

# Study Guide for the National FFA Environmental and Natural Resources CDE Identification Practicum



Authors: Lucas T. Woody, Dept. of Forestry and Natural Resources • Rod N. Williams, Dept. of Forestry & Natural Resources

\*Photos by Authors unless otherwise noted

Studies have shown that repetition is the most effective form of learning. To this end, flashcards are one of the simplest and most successful tools for engaging students in the learning process. Flashcards allow students to take advantage of brief periods throughout the day, because they can easily be taken anywhere and also allow students to “compete” with themselves or against peers in group settings. The flashcards provided within this publication will help FFA participants prepare for the identification practicum portion of the National Environmental and Natural Resources Career Development Event.

Provided are 148 digital photographs of all plants, wildlife, and equipment found on the National FFA Career Development Event Handbook identification list (p. 139-140). Actual specimens from the Purdue University teaching collection will be used for the identification practicum when possible. While most specimens retain their coloration for decades, some may fade over short periods of time. To ensure students are prepared for these subtle changes, these flashcards were developed using digital photographs of specimens that will

be displayed on the day of the contest. For the few items not currently housed within the Purdue University teaching collection, pictures may be used in lieu of specimens.

## USING THE CARDS

Information on how to identify a particular species is listed on the back of each flashcard. The most important characteristics used for identification are always listed first.

Use the following pages to make flashcards by first printing the files with a color printer, then cutting along the dotted lines and folding the papers.

## THE CONTEST

Participants will not be allowed to handle any of the practicum items. Students will be required to identify 50 plant/wildlife species or associated natural resource equipment from among a total of 148 listed on the attached cards. A participating student will have time to view a specimen and record an answer on the top of the scantron sheet before moving to the next station.



WATER QUALITY EQUIPMENT

## Refractometer



Photo: [https://wildco.com/product\\_info.php?products\\_id=873&osCsid=a9b663b64f15d0f72bc990c0b2ef632a](https://wildco.com/product_info.php?products_id=873&osCsid=a9b663b64f15d0f72bc990c0b2ef632a)

WATER QUALITY EQUIPMENT

## Secchi disk



Photo: [https://wildco.com/product\\_info.php?products\\_id=640&osCsid=a9b663b64f15d0f72bc990c0b2ef632a](https://wildco.com/product_info.php?products_id=640&osCsid=a9b663b64f15d0f72bc990c0b2ef632a)

WATER QUALITY EQUIPMENT

## Thermometer



WATER QUALITY EQUIPMENT

## Water bottle sampler



WATER QUALITY EQUIPMENT

## Water meter—physical and chemical parameters

Photo: [https://wildco.com/product\\_info.php?products\\_id=1192&osCsid=a9b663b64f15d0f72bc990c0b2ef632a](https://wildco.com/product_info.php?products_id=1192&osCsid=a9b663b64f15d0f72bc990c0b2ef632a)



AQUATIC EQUIPMENT

## Aquatic net

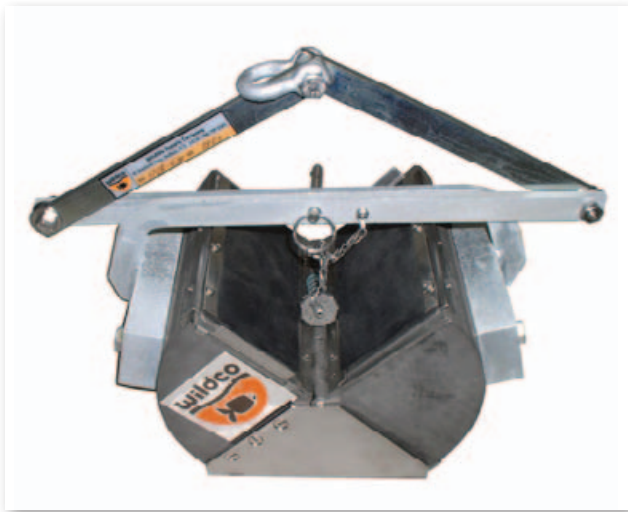


Photo: [https://wildco.com/product\\_info.php?products\\_id=346&osCsid=a9b663b64f15d0f72bc990:0b2ef632a](https://wildco.com/product_info.php?products_id=346&osCsid=a9b663b64f15d0f72bc990:0b2ef632a)

AQUATIC EQUIPMENT

## Bottom dredge



AQUATIC EQUIPMENT

## Fish measuring board



Photo: [https://wildco.com/product\\_info.php?products\\_id=952&osCsid=a9b663b64f15d0f72bc990:0b2ef632a](https://wildco.com/product_info.php?products_id=952&osCsid=a9b663b64f15d0f72bc990:0b2ef632a)

AQUATIC EQUIPMENT

## Plankton net

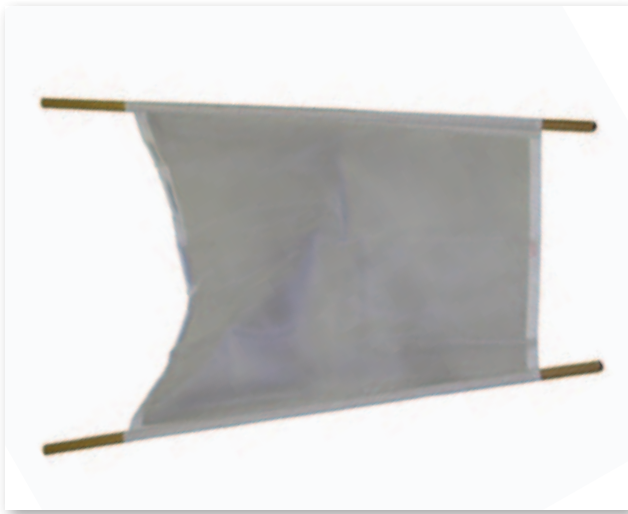


Photo: [https://wildco.com/product\\_info.php?products\\_id=793&osCsid=a9b663b64f15d0f72bc990c0b2ef632a](https://wildco.com/product_info.php?products_id=793&osCsid=a9b663b64f15d0f72bc990c0b2ef632a)

AQUATIC EQUIPMENT

## Seine



AQUATIC EQUIPMENT

## Sieves



Photo: [https://wildco.com/product\\_info.php?products\\_id=3508&osCsid=a9b663b64f15d0f72bc990c0b2ef632a](https://wildco.com/product_info.php?products_id=3508&osCsid=a9b663b64f15d0f72bc990c0b2ef632a)

AQUATIC EQUIPMENT

## Stream bottom sampler



WILDLIFE EQUIPMENT

## Binoculars



WILDLIFE EQUIPMENT

## Mammal trap



WILDLIFE EQUIPMENT

## Snake/Reptile stick



WILDLIFE EQUIPMENT

## Radio telemetry unit



WILDLIFE EQUIPMENT

## Animal tags/bands



GEOGRAPHICAL EQUIPMENT

## GPS unit



Photo: <http://upload.wikimedia.org/wikipedia/commons/9/9e/Dosen-barometer.jpg>

WEATHER EQUIPMENT

## Barometer

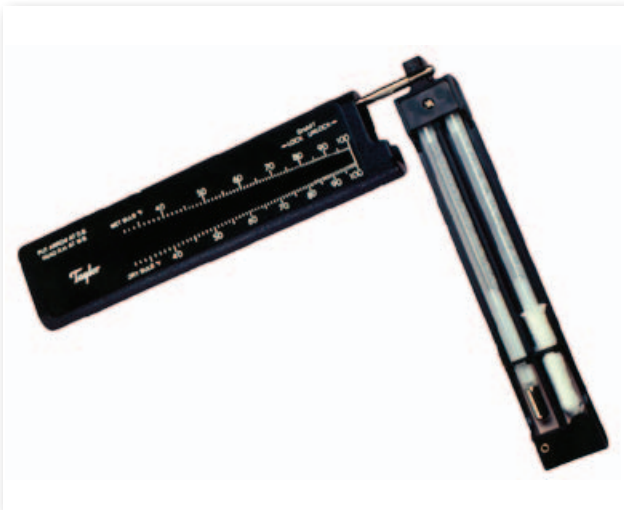


Photo: <http://lib.store.yahoo.net/lib/partshelf/1330Large.jpg>

WEATHER EQUIPMENT

## Sling psychrometer



WEATHER EQUIPMENT

## Rain gauge





WEATHER EQUIPMENT

## Wind speed meter



FORESTRY EQUIPMENT

## Biltmore stick



FORESTRY EQUIPMENT

## Diameter tape



FORESTRY EQUIPMENT

## Prism



FORESTRY EQUIPMENT

## Tree increment borer



NATIVE SPECIES — Wildlife

## Armadillo

### *Characteristics:*

- Shell-like, scaly skin covering back
- Bony scutes cover head and long tail
- Prominent claws on all four feet



NATIVE SPECIES — Wildlife

## Badger

*Characteristics:*

- White stripe from nose to back of head
- Black patches on cheeks
- Thick, stout body
- Large, heavy claws on forefeet



NATIVE SPECIES — Wildlife

## Beaver

*Characteristics:*

- Large, broad, and flattened tail
- Fur brown and thick
- Hind feet webbed



NATIVE SPECIES — Wildlife

## Bison

*Characteristics:*

- Large, thick body with brown fur
- Thicker fur on head and shoulders
- Horns on both male and female

Photo: [http://www.wildlife.alaska.gov/hunting/bison/deltabison/deltabison\\_images/bison\\_photo\\_1.jpg](http://www.wildlife.alaska.gov/hunting/bison/deltabison/deltabison_images/bison_photo_1.jpg)



Photo: <http://www.wildlifemanagementpro.com/wp-content/uploads/2008/05/black-bear-returning.jpg>

NATIVE SPECIES — Wildlife

## Black bear

### *Characteristics:*

Usually black fur, other colors may dominate  
Light patch often on chest  
Lighter colored muzzle  
Lacks hump of shoulders (compare to grizzly bears)



NATIVE SPECIES — Wildlife

## Bobcat

### *Characteristics:*

Tail short and black only at tip  
Ear tufts short



NATIVE SPECIES — Wildlife

## Chipmunk

### *Characteristics:*

White eye stripes  
Two white stripes bordered by black on back  
Reddish color body



NATIVE SPECIES — Wildlife

## Cottontail

*Characteristics:*

Large, white hind feet

Large ears

Cotton-ball-shaped tail—white below

Neck rusty-red color

Body fur brownish or grayish



NATIVE SPECIES — Wildlife

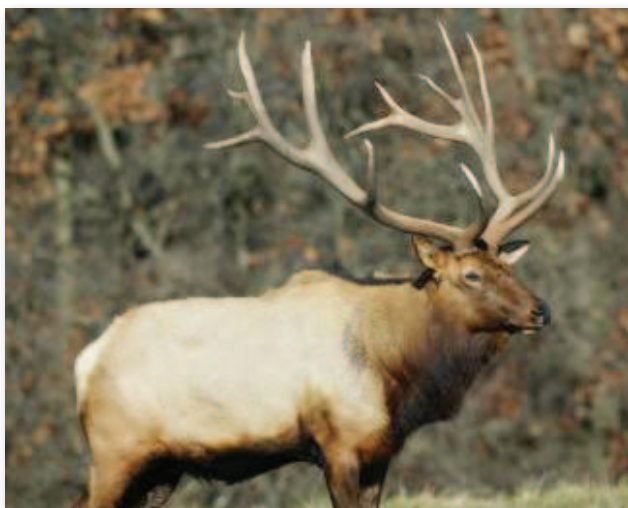
## Coyote

*Characteristics:*

Resembles medium-sized dog

Body grizzled gray or reddish gray

Tail often with black tip



NATIVE SPECIES — Wildlife

## Elk

*Characteristics:*

Males with multi-tined antlers

Brown or tan on upper half of body

Lower half of body much darker

Photo: [https://www-s.aces.uiuc.edu/photolib/lib1523/midsize/101\\_0392.jpg](https://www-s.aces.uiuc.edu/photolib/lib1523/midsize/101_0392.jpg)



NATIVE SPECIES — Wildlife

## Fox squirrel

*Characteristics:*

Body fur rusty-orange mixed with gray  
Long tail with orange-tipped fur  
Belly orange



NATIVE SPECIES — Wildlife

## Gray squirrel

*Characteristics:*

Body fur grayish  
Long tail with white-tipped fur  
Belly whitish



NATIVE SPECIES — Wildlife

## Gray wolf

*Characteristics:*

Large size (relative to coyote)  
Large paws  
Large, blocky muzzle  
Assorted colors: gray, black, white, tan

Photo: <http://seattletimes.nwsource.com/ABPub/2009/01/27/2008677743.jpg>



Photo: [http://files.posterous.com/birdimages/PmoZL5sC94Pv6QAFxdkCf0ZzErQbHwSMvKIGOfdlHisMOAJLQvCsxJAixyDq/Grizzly\\_Bear\\_edDSCN0481.jpg?AWSAccessKeyId=1C9REJR1EMRZ83Q7QRG2&Expires=1268272951&Signature=yMgQ43vINXuoD95ag17nUcWC4I%3D](http://files.posterous.com/birdimages/PmoZL5sC94Pv6QAFxdkCf0ZzErQbHwSMvKIGOfdlHisMOAJLQvCsxJAixyDq/Grizzly_Bear_edDSCN0481.jpg?AWSAccessKeyId=1C9REJR1EMRZ83Q7QRG2&Expires=1268272951&Signature=yMgQ43vINXuoD95ag17nUcWC4I%3D)

NATIVE SPECIES — Wildlife

## Grizzly bear

### *Characteristics:*

Pronounced shoulder hump  
Short, round ears



NATIVE SPECIES — Wildlife

## Jack rabbit

### *Characteristics:*

Very long ears and hind legs  
Back gray interspersed with black  
Larger body than cottontail



NATIVE SPECIES — Wildlife

## Mole

### *Characteristics:*

Huge front feet and claws  
Short, naked tail  
Soft, “reversible” body fur



Photo: [http://www.hickerphoto.com/data/media/40/moose\\_bull\\_pictures\\_sc27.jpg](http://www.hickerphoto.com/data/media/40/moose_bull_pictures_sc27.jpg)

NATIVE SPECIES — Wildlife

## Moose

*Characteristics:*

- Large, paddled antlers
- Very large body with long legs
- Dark body fur, overall



Photo: <http://homestudy.ihea.com/wildlife/D/034mtngoat.htm>

NATIVE SPECIES — Wildlife

## Mountain goat

*Characteristics:*

- Long, shaggy white fur covering body
- Black hooves and horns



Photo: [http://smhspanthers.k12tn.net/resources/images/Mountain\\_lion.jpg](http://smhspanthers.k12tn.net/resources/images/Mountain_lion.jpg)

NATIVE SPECIES — Wildlife

## Mountain lion

*Characteristics:*

- Large, pale-brown, unspotted cat
- Relatively small head and long, dark-tipped tail





NATIVE SPECIES — Wildlife

## Muskrat

*Characteristics:*

Body fur rich, dark brown

Tail long, naked, and compressed from side-to-side



NATIVE SPECIES — Wildlife

## Opossum

*Characteristics:*

Long, naked, round tail

White face with black leathery ears



NATIVE SPECIES — Wildlife

## Pocket gopher

*Characteristics:*

Long claws on front paws

Eyes easily visible (unlike mole)

Short, mostly naked tail



Photo: [http://bear-club.com/Userfiles/Image/Snow\\_On\\_Snout\\_Polar\\_Bear-1600x1200-799243.jpg](http://bear-club.com/Userfiles/Image/Snow_On_Snout_Polar_Bear-1600x1200-799243.jpg)

NATIVE SPECIES — Wildlife

## Polar bear

*Characteristics:*

- Large, white bear
- Small, rounded ears
- Black nose



NATIVE SPECIES — Wildlife

## Porcupine

*Characteristics:*

- Long hairs hiding short, barbed quills
- Mostly brown color on body



NATIVE SPECIES — Wildlife

## Prairie dog

*Characteristics:*

- Medium-sized, tan rodent
- Short tail covered in fur
- Small, rounded ears



Photo: [http://animaldiversity.ummz.umich.edu/site/resources/phil\\_myers/classic/pronghorn2.jpg/medium.jpg](http://animaldiversity.ummz.umich.edu/site/resources/phil_myers/classic/pronghorn2.jpg/medium.jpg)

NATIVE SPECIES — Wildlife

## Pronghorn

*Characteristics:*

Short, “prong” antlers

Tan or light-brown back

Light, white color on chest and belly



NATIVE SPECIES — Wildlife

## Raccoon

*Characteristics:*

Tail with alternating rings of yellowish white and black

Black mask over eyes

Body fur “salt and peppered”



NATIVE SPECIES — Wildlife

## Red fox

*Characteristics:*

Reddish-brown body

Black legs and ear tufts

Smaller size (relative to coyote)



NATIVE SPECIES — Wildlife

## Skunk

*Characteristics:*

Mostly black body

Variable amounts of white coloring on back



NATIVE SPECIES — Wildlife

## Weasel

*Characteristics:*

Very long, cylindrical body

Long tail tipped with black

Short, rounded ears



NATIVE SPECIES — Wildlife

## White-tailed deer

*Characteristics:*

Fawns reddish-brown with white spots

White undersides



NATIVE SPECIES — Wildlife

## Woodchuck

*Characteristics:*

Body fur grizzled, yellowish-brown, and frosted at tips

Legs and feet dark brown or black

Heavy-bodied



NATIVE SPECIES — Birds

## Bald eagle

*Characteristics:*

White head and tail (adult)

Mostly brown body

Yellow, hooked beak

Large, sharp talons



NATIVE SPECIES — Birds

## Blue jay

*Characteristics:*

Crest on head

Blue back with some black barring

Whitish breast and belly

Black necklace on throat



NATIVE SPECIES — Birds

## Brown pelican

*Characteristics:*

Large pouch under bill

Neck chestnut-colored in back,  
yellow in front

Body brownish overall



NATIVE SPECIES — Birds

## Brown thrasher

*Characteristics:*

Reddish brown on head, back, and tail

Heavily streaked belly

Long tail



NATIVE SPECIES — Birds

## Calliope hummingbird

*Characteristics:*

Extremely small

Relatively short bill and tail

Iridescent Carmine streaks form V on  
male throat

Photo: <http://fishandgame.idaho.gov/ifwis/ibt/userfiles/image/photos/800/calliope-hummingbird--michael-woodruff.jpg>



NATIVE SPECIES — Birds

## Canada goose

*Characteristics:*

Black head and neck  
White “chin strap”



NATIVE SPECIES — Birds

## Cardinal

*Characteristics:*

Red color overall, except black face  
Cone-shaped orange bill  
Crest on head



NATIVE SPECIES — Birds

## Cooper's hawk

*Characteristics:*

Brown barring on breast and belly  
Long tail, rounded when folded  
Head gray, darker than back



Photo: <http://www.roysephotos.com/zzCrissalThrasher3.jpg>

NATIVE SPECIES — Birds

## Crissal's thrasher

*Characteristics:*

- Distinct chestnut patch on underside of tail
- Long, decurved bill
- Long, slender body



NATIVE SPECIES — Birds

## Eastern bluebird

*Characteristics:*

- Deep blue along head, back, and tail
- Reddish along throat and breast
- White belly



NATIVE SPECIES — Birds

## Great-horned owl

*Characteristics:*

- Large ear tufts
- White throat
- Hooked beak
- Sharp talons





NATIVE SPECIES — Birds

## Great blue heron

*Characteristics:*

Long neck, legs, and bill

Large, bluish-gray body

Ornate plumes on head, neck, and back



NATIVE SPECIES — Birds

## Golden eagle

*Characteristics:*

Large brown body

Large, hooked beak and sharp talons



NATIVE SPECIES — Birds

## Kestrel

*Characteristics:*

Two black stripes on face

Reddish-brown back and tail

Hooked beak

Sharp talons



NATIVE SPECIES — Birds

## Least tern

*Characteristics:*

- Gray back
- White breast and belly
- Black cap and nape
- White forehead
- Orange-yellow bill with dark tip



NATIVE SPECIES — Birds

## Mallard

*Characteristics:*

- Metallic-green head on male
- Red breast



NATIVE SPECIES — Birds

## Mountain bluebird

*Characteristics:*

- Sky-blue back
- Paler, grayish on breast and belly



NATIVE SPECIES — Birds

## Osprey

*Characteristics:*

Dark-brown back

White breast and belly

Dark eye stripe

Very large talons with rough toe pads



NATIVE SPECIES — Birds

## Purple martin

*Characteristics:*

Glossy, purplish-blue body

Forked tail



NATIVE SPECIES — Birds

## Quail

*Characteristics:*

Large, round body with small head

Short bill



NATIVE SPECIES — Birds

## Red-tailed hawk

*Characteristics:*

- Red tail
- White breast with reddish brown spots across belly
- Hooked beak and sharp talons



NATIVE SPECIES — Birds

## Ruby-throated hummingbird

*Characteristics:*

- Small body
- Large, slender beak
- Iridescent throat



NATIVE SPECIES — Birds

## Turkey

*Characteristics:*

- Naked head
- Large size
- Iridescent body feathers



NATIVE SPECIES — Birds

## White pelican

*Characteristics:*

Entirely white body

Large pouch under bill



NATIVE SPECIES — Birds

## Wood duck

*Characteristics:*

Glossy iridescent body

Head with large crest

Red breast



NATIVE SPECIES — Reptiles/Amphibians

## Alligator

*Characteristics:*

Tip of snout broad (crocodiles' snouts are narrow and pointed)

Varying color from gray to green

Long body with armored scales overall



NATIVE SPECIES — Reptiles/Amphibians

## Alligator snapping turtle

### *Characteristics:*

Large head

Long, spined tail

Shell with prominent ridges (more prominent than on common snapping turtle)



NATIVE SPECIES — Reptiles/Amphibians

## Black rat snake

### *Characteristics:*

Body coloration black as adults

Juveniles with brown and gray blotches

Belly marked with light and dark squares



NATIVE SPECIES — Reptiles/Amphibians

## Bullfrog

### *Characteristics:*

Large size

No dorsolateral ridge

Ridge around eardrum



NATIVE SPECIES — Reptiles/Amphibians

## Collared lizard

*Characteristics:*

- Two stripes around neck
- Long tail relative to body
- Small body scales



NATIVE SPECIES — Reptiles/Amphibians

## Common snapping turtle

*Characteristics:*

- Large head
- Long tail
- Shell with prominent ridges (less prominent than on alligator snapping turtle)



NATIVE SPECIES — Reptiles/Amphibians

## Copperhead snake

*Characteristics:*

- Saddle-shaped pattern
- Pit organ between eye and nose
- Arrow-shaped head, wider than neck



NATIVE SPECIES — Reptiles/Amphibians

## Coral snake

*Characteristics:*

Distinct bands with abrupt edges (red touches yellow)

Small body, diameter of a pencil



NATIVE SPECIES — Reptiles/Amphibians

## Corn snake

*Characteristics:*

Blotches on back with dark borders

Maize-like pattern on belly

No pit organ



NATIVE SPECIES — Reptiles/Amphibians

## Cottonmouth

*Characteristics:*

Large, thick body as adults

White on inside of mouth

Pattern variable, sometimes monotone





NATIVE SPECIES — Reptiles/Amphibians

## Crocodile

*Characteristics:*

- Tip of snout narrow (compared to alligator)
- Color varying from gray to green
- Long body with armored scales overall



NATIVE SPECIES — Reptiles/Amphibians

## Diamondback rattlesnake

*Characteristics:*

- Diamond pattern on back
- Tail tipped with a “rattle”
- Pit organ between eye and nostril
- Arrow-shaped head, wider than neck



NATIVE SPECIES — Reptiles/Amphibians

## Fence lizard

*Characteristics:*

- Spiny scales
- Long toes with small claws
- Long tail



NATIVE SPECIES — Reptiles/Amphibians

## Garter snake

*Characteristics:*

- Three longitudinal stripes along body
- Small head
- Plain belly



NATIVE SPECIES — Reptiles/Amphibians

## Green anole lizard

*Characteristics:*

- Long, pointed snout
- Tail long relative to body
- Long toes on back feet



NATIVE SPECIES — Reptiles/Amphibians

## Gray tree frog

*Characteristics:*

- Mottled markings resembling bark on back
- Large, sticky toepads



NATIVE SPECIES — Reptiles/Amphibians

## Red-eared slider

*Characteristics:*

Stripe running behind the eye (unlike spot on painted turtle)

Flattened shell

Smooth edges of shell



NATIVE SPECIES — Reptiles/Amphibians

## Ring neck snake

*Characteristics:*

Ring around neck (not always complete)

Small body, diameter of a pencil



NATIVE SPECIES — Reptiles/Amphibians

## Rubber boa snake

*Characteristics:*

Smooth, rubber, glossy appearance

Head similar in size to neck

Photo: <http://www.fieldherpforum.com/sg/imagery/jp/snakes/charina/bottae/John%20Stephenson%20Rubber%20Boa%20SnakeGuys.jpg>



Photo: <http://www2.stetson.edu/~pmay/quiz/images/Quiz1A.jpg>

NATIVE SPECIES — Reptiles/Amphibians

## Scarlet king snake

### *Characteristics:*

Distinct bands with abrupt edges  
(red touches black)

Body small, diameter of pencil



NATIVE SPECIES — Reptiles/Amphibians

## Timber rattlesnake

### *Characteristics:*

V-shaped chevron pattern on back

Pit organ between eye and nostril

Tail tipped with a “rattle”



Photo: [http://www.nps.gov/wica/naturescience/images/Woodhouses-Toad\\_1.jpg](http://www.nps.gov/wica/naturescience/images/Woodhouses-Toad_1.jpg)

NATIVE SPECIES — Reptiles/Amphibians

## Woodhouse's toad

### *Characteristics:*

Short, plump body covered in warts

Variable dark markings on body

One to six warts per dark marking

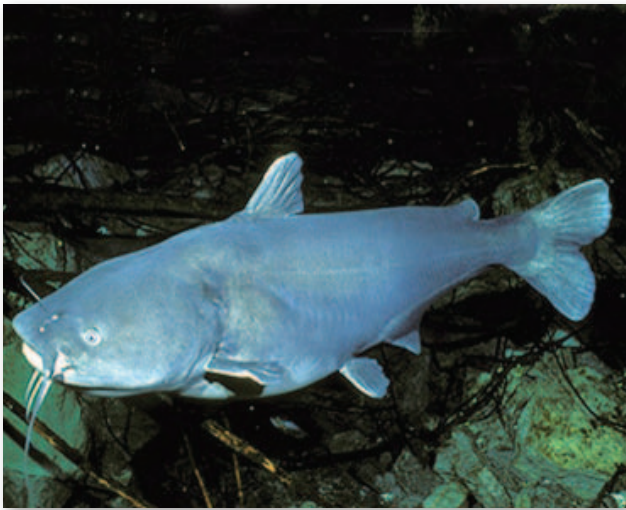


Photo: [http://www.flmnh.ufl.edu/catfish/ictaluridae/04b-ictalurus\\_furcatus3E.jpg](http://www.flmnh.ufl.edu/catfish/ictaluridae/04b-ictalurus_furcatus3E.jpg)

NATIVE SPECIES — Fish & Other Aquatic Animals

## Blue catfish

*Characteristics:*

- “Whiskers” and a forked tail
- Small adipose fin at rear of back
- No dark spots (as in channel catfish)



NATIVE SPECIES — Fish & Other Aquatic Animals

## Bluegill

*Characteristics:*

- Black ear flap
- Long pointed pectoral fin
- Small mouth
- Flattened, pan-like body



NATIVE SPECIES — Fish & Other Aquatic Animals

## Channel catfish

*Characteristics:*

- Small, dark spots along side
- “Whiskers” and adipose fin  
(like other catfish)



Photo: <http://www.bio200.nsm.buffalo.edu/labs/tutor/Clam/Clam04N.jpg>

NATIVE SPECIES — Fish & Other Aquatic Animals

## Clam

*Characteristics:*

Two hard shells protecting soft innards



Photo: [http://www.reef.crc.org.au/research/fishing\\_fisheries/statusfisheries/images/Roger%20Swainston/MudCrabScylla\\_serrata.jpg](http://www.reef.crc.org.au/research/fishing_fisheries/statusfisheries/images/Roger%20Swainston/MudCrabScylla_serrata.jpg)

NATIVE SPECIES — Fish & Other Aquatic Animals

## Crab

*Characteristics:*

Six walking legs with two large pincers

Hard exoskeleton

Eyes at the ends of stalks

Round, circular body



NATIVE SPECIES — Fish & Other Aquatic Animals

## Crappie

*Characteristics:*

Small depression at “forehead”

Mottling spots on sides

Large, pan-like body (flattened)

One dorsal (back) fin



Photo: [http://www.bgsd.k12.wa.us/html/jr\\_cam/macros/efi\\_spr05/images/crayfish.jpg](http://www.bgsd.k12.wa.us/html/jr_cam/macros/efi_spr05/images/crayfish.jpg)

NATIVE SPECIES — Fish & Other Aquatic Animals

## Crayfish

*Characteristics:*

- Eight walking legs, two large pincers
- Long antennae
- Cylindrical body
- Resembles lobster, but much smaller



NATIVE SPECIES — Fish & Other Aquatic Animals

## Flathead catfish

*Characteristics:*

- Pronounced flat head (viewed from side)
- “Whiskers” and adipose fin  
(like other catfish)



NATIVE SPECIES — Fish & Other Aquatic Animals

## Largemouth bass

*Characteristics:*

- Corner of jaw extends beyond eye
- Two dorsal (back) fins
- Dorsal fins not well connected



Photo: [http://thumbs.dreamstime.com/thumb\\_175/1187059171dyl0mH.jpg](http://thumbs.dreamstime.com/thumb_175/1187059171dyl0mH.jpg)

NATIVE SPECIES — Fish & Other Aquatic Animals

## Lobster

*Characteristics:*

- Very red in color (much more than crayfish)
- Very large claws
- Much larger body than crayfish



NATIVE SPECIES — Fish & Other Aquatic Animals

## Salmon

*Characteristics:*

- Dark bands on back
- Adipose fin near rear of back (like catfish)
- Lack whiskers (unlike catfish)



NATIVE SPECIES — Fish & Other Aquatic Animals

## Shrimp

*Characteristics:*

- Mostly very small in size
- Similar in body structure to lobster or crayfish
- Exoskeleton softer than similar species

Photo: [http://www.scuba-equipment-usa.com/marine/APR04/images/Lysmata\\_amboinensis.jpg](http://www.scuba-equipment-usa.com/marine/APR04/images/Lysmata_amboinensis.jpg)





NATIVE SPECIES — Fish & Other Aquatic Animals

## Smallmouth bass

*Characteristics:*

- Corner of jaw does not extend beyond eye
- Two dorsal (back) fins
- Dorsal fins well connected



NATIVE SPECIES — Fish & Other Aquatic Animals

## Sturgeon

*Characteristics:*

- Flat, shovel-like nose
- Sharp, hard scales covering body



NATIVE SPECIES — Fish & Other Aquatic Animals

## Trout

*Characteristics:*

- Long adipose fin
- Light spots covering sides
- Lack whiskers (unlike catfish)



NATIVE SPECIES — Fish & Other Aquatic Animals

## Walleye

*Characteristics:*

Large eyes

Large mouth filled with sharp teeth

Large, black spot at rear of first dorsal fin

Three to four dark saddles on back, extending down sides



NATIVE SPECIES — Fish & Other Aquatic Animals

## Yellow bullhead catfish

*Characteristics:*

White or yellow chin whiskers

Long anal fin (near back of belly)

“Whiskers” and adipose fin (like other catfish)



INVASIVE/NON-NATIVE SPECIES — Plants

## Chinese tallow

*Characteristics:*

Heart-shaped leaves with pointed tip

Alternate, whorled leaves

Light-gray bark

Photo: <http://www.floridasnature.com/images/Chinese%20Tallow%20fruit%20.jpg>



Photo: [http://www.gri.msstate.edu/ipams/images/Specie\\_images/HEHE/english-ivy-2.jpg](http://www.gri.msstate.edu/ipams/images/Specie_images/HEHE/english-ivy-2.jpg)

INVASIVE/NON-NATIVE SPECIES — Plants

## English ivy

### *Characteristics:*

- Evergreen vine
- Grows along ground and up trees
- Dull green, lobed leaves
- Very common urban invasive



Photo: <http://www.cnr.vt.edu/dendro/dendrology/syllabus/factsheet.cfm?ID=439>

INVASIVE/NON-NATIVE SPECIES — Plants

## Himalaya blackberry

### *Characteristics:*

- Oval, very serrated leaves
- Fruit a dark, black berry when ripe
- Branch with red, recurved thorns



Hydrilla  
*Hydrilla verticillata*  
Photo by Vic Ramus  
© 1999 University of Florida

Photo: <http://plants.ifas.ufl.edu/images/hydver/hydver.jpg>

INVASIVE/NON-NATIVE SPECIES — Plants

## Hydrilla

### *Characteristics:*

- Leaves whorled
- Submerged in water
- Grows to form thick mats
- Strap-like, pointed leaves

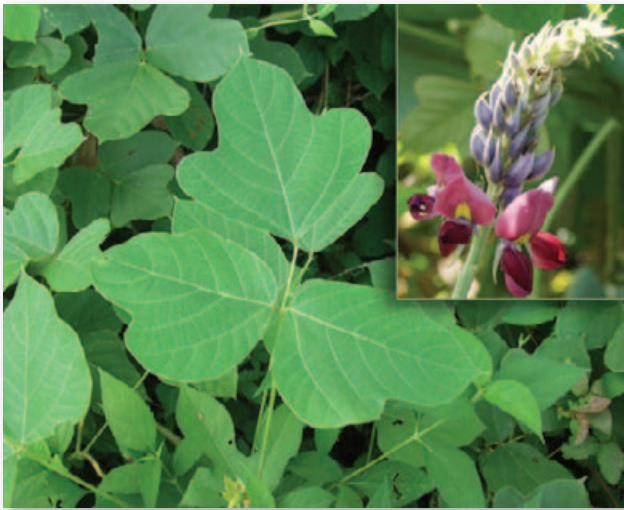


Photo: <http://www.forestry.ky.gov/NR/rdonlyres/A41A3D01-FE76-4286-9CC9-8BBBCA0E9DDC/0/kudzu2.jpg>

INVASIVE/NON-NATIVE SPECIES — Plants

## Kudzu

*Characteristics:*

- Vibrant green vine
- Three-lobed leaves



Photo: <http://unioncountyweedcontrol.org/images/weedPics/LeafySpurge1.jpg>

INVASIVE/NON-NATIVE SPECIES — Plants

## Leafy spurge

*Characteristics:*

- Long, lance-shaped leaves surrounding stalk
- Flat-topped structure of yellow, petal-like bracts



Photo: [http://upload.wikimedia.org/wikipedia/commons/8/8e/Melaleuca\\_quinquenervia\\_\(leaves\).JPG](http://upload.wikimedia.org/wikipedia/commons/8/8e/Melaleuca_quinquenervia_(leaves).JPG)

INVASIVE/NON-NATIVE SPECIES — Plants

## Melaleuca

*Characteristics:*

- Evergreen tree with layered, peeling bark
- Narrow, lance-shaped leaves



Photo: <http://pics.davesgarden.com/pics/2005/05/30/htop/846a6c.jpg>

INVASIVE/NON-NATIVE SPECIES — Plants

## Mimosa tree

### *Characteristics:*

- Delicate, fern-like foliage
- Bright, vibrant pink flower



Photo: [http://www.qc.ec.gc.ca/CSL/inf/images/inf034\\_001\\_e.jpg](http://www.qc.ec.gc.ca/CSL/inf/images/inf034_001_e.jpg)

INVASIVE/NON-NATIVE SPECIES — Plants

## Purple loosestrife

### *Characteristics:*

- Tall stalks of bright purple flowers
- Whorled or opposite leaves
- Angled stem
- Wet environments



Photo: [http://www.columbia.edu/itc/cerc/danoff-burg/invasion\\_bio/inv\\_spp\\_summ/landscape.jpg](http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/landscape.jpg)

INVASIVE/NON-NATIVE SPECIES — Plants

## Saltcedar

### *Characteristics:*

- Shrubby plant with reddish-brown bark
- Flat leaves resembling evergreen shrub
- Grows well on riversides



Photo: <http://www.iisgcp.org/exoticsp/Asianclam.htm>

INVASIVE/NON-NATIVE SPECIES — Animals

## Asiatic clam

*Characteristics:*

Oval shape, very deep at the hinge  
Dark coloration, generally yellow-green to brown



Photo: [http://westernmassgeocachers.org/More\\_Info/asian\\_longhorned\\_beetle\\_2.jpg](http://westernmassgeocachers.org/More_Info/asian_longhorned_beetle_2.jpg)

INVASIVE/NON-NATIVE SPECIES — Animals

## Asian long-horned beetle

*Characteristics:*

Long black and white antennae  
White spots running along sides of back



INVASIVE/NON-NATIVE SPECIES — Animals

## Brown trout

*Characteristics:*

Many large, dark spots from gill cover to base of tail  
Adipose fin at rear of back



INVASIVE/NON-NATIVE SPECIES — Animals

## Carp

*Characteristics:*

Two barbells (whiskers) on each side of upper jaw

Large scales

Large dorsal (back) fin



INVASIVE/NON-NATIVE SPECIES — Animals

## Chinese mitten crab

*Characteristics:*

Distinguishing patches of dark hair on white-tipped claws

Photo: <http://en.wikipedia.org/wiki/File:EriocheirSinensis1.jpg>



INVASIVE/NON-NATIVE SPECIES — Animals

## Chukkar

*Characteristics:*

Incomplete black stripes on belly

Black eye stripe leading to breast

White throat patch



Photo: <http://i.pbse.com/06/61/748561/1/75458733.I0coGuYB.Valley070BestemailEnglishSparrowa.jpg>

INVASIVE/NON-NATIVE SPECIES — Animals

## English sparrow

### *Characteristics:*

Males with brown and black stripes on back

Prominent black bib

Whitish breast and belly



INVASIVE/NON-NATIVE SPECIES — Animals

## European starling

### *Characteristics:*

Black, iridescent body

Yellow beak

White tips on feathers of breeding male



Photo: <http://appalachianwhitetails.com/blog/wp-content/uploads/2008/01/hog.jpg>

INVASIVE/NON-NATIVE SPECIES — Animals

## Feral hog

### *Characteristics:*

Strongly resemble domesticated pigs

Color highly variable





Photo: <http://pested.ifas.ufl.edu/newsletters/2009-10/fireant.jpg>

INVASIVE/NON-NATIVE SPECIES — Animals

## Fire ant

*Characteristics:*

Body coloration from reddish-brown to reddish-black



INVASIVE/NON-NATIVE SPECIES — Animals

## Norway rat

*Characteristics:*

Fur coarse

Color variable

Tail long, scaly, and scantily furred



INVASIVE/NON-NATIVE SPECIES — Animals

## Nutria

*Characteristics:*

Resembles a beaver, but with a long slender tail

Dense, brownish fur with thick, gray undercoat



INVASIVE/NON-NATIVE SPECIES — Animals

## Ring-necked pheasant

*Characteristics:*

White ring around neck

Iridescent dark-colored head

Body feathers a variety of brown and tan colors



INVASIVE/NON-NATIVE SPECIES — Animals

## Sea lamprey

*Characteristics:*

Elongated, slender body with paired fins

Dorsal fin long and disjunct

Gray body with black mottling



INVASIVE/NON-NATIVE SPECIES — Animals

## Talapia

*Characteristics:*

Back fin starting above gills and extending to tail

Body flattened side to side

Photo: <http://swittersb.files.wordpress.com/2009/07/talapia.jpg>

## Zebra mussel

*Characteristics:*

- Triangular in shape
- Dark and light bands
- Hard shell



Photo: [http://www.sanctuarysimon.org/monterey/images/build/whats\\_zebra\\_mussels.jpg](http://www.sanctuarysimon.org/monterey/images/build/whats_zebra_mussels.jpg)