Endangered Animals Information Guide

Endangered species

- The Earth is mind-blowingly ancient—about 4.5 billion years old. And life on Earth has been around for over 2 billion years.
- However, during Earth's history, some extreme events have killed off large numbers of species, such as the extinction of dinosaurs. These events are called mass extinctions.
- Main reasons why animals become endangered:
    - Destroying or damaging habitats
    - Overhunting, overfishing, and poaching
    - Introducing invasive species
    - Polluting
    - Taking animals out of the wild for the exotic pet trade
    - Contributing to climate change
- Habitat destruction is the biggest reason that species become endangered. When an animal's habitat is taken away or damaged, it can't just move somewhere else.
    - One way to protect important ecosystems is to create national parks, wildlife reserves, and marine protected areas.
    - Habitat loss results from human activities, mainly land development such as clearing land for roads, buildings, and farms.
    - Natural disasters or changes in the climate can harm or destroy habitats.
- Many species are now extinct because they were hunted until there were none left. Poaching is the illegal hunting of animals.
- Invasive species are plants and animals transported from one country or region to another and introduced into the wild. The new species often spread freely because it has no natural enemies, upsetting the ecosystem's natural balance.
- There can be different pollution types such as air, water, soil, noise, and light pollution, which can harm ecosystems and wildlife. Pesticides are toxic and harm more than their target. Humans pollute habitats with garbage, car fumes, and factory wastes.
- Overfishing is when humans have been taking more fish out of the ocean for food than the seas can naturally produce.
- Many "pets," including fish, reptiles, spiders, birds, rodents, and exotic mammals, are harvested from the wild, leading to the decline or disappearance of species in their natural habitat.
- Many countries have made it illegal to harm, capture, kill, or sell endangered species to protect endangered animals. Many organizations work to keep endangered species from becoming extinct and help set aside land for threatened wildlife. Nature preserves and zoos help endangered animals to reproduce.

Bee - Rusty Patched Bumblebee

Description

- Scientific name: *Bombus affinis*
- Disappeared from 87% of its historic range in the recent past.

Location

- Occupied grasslands and tallgrass prairies of the Upper Midwest and Northeast, before they have been lost, degraded, or fragmented by conversion to other uses.
- Broadly distributed across the eastern United States and Upper Midwest, from Maine in the U.S. and southern Quebec and Ontario in Canada, south to the northeast corner of Georgia, reaching west to the eastern edges of North and South Dakota.

Identification

- Typically black and yellow coloration with blackheads and striped pattern.
- Queen bees are the largest bees and workers are the smallest.
- Workers and males have a rusty, reddish patch centrally located on the back.

Diet

- Gather pollen and nectar from nearby flowering plants.
- It needs a constant supply and diversity of flowers blooming throughout the colony's long life, April through September.

Endangered/Conservation

- Both domesticated honey bees and many native bee species are in decline.
- Endangered due to habitat destruction, disease, agricultural and lawn and garden practices, use of pesticides, habitat fragmentation, land-use changes, invasive species, and climate change.
    - Pesticides are absorbed by bees which is dangerous for them.
    - Climate changes that may harm bumblebees include increased temperature and precipitation extremes, increased drought, early snowmelt and late frost events. These changes may lead to more exposure to or susceptibility to disease, fewer flowering plants, fewer places for queens to hibernate and nest, less time for foraging due to high temperatures, etc.
    - Exotic diseases from commercial bumblebees are likely playing a role in the decline of at least some species, such as the rusty patched bumblebee.
- Bumblebees are keystone species in most ecosystems, necessary for native wildflower reproduction and for creating seeds and fruits that feed wildlife as diverse as songbirds and grizzly bears.
- Protection: Making improvements to where bees live, including the practices of planting cover crops, wildflowers, or native grasses and improved management on grazing lands.

- Can help by gardening to provide nectar and pollen for native bees (using native plants), and limiting pesticide use.

Fun Facts

- The waggle dance is a special 'figure-of-eight' dance that is done by the honey bee in its hive. By this, a worker tells the others where it has found nectar.
    - The dance is a type of communication for bees. It is done to give other bees information about the direction and distance to flowers that have nectar or pollen, or both. It is also used to tell the bees where water can be found.
    - The dance is used for bees to get others to help them collect resources for the hive.
    - The direction and duration of waggle runs show the direction and distance to flowers. Flowers that are located directly in line with the sun are shown by waggle runs in an upward direction on the vertical combs. If the flowers are at an angle to the right or left of the sun, the waggle run is done at the same angle to the upward direction. The distance between hive and flowers is shown in the duration of the waggle runs. The farther the flowers are from the hive, the longer the waggle phase.

Whale Shark

Description

- Scientific name: Rhincodon Typus
- Affect local populations of zooplankton and small nekton by consuming these organisms.
- The whale shark is the largest fish globally and the largest fish known to have lived on this planet.
- Lifespan - 70 to 100 years.
- Full-grown adult whale sharks are about the size of a large school bus.
- Whale Sharks are slow swimmers that migrate a long way, moving at speeds of little more than 3 miles per hour.

Location

- They inhabit both deep and shallow coastal waters of subtropical zones and lagoons of coral atolls and reefs.
- This species can regularly be found in the offshore waters of Australia, Belize, Ecuador, Mexico, the Philippines, and South Africa.

Identification

- This species is the largest known fish.
- Whale shark has a broad, flat head, relatively small eyes, five large gill slits, two dorsal fins, two long pectoral fins, two pelvic fins, one anal fin and a large sweeping tail.

- Unlike most shark species, its mouth is located at the front of the head (terminal) instead of the underside of the rostrum (subterminal).
- The whale shark has a huge mouth, which can reach up to 4 feet (1.4 m) across, located at the front of the head.

Diet

- Diet consists of zooplankton, specifically sergestid shrimps and fish eggs, as well as krill, jellies, copepods, coral spawn, etc., and small fishes (sardines, anchovies, etc.)
- Whale sharks are filter feeders that can't bite or chew.
- Whale sharks can only swallow small prey because its throat is very narrow, often compared to the size of a quarter.
- A whale shark filters food from the water by "cross-flow filtration," which means the particles do not catch on the filter. Rather, water is directed away through the gills while particles (which have more momentum) carry on towards the back of the mouth in an ever more concentrated stream. A bolus or spinning ball of food grows in diameter at the back of the throat until it triggers a swallowing reflex. This is very efficient and does not clog the filter.
- Using their gills, whale sharks can process over 6,000 liters of water every hour.

Endangered/Conservation

- Due to their docile lifestyle and minimal defenses, whale sharks have become prone to exploitation (taken advantage of, such as by hunting).
- Whale sharks can also be injured by boats and propeller strikes.
- Whale sharks are considered food in many countries, with their soft meat being known as "tofu sharks".
- Hunting has significantly decreased their numbers.
- Conservation Status- "Endangered" on the IUCN Red List.

Fun Facts

- Whale sharks show the ability to learn.
- The largest confirmed whale shark (Rhincodon typus) was 41.5 feet long and weighed about 21.5 tons.
- Whale sharks are held in captivity, including the Georgia Aquarium in Atlanta.
- Each whale shark has its own individual spot pattern; like human fingerprints, no two are exactly alike.

Green sea turtle

Description

- They can rest underwater for up to five hours at a time before coming up for air.
- Typically alternate between being underwater for a few minutes and coming up to the surface to breathe air for a few seconds.

- Scientific name: Chelonia mydas
- They live for about 100 years.
- They have an excellent sense of direction and can detect the Earth's magnetic field, and they use it as a compass.

Location

- Green sea turtles are found worldwide in warm subtropical and tropical ocean waters, and nesting occurs in over 80 countries.
- Highly migratory, and there are populations with different colorings and markings in the Atlantic, Indian, and Pacific Oceans.
- In the United States, green sea turtles are most often seen in the Hawaiian Islands, Puerto Rico, the Virgin Islands, and the east coast of Florida.

Identification

- One of the world's largest species of turtle.
- They have strong paddle-like flippers that help propel them through the water.
- Males are slightly larger than females and have a longer tail.

Diet

- By keeping seagrass short, they prevent it from getting tall and harming other marine creatures.
- Maintain moderate amounts of vegetation to keep it from overpopulation.

Endangered/Conservation

- Endangered for many reasons, including poaching and human hunting.
- Also, face habitat destruction and accidental capture—known as bycatch—in fishing gear.
- Climate change impacts turtle nesting sites; it alters sand temperatures, which then affects the sex of hatchlings.
- Newly hatched sea turtles are also at risk of being hunted by animals such as birds, crabs, and raccoons as they move from their nests to the sea.
- Green sea turtles are an endangered species with an estimated 90 percent population decrease over the past half-century.
- Diseases such as fibropapilloma also affect green sea turtles.
- Light pollution near beach nesting sites poses a risk to sea turtle hatchlings, which may get confused and crawl toward the light instead of traveling to the ocean.

Fun Facts

- Green sea turtles received their name for the color of their body fat, which is green.

- Leatherbacks and hawksbill turtles feed on jellyfish and keep their populations in check. Plastic looks like jellyfish when it's floating in the water, and that's why so many turtles die from ingesting plastic—they were going for a tasty snack.
- They cannot retract into their shell-like other turtles.
- An estimated 110 million years is how long sea turtles have existed on Earth, which means they once shared the planet with T-Rex and other dinosaurs.

Helping endangered animals (not covered in Lesson Plan)

- Cleaning rivers and creeks by picking up trash (especially after heavy rain and populated areas). This prevents local wildlife hazards since they are dependent on streams for drinking, spawning, feeding, and migration.
- Protect honey bees and other pollinators -by avoiding using pesticides (and posion) and find other ways to deal with unwanted bugs, such as using repelling scents. Also, consider planting fruits, flowers, and vegetables for pollinators.
- Reach out to the people in charge and write a letter wanting change - this could be the heads of harmful companies or government officials. Gather supporters of the letter as well and have them sign it.
- Visit a national park or nature reserve to see if you can help out and learn more or volunteer.
- Reuse and recycle objects - more in the conservation section.
- Avoid buying products made from endangered animals.
- Control your pets, so they don’t harm local wildlife.