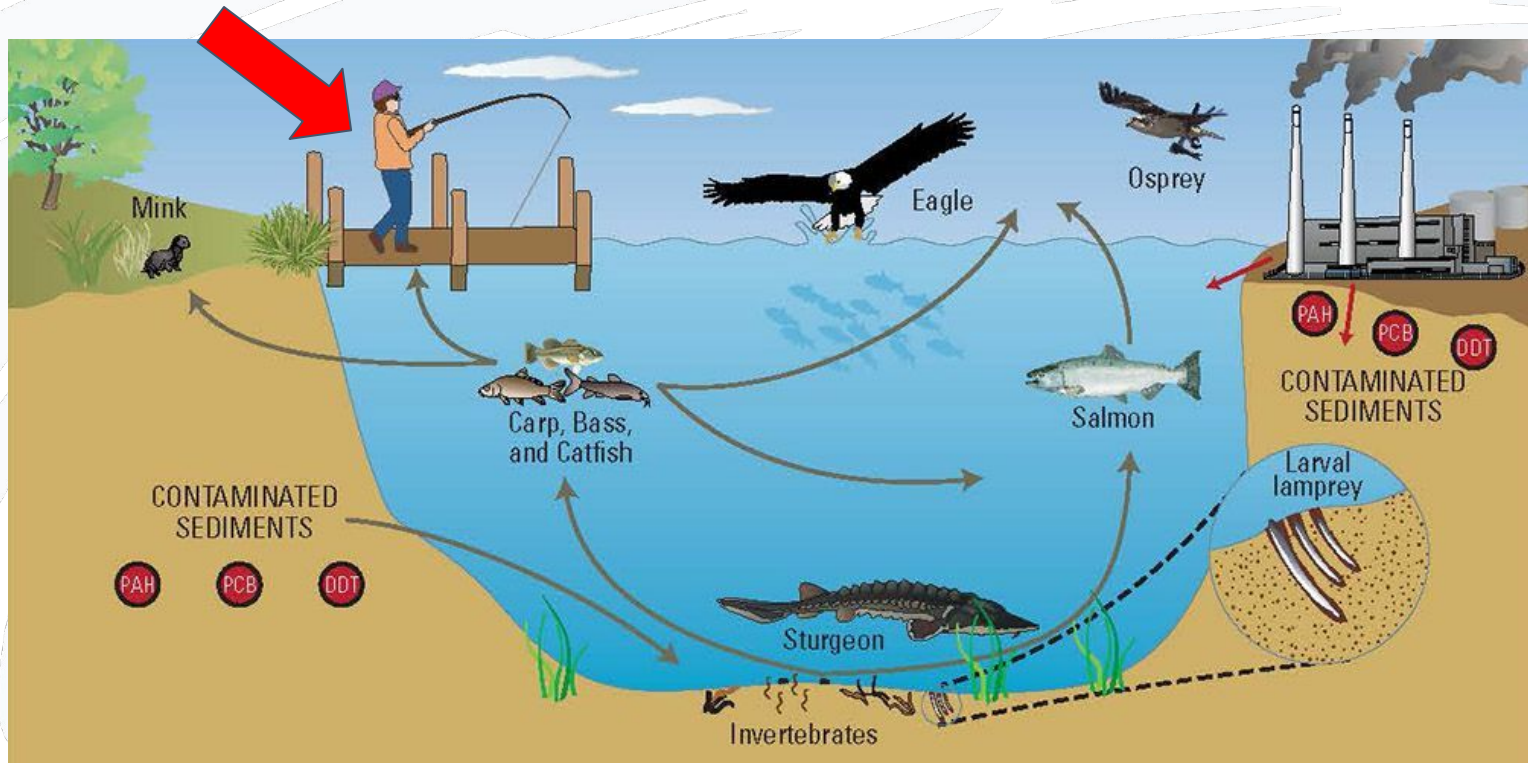


# Discussion

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

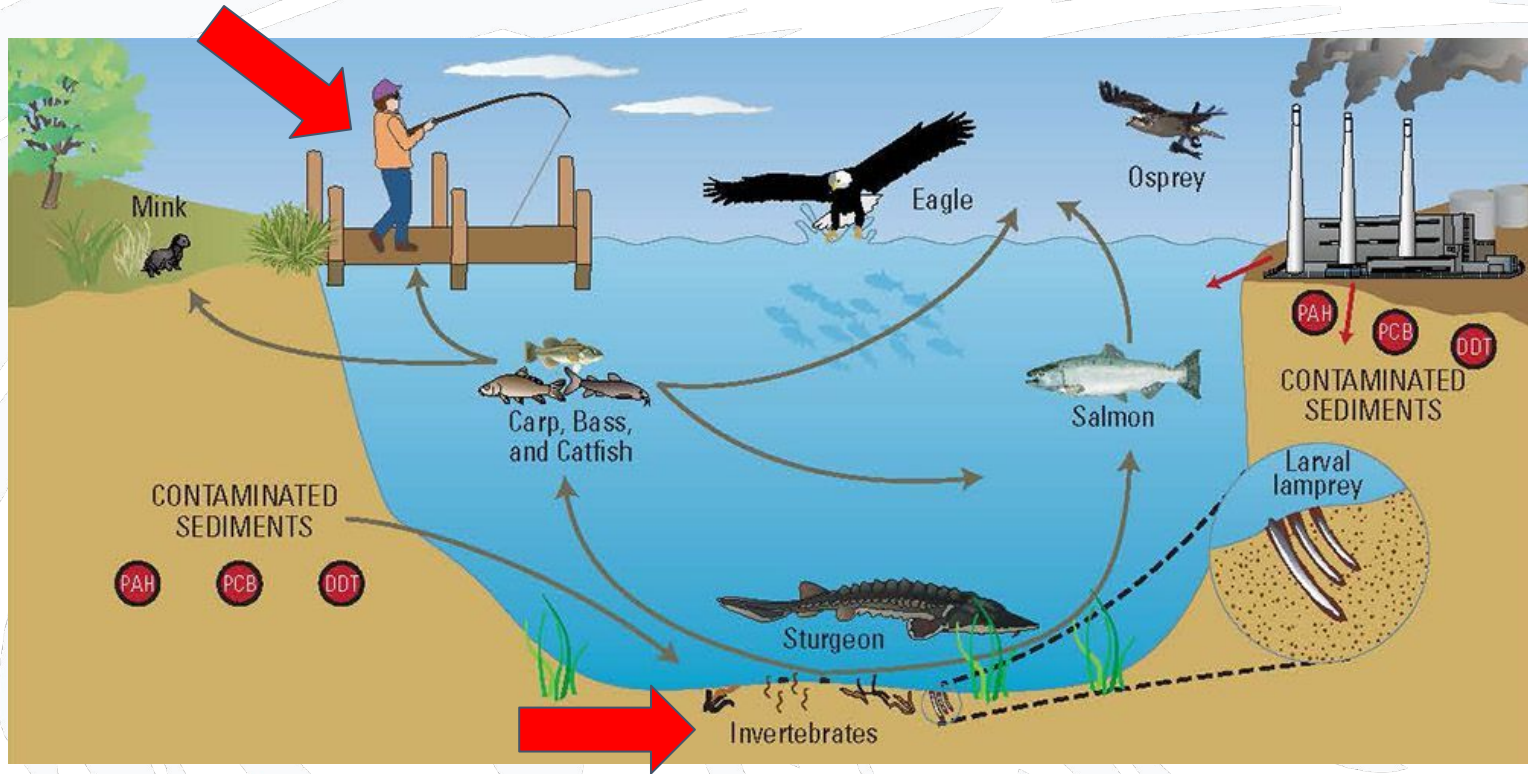


# Humans and animals are **connected!**





Protecting even the smallest organisms matters.



# Web of Life Activity





# Let's make a web of life!

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## **What you'll need:**

- Web of life cards
- String or yarn

# Web of Life

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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

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**8. What happens if one species becomes extinct?**

**How are the other species affected?**

See you at the River!





**Thank you!**

