Desert National Wildlife Refuge

Desert Habitats and Adaptations Parent/Leader Guide

Before You Get Started

Approximate Length: about 2 hours
Target Ages: 7-12
This program is designed to help Cub- and Girl Scout leaders give their scouts the opportunity to earn one of the following badges:

Fur, Feathers, Ferns

Complete criterion 1 and three other criteria (bold items are met by this program):

1. **While hiking or walking for one mile, identify six signs that any mammals, birds, insects, reptiles, or plants are living near the place where you choose to hike or walk.**
2. **Visit one of the following: zoo, wildlife refuge, nature center, aviary, game preserve, local conservation area, wildlife rescue group, or fish hatchery. Describe what you learned during your visit.**
3. **Name one animal that has become extinct in the last 100 years and one animal that is currently endangered. Explain what caused their declines.**
4. **Observe wildlife from a distance. Describe what you saw.**
5. **Use a magnifying glass to examine plants more closely. Describe what you saw through the magnifying glass that you could not see without it.**
6. Learn about composting and how vegetable waste can be turned into fertilizer for plants.
7. Plant a vegetable or herb garden.

Animal Habitats

1. Find out about wild animals
2. Investigate an animal habitat
3. Create an animal house
4. Explore endangered habitats
5. Help protect animal habitats

What's in the Backpack:

- Habitat Pictures (arctic, city, coral reef, desert, grassland, tropical)
- Adaptation Pictures (house, fan, armor, shovel)
- Magnifying glasses (20)
- 1 Pair of binoculars
- 1 Water bottle
- 1 Shoe
- 1 Hat

Rules of the Refuge:

- Walk, don't run
- Inside Voices
- Stay with the group
- Respect plants, animals, each other
- Don't pick plants or collect anything
- Have fun!

1. Introduction to habitats and adaptations (in breezeway or classroom) [BF3: 1-2, AH: 2]

Ask: what is a habitat?

Answer: A habitat is where a plant or animal makes its home. Where it finds the four things it needs to survive: food, water, shelter, and space.
While introducing each topic make a corresponding hand motion to reinforce:
Food: rub belly
Water: pretend to drink from a glass
Shelter: make a "roof" over head with arms
Space: stick out arms and rotate torso

You may play a version of "Simon Says" (ranger says/troop leader says) to further reinforce the hand motions.

Say: There are many different habitats and we have pictures of a few that you might recognize. Let's see if you can tell what the habitat may be called or describe what the habitat may be like.

Do: Show the a few pictures one at a time and get a few responses from the group:
Tropical rainforest: hot and wet, crowded
Prairie: hot/cold, rainy/snowy, spacious
Coral reef: wet and crowded
City: hot, dry, crowded
Desert (burrow): hot, dry, spacious
Arctic: cold, dry, spacious

Ask: What habitat are we in right now?

Answer: Desert

The Adaptation Hand Jive:

Say each bold while doing the action after and have scouts repeat/mirror
An adaptation [cross forearms into a +]
Is a structure [point at wiggling thumb]
Or a behavior [beat chest like a gorilla]
That helps a plant [one arm horizontal palm up, other elbow on that palm and vertical with palm out like a flower]
Or an animal [hand antlers on head]
Survive! [arms up like flexing biceps]

Ask: Is it easy or hard for animals and people to survive in the desert?

Do: split them into two groups: one who think it's easy to survive and one that think it is difficult to survive. Have students explain their choice.

Say: it may seem difficult to survive in the desert, but with the right stuff, what we call adaptations, plants and animals can make it work!

Ask: can anyone define adaptation?

Answer: an adaptation is a structure–part of a plant or animal–or a behavior that helps an animal survive (obtain the 4 things it needs)

Say: We are about to explore a desert habitat. What might be the hardest thing for plants and animals to get of the four we just talked about?

Answer: Water (though others are acceptable)

Say: As we walk the trails we will talk about how plants and animals get enough water, and keep from losing it. Also while we are walking, keep an eye out for animals or the evidence of animals and share with your neighbor if you find something. *(For Bear Scouts, it may be helpful to have them write down the evidence they find)*

2. Begin walking on the trails. Take a right at the kiosk then again after the bridge. Follow Bighorn Loop to the shaded overlook.

Say: scientists have to learn how to observe the world around them very carefully. Now we are going to practice our observation skills by looking at plants around here to see if we can spot any adaptations.

Say: Plants have many adaptations that help them survive in the desert. In a minute we will look for some, but first lets discuss what we can look for.

Structure	Adaptation
Spines	Defense from predators, shade (like overlook shade structure)
Crystals on leaves	Saltbush plants excrete salt from their leaves if the soil has too much
Waxy Leaves	Creosote uses wax like sunscreen to protect when the sun is too hot
Wrinkles	Beavertail cactus store water in their pads and shrink when they dry out

Adaptations In Action [BF3: 5]

Show scouts how to use the magnifying glass: the glass may need to be close to the subject, but the user's eyes do not need to be right next the lens. Pair up the scouts and hand out magnifying glasses to each student or pair depending on how many are in the group. Give the group about 5 minutes to look at the plants around the overlook to find any of the adaptations mentioned above. Once the activity is complete, collect the magnifying glasses from the scouts.

3. Continue around Bighorn Loop. Walk to the picnic area where Bighorn Loop connects to Coyote Loop. [AH: 1]

This is a great place to encourage a water break once the group is sitting down.

Say: We have looked at plant adaptation, now we will think about how animals adapt to their environment, including the human animal. My backpack is filled with adaptations humans have made to help them survive. Let's work together to see if we can figure out how other animals might have similar adaptations

You can also talk about plant adaptations if they are relevant. See some examples below.

Prop	Analogue
House: place to cool off	Burrows: tortoise, mammals, snakes
Hats/clothing: sun protection	White-tailed antelope ground squirrel uses its tail like a sun parasol
Flashlight: active during different parts of the day	Nocturnal behavior: coyote, owls, mice, bats, rabbits
Fan: cooling off in the heat	Jackrabbit's large ears with many capillaries cools its body
Shoes: protect feet	Bighorn have tough, flexible toes to climb rocks
Water bottle: hydration	Gila monster stores water in fat in tail
Binoculars: distance vision	Raptor's sharp vision and owl's big eyes
Suit of armor: protection from harm	Tortoises' hard shell
Shovel: ability to dig	Badger's long claws

4. Walk left from the picnic area towards the building with a picture of fish on it. [BF3: 3, AH: 4]

Say: this building is the home of an endangered fish called the Pahrump poolfish. The spring where they used to live is completely dried out. Go up to the windows (there are lower windows on the sides) and see if you can spot any fish.

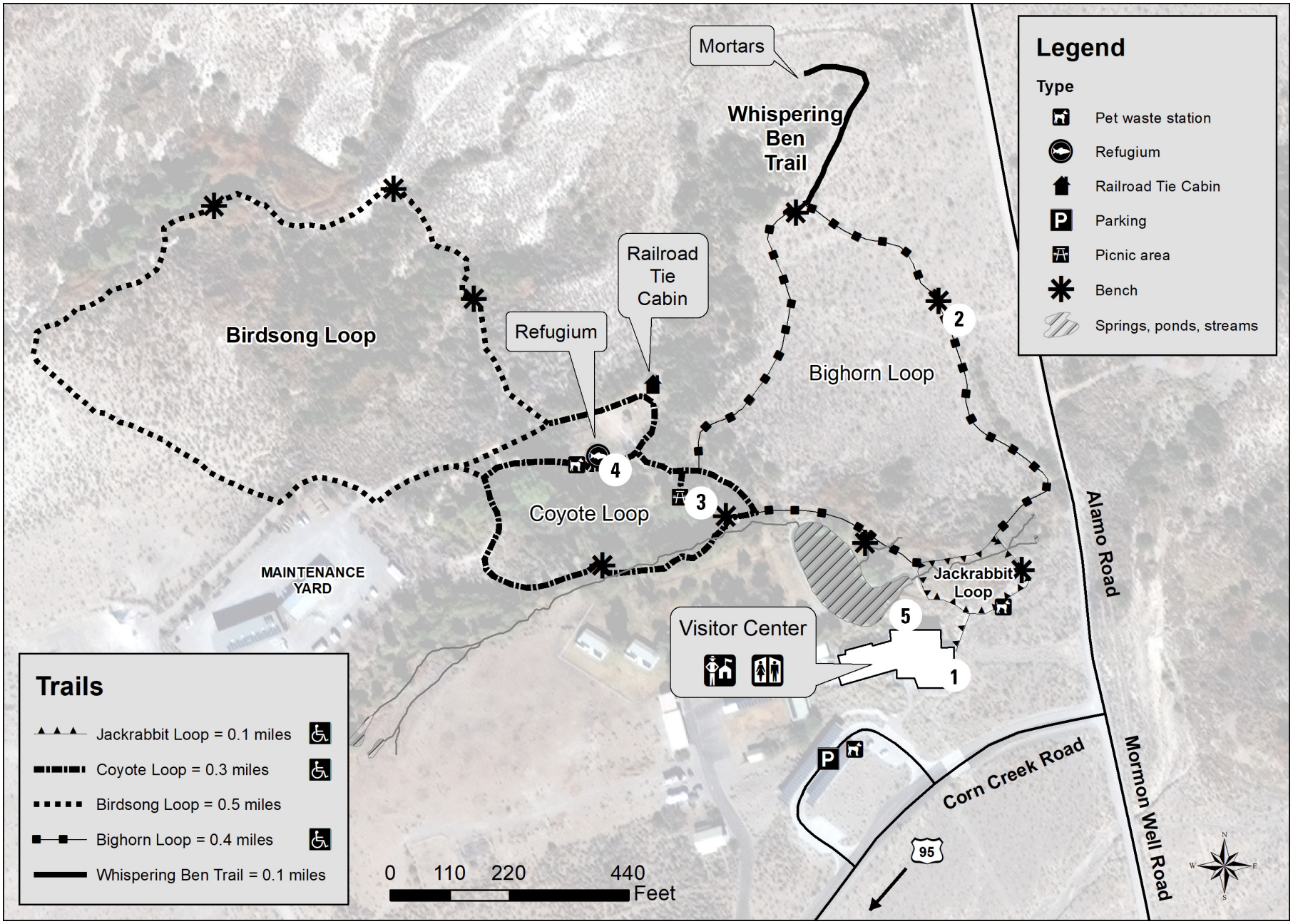
Do: Give the scouts a minute or two to look for fish. It often helps to get close to the glass and hold hands up beside your face to cut the glare. Smaller, younger fish may swim near the surface while older, larger fish often stay near the bottom.

Say: The Pahrump poolfish came very close to extinction. The spring it lived in was drying out because of groundwater pumping. Twenty-nine fish were rescued before the spring dried up, and some were brought here to keep safe. Some are in Corn Creek, but they have to fight for survival against the crayfish. It's cousin: the Ash Meadows poolfish went extinct in 1948 because of invasive species like the crayfish. While they are still endangered, Pahrump poolfish are lucky to have this refugium (refuge+aquarium) here to keep them safe.

5. Make your way back to the Visitor Center by either following Coyote Loop past the picnic tables or looping around the western edge of the trail. [AH: 5]

Once back at the VC, you may quiz the scouts on what they have learned: "What is an adaptation that helps plant or an animal survive in the desert?" "What was the fish we saw in the refugium" "How would you describe the habitats we visited today?"

Say: Desert NWR helps to protect all of these plants and animals. You can help support the refuge by bring back your friends and family to tell them all the cool things you learned today about the plants and animals that live here.


Mortars
Whispering Ben Trail
Railroad Tie Cabin
Refugium
Birdsong Loop
Bighorn Loop
Coyote Loop
MAINTENANCE YARD
Jackrabbit Loop
Visitor Center
Alamo Road
Corn Creek Road
Mormon Well Road
95
1
2
3
4
5
Legend
Type
Pet waste station
Refugium
Railroad Tie Cabin
Parking
Picnic area
Bench
Springs, ponds, streams
Trails
Jackrabbit Loop = 0.1 miles
Coyote Loop = 0.3 miles
Birdsong Loop = 0.5 miles
Bighorn Loop = 0.4 miles
Whispering Ben Trail = 0.1 miles
0 110 220 440
Feet