



Balcones Canyon Lands National Wildlife Refuge
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AQUATIC INSECTS

VOLUNTEER DIRECTIONS

Need to Know

1. Your station, **AQUATIC INSECTS (Station #7)**, will have students observe/study how aquatic insects move, feed and breathe. You will help them understand how aquatic insects are indicators of a healthy or unhealthy ecosystem. **TEKS:** Adaptations may increase the survival of members of a species. Compare adaptive characteristics of species that improve ability to survive and reproduce in an ecosystem. Predict some adaptive characteristic required for survival and reproduction by an organism in an ecosystem. Predict and draw conclusions when part of a system is removed. Describe how aquatic insects modify their physical environment to meet their needs.
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 Going Buggy

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**



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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 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-leafed (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 1012 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



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environment plays a key role in the organism's survival. When changes in the 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
Flipbook Tabletop Presentation

Taking Flight!

Flipbook Tabletop Presentation

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.