



Balcones Canyon Lands National Wildlife Refuge  
24518 FM 1431, Marble Falls TX 78654  
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## INSECT HABITAT

### VOLUNTEER DIRECTIONS

#### Need to Know

1. Your station, INSECT HABITAT (Station #5), will help students understand where and how insects live. The idea of “habitat” will be introduced at Station #5 (Aquatic Insects). Your station will expand the term to include woodland, grassland, and riparian habitats. Demonstrating the close relationship between an insect and where/how it lives will preview how insects benefit ecology in Station #7, Social and Beneficial Insects.
2. You **must include something about the Golden-cheeked warbler and Blackcapped vireo into this program (a section in this guidebook has more on both birds)**. Any logical tie-in is good: insects as food, habitat the birds forage to find the food, insect threats to the birds, etc. After all, these birds are the reason there is a refuge near Austin. Furthermore, all of the resource management and public use management plans on the refuge must consider how these birds will be affected by man induced impacts.
3. The section in these directions called “Organism and Environments” is a specific science TEK requirement. **Get to know the Organism and Environments TEKS and be ready to share this with the students.**
4. **A map** of the stations is in this guidebook to help you direct your group to the next station. They go clock-wise in number order. Please be ready to direct your group to the next sequential station.

#### **Sequence of Stations in Bridges to Birding**

1. What is an Insect?
2. Insect Families and Life Cycles
3. Collecting and Studying Insects
4. Insect Senses
5. **Insect Habitat**
6. Social & Beneficial Insects
7. Aquatic Insects

#### **GOLDEN-CHEEKED WARBLER (GCW)**

HABITAT: Old forests with big trees; shady, dense forests in steep-sided canyons & slopes as well as drier, flat hill tops. Requires Ashe Juniper (“cedar”) bark to



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construct nest. **Spanish Oak, Live Oak, cedar foliage provides insects, caterpillars, spiders, beetles for food.**

TERRITORY: 5-20 acres to forage;

NEST TERRITORY: 3-6 acres/ nesting pair

Female constructs Cup nest in old cedar and Hardwood (oak, elm) trees at least 15' high. All nests require cedar bark. **Bark is woven with spider webs.** Nest is tucked in forked vertical limb & camouflaged. Warblers usually nest only once/season unless accident or predation. Male stays nearby singing & defending during incubation. 3-4 eggs are hatched in 12 days & fledge 8-9 days later. Parents care for them for 1 month.

GCWs migrate to pine/oak habitat of southern Mexico & Central America in July-mid-August & return in mid-March.

### **BLACK-CAPPED VIREO (BCV)**

HABITAT: Dense, shrubby, broad-leaved (shin oak, hackberry, sumac, agarita, persimmon, Texas Mountain Laurel) young forest. Patchy habitat with 30-60% cover interspersed with open grassland.

Shrubby vegetation reaching from ground level to 6- 7' high.

TERRITORY: 1-16 acres NEST TERRITORY: 2-4 acres

Male & female select nest site between 3-'6' off ground (doorknob height) in dense cover. Pendulous Cup Nest is made by female from grasses and **spider webs** and is suspended from its rim in the fork of a branch. Nest is completed in 2-3 days. They may nest more than once /year building a new nest each time. Incubation is 14-17 days and this work is shared by male & female (as well as fed by both). Fledge in 10-12 days.

BCVs arrive in mid-March to mid-April and stay until mid Sept. They spend their winter in western Mexico.

### **ORGANISMS AND ENVIRONMENTS**

Within the living environment organisms, have characteristics, life cycles and interactions with all components of the natural environment. The natural environment plays a key role in the organism's survival. When changes in the



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environment occur organisms thrive, become ill or perish.

### **Example of Interaction with Environment**

Golden-cheeked warblers require cedar bark to build their nests for successful nesting here in Texas in the spring. The removal of cedar trees for development and grazing has resulted in the Golden-cheeked warblers having less natural environment in which to build nests and the species chances of survival have been reduced. The refuge provides an area where the cedar trees are protected which in turn protects the Golden-cheeked warbler.

### **Getting Ready**

Use the laminated activity station sign to identify your table (in the guidebook).

### **Materials List**

Laminated Activity Signs (2)

Table (1)

Station Guide Book

A map of a path at Doeskin Ranch

A collection of insect habitat cards

### **Taking Flight!**

Station 6 – INSECT HABITAT

#### **Goals**

At this station the children learn about insect habitats. In particular, they learn that there is a large variety of habitats, that many insects can only live in one kind of habitat, and that a few insects can live in a variety of habitats. They learn that the insects that are sensitive to habitat are more susceptible to extermination by human changes to habitat, while the generalist insects survive a variety of habitats and so become more common when humans change the habitat. After this station the children will know, for example, why butterflies disappear and cockroaches become numerous in our cities.

In the first part of this station, the children are introduced to the ideas of habitat and microhabitat. For the remainder of the station, the children receive habitat cards and then walk along a path trying to locate the habitat where the different bugs live. The



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leader facilitates by asking the children a few questions about the bugs and their habitats.

## **Background on Habitats**

A **habitat** is a place where animals live. More specifically, it is a description of the characteristics of the place, independently of where that place is. Typically, an insect that is found in a habitat must live in that kind of habitat, but there are also many insects that can live in many different kinds of habitat.

Let's start with people. People are found living in the really hot tropical rainforests of the equator, in the temperate climate of North America, and on the really cold tundras of ice and snow close to the north pole. People are also found living in the deserts and in the swamps, and in the valleys and on the mountain tops. In other words, people can live in almost any kind of habitat. Some insects are like us that way, such as cockroaches and flies. Humans and those insects that can live in many different kinds of habitats are called **generalists**.

Most insects are not generalists. Most insects can only live in one or two kinds of habitat. If they are forced to move to another habitat, they will die, because the habitat does not provide what they need to live. For example, many butterfly caterpillars eat only a few kinds of plants that grow only in a few kinds of habitats. If those habitats disappear, so do the plants. If the caterpillars won't eat any of the plants, there won't be any more butterflies. Animals that can only live in specific habitats are called **specialists**.

Doeskin Ranch is in a habitat called the Edwards Plateau. The Edwards Plateau can be described as a semi-arid (semi-dry) region that is rocky with limestone. Mountain Cedar (which is actually Ashe Juniper) and oaks are the dominant trees. The climate and soil makes it well-suited for wildflowers, so the Edwards Plateau has many different kinds of wildflowers that bloom with special abundance in the Spring. Since the Edwards Plateau is such a large habitat, we call it a **bioregion**.

The habitat determines what creatures can live there, and in particular it determines what insects can live there. But insects are very small, so we can actually divide the big habitat into smaller habitats. We can divide the Edward Plateau habitat into woods and ponds and meadows and streams. We can even further divide these habitats. For example, we might divide woods into tree canopy, understory, and leaf litter. We call these smaller habitats **microhabitats**.



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## Activities

At this station the children will walk along a path. You can show that this path passes along three “habitats” – the meadow, the pond, and the woods – and that each of these habitats has “microhabitats,” such as a particular kind of plant or the surface of the water or rotten logs. If the creek is running, you might mention a riparian habitat (or the students hike Creek Trail at the end of the day).

Ask the children what is a habitat? After they’ve had a chance to think about it, discuss the concept with them. In particular, the leader should explain the terms “habitat” and “microhabitat,” telling the children that most insects can only live in one kind of microhabitat, while some can live in many different kinds of habitats and microhabitats. It might be helpful to introduce the words “generalist” and “specialist,” but the leader can bring these concepts up later, after the children have walked the path.

You need spend no more than a few minutes on this preparation for the walk that follows, to give them some context. This introduction should be kept short because the walk will take a lot of time. With a basic understanding of what habitats and microhabitats are, the leader begins the habitats activity. The leader divides the children up into groups, one group for each insect habitat card. The leader hands each group a card and give the children a chance to read their card before beginning the walk.

Prior to beginning the walk, the leader should tell the children these rules:

1. They must always stay behind the leader. (So the leader can stop as necessary.)
2. They must stay on the path. (For safety, and to keep plants from being trampled.)

The handicap-accessible path at Doeskin Ranch circles a field and crosses a grassland meadow, goes alongside a pond, and then enters a lightly wooded area. The children will walk this path and try to find microhabitats for the insects given on the cards. The map included with this station shows the leader some of the places where the sought-after microhabitats are found.

It’s possible to do the walk starting at any point along the path. You may find it easier to first try to locate some yucca near your starting point so that the children with the Yucca Giant-Skipper habitat card can identify the yucca as the habitat of the caterpillar stage of this butterfly.

The leader explains to the children how the activity works. Each habitat card names an insect or spider (a “bug”), provides one or two fun facts about the bug, and then



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provides some clues about that bug's habitat (or microhabitat). As we walk the path, the children call out if their bug lives there, or the leader can stop at a certain place and ask the students to review their cards and explain if their insect may or may not be found in this area.

The leader brings the map. The map labels the different habitats and says which bugs live there. It's possible that a child will find habitat that the map overlooks, so don't consider the map to be the only source of correct answers. Periodically along the way, the leader can ask the group questions to help them learn about habitats. The remaining sections describe the habitat cards, list the habitats, and provide questions that the leader may ask.

### **Tips & Options:**

It's always more fun if live insects can be watched, so arrive early to check the area for funnel spiders in the yucca, for instance, or some scat that will later attract dung beetles. Wolf spiders "den" during the day and the web at the opening of their enclosure (perhaps the drainage culvert running under the path) is for their protection from the elements, not to catch prey. Ants and antlions (doodlebugs) and the pits can be found often along the path. CAREFULLY look under rocks or sticks for scorpions or beetles.

Finally, the symbiotic relationship between the yucca and the yucca MOTH, and then the effect of the loss of either on the yucca giant-skipper BUTTERFLY generally is a good story to tell. The yucca moth can only lay its eggs on the yucca plant, and the plant can only be pollinated by the specially shaped abdomen of the moth. The moth carries a grain of pollen from one yucca plant to another to lay its egg on. Later, the skipper will lay its eggs on the yucca, which is the only plant the larva can eat.

### **Quiz Your Guests**

1. What is the difference between a generalist insect and a specialist insect?
2. What would happen if a fire destroyed all the yucca plants at the Refuge?

### **Take Away**

Children should take away the concept of changes "rippling" through an ecosystem and affecting certain insects and other species.