FLORIDA 4-H FOREST ECOLOGY
WILDLIFE ON THE FOREST HIKE

STUDY GUIDE

Juniors and Intermediates will take a short hike and be asked to identify 20 animals. There are 4 different types of animals in the contest (amphibians, reptiles, birds, and mammals); you should expect a mix of at least some from each group.

Participants will be given a list of 53 possible animals (by common name) and will need to match those names to the numbers on prepared specimens (taxidermy or preserved). Both Juniors and Intermediates should be prepared to identify specimens visually. Additionally, Intermediates may be asked to identify some animals by sound (birds and amphibians) or tracks (mammals).

The Florida 4-H Forest Ecology Contest website has links to useful web resources with images for each species. This study guide provides additional tips and common techniques for identification of wildlife, including general characteristics to consider, and specific information by animal group.

General Identification Considerations

When you are out on a forest hike, you might see glimpse of an animal just in the corner of your eye…. What was it?

There are so many different animals in the forest, and before you even have a chance to pull out your binoculars or your ID guide, you have already started gathering information about what kind of animal it might be. You might first want to think about WHERE you are: what part of Florida, what type of forest, is there water nearby, other ecosystems? WHEN is it: what season, time of year, time of day? HOW was the animal moving: did it fly up high, scurry by in the grass, run fast, or slither slowly?

There are many ways that biologists can identify wildlife while on a forest hike. One is SIGHT, if you are lucky enough to see them. Hearing the SOUNDS an animal makes can be very informative, either from its mouth (singing or croaking) or the sound of its movement (some animals make a lot of sound when they move, and others are very quiet). You might also see the footprints (“TRACKS”) or remains of a digested meal (“SCAT”) on the trail.

Below we give you some tips on how biologists generally identify animals in each of these groups, followed by some specific study references to use for this contest. Primary study resources are online websites, where you can view images, identification information, hear calls and sounds, and see tracks.

Amphibians

- ***What, Who, and Where are Amphibians***
  - Frogs, Toads, Newts, and Salamanders
  - Cold-blooded; require a **warm** environment
  - Live on land and water; near a water source (ponds, roadside ditches, lakes)
  - Have gills as larvae and lungs as adults

- **How to tell amphibians apart from reptiles**:
  - Amphibians have soft, smooth, or warty skin that is usually moist.
  - Reptiles have hard and scaly skin with scutes or bony plates.

- **How to tell amphibians apart from each other**:
  - If it has a tail, it is a salamander or newt. If it does not, it is a frog or toad.
  - Frogs typically have smooth and slimy skin. Toads have warty and dryer skin.

- **Tips to ID frogs:**
  - Each frog species has a unique call.
    - Listen to each one relative to the other
    - Create *your own* "sounds like…." (examples below, but create your own!)
      - A squeaky tennis shoe (Cuban tree frog)
      - "Write me, Write me" (green tree frog)
  - Tree frogs have large, round toe pads specialized for climbing.

- **Amphibians in the forest ecology contest:**
  - Green Treefrog*
  - Southern Leopard Frog*
  - Southern Toad*
  - Cuban TreeFrog*
  - Eastern Narrowmouthed Toad*
  - Eastern Newt

  **Intermediates may be asked to identify these animals by sound (calls)*

- **Study Resources**
  - The best single resource for learning amphibians in Florida is the ***Florida Museum of Natural History Discover Herpetology*** website: (https://www.floridamuseum.ufl.edu/discover-herps/)

  - *To learn frog calls (for intermediates), study the calls noted below from the website: (https://www.floridamuseum.ufl.edu/discover-herps/florida-frog-calls/):
    - "Green Treefrog"
    - "Southern Leopard Frog"
    - "Southern Toad (Breeding Chorus)"
    - "Cuban TreeFrog"
    - "Eastern Narrowmouthed Toad"

Reptiles

- ***What, Who, and Where are Reptiles***
  - Reptiles include crocodilians, snakes, lizards, turtles, and tortoises
  - Air-breathing, cold-blooded vertebrates
  - Have skin made of scales, bony plates, or both
  - They're all around us, in forests, lakes, swamps, and even your backyards

- **Skin**: different reptiles have different skin types and textures, such as scales vs bony plates.

- **Color**: color can be tricky; sometimes the same species has different variations.

- **Pattern**: different reptiles have different patterns on their skin or shell, but sometimes the same species can have different patterns.

- **Size**: this isn't the best option since younger animals are smaller and can be confused for something else, but it is still good to keep in mind.

- **Location/habitat**: the area that a reptile is found in can help narrow down what it could be; some animals like wet habitat, some prefer dry areas.

- **Behavior**: different reptiles behave differently, and some might only be active at night or during the day, possibly helping you figure out what it is.

- **Difference between a tortoise and a turtle:**
  - Tortoises live only on land while turtles inhabit water and land.
  - Look at shell shape and foot shape.

- **How to identify lizards and snakes:**
  - Can vary greatly by size, color, pattern, behavior, habitat, and location.

- **Difference between a venomous (V) and non-venomous (NV) snake:**
  - (NV) Head is narrow, barely distinguishable from neck; (V) head is broad "triangular" in shape.
  - (NV) body is relatively thin and narrow; (V) body is heavy or "fat" in appearance.
  - (NV) tail usually tapers to a long, thin point, never with rattles; (V) tail is blunt and usually ending with a cluster of modified scales; never tapers to a tipped point.
  - (NV) eye has a round pupil; (V) eye has an elliptical pupil.

- **Reptiles in the forest ecology contest**:
  - American alligator
  - Black racer
  - Coral snake
  - Cottonmouth
  - Cuban brown anole
  - Eastern box turtle
  - Eastern diamondback rattlesnake
  - Eastern indigo snake
  - Fence lizard
  - Five-lined ground skink
  - Gopher tortoise
  - Green anole
  - Pygmy rattlesnake
  - Yellow rat snake

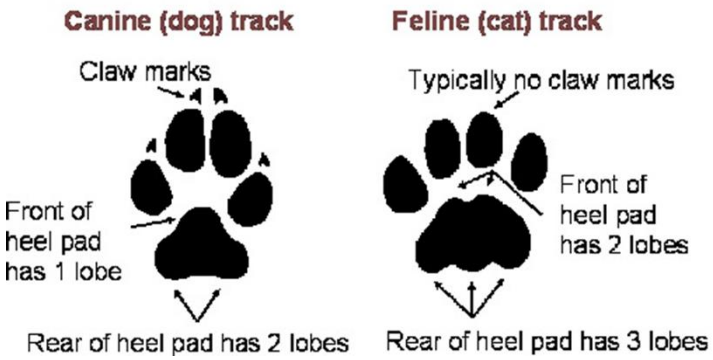
- **Study Resources**
  - The best single resource for learning reptiles in Florida is the ***Florida Museum of Natural History Discover Herpetology*** website: (https://www.floridamuseum.ufl.edu/discover-herps/)

Mammals

- ***What, Who, and Where are Mammals***
  - **Very diverse!** Size, color, pattern, behavior, and location
  - If you are lucky to see a mammal in the wild it can be easy to ID
  - Use sign of animals: TRACKS and SCAT

- **Color:** If you are lucky to see a mammal in the wild knowing what color some species are compared to others can help you ID the species.

- **Tracks**: The size and shape of animal tracks and can be helpful:
  - The best way to learn tracks is to find tracks and compare them with pictures.
  - Consider substrate; sandy or hard ground can change size of track.
  - Front and hind foot can look different. Try to identify the length of the stride; often you do not see full set of tracks.
  - Look at spacing of toenails, width of paw, shape, position of toes and pads.



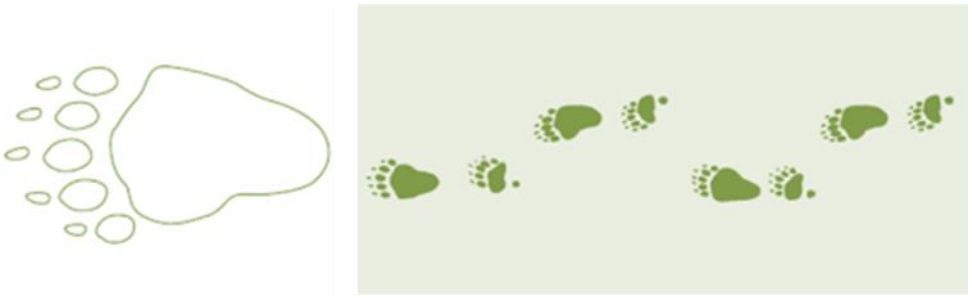
- **Scat**: The droppings, feces, dung, manure, poop of a mammal is often a distinctive way to identify a species. Size, shape, color, and contents are all keys.

- **Mammals in the forest ecology contest:**
  - Armadillo
  - Black bear*
  - Bobcat*
  - Cottontail rabbit
  - Florida panther*
  - Gray squirrel
  - Opossum
  - Pocket gopher
  - Raccoon*
  - Red fox*
  - Sherman's fox squirrel
  - Striped skunk*
  - White-tailed deer*
  - Wild pig (feral swine)*

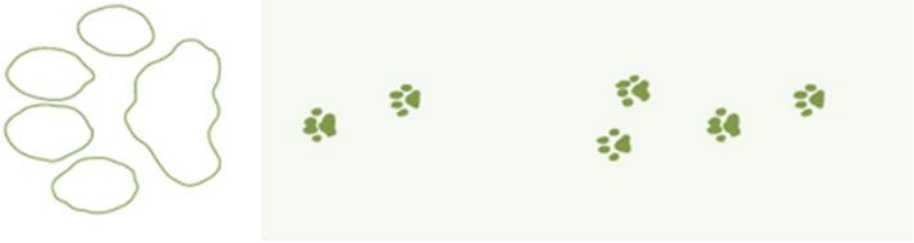
*Intermediates may be asked to identify these animals by tracks

- **Study Resources**
  - There are numerous online resources for learning mammals in Florida; please refer to the Florida 4-H Forest Ecology contest website for resources for each species.
  - *To learn tracks (for intermediates), please see the examples below for each species (note, these images are not to scale; during the contest expect tracks to be displayed at scale):

    - Black bear* (4 ½" front, 7-9" hind width)



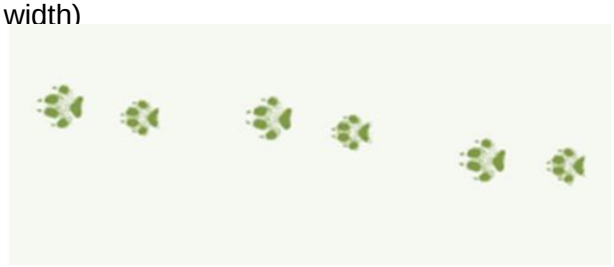
    - Bobcat* (1 ¾ - 2" width)



    - Florida panther* (3 – 3 ½" width)

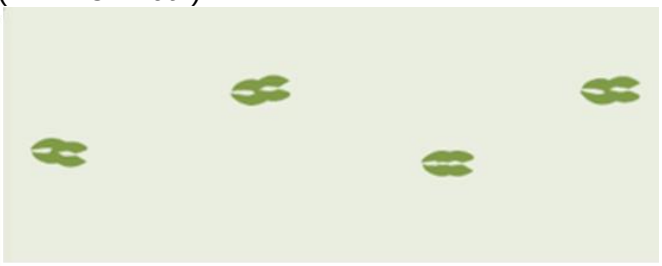
- Raccoon* (2 ½" front – 4" hind width)


- Red fox* (2 – 2 ¼" width)

- Striped skunk* (1 ½" width)


- White-tailed deer* (2 ½ – 3" width)

- Wild pig (feral swine)* (2 – 2 ½" width)


Birds

- ***What, Who, Where are Birds***
  - Warm-blooded vertebrates
  - Have feathers and lay eggs
  - Capable of true flight (most)
  - They're in most ecosystems, in forests, deserts, mountains, meadows, lakes, swamps, and even your backyard

- **How do you identify birds**
  - Size, color, beak shape, song/call, behavior, and location.
  - Some birds are VERY different and easy identify; some are VERY similar!
  - Understanding the basic parts of a bird can help you identify it.

- Some bird species have **different plumage** (color of feathers) depending on the season, their sex, and their age.

- **Bird size** is a useful ID tool and can be broken down into four groups:
  - Sparrow-size or smaller; Robin-size; Crow-size; Goose-size or larger

- **Beak shape** can be a key factor to figuring out what category the birds are in and is linked to what they eat and their habitat.

- Learning **bird calls** is an important skill to work on because it is often easier to hear the birds instead of seeing them. You might want to think of a "sounds like" phrase to remember each song. The best way to learn bird calls is to go outside and practice! The app Merlin is also a useful tool (https://merlin.allaboutbirds.org/)

- **Birds in the forest ecology contest:**
  - American crow*
  - Barred owl*
  - Blue jay*
  - Carolina chickadee*
  - Chuck-will's-widow*
  - Eastern towhee*
  - Florida scrub jay
  - Northern bobwhite*
  - Northern mockingbird
  - Pileated woodpecker
  - Red-bellied woodpecker
  - Red-cockaded woodpecker
  - Red-shouldered hawk*
  - Sharp-shinned hawk
  - Tufted titmouse*
  - Turkey vulture
  - Wild turkey*
  - Wood duck
  - Wood stork

*Intermediates may be asked to identify these animals by sound (songs)

- **Study Resources**
  - There are numerous online resources for learning birds in Florida; please refer to the Florida 4-H Forest Ecology contest website for resources for each species.

  - The best single resource for learning birds and their songs in United States is the ***Cornell Lab of Ornithology*** "All About Birds" website: (https://www.allaboutbirds.org/guide/)

  - *To learn bird songs (for intermediates), go the Cornell "All About Birds" webpage for each species (linked to the Forest Ecology Contest page and at https://www.allaboutbirds.org/guide/), click on "sounds", to study the call mentioned below**.** Birds often have a variety of calls and songs; we have selected just 1 that is most common (typically the first one on the list) for you to learn for this contest:

    - American crow: *Florida, March 04, 200; 0:34; first call on the list*
    - Barred owl: *Oregon, May 28, 1992; 0:29; first song on the list*
    - Blue jay: *New York, June 23, 2013; 0:22; first call on the list*
    - Carolina chickadee: *West Virginia, May 05, 1999; 0:25; first song*
    - Chuck-will's-widow: *New Jersey, May 30, 2018; 0:29; first song*
    - Eastern towhee: *New York, May 06, 2020; 0:32; first song*
    - Northern bobwhite: *New Jersey, July 14, 2017; 0:34; first song*
    - Red-shouldered hawk: *California, July 16, 2020; 0:29; first call*
    - Tufted titmouse: *New York, April 24, 2018; 0:31; first song*
    - Wild turkey: *California, May 24, 2020; 0:31; first song*