San Diego Audubon Society and the Silverwood Wildlife Sanctuary

San Diego Audubon is a local chapter of National Audubon Society. Since 1948, San Diego Audubon members have been dedicated to protecting and appreciating our local wildlife and their habitats. San Diego Audubon leads the way in fostering knowledge and appreciation of the natural world and seeks to become an even more significant resource for our communities through our education, environmental recreation, and numerous conservation programs.

Silverwood Nature Education Program

For more than 50 years Silverwood has provided nature educational opportunities as an outdoor classroom for all age groups and grade levels. This guided field trip to our Silverwood Wildlife Sanctuary in Lakeside offers interdisciplinary curriculum while exploring San Diego's chaparral and coastal sage scrub habitats and is aligned to meet California Content Standards for Science.

While on the field-trip, the children learn about native plants, wildlife and their adaptations to the Mediterranean climate. They learn about wildlife tracking, practice their use of binoculars while identifying the many species of resident and migratory birds at the feeders and learn intriguing facts about the natural history of the area such as which plants were traditional food sources for the native Kumeyaay inhabitants.
The geological features also provide an excellent opportunity in understanding the mechanics of the weathering processes and soil building.

Silverwood Wildlife Sanctuary
The 785-acre Silverwood Wildlife Sanctuary, located near Lakeside, is owned and maintained by San Diego Audubon. Its purpose is to preserve in as complete and natural a state as possible a prime area of coastal chaparral and riparian woodland. It is available for hiking, guided walks, bird watching, passive research, and education. Over 351 native and non-native plant species and 124 bird species have been recorded there, as well as numerous reptile and mammal species, including mule deer, bobcat, and raccoon.

Chaparral is California's most characteristic and extensive native plant community. It is found throughout the state, and covers nearly 50% of the area in San Diego County. Though found almost exclusively in California within the United States, chaparral habitats are found in other regions of the world, often referred to under a different name: Mediterranean basin (maquis), central Chile (matorral), South Africa Cape (fynbos), and Western and Southern Australia (kwongan).

Semi-arid, shrub dominated plant communities characterize chaparral. Some plants are known to have *sclerophyllous* leaves, a Greek term used to describe the woody, evergreen shrubs, with their characteristic thick, leathery leaves with waxy coating that help reduce evaporation, others

know as summer deciduous shrubs that begin to shut down during summer months to conserve on the loss of moisture. These characteristic allow the plants to survive in our Mediterranean climate.

Mediterranean climates are characterized by hot, dry summers and mild, wet winters. Chaparral plants have adaptations to aid them in surviving the hot, dry summers.
Fire is a natural condition in Mediterranean habitats also known as “Fire Climax Communities”. Due to the length of dry periods and drought year’s very little decomposing occurs through fungi. Eventually an accumulation of dead wood allows for fire which acts as a decomposer, breaking down the dead cellulose materials into carbon base nutrients. Natural intervals of fire occur every 30 to 150 years and many plants have adapted to these naturally occurring phenomenon. Obligate seeders, like many Ceanothus species, are plants that are killed outright after a fire, though new individuals return by germination of a seed bank in the soil. Obligate Resprouters are plants that survive a fire by the activation of dormant vegetation buds from their root crowns which produce regrowth. Facultative refers to those species, like White Bark Ceanothus and Laurel Sumac, who both re-crown as adults and their seeds are activated by fire and germinate producing the next generation.

Silverwood was burned to the ground in the October 25, 2003 Cedar Fire, which consumed 273,246 acres and more than 2,200 homes. Silverwoods habitat has since continued its process of recovery from the fire to the thriving chaparral habitat it is today. The ongoing fire recovery data of Silverwoods habitat offers a unique up-close and personal education experience.

Goals

- Instill awareness and knowledge of the region’s habitats
- Inspire students to gain a respect and appreciation for the environment
- Identify ways to take responsible action to protect and preserve the natural world.

In-class objectives

- The characteristics of this region
- The concepts of ecosystem, plant and animal communities, and habitat
- The prevalent ecosystems of this region and the habitats near their school
- Describe chaparral, coastal sage scrub, and oak woodlands.

Field trip objectives

- Observe and describe the plant and animal adaptations that help them live in this region.
- Explain how unique structures and adaptations help different plants and animals meet their needs.
- Describe how natural forces, such as water, ice, rain, living organisms, and gravity, break rocks, soils, and sediments into smaller particles and move them around.

- Name and identify at least four plant and animal species found within the region's native habitats.

Roles
One Volunteer Docents Trail Guide will be assigned per group of 10-12 students. Trail Guides are trained to educate the student's about the diversity of the Chaparral flora and fauna out on the trails and at all three following activity stations: Birding Observation Station, Animal Tracking Station, and Education Center Station. Volunteer Docents Trail Guide, chaperones and teachers are responsible for providing educational and fun programs in a safe learning environment. Each Volunteer Docents Trail Guide will carry a walkie-talkie for direct communication with the Education Program Manager. All accidents and injuries should be discretely reported to the Lead via walkie-talkie as soon as possible.

Arrival Time
Volunteer Docents Trail Guides should arrive 30 minutes prior to the prescheduled start of the program time. Please meet in the parking area of Silverwood and sign-in at the register. Pick-up your walkie-talkie from the picnic table and check-in with the Education Program Manager to discuss any updates for program. Please arrive ready to participate at this time.

Field Trip Lesson Plan

Check-in
Organized by Silverwood Resident Manager
After the bus has arrived, teachers and chaperones should exit the bus first. Each chaperone should sign-in at the Register. **Each teacher should sign him or herself in and write the number of students in their class next to their name.** If Lunches are brought, put all lunches in the Silverwood truck to be driven up to the lunch picnic area/birding observation area.

Have students exit the bus and arrange in their groups with their chaperone guides.

Introduction (10 minutes)
Lead by the Silverwood Resident Manager or Volunteer Docents Trail Guide

- Welcome to Silverwood Wildlife Sanctuary
- We will be hiking through chaparral habitat to observe the local wildlife. What type of wildlife might we see today? *Plants and animals.*
- Introduction of Silverwood's Resident Manager, who takes care of the trails, wildlife, and visitors at Silverwood Wildlife Sanctuary.
- What is a sanctuary? *A safe place for plants and animals to live*
- How can we protect Silverwood's plants and animals during our visit today?
    - *Stay on the trails*
    - *Leave all of the leaves, flowers, or bark on the plants*
    - *Take all of your trash with you*
- Point out the restroom and inform participants there is another restroom and water fountain located at the Observation Area.
- Assign each group to a Volunteer Docents Trail Guide and begin the nature hike.

Nature Hike (110 minutes total, including three stations)
Lead by each individual Volunteer Docent Trail Guide

- Introduce the trail that you will be hiking today, including the stations you will stop by along the way.
- Remind the students of important rules to follow, including
    - Stay together as a group
    - Observe wildlife quietly
    - Ask questions and have fun!
- If prepared review the individual student field guide cards and let them share information that they learned about their plant or animal species throughout the hike.

<u>Station: Observation Area</u> (10 minutes) 

- Have students sit on the benches and carefully pick up a set of binoculars, putting the strap around their neck.
- Cover the following topics
    - How to properly use the binoculars, including how to focus the binoculars on objects near and far.
    - How to identify common birds by their distinct markings and/or calls.
    - Identify what type of bird species is common at Silverwood during the appropriate season.
    - Any fun facts they would like to share.
- If there are not many birds to be found at the Observation Station, still allow the students to practice using their binoculars and allow them to visit the bird kiosk to view images of local species.

<u>Station: Animal Tracking Station</u> (15 minute)  

Citizens Science Activity

- Students will be participating in a citizen science project today. Citizen science projects are scientific research projects that are conducted by students, community members, or anyone interested in collecting scientific data about their community.
- Today, we will be collecting data about the animals that live here at Silverwood Wildlife Sanctuary.

    - Even if we do not see many animals on our hike today, we know that they live here at Silverwood. How might we know this? From scat and animal tracks that they leave behind.
    - The trail in front of us has been raked flat a few days ago. During the evening, when Silverwood is free from visitors, the animals feel safe enough to walk to a water source located at the top of the trail. As they do, they leave their tracks along the trail.
    - Using the animal track cards, point out some similarities and difference between the different animal tracks to the students.
    - Instruct the students to walk in single file along the side of the trail as not to disturb the animal tracks.
    - Optional: the transect is broken into quadrants (sections) and each group will record data on a single quadrant.
- After viewing the animal tracks on the trail, allow the students to fill out the citizen science data sheets to record the species they observed in their quadrant. (Optional)

Education Center Station (10 minutes)



- Introduce the students to the station by informing them that the first portion of the station they will be allowed to explore scientific specimens on the tables. Anything that is on the white tables is allowed to be touched gently with one finger, but please do not pick up the fragile items.
- You will have a few minutes to explore the tables.
- Allow the students free time to explore for about 8 minutes. Call them back together in the middle of the Education Center to discuss what they observed.
- *Observations:*
    - Did anyone notice a theme at each of the tables?
      What was table one's theme? *Animals*
      Table two's theme? *Plants*
      Table three's? *Geology*
      Table four? *Energy Flow/Food Chain and Decomposers*
    - These tables represent a very simple ecosystem. Who remembers what an ecosystem is? *A community of living and nonliving organisms in their environment.*
    - How do animals depend on plants to survive? *Animals eat plants and they use plants for shelter*
    - How do plants depend on animals to survive? *Animals transport seed in their fur, beaks or scat, animals provide nutrients to the soil through scat, insects pollinate plants*

- How do animals and plants depend on their environment to survive? *Animals and plants use the environment to get the necessary means of survival, including food, water, and shelter.*
- How does our environment change due to natural forces? *Water, ice, rain, living organisms, and gravity, break rocks, soils, and sediments into smaller particles and move them around.* The rocks here at Silverwood erode into smaller and smaller pieces and when rain storms occur, the sediment travels all the way to the beach.
- Where do humans fit into this system? How do we affect our local ecosystems? *We can harm our ecosystem by dumping trash or chemicals or cutting habitats down to build houses and roads. But, we can also improve it by restoring habitats, removing invasive species, and educating others about how to keep our ecosystems clean. By building damns we stop the processes of sediments being transported down river to beaches as beach sand.* We have a very strong effect on how our ecosystems remains so always think about your actions and educate others about ways to improve our environment.

Wrap-up

- The hike will end at the picnic tables at the Observation Station (unless otherwise informed) or at the Parking Lot if not staying for lunch.
- Thank the students and chaperones for coming to Silverwood and inform your group that Silverwood is open to the public on Sundays for free. They are encouraged to bring their family and friends back to enjoy the beautiful nature space.

Lunch

Lead by teachers/chaperones and/or Silverwood's Resident Manager

- Remind students that all trash must put their trash into the trashcan.
- Once the students have completed their lunch, the garbage should be tied up and driven down to the bus. Buses will take the trash back to their school site.
- Students can be gathered and walked down to the parking lot area.
- Line the students up according to class and allow the teachers to do a head count before the students enter the bus.
- Thank the teachers, chaperones, and students for attending Silverwood Wildlife Sanctuary

Education Opportunities…Groups such as school classes, youth and scouting organizations, and adult groups may schedule any day of the week, and are encouraged to reserve dates three weeks in advance.

You can make reservations for groups and schools by calling the Silverwood office at **(619) 443-2998**.