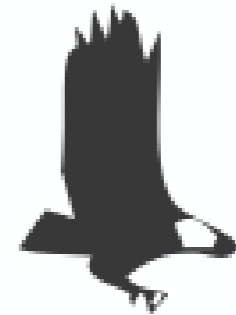

California Department of Fish and Wildlife



NATURE BOWL 2021: Family Challenge Edition



Nature Bowl 2021

Welcome California Family!

Nature is calling! And we are delighted your family is answering. Thank you for signing up to play in California's Nature Bowl 2021: Family Challenge Edition.

Within this packet, you will find everything you need to participate in this fun and educational competition.

Nature Bowl was started nearly 35 years ago in the North Central Region by the California Department of Fish and Wildlife (CDFW) and its partners. The event's goal is to connect students with the natural world around them.

Due to the pandemic, Nature Bowl 2020 was cancelled, along with everything else. So instead of another cancellation or all-virtual activities, Nature Bowl 2021 is rolling with the times as the Family Challenge Edition!



Nature Bowl 2021

Let the Games Begin!

THE GOAL OF THIS YEAR'S NATURE BOWL COMPETITION IS TO GET CALIFORNIA FAMILIES OUTSIDE—IN YOUR BACKYARD, NEIGHBORHOOD AND/OR LOCAL NATURE AREA—FOR SOME OUTDOOR ADVENTURE!

This is a chance for the whole family to work together this spring to complete these five enjoyable and exciting activities:

1. Nature Relay
2. Nature Investigations
3. Bell Ringers
4. Team Problem Solving
5. Environmercial

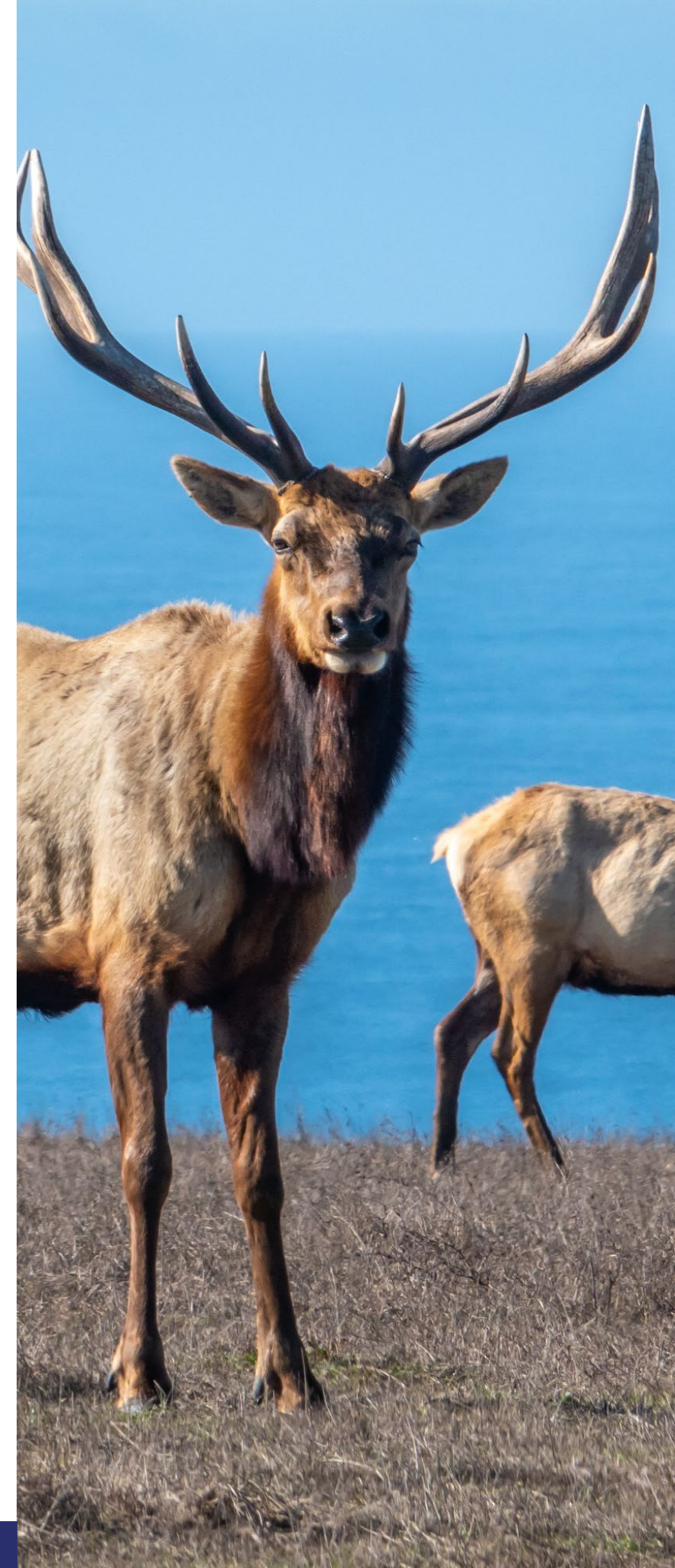
Each activity is worth 20 points, with a total score of 100 points. Each activity is explained in detail within this packet. The Nature Bowl Vocabulary holds all the answers and more. You can do all the activities or pick a few.

The contest is open from March 15, 2021 through May 14, 2021.

PLEASE MAIL YOUR FAMILY'S ENTRY BY MAY 14, 2021 TO:

Nature Bowl 2021-Family Challenge
California Department of Fish and Wildlife
1701 Nimbus Road
Rancho Cordova, California 95670

Or email your entry to: genelletreaster@wildlife.ca.gov



Nature Relay: Scavenger Hunt Safari

- Challenge yourself to a Scavenger Hunt Safari—in your backyard, neighborhood and/or local nature site.
- Record each item you find on the Scavenger Hunt form, attached.
- Try to use a different found item for each hunt item.
- Complete eight hunt items. Do all 15 for extra credit.
- Add three more hunt items of your own from Vocabulary words.

Judging: Completed Scavenger Hunt, followed directions

Scoring: 20 points



Nature Investigations: Discover and Become

Step One:

- Discover the native animals and plant life in your backyard, neighborhood and/or local nature area.
- Follow wildlife viewing tips, attached.
- Use the Field Notes form, attached, to record your sightings/data and to analyze your findings. Use as many sheets as you need.
- Observe nature for 20-minute periods at your selected site at least three times, during different times of the day.
- If you are unable to identify a species email genelletreaster@wildlife.ca.gov for assistance or ask your local nature area staff.

Step Two:

- Pick one of the species you observed. Research the natural history of that species further in field guides and online. How big is it? What is its lifespan or lifecycle? Where does it range? Is it common or rare? How is it unique? And other interesting facts.
- Demonstrate your in-depth knowledge of your species by composing a short story from the animal's or plant's point of view.
- Story can be written, drawn with captions or use a comic book storyboard format.
- Include findings from your field notes.
- Written story: 2-page, single spaced maximum. Shorter is fine.
- Drawn story or comic book style: 4-pages maximum. Shorter is fine.

Judging: Based on the guidelines above, as well as use and completion of Field Notes.

Scoring: 20 points



Bell Ringers: Create a Game

- Invent a fast-paced family game using the words and concepts in the Nature Bowl 2021 Vocabulary.
- Use as many or as few words/concepts as you want.
- Can be a unique game, or a copy of an existing game, gameshow, board game, etc. An example would be creating a Jeopardy game using nature words and concepts.
- Name your game.
- Provide detailed overview of the game, including thorough directions.
- Play the game with your family! Makes sure it runs smoothly.
- Self-evaluate your game. Why did you choose this game? Describe how you think it will assist people in the fun learning of vocabulary word(s). Did you restructure your game after playing it? Why and how?

Judging: All of the above, including use of vocabulary, detailed game information and self-evaluation.

Scoring: 20 points



Team Problem Solving- Nature Snapshots

- Use these nature snapshots to activate your naturalist skills.
- Determine or decipher the 12 nature events occurring in the nature snapshots, attached.
- Give your best guess at what's occurring and who/what is doing it.
- Write a caption of your guess under each picture.
- Find and photograph/draw 4 more nature events of your own.
- Follow the above instructions for each.



Caption:

- Who's that?
- What's going on?
- Write a caption!



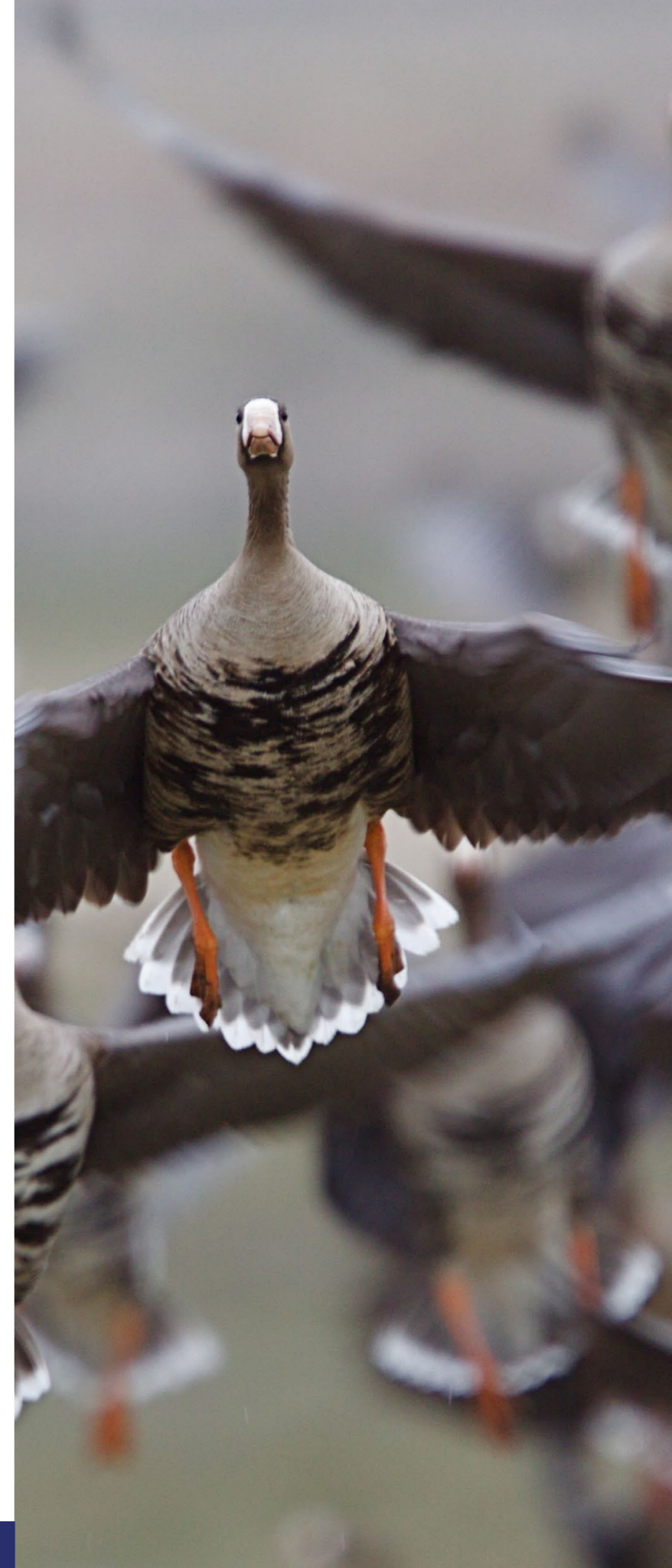
Caption:

Environmercial: Create and record an advertisement

- Create and record a sixty second commercial advertisement.
- Choose a topic that is a specific and current nature issue in California.
- Research and summarize the issue.
- Determine its cause and effect.
- Find out what's being done about this issue in your community.
- Propose a reasonable solution to this issue.
- Convince your audience of the solution.
- Submit your video by uploading it to your own site (YouTube, Google Drive, etc) and send the link, with your family name, to: genelle.treaster@wildlife.ca.gov
- A sample of an environmercial can be found here: <https://www.youtube.com/watch?v=djnFZ7di7iA>

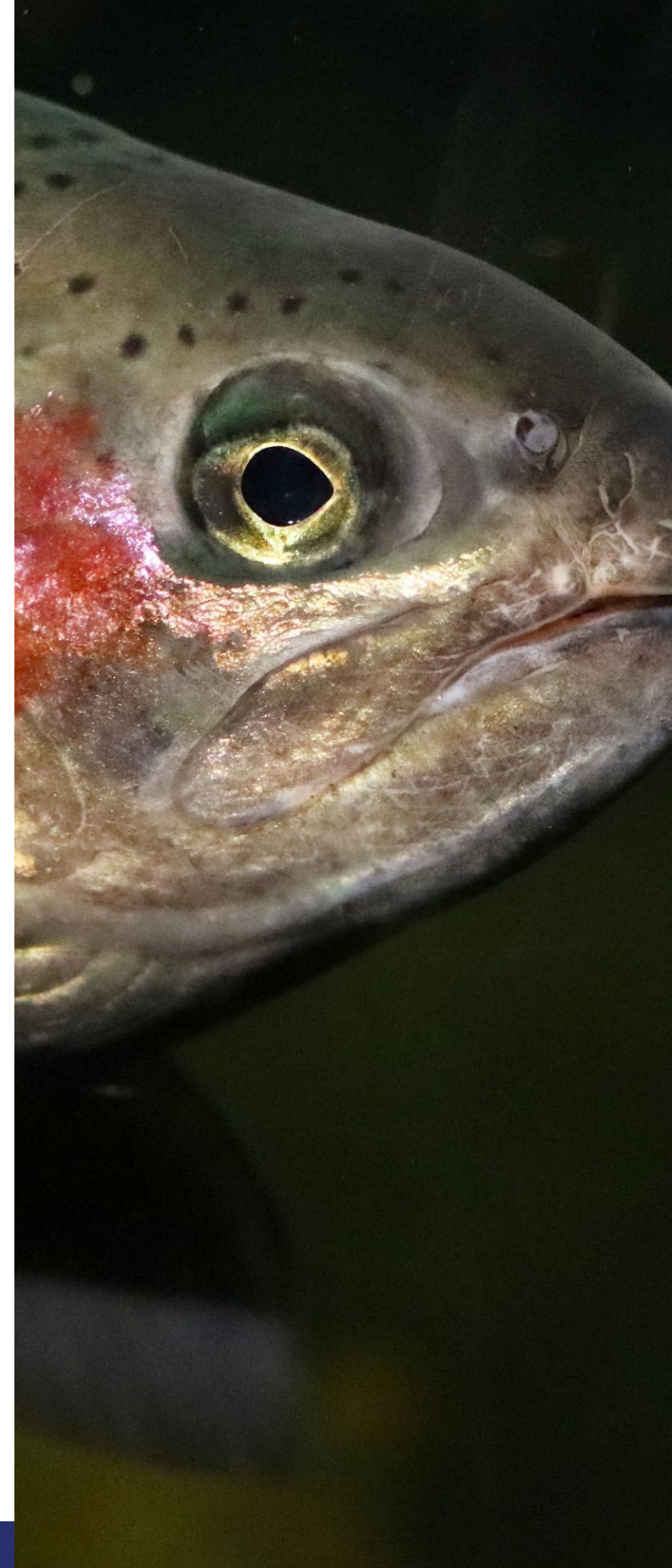
Judging: Based on all above, plus topic choice, thoroughness, creativity, resources used, timing.

Scoring: 20 points



Attachments:

- **Wildlife Viewing Tips**
- **Scavenger Hunt Safari**
- **Field Notes Form**
- **Cartoon Storyboard Template**
- **Nature Snapshots**
- **Nature Bowl 2021 Vocabulary**
- **Partners and Resources**



Wildlife Viewing Tips

- Keep your pets at or inside home
- Sit down somewhere comfortable
- Avoid making too much noise
- Try to blend into your surroundings
- Be patient and respectful
- Use all your senses to listen and look for wildlife
- Stay a safe distance from and do not approach wildlife
- Avoid sensitive habitats, such as nests and dens
- Use binoculars and field guides
- Wildlife is most active at dawn and dusk
- Find edges of different habitats, or ecotones, where wildlife is most plentiful
- Don't forget to notice the micro-world of insects
- Enjoy yourself and be happy



Scavenger Hunt Safari

Look for eight of the following words in real life—in your backyard, neighborhood or local nature area. Find something that best illustrates each word. Describe, photograph or draw each item found. Find all 15 items for extra credit. Add three more of your own from the Vocabulary.

	Date:	What:	Where:	Why:	Observer:
Aquatic					
Carnivore					
Diurnal					
Domestic					
Fauna					
Flora					
Hazard					
Herbivore					
Invertebrate					
Nocturnal					
Pollination					
Predator					
Prey					
Territory					
Vertebrate					
1. _____					
2. _____					
3. _____					

Nature Investigations: Field Notes

Date:

Place:

Habitat Type:







Weather:

Observed by:

Species sighted	Description	Behavior	Other notes

Record your Findings:

Nature Investigations – storyboard template

Name of Project: _____		Group Members: _____	
			
<input type="checkbox"/> _____ _____ _____	<input type="checkbox"/> _____ _____ _____	<input type="checkbox"/> _____ _____ _____	
			
<input type="checkbox"/> _____ _____ _____	<input type="checkbox"/> _____ _____ _____	<input type="checkbox"/> _____ _____ _____	

Nature Snapshots (page 1)



Caption:



Caption:

Caption:



Caption:



Nature Snapshots (page 2)



Caption:



Caption:



Caption:



Caption:

Nature Snapshots (page 3)



Caption:



Caption:



Caption:

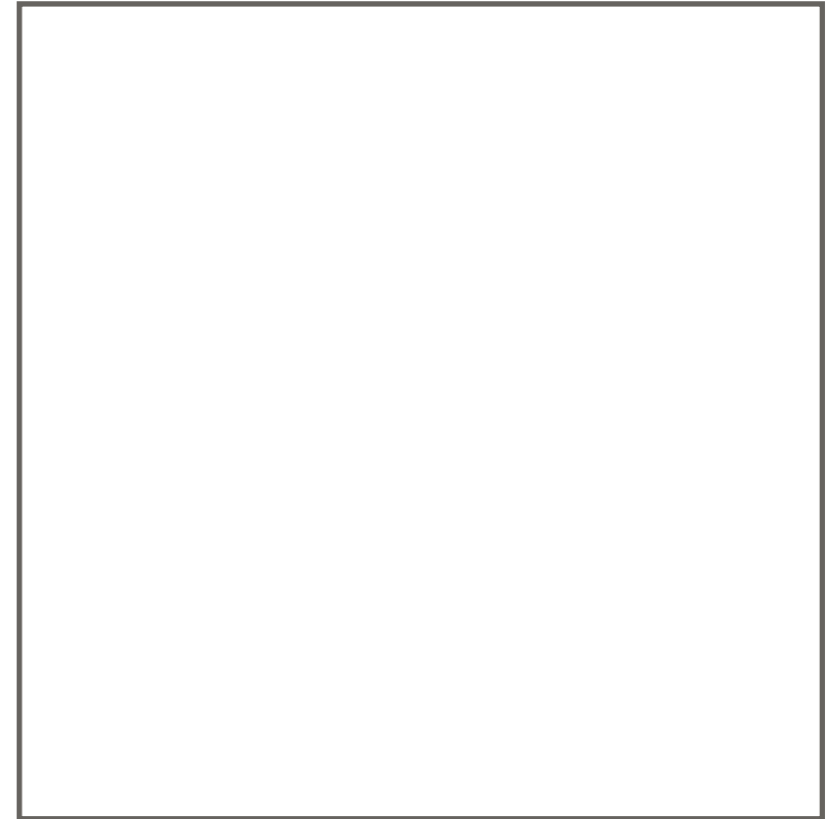


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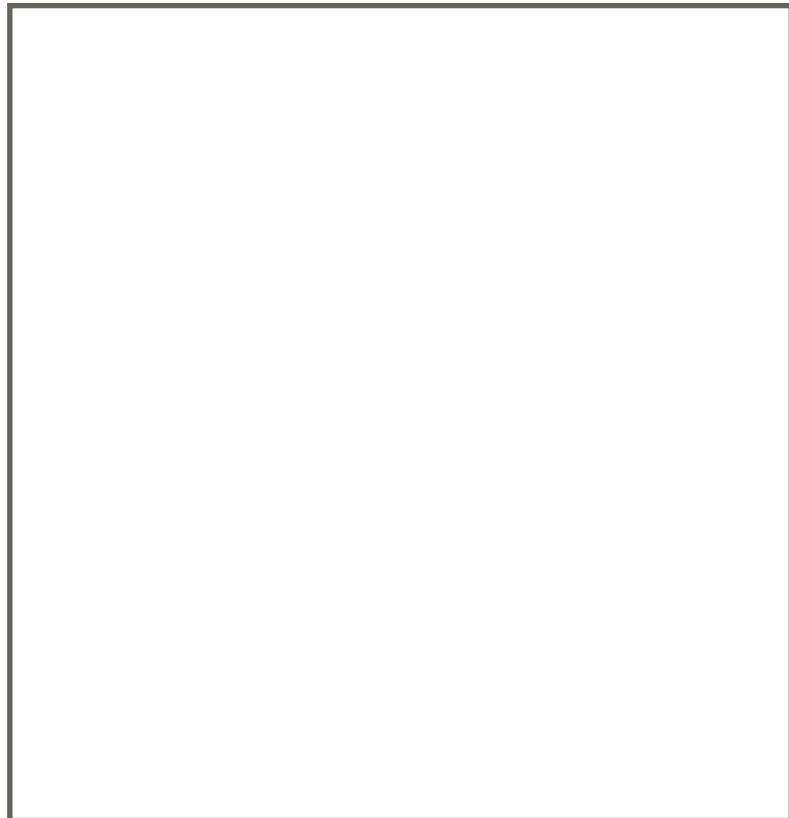
My Nature Snapshots



Caption:



Caption:



Caption:



Caption:

Abiotic: Not alive, or not derived from living organisms.

Adaptation: Living organisms change over time to become best suited, or adapted, to their environment. These adaptations can be **structural**, **behavioral** or **physiological**.

Agriculture: Human practices of raising crops and/or livestock mainly for consumption by people or livestock. Many types of agricultural practices also provide habitat for wildlife, especially in areas where native habitats are missing.

Amphibian: Cold-blooded vertebrates. Adults breathe air with lungs and through moist skin and live on land and in water. Eggs laid in water, hatching into a gill breathing larval stage which develops into an adult.

Anadromous: Certain aquatic species, such as salmon and steelhead trout, that live in, and breathe, both freshwater and saltwater.

Aquatic: Growing, living in and/or associated with water.

Biodegradable: Materials that can decompose, or decay.

Biodiversity: The variety and abundance of different species of plants and animals. (Biological diversity)

Biology: The scientific study of life.

Biotic: Of, relating to life and/or by living organisms

Biotic Zone: Specific location of a specific community, or ecosystem, of inter-related life forms. Also called **Floralistic Province**. California has the most of any state.

Camouflage: An adaptation that enhances chances of survival for both predators and prey. Allows wildlife and plants to blend stealthy in their environment.

Carnivore: A meat eating life form.

Carrion: The body and flesh of a dead animal.

Carrying capacity: The maximum number of plants and animals that can be supported by a habitat or environment. The healthier the habitat, the higher number of species it can support. Healthy habitats occur when native plants and animals have all the food, water, shelter and space they need to survive.

Central Valley: Also called the Great Central Valley, it is the second largest valley on earth! Its low elevation between mountain ranges serves as the major drainage for most of California's rivers. This landscape includes a mosaic of native habitats as well as agriculture.

Chaparral: An unusual foothill habitat, or biotic zone, of the Sierra Nevada and Coastal Range. Mostly covered by scrub of entangled, evergreen bushes and few trees. With long dry summers and wet winters, plants here are adapted to fire and drought.

Colony: Individual organisms of the same species living or breeding closely together, usually for the benefit of all, such as for a stronger defense.

Competition: The struggle between two or more plant or wildlife species for a specific common resource. Plants compete for sunlight, while animals compete for food.

Coniferous: Evergreen trees bearing cones full of seeds to reproduce.

Conservation: The responsible stewardship of environmental lands to protect, preserve and enhance natural ecosystems--while at the same time considering human needs and impacts. Land can be conserved while still allowing a careful amount of harvesting, including hunting and fishing, hiking and/or livestock grazing.

Consumers: Organisms that eat other organisms to get their energy. There are three types: Primary (herbivores), Secondary (omnivores) and Tertiary (carnivores).

Consumption: The using up of a resource, or the amount of resource used up.

Deciduous: Plants that shed their leaves and go dormant to survive extreme weather conditions.

Decomposition: The breaking down of dead organisms, so they can be used by plants. Decomposers are those invertebrates that help with this process.

Delta: An area where rivers meet and join. In California, the Sacramento-San Joaquin Delta is where the Sacramento and San Joaquin Rivers meet and drain into the Pacific Ocean through the San Francisco Bay. This region hosts a mix of permanent habitats—riparian, marsh, river, grassland, agriculture and estuary, as well as several towns.

Desert: A geographical area of land with low precipitation, poor soil and adapted flora and fauna. In California, we have three types: High desert, Sonora and Mohave.

Development: When wild land is permanently converted to urban and agricultural land uses.

Diurnal: A life form active during the day.

Domestic: Wild animals (and plants) tamed and bred over time for human use. They are now dependent on humans for survival.

Ecosystem: A biological community of interacting, interdependent organisms and their physical environment.

Ecotone: The edge, or transitional zone, between two habitat types and frequented often by wildlife.

Endangered: A species of plant or animal in immediate danger of extinction throughout all, or a significant portion of, its current range. Other at-risk classifications are Threatened and Species of Concern.

Endemic: A life form occurring naturally, only in a certain geographic area on Earth.

Energy: The matter that drives all life processes, and the capacity of all life forms. Animals make energy from food and water. Plants use photosynthesis and root systems. Energy in the form of heat and electricity is created from power sources like solar, wind, biomass, hydro, geothermal and by burning fossil fuels, like coal. Energy sources are either renewable or nonrenewable.

Environment: The air, water, minerals, organisms and all other external factors surrounding and affecting a given organism at any time.

Erosion: The wearing away of soil or rock by water, wind or other natural and unnatural forces or processes.

Estuary: The calm, marshy bays where rivers flows into the sea. An important and rich habitat for fish and wildlife. Here, there is a mixing of saltwater and freshwater, called brackish.

Evergreen: Plants that do not lose their leaves annually.

Exoskeleton: Any hard, external supporting body structure of an invertebrate.

Extinction: The condition of having been removed from existence. An animal or plant is extinct, when it has vanished from Earth.

Fauna: Animal life.

Feral: Refers to a domesticated animal or plant that escapes, or is released, into the wild. These domesticated animals try to survive, but usually they don't survive long.

Fertilizer: A chemical or natural substance added to soil to improve its quality for plants' growth and yield. Natural fertilizers are made from composted manures and plants, from dying animals like salmon and/or extracted from minerals in the earth.

Flora: Plant life.

Food Web: The transfer of food energy among plants and animals in an interconnected web-like manner.

Foothills: The lower hills of a mountain range, usually under 2000' elevation. Habitats include oak and pine woodland, grassland, savannah, riparian and chaparral.

Fossil Fuel: Fuel such as coal, oil or natural gas formed in the earth millions of years ago from plant and animal remains. Non-renewable energy resource.

Fungus: A plant-like organism, such as a mushroom, that gets energy and matter primarily from other dead organisms.

Game species: The legal designation for animals managed and hunted under the regulation of a government agency.

Geography: The study of the physical features of earth and its atmosphere, and of human activity there on.

Geology: The study of earth's physical structure and substance, its history and processes.

Grassland: A large open habitat covered with grasses and forbs. No trees. Can be flat or rolling.

Groundwater: Freshwater held underground in the soil, or in pores and crevices of rock. Humans pump it out by wells to supply water. Natural springs bring up and hold freshwater on the surface. Geological formations called aquifers also hold and contain groundwater.

Habitat: A defined place, or type of place, where an organism lives. Meets plants and wildlife essential needs by providing suitable food, water, shelter and space.

Harvest: The process of catching and killing fish and wildlife for human food.

Hatchery: A facility that raises fish, usually from eggs.

Hazardous Waste: A waste product that's potentially dangerous or harmful to human health, wildlife and/or the environment. Toxic wastes are harmful or fatal when ingested or absorbed.

Hazard (Wildlife): Any item or obstacle that can injure or kill wildlife through physical contact, or through absorption and ingestion. An example is power lines.

Herbicide: A chemical substance used to kill plants. Toxic.

Herbivore: A plant-eating wild animal.

Hibernation: The act of passing the winter (or a portion of it) in a deep sleep or resting state. A physiological adaptation for survival.

Hydroelectric (Hydro): Electric power converted from water flows. Dams generate hydroelectric power.

Inorganic: Not composed of organic, or living, matter.

Invasive species: An introduced, non-native plant or animal whose population growth threatens to wipe out native plant and animal populations.

Invertebrate: Animal with no true backbone.

Lichen: A simple, slow growing plant-like organism made up of an alga and a fungus that grow in symbiotic association on a solid surface.

Lifecycle: A series of growth stages in the lifespan of every living organism.

Mammal: A warm-blooded vertebrate animal with hair or fur, live birth and milk for young.

Marine: Of, or relating to, the sea or ocean.

Marsh: A permanent freshwater wetland with few trees and many aquatic plants, like tule.

Metamorphosis: A series of changes in shape and function that certain wildlife go through: egg, larva, pupa, adult. Caterpillars become butterflies, and tadpoles become frogs.

Microhabitat: A smaller habitat within a larger one, in which environmental conditions differ from those in the larger one.

Microorganism: A very small life form that can be seen by humans only with the aid of a microscope.

Migration: The seasonal journey of groups of wildlife from one region to another—for food, water, shelter, space, or for breeding. Most of California’s migrating birds travel up and down the Pacific Flyway, a continental highway in the sky for birds. Other species seasonally travel up and down the mountains to different elevations, called altitudinal migration. Fish travel back to their native rivers and streams to spawn, or breed.

Native: Refers to wildlife and plants that naturally occur in an area. Native species are fully adapted to the environment.

Natural Resource: An area appreciated for its beauty and recreational value, like a river, lake or mountain. Also used to describe materials, such as water, gold, energy, wildlife and topsoil—that humans use from natural systems.

Niche: The exact ecological role of an organism within a community of organisms.

Nocturnal: Active during the night.

Organic: Composed of matter from plants and/or animals.

Omnivore: An animal with a varied diet of both plants and animals.

Organism: A living thing, such as a plant, animal or other life form that can grow and reproduce.

Parasite: An organism which feeds upon the tissues or fluids of another animal, or host. It is harmful to the host, but generally does not kill host, as that would destroy its food supply.

Pesticide: A chemical agent used to kill any organism people do not want around—insects and rodents, for example. Toxic to pests and the environment.

Photosynthesis: The amazing process by which green plants make simple sugars, or food, in the presence of sunlight, water and carbon dioxide. Plants are the only organisms directly utilizing the energy of the sun to make their own food.

Poaching: The act of unlawfully and recklessly killing wildlife and/or destroying nature. Poacher is the person breaking the law by not being in compliance with state hunting, fishing and/or ecological regulations.

Pollination: The transfer of pollen within a flower, or between flowers. This fertilizes the flower, necessary to make a seed. Pollen is carried by wind, water, insects, hummingbirds and bats.

Pollution: Harmful substances deposited on the landscape, leading to a state of dirtiness, impurity, unhealthiness, hazards and/or toxins.

Population Density: The actual, or estimated, number of a particular type of organism living in a defined area.

Predator: An animal that seeks, kills and eats other animals. The act of seeking and killing live prey is predation.

Prey: Animals killed and eaten by other animals.

Preservation: When nature is protected and maintained in its original natural form. Its natural resources and processes are not interrupted. Any public use is passive.

Producers: Green plants that make their own food using the sun's energy and photosynthesis.

Product: Something made from natural resources. Can be renewable or nonrenewable.

Raptor: A bird of prey. Carnivorous birds with sharp bills and talons. Adapted for hunting and/or scavenging prey animals.

Recycle: The process of transforming waste materials back to products suitable for reuse.

Refuge: An area of land, or of land and water, set aside to preserve and protect native plant and wildlife species, both common and rare.

Reptile: A cold-blooded, air-breathing vertebrate. Scales or bony plates cover the skin. True claws, if there are legs, occur on the toes, and reproducing is in soft-shelled, leathery eggs.

Renewable Resource: A plant, animal, or substance that can renew and sustain itself over time, like trees and soil.

Reproduction: The process by which plants or animals create offspring, or new organisms of themselves.

Restoration: The process of returning an area to its historic natural condition, using native plants and habitats to attract native wildlife.

Riparian: Of, pertaining to, along, or associated with freshwater rivers and streams.

Runoff: Waterflow, from rain or snow, that is draining on the surface of the land.

Savanna: A habitat with widely spaced mature trees, usually adjacent to grassland. Prized by nesting raptors and all sorts of wildlife.

Scavenger: An animal that sustains itself by eating dead organisms. Most carnivores and omnivores are opportunist scavengers, while turkey vultures are full-time scavengers.

Scrub: Midsized bushes and trees. Also, the middle layer of riparian habitat. Highly valuable to birds and wildlife.

Science: The fact-based approach to discovering, and figuring out, what things are--on earth and in the universe--and how they work.

Scientific Method: The systematic procedure by which scientists observe, measure, experiment, formulate, test, modify and validate their discoveries.

Sierra Nevada Mountains: The big granite mountain range in northern and central California. The range boasts many habitat types, changing as elevation and precipitation rises.

Silt: The dirty sediment that suspends in stagnant water, and/or is carried in moving water. Too much is harmful to aquatic life.

Solar: Of, or related to, the sun.

Stewardship: The job of taking care of a place, responsibly.

Terrestrial: Of, or referring to, living or growing on dry land.

Territory: The certain geographical area belonging to, and defended by, an animal or a group of animals against others of the same sex or species.

Vernal Pool: A rare seasonal wetland habitat occurring on grassland, where an impenetrable layer of soil ponds rainwater in winter and spring. Highly adapted plant and animal species.

Vertebrate: An animal with a backbone.

Water cycle: Earth's continuous circulation of water from oceans to air to land and back to oceans. The cycle involves condensation, evaporation, run-off, precipitation and transpiration.

Waterbirds: Bird species that frequent lakes, rivers, oceans and other wetlands to feed, roost and breed.

Weathering: The process by which weather breaks down rocks into smaller and smaller pieces that stay in the same location.

Wetland: Areas that are flooded or saturated by surface water for a sufficient time. Supports vegetation adapted for life in wet soil conditions. Wetlands generally include marshes, vernal pools, rivers, streams and similar areas.

Wildlife: Animals and other life forms that are not tamed or domesticated by humans. Adapted for life in the wild.

Woodland: A multi-layered habitat of closed canopy trees, shrub, vines and grasses. Supports a complex community of plants and animals. Also called forest.

Further Resources

American River Conservancy www.arconservancy.org

California Regional Environmental Education Community CREEC.org

CDFW-Nimbus Fish Hatchery wildlife.ca.gov/Fishing/Hatcheries/Nimbus

New Melones Lake www.usbr.gov/mp/ccao/newmelones/

Placer Nature Center placernaturecenter.org

Sacramento Audubon Society www.sacramentoaudubon.org

Stone Lakes National Wildlife Refuge www.fws.gov/refuge/stone_lakes/

Sutter County Resource Conservation District www.suttercd.specialdistrict.org

Yolo Basin Foundation yolobasin.org

For more information on your specific CDFW Region, contact:
genelletreaster@wildlife.ca.gov

