

Envirothon 2012

Florida Regional Envirothon Wildlife Study Guide

Overall Comments

- Spelling, including common names, matters
- Common names and terminology must be complete
 - For example, an answer of “deer” or “white-tail deer” would not be accepted; the correct answer would be “white-tailed deer”
- Scientific names will not be tested, but the concept of taxonomy should be understood
- Vocabulary may be tested through fill in the blank, multiple choices, applying terminology to Florida’s wildlife or an overall understanding of concepts.
 - Memorized definitions, where students are provided vocabulary words for writing complete definitions, will not be required.

I. Florida Envirothon Study Packet: Wildlife Section

Know all below materials:

Introduction

Wildlife Biology

- General Biology Rules and Principles
- Ethology

Management and Research

- Management Techniques
- Research Techniques

Natural Histories

- Sign

• American Alligator	• Eastern Diamondback Rattlesnake	• Osprey
• Florida Black Bear	• Florida Scrub Jay	• River Otter
• Bowfin	• Gopher Tortoise	• White-Tailed Deer
• Brown Pelican	• Greater Yellow-Legs	• Wild Hog
• Cotton Mouse	• Gulf Sturgeon	
• Coyote	• Mosquito	

Diseases

- Canine Distemper
- Lyme Disease
- Rabies

Human Causes and Effects

Regulatory Protection of the Environment

References

Glossary

- Definition of extirpation was not provided
Extirpation: to remove or destroy totally; do away with; exterminate.

II. Additional Regional Wildlife Glossary

- Abbreviated version of National Envirothon’s Wildlife Glossary
- Know all vocabulary words (spelling counts) and how they apply to Florida wildlife
- Writing out memorized definitions will not be required; fill in the blanks may be test questions

III. “Florida Tracks, Scats & Signs” Laminated ID Guide (funding pending)

Focal Species: Black bear, raccoon, opossum, Florida panther, bobcat, white-tailed deer, river otter, coyote, gray fox, bats, eastern mole, pocket gopher, eastern cottontail, eastern gray squirrel, American alligator, gopher tortoise, owls, woodpeckers, osprey, wild hog, armadillo

Know the following:

- Common gaits (diagonal walker, bounder, pacer, etc.)
- Track patterns (direct register, indirect register)
- How to measure tracks, strides, straddle
- Tracks
- Scats
- Other wildlife signs (denning, browsing, burrows, holes, etc.)

Also see “Outdoor Action Guide to Animal Tracking” under National Envirothon Materials

Additional Resource (FYI): <http://www.bear-tracker.com/>

IV. National Envirothon Materials to Know for Regional Competition

From Website: http://flenvirothon.com/Studyguides/enviro_wildlife.pdf

1. Outdoor Action Guide to Animal Tracking:

Use Website: <http://www.princeton.edu/~oa/nature/tracking.pdf>

Know the following:

- Common gaits (diagonal walker, bounder, pacer, etc.) and track patterns
- How to measure tracks, strides, straddle
- Tracks
- Scats
- Other wildlife signs (denning, browsing, burrows, holes, etc.)

2. Smithsonian National Museum of Natural History: North American Mammals

From Website: <http://www.mnh.si.edu/mna/main.cfm>

Learn the Natural History of These Focal Species (18):

- Use Website: http://www.mnh.si.edu/mna/image_menu.cfm
- Map Search: to find information about these Florida species, click on Florida on the map

- | | | |
|---------------------|-------------------------|---|
| • Raccoon | • Coyote | • Bats |
| • Opossum | • Gray Fox | ○ Brazilian Free-Tailed |
| • Bobcat | • Armadillo | ○ Evening |
| • White-Tailed Deer | • Eastern Cottontail | ○ Tricolored (formerly Eastern Pipistrelle) |
| • River Otter | • Eastern Gray Squirrel | ○ Northern Yellow |
| • Eastern Mole | • Eastern Fox Squirrel | ○ Big Brown |
| | | ○ Seminole |

V. Skulls

Use Websites:

Skull ID

<http://www.d91.k12.id.us/SKYLINE/Science/Zoology/MAMMAL1.HTM>

Dichotomous Key (pdf of this website information also provided)

http://eec.pasco.k12.fl.us/eecs/High_School_Programs_files/Dichotomous%20Key%20Skulls.pdf

- Understand that skulls vary and are a useful tool for identification purposes
- Be able identify skulls by common name and apply skull adaptations to wildlife natural history
- Be able to use a Dichotomous Key

Focal Species (11): Black bear, opossum, puma (mountain lion, panther), bobcat, white-tailed deer, river otter, gray fox, eastern cottontail, eastern gray squirrel, wild hog, armadillo

National Envirothon Resource (FYI only): http://www.mnh.si.edu/mna/image_menu.cfm

VI. Teeth / Dentition

- Understand that wildlife teeth vary and are a useful tool for identification purposes
- Be able to apply dentition formulas to skulls and skulls to dentition formulas

Use Website: <http://www.vivo.colostate.edu/hbooks/pathphys/digestion/pregastric/dentalanat.html>

National Envirothon Resource (FYI only):

http://www.mnh.si.edu/mna/image_menu.cfm

VII. Additional Regional Wildlife Reading Materials

“Threats to Florida’s Biodiversity”

<http://edis.ifas.ufl.edu/pdf/edis/UW/UW10700.pdf>

“Living with Alligators: A Florida Reality”

<http://edis.ifas.ufl.edu/pdf/edis/UW/UW23000.pdf>

“The Value of Endangered Species: The Importance of Conserving Biological Diversity”

<http://edis.ifas.ufl.edu/pdf/edis/UW/UW06400.pdf>

“Laws that Protect Florida’s Wildlife”

<http://edis.ifas.ufl.edu/pdf/edis/UW/UW07600.pdf>

“Use of Amphibians as Indicators in Ecological Restoration Success”

<http://edis.ifas.ufl.edu/pdf/edis/UW/UW23300.pdf>

“Nonnative Reptiles of South Florida Identification Guide”

<http://edis.ifas.ufl.edu/pdf/edis/UW/UW33600.pdf>

“Impacts of Free-ranging Pets on Wildlife”

<http://edis.ifas.ufl.edu/uw090>

VIII. Sea Turtles (5 species)

Know below natural history and be able to identify Florida's five sea turtles

Use FWC Website: <http://myfwc.com/research/wildlife/sea-turtles/fl-sea-turtles/species/>
(Below content is from this site; pictures of these turtles are also on this website)

Loggerhead (*Caretta caretta*)

The most common sea turtle in Florida, the loggerhead is named for its massive, block-like head. Loggerheads are among the larger sea turtles; adults weigh an average of 275 pounds and have a shell length of about 3 feet. Its carapace, which is a ruddy brown on top and creamy yellow underneath, is very broad near the front of the turtle and tapers toward the rear. Each of its flippers has two claws. As is true for all sea turtles, the adult male has a long tail, whereas the female's tail is short; however, a juvenile's cannot be determined externally.

The powerful jaws of the loggerhead allow it to easily crush the clams, crabs, and other armored animals it eats. A slow swimmer compared to other sea turtles, the loggerhead occasionally falls prey to sharks, and individuals missing flippers or chunks of their shell are not an uncommon sight. However, the loggerhead compensates for its lack of speed with stamina; for example, a loggerhead that had been tagged at Melbourne Beach was captured off the coast of Cuba 11 days later.

Green Turtle (*Chelonia mydas*)

Green turtles, named for their green body fat, were valued by European settlers in the New World for their meat, hide, eggs, and "calipee" (the fat attached to the lower shell that formed the basis of the popular green turtle soup). Merchants learned that the turtles could be kept alive by turning them on their backs in a shaded area. This discovery made it possible to ship fresh turtles to overseas markets. By 1878, 15,000 green turtles a year were shipped from Florida and the Caribbean to England. At one time, Key West was a major processing center for the trade. The turtles were kept in water-filled pens known as "kraals," or corrals. These corrals now serve a more benign role as a tourist attraction.

A more streamlined-looking turtle than the bulky loggerhead, the green turtle weighs an average of 350 pounds and has a small head for its body size. Its oval-shaped upper shell averages 3.3 feet in length and is olive-brown with darker streaks running through it; its lower shell, or plastron, is yellow. Green turtles are found during the day in shallow flats and seagrass meadows and return every evening to their usual sleeping quarters-scattered rock ledges, oyster bars, and coral reefs. Adult green turtles are unique among sea turtles in that they are largely vegetarians, consuming primarily seagrasses and algae. Approximately 100 to 1,000 green turtles nest on Florida's beaches each year from June through late September.

Leatherback (*Dermochelys coriacea*)

The leatherback is a fascinating and unique animal, even among sea turtles. It is larger, dives deeper, travels farther, and tolerates colder waters than any other sea turtle. Most leatherbacks average 6 feet in length and weigh from 500 to 1,500 pounds, but the largest leatherback on record was nearly 10 feet long and weighed more than 2,000 pounds.

Leatherbacks look distinctively different from other sea turtles. Instead of a shell covered with scales or shields, leatherbacks are covered with a firm, leathery skin and have seven ridges running lengthwise down their backs. They are usually black with white, pink, and blue splotches and have no claws on their flippers. Leatherbacks eat soft-bodied animals such as jellyfish, and their throat cavity and scissor-like jaws are lined with stiff spines that aid in swallowing this soft and slippery prey. Young leatherbacks in captivity can consume twice their weight in jellyfish daily.

True denizens of the deep, leatherbacks are capable of descending more than 3,000 feet and of traveling more than 3,000 miles from their nesting beach. They are found throughout the Atlantic, Pacific, and Indian oceans, as far north as Alaska and Labrador. Researchers have found that leatherbacks are able to regulate their body temperature so that they can survive in cold waters. The leatherback is found in Florida's coastal waters, and a small number (from 30 to 60 a year) nest in the state.

Kemp's Ridley (*Lepidochelys kempii*)

The Kemp's ridley is the rarest sea turtle in the world and is the most endangered. It has only one major nesting beach, an area called Rancho Nuevo on the Gulf coast of Mexico. The location of this nesting beach was itself a mystery to scientists until the discovery of a film made in 1947 by a Mexican engineer showing 40,000 Kemp's ridleys crawling ashore in broad daylight to lay eggs. Sadly, an "arribada" (from the Spanish word for arrival) of such awe-inspiring splendor can now be seen only on film. Fewer than 1,000 nesting females remain in the world.

Kemp's ridleys are small, weighing only 85 to 100 pounds and measuring 2 to 2.5 feet in carapace length, but they are tough and tenacious. Their principal diet is crabs and other crustaceans. During the 1980s, many eggs were removed from the beach at Rancho Nuevo and incubated in containers. The hatchlings that emerged from these eggs were then raised for almost a year in a National Marine Fisheries Service facility in Galveston, Texas. Upon release, it was hoped that these "headstarted" turtles had a better chance of survival than they would have had as hatchlings. Unfortunately, there were many problems with this program. When it was discovered that the sex of turtle hatchlings was influenced by temperature, project workers realized that the artificial egg incubators were producing only male turtles. They also discovered that many of the "headstarted" turtles did not behave like their wild counterparts after release. Many scientists worried that these "headstarted" turtles would never become reproducing adults. Although two "headstarted" turtles have finally been known to nest, headstarting is generally considered to be an inappropriate conservation technique for marine turtles

Hawksbill (*Eretmochelys imbricata*)

The hawksbill is a small, agile turtle whose beautiful tortoise-colored shell is its greatest liability. The shell is still used in some European and Asian countries to make jewelry, hair decorations and other ornaments, even though international trade in hawksbill products has been banned in much of the world. Hawksbills weigh from 100 to 200 pounds as adults and are approximately 30 inches in shell length. Its carapace is shaded with black and brown markings on a background of amber. The shields of this kaleidoscopic armor overlap, and the rear of the carapace is serrated. Its body is oval-shaped, its head is narrow, and its raptor-like jaws give the hawksbill its name. These jaws are perfectly adapted for collecting its preferred food, sponges. Although sponges are composed of tiny glasslike needles, this potentially dangerous diet apparently causes the turtle no harm. Hawksbills are the most tropical of the sea turtles and are usually found in lagoons, reefs, bays, and estuaries of the Atlantic, Pacific, and Indian oceans. They are frequently spotted by divers off the Florida Keys, and a few nests are documented annually from the Keys to Canaveral National Seashore.

IX. Florida Bats

Use Website: Florida Bat Conservancy <http://www.floridabats.org/>

Know for the Bat Focal Species Listed Below:

- Bat Facts
- Bat Habitat

Bats of Florida — Focal Species (7):

- Brazilian free-tailed
- Evening
- Florida bonneted
- Seminole
- Northern Yellow
- Big Brown
- Tri-colored (formerly Eastern Pipistrelle)

X. Snakes

Be able to Identify and Differentiate between Focal Venomous and Nonvenomous Snake Species

Use Website for Both Venomous & Nonvenomous Species:

<http://www.flmnh.ufl.edu/herpetology/fl-guide/fl-snakelist.htm>

Venomous Snakes (6 species)

Know and be able to identify all 6 of Florida's venomous snakes (use above website link)

- Southern Copperhead, *Agkistrodon contortrix contortrix*
- Cottonmouth, *Agkistrodon piscivorus*
- Eastern Diamondback Rattlesnake, *Crotalus adamanteus*
- Timber Rattlesnake, *Crotalus horridus*
- Dusky Pigmy Rattlesnake, *Sistrurus miliarius barbouri*
- Eastern Coral Snake, *Micrurus fulvius*

Non-venomous Snakes (12 focal species)

Know and be able to identify the below nonvenomous snakes (use above website link)

- Southern ringneck snake
- Peninsula ribbon snake
- Eastern hognose snake
- Rough green snake
- Southern black racer
 - (both adult and juvenile color patterns and behaviors)
- Eastern corn snake (formerly Red rat snake)
- Eastern rat snake (formerly Yellow rat snake)
- Florida banded snake
- Eastern garter snake
- Brahminy blind snake
- Eastern indigo snake
- Eastern coachwhip snake

Additional Reading: “Dealing with Snakes” http://ufwildlife.ifas.ufl.edu/dealing_with_snakes.shtml

XI. Bird Calls

Recognize and Identify Focal Bird Species' Calls

General bird call information—helpful hints to learning calls (FYI only)

<http://www.birds.cornell.edu/Page.aspx?pid=1059>

Bird Calls for Focal Species Listed Below (16)

Use Website: <http://www.allaboutbirds.org/guide/search.aspx>

- American crow
- Bald eagle
- Barred owl
- Blue jay
- Boat-tailed grackle
- Catbird
- Chuck-will's-widow
- Common nighthawk
- Eastern meadowlark
- Eastern screech owl
- Fish Crow
- Great horned owl
- Northern cardinal
- Northern mockingbird
- Osprey
- Red-winged blackbird

XII. Frogs & Toads

- Identification of below species including key characteristics
- Know calls of Focal Species
 - Calls located at http://fl.biology.usgs.gov/herps/Frogs_and_Toads/frogs_and_toads.html except Bullfrog call (its link is provided under “Bullfrog”)
- Understand conservation or environmental aspects (in decline, imperiled species, invasive exotic, etc.) and how it relates to Florida’s species, habitats and resource management

Florida Frog/Toad Focal Species (15):

- Barking Treefrog
- Bullfrog, *Lithobates catesbeianus* (formerly *Rana catesbeiana*)
 - Natural History: Bullfrog
 - Call: http://www.wec.ufl.edu/extension/wildlife_info/frogstoads/rana_catesbeiana.php
- Cuban Treefrog
 - “The Cuban Treefrog in Florida” <http://edis.ifas.ufl.edu/uw259>
- Eastern Narrowmouth Toad
- Eastern Spadefoot Toad
- Southern/Florida Cricket Frog
- Florida Gopher Frog
- Green Treefrog
- Greenhouse Frog
- Marine/Cane/Giant Toad, *Rhinella marina* (formerly *Bufo marinus*)
 - “Marine Toads (Bufo marinus)” <http://edis.ifas.ufl.edu/pdf/UW/UW04600.pdf>
- Pig Frog
- Pinewoods Treefrog
- Southern Leopard Frog
- Southern Toad
- Squirrel Treefrog

General Information about These Florida Species

Use these links to learn natural history about the Focal Species

http://www.wec.ufl.edu/extension/wildlife_info/frogstoads/

<http://ufwildlife.ifas.ufl.edu/frogs/florida.shtml>

<http://ufwildlife.ifas.ufl.edu/frogs/central.shtml>

Additional Reading: “Humane Method of Euthanizing Non-native Invasive Frogs/Toads”

http://www.wec.ufl.edu/extension/wildlife_info/faq/frogstoads.php#Toad_Poison
