GIRL SCOUTS: Home Sweet Habitat

Overnight Outcomes:

1. Scouts enjoy spending time at the Zoo (Measure –post survey, "We had fun.")
2. Scouts are connected to nature (Measure –informal assessment).
3. Scouts are empathetic for wildlife (Measure –post survey, "We want to help save animals in the wild.")
4. Scouts are motivated to "take action" to reduce threats to wildlife (Measure –post survey).
5. Scouts describe how their personal actions may positively or negatively affect wildlife (Measure –informal assessment).
6. People practice environmentally responsible behaviors (3-6 month follow up)

Good to Know Terms:

Habitat: the physical environment in which a species lives
Ecological niche: the role a species plays in the ecosystem; how it meets its needs for food and shelter, how it survives, and how it reproduces
A species' niche includes all its interactions with biotic and abiotic factors of its environment

Key Conservation Messages:

Pollinators – More than 30% of the food we eat is from plants that are pollenated. Without these animals, we could not eat chocolate, pancakes, ice cream or honey. Solution – Houston zoo is planting pollinator gardens around the zoo and educating guests about local plants to help encourage more pollinators to live here. They can help by making a pollinator station using old toys/upcycled materials like the one in CZ and leaving it outside so pollinators have a place to sleep at night.

Paper – Tree habitats where many animals live are being cut down to make paper and other products. 27,000 trees are cut down each day to provide toilet paper to the world. Solution – Houston Zoo uses toilet paper made from recycled paper. They can help by recycling their paper in school and at home and using both sides of a piece of paper before throwing it away.

Materials:

Up-cycled metal cans
Collected natural materials (i.e. pine cones, rocks)
Rope (optional)
yarn
Small reeds

Welcome & Introductions

- Guests will be entering at Gate 1, dropping gear off at the stroller gate, and parking in the employee gravel lot. Volunteers and staff will help guide guests to the BEC.
- Encourage restroom use and anything they might need on tour (i.e. jackets and bug spray)
- Kahoot in Auditorium until 7:15pm
- Assess prior knowledge of your group while grouping up in the BEC or heading out on tour and be sure to introduce/review habitat, ecosystem, and niche terms

Night Hike I – Elephants, east hoof run, ankole cattle, Natural Encounters (hike I or II)

- Allow guests to make observations about the exhibit and formulate questions prior to sharing facts with them to assess knowledge and have them guide discussion. At each stop, refer to the types of habitats where the animal is found and how they are adapted

to that habitat. For example, the color of the lion's pelt allows it to blend in to the savannah. A jaguar's claws and strong limbs allow them to climb with ease.

- **Example questions and phrases:**
    - Tell me what you know/notice about this animal (or its exhibit)
    - What type of habitat do you think this animal is found? How do you know?
    - How is this animal well adapted to live in its environment?

Ambassador Animals – box turtle, chinchilla/armadillo, snake/bearded dragon

- Have guests make observations about the animal and discuss the types of habitats where the animal might be found based on what they see. How they are adapted to their habitat and what threats might they fact there?

Night Hike II – bears, jaguar, cougar, tiger

- Discuss each endangered or threatened species in the context of threats to their habitats and their importance to the environment.
- Share personal stories and connecting messages back to our partners in the field. This will help scouts relate to the animals and feel more motivated to help (Ask: how is it relevant to them?)
- **Example questions and phrases:**
    - Are jaguars important? Why?
    - What to jaguars do for the environment?
    - Why is this species threatened/endangered in the wild?
    - How can recycling (or other action) help bear populations?

Snack & Break – BEC

- Once back from tours, have scouts in your group sit together for snack and their break. During this time, you can introduce mason/solitary bees and discuss their role and importance to humans. Once everyone is done with snack, scouts will create their own bee home using up-cycled cans that they can place in their yard and provide habitat for these bees.

Indoor/Outdoor Activity– Build a Bee Home

Girl scout troops will be starting a bee project with us and completing it at home. During the overnight we will share information about solitary, hole-nesting bees and the girls will design their own bee nesting home to help pollinators in their own backyard!

- Each scout will choose their own metal can to create their bee home. Note: we will ask if troops want to bring their own cans in for a project, but we should have extras for them to choose from.
- Materials they can use include: nesting reeds and other natural items such as pine cones pebbles and pine needles/leaves
- Scouts can then either wrap yarn around the can and make a loop for hanging their bee home or they can plan on mounting/placing it with other materials in their yard or garden.

Evening Wrap- Up –

- Pull the kids and adults in, recap what they've experienced. Go over sleeping expectations and explain sleeping arrangements to adults. Lights out by 11pm.

<u>Morning Activities:</u>

- By morning, the scouts should have a better understanding of habitats and how animals use and shape their habitats. While adults are moving cars, play habitat loss rope game.

Discuss in the context of jaguars or another forest-dwelling animal. How is the species able to adapt? Is this animal important? How are people helping and what can we do to help?

- Breakfast at Macaw! Please be wrapped up by no later than 8:15am
- Tour stop options: Bird garden/BoW, CZ, giraffe, cheetah/lion, red panda, sea lion
- **Be sure to point out the pollinator hotels and habitats we have spread out around the Zoo!**
- **Habitat Exploration & Nature Play**: You are welcome to have your group stop for 15 minutes or so in Explore the Wild. Encourage them to explore the variety of habitats found in the space and speculate on what types of wildlife could call the space home. Have participants search for signs of wildlife in the space (i.e. caterpillars or monarch cocoons, chewed leaves) and discuss their findings. Key items to note: milkweed, water trough, and screech owl boxes

Some Notes about Bees –from Crown Bees Website

Bees, wasps, and ants share a common ancestry. Some species of adult wasps will feed on nectar but they are predators that feed insects to their young for protein. Around 100-125 million years ago the ancestor of bees was a wasp that became vegetarian. Pollen is full of protein, starch, fats, and vitamins and bees feed their young a loaf of pollen mixed with nectar. The conversion to an all pollen-for-protein diet completely changed the way our flowers are pollinated. As bees evolved feathery hair and specialized body parts to carry gathered pollen, flowers responded to entice and attract bees. The interplay between evolution in flowers and bees created an immense variety of bees. Today the world is home to an estimated 30,000 species of bees! Recent scientific studies have shown that worldwide, our wild, native bees are better pollinators and we should do what we can to support our native bees.

We are familiar with the highly socialized structure of honeybees and bumblebees, but social bees make up only about 10% of the world's bee population and honeybees make up only 7 species. The rest of the world's 90% of bee species live a solitary lifestyle and around 30% of bees live in pre-existing cavities like old beetle holes, or hollow empty stems of reeds or grasses. Most hole-nesting bees are too small or not strong enough to drill new holes into wood and they cause no damage to homes. Hole-nesting bees are great candidates for managed pollinators because we can duplicate their nesting homes, raise them in one location, and place them elsewhere nearby as needed.

How solitary bees pollinate: Mason and leafcutter bees collect and carry dry pollen all over their hairy bodies. Dry pollen is loosely held and can easily fall on other flowers the bee visits, compared to the pollen that is collected by honeybees that is carefully collected and carried on specialized pockets on their rear legs, using saliva to wet and attach it. One hive-less bee like a mason bee has the pollination capabilities of 100 honeybees, making for a more efficient and less aggressive backyard alternative since they do not maintain a hive or produce honey to safeguard. Many species are often more generalized in their plant references as well, so they can help pollinate more flower and vegetable varieties.