

## Wild Bird Lesson for John E. Conner Museum

These lessons were created by graduate students in the Spring 2015 WSCI 6390 Wildlife Teaching Methods class at Texas A&M University-Kingsville as part of their course requirements under the direction of Dr. April Conkey ([april.conkey@tamuk.edu](mailto:april.conkey@tamuk.edu)). The lessons were designed for use while planning and taking a visit at the John E. Conner Museum at Texas A&M University-Kingsville. They are aligned with 5<sup>th</sup> grade science TEKS but may be scaled up or down in grade level.

These three lessons focus on birds. The students will learn about bill design and how each bill is suited for a certain type of feeding. The students will also learn about the birds in south Texas and get some practice in bird identification. In addition, the students will practice collecting actual field data on local birds. We included an electronic copy of the *A Guide to Bird-Watching and South Texas Wintering Birds* as additional information published through the Caesar Kleberg Wildlife Research Institute.

This document may be made downloaded and copies made for educational purposes only.

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## Pre-Visit Lesson Guidelines for Teachers

The Montana Science Partnership website gives some background information on bird beaks ([http://www.sciencepartners.info/?page\\_id=728](http://www.sciencepartners.info/?page_id=728)) (also attached as a PDF). The teacher has the option to go over as much or as little of the material as he/she feels necessary. Another website, <http://www.cbbep.org/projects/molliebeattie/lifeonflats.htm> (also attached as a PDF with photo included separately) focuses on shorebirds along the Texas coast. Links to videos that show birds using their beaks to feed are included. The main point of this pre-museum visit lesson plan is to show that bird beaks match the bird's diet. Five vocabulary words are included that the teacher can use to quiz the students. If the teacher wants to expand on this, he/she can explain that the adaptations do not begin and end with the beak. The bird is completely adapted to its lifestyle, but focusing on the beak is a good way to illustrate this.

Videos linked from <http://www.birds.cornell.edu/physics/lessons/elementary/beaks>

**Crested Caracara** (raptorial [tearing] beak)

<http://macaulaylibrary.org/video/400618>

**Roseate Spoonbill** (filter feeding [straining] beak)

<http://macaulaylibrary.org/video/418903>

**Hudsonian Godwit** (probing beak)

<http://macaulaylibrary.org/video/401459>

**Downy Woodpecker** (chiseling beak, does not occur in south Texas)

<http://macaulaylibrary.org/video/441335>

**American White Pelican** (dip netting [scooping] beak)

<http://macaulaylibrary.org/video/419616>

**Anna's Hummingbird** (nectar feeding beak, does not occur in south Texas)

<http://macaulaylibrary.org/video/406078>

## Lesson Vocabulary

**Frugivore**- an animal that eats fruit

**Granivore**- an animal that eats seeds

**Insectivore**- an animal that eats insects

**Nectarivore**- an animal that eats nectar

**Piscivore**- an animal that eats fish

### **Museum Visit Lesson Guidelines for Museum Staff and Teachers**

For this activity we have prepared a scavenger hunt in the museum. The students will be given a list of all the birds mounted in the museum with some hints to help them ID them. Many of the birds in the museum are labeled, so if the staff wants to cover the names up with sticky notes it will make the scavenger hunt a lot more challenging. It may be a good idea to see how the first few times go without sticky notes, if it is too easy then maybe start adding sticky notes. The teachers and staff will be provided with an answer key showing the locations of all the birds on the list.

We have put together a matching game after the scavenger is over. We have an answer key for the teachers and staff. For the matching game, there is a handout with pictures of 5 birds that were also in the exhibit as well as 5 food items. The students will use what they learned about bill design to pick the correct prey item. We made this matching game with only one correct order, but it should be noted that there is quite a bit of overlap in what these 5 birds will eat. Greater roadrunners for example likely eat lizards and grasshoppers, while crested caracaras eat carrion and small prey items like lizards and large grasshoppers.

### **Post-Museum Visit Lesson Guidelines for Teachers and Parents**

For the post-museum visit, the students will be collecting data for homework (either at home or park). The teacher (and parents) should stress safety first during this assignment. Some class time will need to be set aside before giving the assignment to go over how to collect the data. Students will be given questions to answer about the data they collected. The following questions can be asked in class the next day:

Did you recognize any of the birds you saw?

- (Examples include: Northern Cardinal, Mourning Dove, Hawk, Vulture, etc.)

Why do you think the birds were using the areas you saw them?

- Prompts for class include habitat use or searching for food

Were birds often seen around water, particular trees or bushes, or human structures?

- (Examples include: power lines, houses, fences)

Did students who conducted their survey in the morning have different observations than those who conducted their survey in the evening?

**Learning Objectives**

Learning objectives for the Conner Museum lesson plan are for students to understand adaptations of South Texas birds and how to observe birds through a pre-visit lesson, museum visit activity, and post-visit lesson. For the pre-visit lesson plan, students will learn bill morphology and how different bill shapes are suitable to particular food types. During the museum visit, students will apply the practice from the pre-visit lesson to identify birds and match birds with their prey or food through a scavenger hunt. For the post-visit activity, students will conduct a mock point transect survey to observe the birds around the student’s neighborhood. The entire lesson plan covers a variety of topics outlined in the TEKS learning objectives for 5<sup>th</sup> grade students.

**Texas Essential Knowledge and Skills for Science (Subchapter A. Elementary)**

This lesson plan (Pre-visit lesson, Visit activity, and Post-visit lesson) covers the following 5<sup>th</sup> grade TEKS topics.

Pre-Visit Lesson	Visit Activity	Post-Visit Lesson
<b>a:</b> (1) (2) (3) (4) (4)-(C) <b>b:</b> (2)-(A) (2)-(C) (2)-(E) (3)-(C) (9)-(B) (10)-(A) (10)-(B)	<b>a:</b> (1) (2) (3) (4) (4)-(C) <b>b:</b> (2)-(A) (2)-(B) (2)-(C) (9)-(B) (10)-(A) (10)-(B)	<b>a:</b> (1) (2) (3) (4) (4)-(C) <b>b:</b> (2)-(A) (2)-(B) (2)-(C) (2)-(D) (2)-(E) (2)-(F) (3)-(A) (3)-(B) (9)-(A) (9)-(C) (10)-(A) (10)-(B)

**Conner Museum Lesson Plan**

For the John E. Conner Museum visit activity, students will have an assignment to complete during the museum visit. Students will have a worksheet with 3 hints for each bird they have to find in the museum. Using the hints (color, bill shape, habitat, etc.) students should be able to find and identify birds. This activity will prepare students for their post-visit activities, in which students will conduct outside bird surveys. Students will also focus on bill morphology in a matching game in which they will match 10 of the birds in the museum to 10 prey items. This matching game will build on the information learned in the pre-visit lesson plan.

**Teacher Answer key**

	Location	
Chuck-Will's Widow	Near Dry Chaparral exhibit	Under glass case
Pyrrhuloxia	Dry Chaparral exhibit	Middle of dead tree between painted bunting and ash-throated flycatcher
Ash-throated Flycatcher	Dry Chaparral exhibit	Top of dead tree
Painted bunting (Male and Female)	Dry Chaparral exhibit	Lower part of dead tree
Curved-billed thrasher	Dry Chaparral exhibit	Near cenizo and Spanish dagger
Turkey Vulture	Dry Chaparral exhibit	Horizontal log
Crested Caracara	Near Dry Chaparral exhibit	Glass case
Great Horned Owl	Hollow tree exhibit	Top of tree
Golden-fronted woodpecker	Hollow tree exhibit	Back side of tree
Ladder-backed woodpecker	Oak motte exhibit	Behind deer
Ground Dove	Oak motte exhibit	Next to fawn
Scissor-tailed flycatcher	Oak motte exhibit	Top of the oak
Yellow-billed Cuckoo	Oak motte exhibit	Middle of oak
Indigo bunting	Oak motte exhibit	Above turkey
Wild Turkey (Male and Female)	Oak motte exhibit	
White-tailed Hawk	Mesquite Chaparral exhibit	Landing on dead branch
Greater Roadrunner	Mesquite Chaparral exhibit	Behind coyote
Green Jays (3 birds)	Mesquite Chaparral exhibit	In mesquite and dead branch
Northern Mocking Bird	Mesquite Chaparral exhibit	In mesquite
Olive Sparrow	Mesquite Chaparral exhibit	On prickly pear
Groove-billed Ani	Mesquite Chaparral exhibit	In mesquite
Boat-tailed Grackle	Mesquite Chaparral exhibit	In mesquite
Golden Eagle	Hall of Horns	#100
Scaled quail	Dry Chaparral exhibit	At base of Spanish dagger

**WORKSHEET**

**Museum visit**

Name(s): \_\_\_\_\_

Date: \_\_\_\_\_

**Where did you find each of the following birds?**

	Name	Hint 1	Hint 2
1	Chuck-Will's Widow	Large eyes due to nocturnal hunting	Camouflaged either perching on the ground or on branches
2	Pyrrhuloxia	Large yellow bill that can crush seeds	Nickname is "desert cardinal" and it looks like a grayer cardinal
3	Ash-throated Flycatcher	A flycatcher adapted to arid regions	Throat is ash (gray) colored
4	Painted bunting (Female and Male)	Male is bright green, blue and red, while female is green	Often found in small trees or shrubs
5	Curved-billed thrasher	Long curved bill	Lives in areas where you may find scaled quail
6	Turkey Vulture	Large black bird with red head	Eats carrion (dead animals) so you may find them near cougar kills
7	Crested Caracara	Large mostly black and white bird	Long yellow legs
8	Great Horned Owl	Large nocturnal bird with big eyes	Named for the ear tufts that give it a horned appearance

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9	Golden-fronted woodpecker	Like the ladder-backed woodpecker this woodpecker has black and white barring on its back	Often seen hanging and walking up the sides of trees
10	Ladder-backed woodpecker	Smaller than the golden-fronted woodpecker	No yellow on the back of the head
11	Ground Dove	Small dove that forages on the ground	Located under the oak
12	Scissor-tailed flycatcher	Medium sized birds with, long tail feathers	Catches insects midair
13	Yellow-billed Cuckoo	Slightly curved yellow bill	Forages in trees
14	Indigo bunting	Small all blue bird	Has a bill designed for eating seeds
15	Wild Turkey (Male and Female)	Large ground dwelling bird	Male is larger and more colorful than the female
16	White-tailed Hawk	Banded undertail	Talons and bill allow it to prey on rodents
17	Greater Roadrunner	Often found on the ground	Long tail allows it to change directions quickly
18	Green Jays (3 birds)	Green body, and black and blue head	Often found in groups



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19	Northern Mocking Bird	The state bird of Texas is mostly gray, white and black	Yellow eye
20	Olive Sparrow	Larger than indigo bunting	Smaller than a mockingbird
21	Groove-billed Ani	All black bird	Has a very large thick bill
22	Boat-tailed Grackle	All black bird	Has a very long tail and a thin bill
23	Golden Eagle	Has a bill for tearing meat	Hiding with the deer
24	Scaled quail	Lives in arid regions	Spends most of its life on the ground

**Matching Game**

<p>Carter Crouch</p>  <p><b>Crested caracara</b></p>	<p><a href="http://www.iaszoology.com/expterygota/">http://www.iaszoology.com/expterygota/</a></p>  <p><b>Grasshopper</b></p>
<p>Carter Crouch</p>  <p><b>Greater roadrunner</b></p>	<p><a href="http://en.wikipedia.org/wiki/File:Huhu_grubs.jpg">http://en.wikipedia.org/wiki/File:Huhu_grubs.jpg</a></p>  <p><b>Grubs</b></p>
<p>Carter Crouch</p>  <p><b>Golden-fronted woodpecker (leucistic)</b></p>	<p><a href="http://commons.wikimedia.org/wiki/File:Opossum_roadkill">http://commons.wikimedia.org/wiki/File:Opossum_roadkill</a></p>  <p><b>Carrion</b></p>
<p>Carter Crouch</p>  <p><b>Painted bunting</b></p>	<p>Ross Couvillon</p>  <p><b>Keelless earless lizard</b></p>
<p>Carter Crouch</p>  <p><b>Scissor-tailed flycatcher</b></p>	<p><a href="http://www.currumbinvetservices.com.au/wild_food.htm">http://www.currumbinvetservices.com.au/wild_food.htm</a></p>  <p><b>Grass seed</b></p>

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<b>Name:</b>	
<b>Crested caracara</b>	
<b>Greater roadrunner</b>	
<b>Golden-fronted woodpecker</b>	
<b>Painted bunting</b>	
<b>Scissor-tailed flycatcher</b>	

**Match the food items to the bird: Grasshopper, Grubs, Carrion, Keeled earless lizard, Grass seed**

**Teacher Answer Key for the Matching Game**

<b>Crested caracara</b>	<b>Carrion</b>
<b>Greater roadrunner</b>	<b>Keeled earless lizard</b>
<b>Golden-fronted woodpecker</b>	<b>Grubs</b>
<b>Painted bunting</b>	<b>Grass seed</b>
<b>Scissor-tailed flycatcher</b>	<b>Grasshopper</b>

Point-counts are a way for scientists to monitor bird populations. This survey can help scientists see if birds are still using the same habitat.

**You are a scientist who is beginning a research project in your neighborhood. To see what birds are in the area, you will conduct a point-count survey. Here are your instructions for your bird survey.**

- Morning or evening will be the best time to conduct your survey.
- Beginning at your house (or a point at your school or local park), wait quietly for 30 seconds. Then begin counting birds for 2 minutes. Count birds that you see or hear singing far away, but be sure to only count each bird once. Record your observations on your data sheet.
- After the 2 minutes, walk 120 steps and stop. Wait quietly for 30 seconds, and begin another 2 minute observation period. Count all birds you see or hear.
- Repeat the previous steps and move to new spots. Continue your survey until you have counted birds at 5 spots.

	How many birds did you see?	How many birds did you hear?	Total
Spot 1			
Spot 2			
Spot 3			
Spot 4			
Spot 5			

<p><b>When are you doing this?</b></p> <p>Morning Survey</p> <p>Evening Survey</p>
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Total Birds Observed

**After you have completed the survey, answer the following questions.**

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Did you see more birds or hear more singing?

Do you see the birds you observed on your survey often? Did you observe any new birds? Do you know what kinds?

Where was the most common place you saw birds or heard them singing? (in trees, flying, on the ground, etc.)

What would you do differently if you conducted this experiment again?