Ordway- Swisher Biological Station Weekend Lab

Field Manual

For Wildlife Techniques (WIS 4945c)



Tentative schedule of activities for Ordway Field trip

This schedule is meant to give you a rough outline of the weekend field trip. However it is likely that changes will be made based on conditions in the field, weather, and logistics. The 1s and 2s are to indicate the groups that will be assigned to each activity.

	Friday	Saturday	Sunday
7:00 -10:00		1. Small mammals	2. Small mammals
		2. Bird/meso-mam.	1. Bird/meso-mam.
10:00-12:30		1. Amphibians	2.Insect lab
		2. Insect lab	1. Amphibian
12:30 - 1:30		Lunch/break	Clean camp/ Clean Traps/ Depart
2:00-3:30	Arrival/ set up	1 & 2.	
	camp	Frogs, gopher	
3:30 -4:30	1. S. mammal set	tortoise, P. gopher	
	up		
4:30-6:00	- 2. Amphibians, meso-mammal traps	2. Small Mammal setup	
		 Meso mammals /Squirrels 	
6:00-7:00	Dinner	Dinner	
7:30- 10:00	1. Call backs, FLIR,	1. Call backs, FLIR,	
(gators)	spotlighting	spotlighting	
7:45- 10:00	2. Gators	2. Gators	
(Spotlight)			

Field Notebook

Using a field notebook

Being a wildlife professional means that you are a naturalist who makes observations about the natural environment and the interaction among animals, plants and the land. It is through these types of observations that you will develop an understanding of the natural world. These observations can also help us ask questions that lead to scientific research. From Darwin to Leopold on to the present the best method for recording observations, thoughts and activities in the field has been the field notebook. By keeping a field notebook you will be able to develop your observation and interpretive skills and to keep a permanent record of your activities.

Content

Your field notebook will consist of accurate accounts of your field activities. The information in this notebook should be entered in the field, neatness is not the priority and accuracy is. For your time at the Ordway you will have 2 equally important types of entries into your notebook. The first types of entries will detail your experiences during organized lab exercises. The second type of entry will detail all of the observations, interpretations and reflections that you have outside of organized activities. This could include anything from the birds you saw while you were eating breakfast, to the tracks that you saw in the sand while setting traps.

Essentials

For every entry there basic information that you should **include is information on the time, weather, temperature, wind** or any other factors that you think will influence the presence or behavior of wildlife. You should also include a brief description of the vegetative communities where your observations occurred. Next it is important to put down your location, the more precise the better. Use a GPS when you can. Additionally, provide a brief description of where you are. It is also OK if you want to make a map. Finally give a brief description of what you are doing (walking, small mammal trapping,etc.)

The Details

Lab assignments. After you have entered the essentials, use your note book to record data collected during the lab. Some things you might record include: species, weight, tag number, location and type of trap and any relevant comments. After the assignment is over take time to summarize your results and make any observations or interpretations

Informal observations. This allows you more freedom to record your personal observation of animal signs, sightings, interactions, and behaviors. The content of this section should be detailed enough for future use and interpretation. You are encouraged to include sketches. If you take pictures be sure to enter that information in your notebook. Finally, don't be afraid to interpret what you see and to propose hypotheses and explanations.

Your Grade

This is a 40 point assignment. You can receive up to 20 points for lab assignment entrees and 20 points for Informal observations. Each section will be graded for 3 categories: content (10 points), interpretations (5 points), and clarity (5 points).

Small Mammal Trapping Notes

Trap placements- Place traps next to natural objects (trees, braches, etc.) or on paths. Place trap entrance flush with the ground.

Food– Traps are commonly baited with peanut butter and oats, bird seed, or cracked corn. It is common to rebait traps every day or two.

Bedding- If it gets cold at night researchers will often provide bedding to help small mammals regulate their temperature.

Checking traps – Small mammal traps can usually be checked once a day in the morning. However, in some instances when small mammal maybe active during the dayit is best to check traps every 2-3 hours.

Sexing and Aging- A mature rodent can be sexed by the presence of nipples and developed testicles. Immature rodents require an examination of the distance between the anus and sex organs (Figure 1)

Small mammals on the Ordway

Florida mouse (upland pine/common) --186–221 mm in total length. Its tail is shorter than the body, 80–100 mm long. Distinguished from old field mouse and cotton mouse by the 5 pads (plantar tubercles)

Cottonmouse and old field mouse (Peromyscus spp)-- (All habitats/common) can have darker pelage on back but color varies. Distinctly bicolored tail. The cotton mouse and oldfield mouse both have 6-7 plantar tubercles (Figure 1)

Golden Mouse (Mesic Hammocks/uncommon) – Cinnamon orange coat. Tail is smaller than head and body, scantily haired and is not bicolored.

Cotton rat (around ponds and old fields/locally common). A larger rodent with a short tail and distinct hispid (salt and pepper) coloration that covers its body.

Rice rat (aquatic environments/ uncommon). Darker fur with lighter under parts and feet. Slender, almost naked tail is a distinctive feature

Woodrats (hammocks/ locally common). Larger rodents with large rounded ear. Tail has hair and is bicolored.

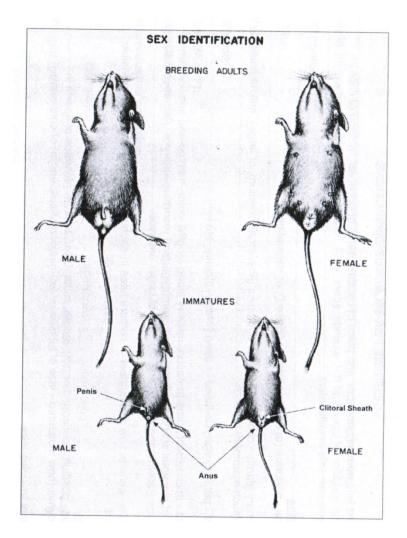


Figure 1. Sexing and aging rodents



Figure 2. Florida mouse 5 tubercles vs. cotton mouse with 6 tubercles

Capture of Raccon and Mid-sized Mammals

Traps The medium-sized mammal trap is usually constructed of heavy 12, 14, or 16 gauge galvanized steel wire mesh for maximum resistance to rust and corrosion. An open fabric construction allows the animals to see through the trap in all directions and enter the trap with confidence. Galvanized steel rods are welded to the wire mesh frame for extra support and reinforcement. A spring loaded, automatic locking V-door, securely and safely traps the animal inside the trap immediately after the animal steps onto the trip pan, located at the back of the trap. Galvanized ½ by ½ inch wire mesh openings are welded to the bait areas to prevent animals from reaching through the outside of the trap. A spring-loaded door eliminated the chance of an animal backing out of the trap before the door springs shut and locks into place. The special locking system and the heavy reinforcement of the trap upside down.



Animal Control Pole

Callbacks and Spotlighting Exercise

Objectives

The objectives of these exercises are to familiarize students with broadcast surveys and spotlight counts. At the end of the lab students should have a better understanding of the habitat associations of owls and a rough idea of the density of deer or the Ordway

Callbacks

Broadcast or callback surveys are one of the most widely used techniques to locate and survey owls. This survey technique has been used to document the range and status of several owl species in North America, and can also be used to determine habitat associations of owls. This technique is commonly used to collect presence/absence data, and is not usually used to estimate density owl. For this lab we should gain an understanding of which owls are using which habitats.

Procedures

We will be driving around the Ordway to access different broadcast stations for owls. The broadcast stations have been stratified (by habitats) so we can assess owl communities in different habitat types. We will try and conduct at least 4 broadcasts in each habitat type.

- 1. At each playback station, we will broadcast vocalizations of various species of owl using handheld mp3 player in 4 cardinal directions. We will start with the smallest species and finish with the largest.
- 2. After each broadcast we will Listen for responses for 3 minutes, and record species that responded, and direction it came.
- 3. Repeat steps 1 and 2 for each owl species at each station.

Spotlighting

Surveying of nocturnal mammals has traditionally been done with spotlight surveys. Spotlight surveys usually consist of researchers driving roads at a slow but constant speed recording the animals that are seen within a set distance from the road. Mammals are especially easy to see because they have eyes that reflect light (allowing them to see better in the dark). Spotlight surveys have some inherent problems with convince sampling and detection rate (not accounted for). In general they are not used to give robust estimates of density; however, spotlight surveys can provide an index of relative abundance for easily detectable species such as white-tailed deer and can be quite useful to private landowners trying to assess populations on their property. Spotlighting can also provide useful information on the habitat associations of animals.

Procedures

For this lab we will be driving to callback stations. While we are driving we will also be using our spotlight to estimate the deer population and to note any additional species we see along the way.

- 1. Note the odometer reading at the start of the drive
- 2. Drive at a slow speed. Shine spotlights in an arc on both sides of the vehicle looking for eye shine. If you see something ask the driver to stop. Use your binoculars to determine the number of deer at that location.
- 3. At each playback station, before you leave take the time to estimate how far off the road you can see deer. Use this information to estimate the area of the strip width covered by your survey.
- 4. Record the final distance on the odometer to determine the W and L of the Fixed Width transect
- 5. Use the formula from the gopher tortoise lab to come up with a rough estimate of the deer population on the Ordway.

1 mile = 1609 meters $10,000m^2 = 1$ ha

ORDWAY-SWISHER ALLIGATOR LAB

*information from this manual was adapted from the USGS alligator capture protocol and FWC's 2010 statewide alligator harvest training and orientation manual.

OBJECTIVE

In this lab you will practice capturing and marking alligators and collecting data on alligators and their environment.

PROCEEDURES

Students will divide into 3 groups. Each group is responsible for catching one alligator under 2 feet long and recording data on the alligator and its environment. Each student will participate in alligator captures, and turn in a data sheet with their groups' alligator data on it. Alligators will be captured either from canoe or from the shore. Students will use the hand grab method or tongs for capture. Alligators will be brought back to the boat ramp for data collection. Please refer to the following directions for capture methods and safety protocols.

*There will be alligator biologists from FWC and USGS assisting with captures. In the event a larger alligator is caught by professionals, all groups will report to the boat ramp and assist with working up that animal.

This lab will take place between 19:30-20:00 hours. You will need:

This manual A head lamp (or flashlight) Close toed water shoes pencil bug spray jacket

OVERVIEW

Survey methods

Florida alligator populations are surveyed by conducting night light counts. Surveys are typically conducted on open water bodies from an airboat, during early summer months (April, May, June) when the most alligators are visible. Later in the summer females are back in the marshes nesting and are not in the open water, and during colder months alligators are not as active. The surveyor shines a spotlight in a 180 degree arc in front of the boat and counts the number of alligator eye shines and places each animal in an estimated size class based on head size and habitat. This is an index count and many things including the weather and surveyor affect the outcome of the count. Therefore protocols state that the weather should be fair, the boat should run at 20 mph, and surveyors be highly trained to help alleviate some of the bias.

* The eye-shine of an alligator, (and other nocturnal vertebrates), is caused by a layer of cells called the tapetum lucidum This structure is located beneath the photoreceptor cells (rods and cones) in the retina and reflects light back into these cells to increase the amount of light detected, which improves an

alligator's vision in low light conditions. In alligators this eye-shine is red, but it can be different colors in other species (FWCs alligator fact sheet).

Capture methods

Several methods are used to capture alligators. The best capture method will vary depending on the size of the alligator, the habitat, time of day, and available equipment or personnel. There are a few common steps in all effective capture techniques. Alligators are usually captured after dark, Alligators should be approached quietly keeping the beam of the spotlight directly in or just above their eyes, directly after capture the mouths are secured shut.

Hand grab

The appropriate size for hand capture is less than 5 feet. Most effective at night from a boat.

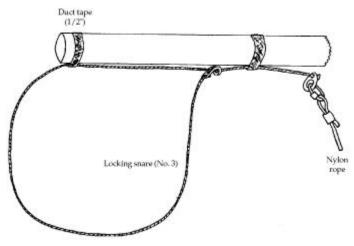
- Never hand capture an alligator that is too big for you to handle.
- Grab the alligator behind the neck. Never grab an alligator on any other part of its body.
- Keep the alligator at arm's length. Never bring an alligator into your body.
- With one hand hold the alligators neck, with the other hand close its' mouth, while another person tapes it shut.



Break away snares

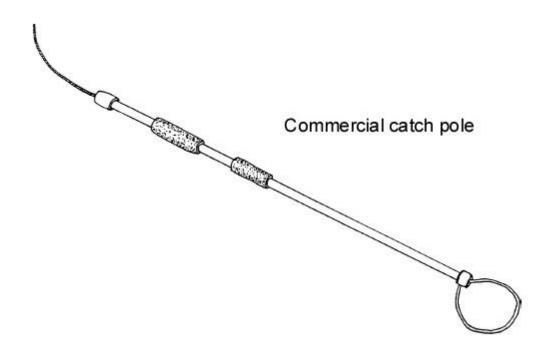
A snare should be carefully slipped over the alligator's head when it is close to the boat. It is best to use a snare that has been attached to a pole with a rubber band or piece of tape so that it will "break-away" after pulling the rope to set the snare. The alligator will eventually tire after it has struggled against the snare rope. Snares are most effective when it is possible to get within a few feel of a large animal-usually at night. Most commonly they are used as a reinforcement after an alligator has been captured by other means such as a snatch hook, harpoon, or baited wooden peg.

- Alligators should be snared around the neck. Securing the alligator around the neck allows for control of the animal. In the event that an alligator is snared around its body or tail, a second snare should be place around the neck as soon as possible to gain better control.
- Alligators should not be brought on board until they are tired. As they tire they will begin to roll more and more slowly until they are barely turning over.
- Once the captain has determined the alligator is spent, the captain will secure the mouth with a mouth snare or other securing device.
- Once the mouth is secured by the snare, the captain will grab the mouth for the catcher to secure closed with tape or rubber bands and tape. No alligator is to be brought onto the boat without its mouth secured.
- After the mouth is secured, the alligator can be brought onto the boat to be measured. Pressure must be applied to the alligator at all times, to maintain control over the animal while it is onboard and to prevent it from escaping.
- Once measurements have been recorded, the alligator is ready to be released. The release rope will be tied to the boat. The other end of the release rope will be tied to the tape and rubber bands around the mouth. During the attachment process, the head will be secured to ensure that the alligator does not pull the tape off before it is in the water.
- The tape and rubber bands can be removed once the alligator is in the water by pulling on the release rope. Care must be taken to ensure that the tape and rubber bands have been removed.
- Snares should be prepared for the next capture prior to leaving the capture site to look for the next animal.



Catch poles

Catch poles may sometimes be used in place of snares. They are most useful for capturing alligators in the 90 to 150 cm size range, especially when they are on land and it is more difficult to hand grab them. However, the stiff metal pole may be a hazard if used on large alligators (>150 cm) when the alligator starts to spin.



Tongs

Tongs can be used for capturing alligator hatchlings (< 90 cm) that are in difficult locations such as up under vegetation. Effective in day time or night time.

- To capture hatchlings try to grab them around the neck or tail and firmly squeeze the handle.
- Care must be taken to prevent excess pressure from crushing the animal.
- Release the handle to let the hatchling go.
- It is very difficult for one person to capture and handle a hatchling due to the tongs length. The hatchling should be carefully placed into a bucket or handed to another person.



Snatch hook

A snatch hook is a weighted treble hook attached to a restraining line that is hand-held or used in conjunction with a fishing rod and reel and high-test line. The hook is typically cast over the alligator or over the area where it last submerged. The hook is then retrieved until it contacts the alligator, at which point it is set with a strong pull. The line should be kept tight until the animal fatigues and can be approached, as the hook often falls out if the line is allowed to go slack. Using the snatch hook to capture alligators can be useful in areas where alligators submerge before the snare can be used.

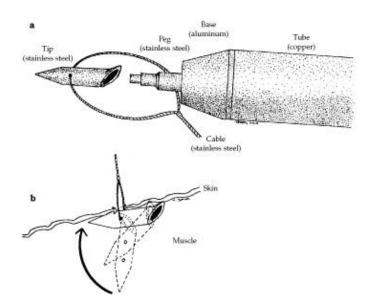
• Before casting, make sure that your casting area is clear.

- Try to snatch the alligator on its side. Take care to prevent the alligator from going into vegetation.
- When the alligator is close enough place a snare on the alligator according to procedures and secure the mouth.
- If possible, try to remove the snatch hook before bringing the alligator on the boat.
- If the snatch hook could not be removed safely before bringing the alligator on the boat, note where the snatch hook is and take care not to get caught on it while bringing the alligator on the boat.
- Remove the snatch hook and perform normal procedures.



Toggle dart (Harpoon)

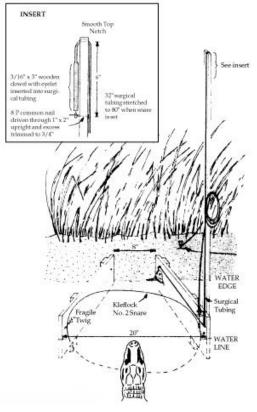
Harpoons are commonly used as an effective method for attaching a restraining line to an alligator. The harpoon point is typically mounted on a pole, arrow shaft, or spear, and the point is attached to a line, similar to the way a break away snare is used. Buoys may be attached to the end of the line.



Trapping

Baited wooden pegs less than two (2) inches in length have been used as an effective method for capturing alligators. A baited wooden peg is attached to a straining line that is hand-held or used with a fishing rod and reel and high-test line, or tied to a tree branch.

Snare traps set in alligator trails are another method of passive capture.



Measurements

All measurements must be in centimeters; animal should be as straight and flat as possible.

HL: (head length) measured dorsally from tip of snout to center of V at posterior end of skull plates. **SVL:** (snout-vent length) measured from tip of snout to the posterior margin of the vent.

TL: (total length) measured from tip of snout to end of tail. Use measuring board when appropriate. When animals are too long, put marks on the ground at the tip of nose and tip of tail, then move the alligator and use a measuring tape to measure the distance between the two marks.

TG: (tail girth) measure tail circumference at break in scale row immediately posterior of vent. (Third scute row posterior of vent).

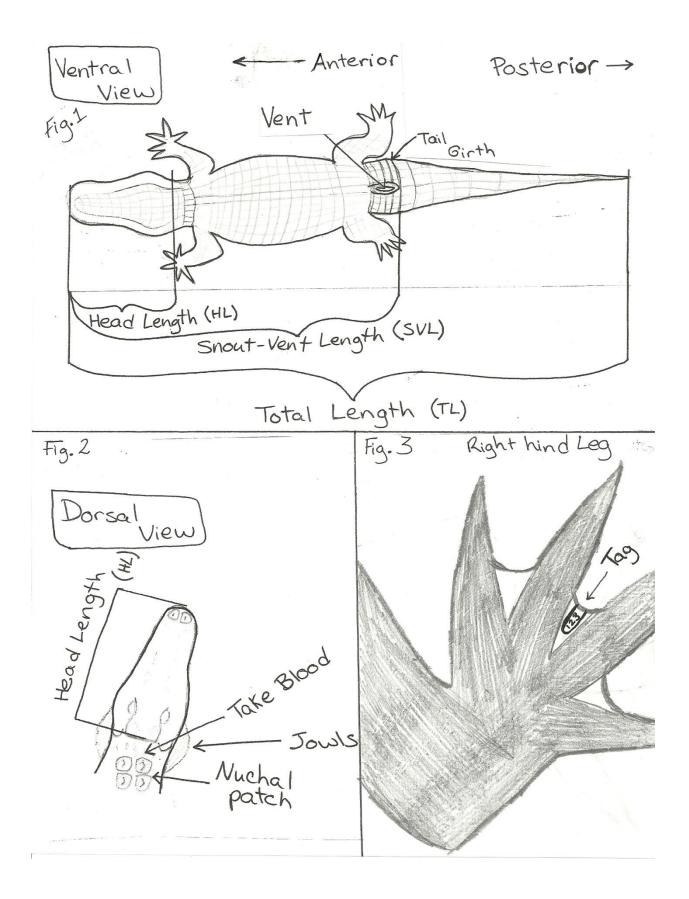
WT: (weight) use spring scales to weight alligators of appropriate size. If they are too large we will use the TL-TG relationship to estimate weight. Mass of animal recorded in grams or kilograms.

Sex: use speculum to open vent. Or press down on both sides of the vent, and push the tail ventrally. Males will have a penis.

Comments: General body condition, habitat characteristics, capture method, injuries/deformities

SAFTEY

- ♦ ALWAYS ALWAYS ALWAYS keep the alligators' mouth secure while data are being taken.
- ♦ Pay close attention to alligator tails-they are strong and even on small animals are dangerous.
- ♦ Always have at least two people when conducting captures. Have one person tape the mouth while the other person holds the alligator. Do not attempt to tape the alligators mouth until the person holding the alligator give a signal that the jaws are properly secured.
- Alligators will wiggle away if they are not being properly restrained. Often they will be docile for sometime, and then have an explosive fit where they escape with tape still on their mouths. Always keep two hands on the alligator.
- ♦ All water vessels must be equipped with a life jacket/ person, a noise making devise, signal flares, and a cell phone.
- ♦ Do not hand grab anything over 3 feet. And only grab the neck!!
- \diamond Wash hands when done



П LU scheme 0 J 3 buidd A REF FWC scute cl 20 10 N 30 m 05 5 20 5 300 200 100 5 ۱ 2 00 004 F.9.4 0 200

Alligator data sheet

Date:			
Time (Mil):	-		
Study Unit:			_
Personnel:			
GPS Location (UTMs): E		W	
Air Temp:	(C)	Water Temp:	(C)
Tag number: Prefix (_)		
Scute clip number:			
Total Length:	(cm)	Snout-Vent Length:	(cm)
Head Length:	(cm)	Tail Girth:	(cm)
Weight:	(g)	Sex:	
Recapture: Yes / No			

Habitat type:

Comments:

CAPTURE OF BIRDS USING MIST-NETS

Objectives

1) Become familiar with mist netting equipment, ideal net locations, and how to set up and take down nets. 2) Learn proper techniques for handling passerines safely. 3) Learn how to take measurements and collect additional data on captured birds.

Procedures

Students will attend participate in 1 mist net capture sessions. During the capture session, students will check nets, observe extraction procedures, handle passerines, and learn to take measurements, band, and collect data from captured birds.

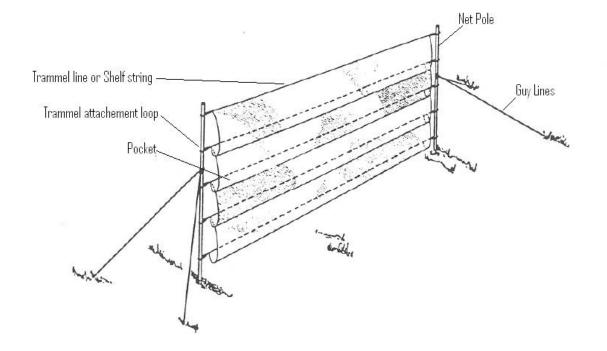
Why use mist nets? Mist netting is an important technique for population monitoring, and the most common live-capture technique used for small/medium sized birds and bats.

Mist nets are used in studies to assess: species composition population size relative abundance demography (productivity and survival)

Mist netting is time intensive and requires specialized training, but it has certain advantages over visual and aural population monitoring techniques. Mist nets can sample species that are poorly detected by other means, counts are not subject to observer bias, netting effort is easily standardized, and each bird counted can also be examined in the hand. Capture allows birds to be aged, sexed, and marked to allow individual identification in future encounters. In addition, data can be collected such as breeding status or sub-species identification, physiological state, molt, parasite loads, DNA... Because mist netting is one of the most efficient means of capturing many bird species, the technique is often used in mark–recapture studies.

Mist nets are most commonly used as passive traps. However, mist nets can also be used to target specific species or individuals by using audio playback, decoys, baits, herding, or special placement of nets (i.e., around nests).

What are mist nets? Mist nets are large panels of nylon, polyester, or monofilament mesh, usually 6 or 12m in length. Mesh size can vary according to size of target species. Horizontal strings (**trammels**) of thicker, stronger thread are woven through the mesh at the top and bottom of the net and at equal distances in between. Each trammel ends in a loop designed to fit over a pole. The net is strung between two poles, which hold it upright and taut (see figure). The trammels form **pockets** of netting. Birds fly into the net and usually drop into the pockets and become entangled. Mist nets are most commonly placed near ground level but can be rigged using poles and/or pulleys to hoist nets into the canopy or over water features.



Placement of mist nets

Nets should be placed:

- Close enough to all be checked in 10-15 minutes if no birds are caught (~100m apart).
- In clear lanes ~1-2m wide to avoid getting tangled on vegetation
- Where they will catch birds. Nets are often set in locations of on the edge of habitats, natural corridors, and near water features where birds will travel.

Mist net concerns:

- Nets catch on clothing and tear. Avoid clothing with buttons, zippers, and velcro. Do not wear jewelry, rings, earrings, and wristwatches. The button on top of baseball caps also gets caught. Holes in nets not only reduce your catching efficiency, they also increase the probability of severely tangled and injured birds.
- Keep the bottom pocket **off the ground and clear from vegetation**; otherwise, birds get hopelessly entangled in sticks and vegetation, drowned in puddles, dew-soaked, attacked by ants, or can hurt themselves by flapping on the ground.
- **Insects, leaves, and anything else in the net should be removed** to reduce visibility of the net, and to avoid additional tangles when birds are captured.
- Birds and other animals in nets attract predators, which can injure birds and damage nets. If predators are detected, close a net temporarily or check it more frequently.

Weather considerations

Never operate nets in the rain, wet birds suffer hypothermia quickly.

- Close nets that are in excessive sun during mid day.
- If windy, close nets which have pockets blowing out "full sail" in the breeze. Small birds captured in such conditions can suffer strain, injury, or be literally ripped apart as the net blows open.

Checking nets

The longer a bird is left in the net, the harder it will be to get out and the greater the risk of death or injury from entanglement, exposure, or predation.

Once set, nets **MUST** be checked frequently. This usually means every 20-30 minutes, more often in weather that is hot, cold, damp, or windy. If you cannot get to all the nets within the appropriate time, close some nets!

Approach the net quietly and assess the situation. If many birds are caught, get assistance if needed. Birds in a net can be surprisingly difficult to see, especially if caught near the sides or bottom of the net. Always confirm a net is empty by walking the entire length of the net.

Removing birds from nets

Net extraction must be learned under the supervision of an experienced person. Removing a bird is normally a one-person operation; two people trying to work together are seldom successful. **Refrain from giving unsolicited "help" by holding the bird or net**.

Different banders frequently have slightly different ways of extracting birds. It takes a lot of practice to master extraction techniques, but you will eventually develop a "feel" for the process. Not everyone has the dexterity, eyesight, patience, and ability necessary to become proficient at mist-net extractions. You will not gain extraction experience during this lab but will observe the process. There are often many volunteer opportunities to gain netting experience if you are interested.

Once the birds are removed from the nets, put each individual in a separate, small cloth bag, and transport (after completing all net checks) to a central processing site. **Keep the bag hung in a calm, shaded spot.**

Processing birds

Many different types of data are collected from captured birds. The typical data collected includes:

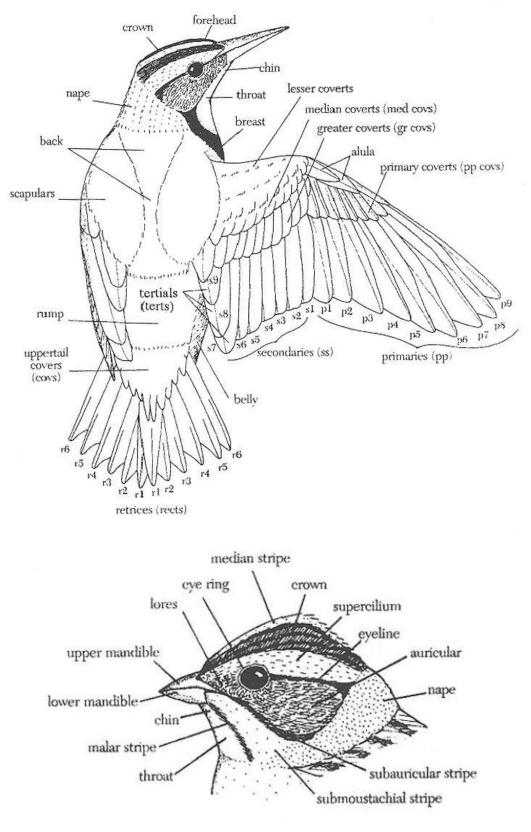
Species	Band Number	Condition indexes (ie Fat/Pectoral/Keel scores)
Sex	Wing length	Mass
Age	Tail length	(See sample datasheet)

Many different measurements can be taken, depending on the research question and species.

No birds should be kept for over an hour before being released (shorter depending on breeding season and weather conditions). Release birds near capture location.

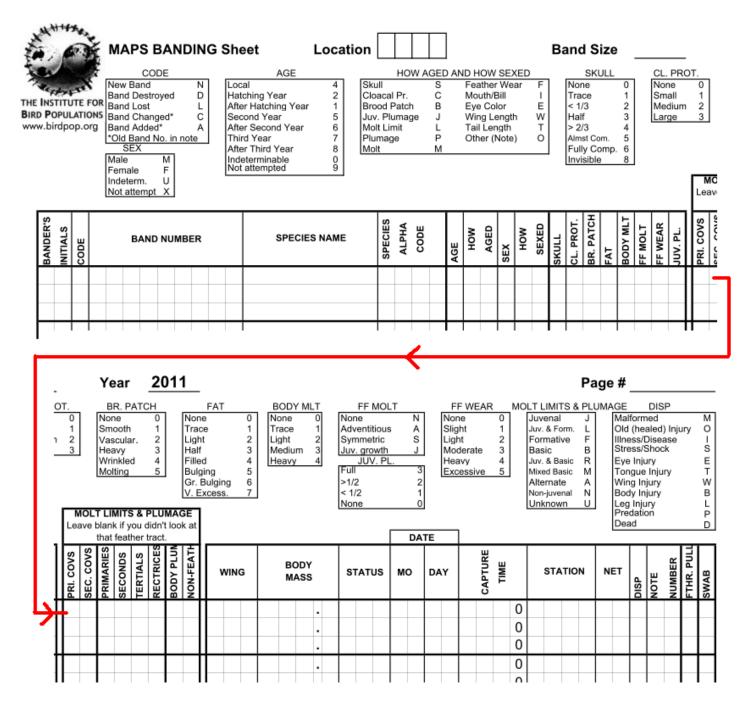
Additional resources and bibliography

- North American Bander's Study Guide. NA Banding Council 2001. http://www.nabanding.net/manuals/STUDYGUIDE.PDF
- Handbook of field methods for monitoring landbirds. Ralph, C. John; Geupel, Geoffrey R.; Pyle, Peter; Martin, Thomas E.; DeSante, David F. 1993. http://www.klamathbird.org/lamna/publications.htm
- The USGS Bird Banding Lab at Patuxent issues permits, supplies federal bands, and compiles data nationwide. <u>http://www.pwrc.usgs.gov/bbl/</u>



Appendix: Parts of a bird. (from Pyle 1997)

Sample Banding Datasheet:



Pitfall trapping and invertebrate sampling

Pitfall trapping

- Can be used for sampling a variety of animals, e.g. amphibians, reptiles and insects.

- Equipment needed: various sizes of containers – e.g., 5-gallon buckets (herptiles) or small plastic cups (insects), shovel or spade to dig holes

For amphibians:

- Put in a stick in bucket so that non-target species (e.g., rodents) can climb out
- Keep a moist sponge in bottom of traps so amphibians will not desiccate
- Often more effective when used in conjunction with drift fences

For reptiles:

- Close traps before rain events so animals will not drown

For insects:

- Put dish soap or antifreeze in the bottom to kill animals as they fall in - this way the animals will not eat other animals before you can collect them

- Can use a sieve in the cup to filter out larger, non-target species

Objectives

In this activity, we will sample invertebrates using pitfall traps at two different ecotones. An ecotone is an area where different habitats intersect, i.e., the edge or boundary between habitats. You will become familiar with pitfall trapping (a common invertebrate sampling technique) and how to identify invertebrates.

Question we will address

- Are there differences in invertebrate type and abundance between two adjacent habitat types?

Procedures

(1) Set up pitfall traps

- Shovels
- □ Solo cups
- Dish soap
- □ Garden stakes
- Paper plates
- □ Ziploc bags
- □ Permanent markers
- Pencils
- □ Blank white paper
- □ Plastic cover sleeves for paper

(2) Collect invertebrates

Traps are in transects and there is 1 transect in each of 2 ecotones. We will walk the transects to check pitfall traps, transfer invertebrates into labeled plastic bags, and remove pitfall traps from the ground (on Sunday).

(3) Data collection

Tally the total number of individuals in each order and the total number of orders captured in each transect.

Ecotone Transect # _ Order		Number	Ecotone Transect # _ Order	Present	Number
Oldel	ricoont	Hamber	Oldel	ricoont	Humber
Oligochaeta Araneae Opiliones Acari Pseudoscorr Isopoda Diplopoda Chilopoda Chilopoda Diplura Collembola Thysanura Orthoptera Blattodea Dermaptera Psocoptera Thysanopter Hemiptera	piones		Oligochaeta Araneae Opiliones Acari Pseudoscorp Isopoda Diplopoda Chilopoda Chilopoda Diplura Collembola Thysanura Orthoptera Blattodea Dermaptera Psocoptera Thysanopter Hemiptera	piones	
Homoptera Neuroptera			Homoptera Neuroptera		
Coleoptera			Coleoptera		
Trichoptera			Trichoptera		
Lepidoptera			Lepidoptera		
Diptera Hymenopter	а		Diptera Hymenoptera	а	
Total			Total		

Total

Total

Ecotone Transect # _			Ecotone Transect # _		
Order	Present	Number	Order	Present	Number
Oligochaeta Araneae Opiliones Acari Pseudoscory Isopoda Diplopoda Chilopoda Diplura Collembola Thysanura Orthoptera Blattodea Dermaptera Psocoptera Thysanopter Hemiptera Homoptera Neuroptera Coleoptera Trichoptera Lepidoptera Diptera Hymenopter	piones ~a		Oligochaeta Araneae Opiliones Acari Pseudoscor Isopoda Diplopoda Chilopoda Diplura Collembola Thysanura Orthoptera Blattodea Dermaptera Psocoptera Thysanopter Hemiptera Homoptera Neuroptera Coleoptera Trichoptera Lepidoptera Diptera Hymenopter	ra	
Total			Total		

Total

Total

IDENTIFICATION GUIDE FOR COMMON INVERTEBRATE GROUPS

An Invertebrate is an animal without a backbone. Insects are invertebrates that have an exoskeleton (a hard covering to the body); three body segments; six legs; a pair of antennae ('feelers') and compound eyes (eyes made up of thousands of tiny individual eyes).

Insects that share similar features are sorted into a group called an ORDER.

There are 30 orders of insects. The nine most common ones are shown below together with the features for identifying them. Insects in the same order can look very different to each other and to the ones in the pictures but the 'identification features' should help you to recognise them.

Also shown are some common invertebrates, which are not insects such as: worms; slugs; snails; woodlice; millipedes; centipedes and spiders.

BEES; WASPS; ANTS; SAWFLIES & PARASITIC

WASPS

Scientific Name: HYMENOPTERA

>150,000 speceis

Identification features:

- ✓ Most have four see-through wings the front ones are longer than the back ones
- ✓ Antennae guite long
- ✓ Most have a thin waist between the middle (thorax) and back (abdomen) segments of the body
- ~ Most bees are covered in hairs
- ~ Ants usually don't have wings but have a waist and guite long antennae

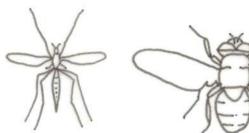
Some bees and wasps live in colonies where one queen lays hundreds of eggs. Others are 'solitary' and make small nests on their own.







TRUE FLIES Scientific Name: DIPTERA ~ 1 million species Identification features:





- ✓ Two wings
- \checkmark Antennae short and difficult to see

Flies develop as grubs or larvae, which look very different from the adults. Some flies look very similar to bees and wasps, this tricks animals that would eat them into thinking they can sting.

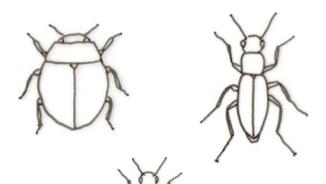
TRUE BUGS

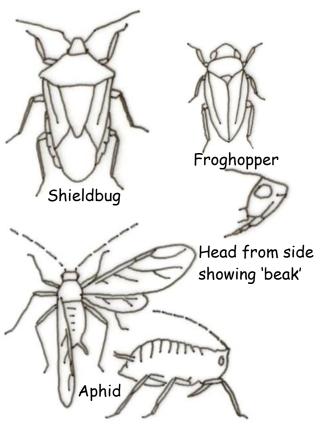
Scientific Name: HEMIPTERA >50,000

Identification features:

- All have a beak under the head for sucking liquid from plants or other animals
- Some (shieldbugs etc.) have hard, leathery front wings crossed over the body with see-through tips
- ~ Some (froghoppers) hold their wings over the body like a roof
- Some (aphids 'greenflies' & 'blackflies') may have see-through wings or no wings but always have two 'horns' at the end of the body

Many true bugs feed on plant sap but some are predators of other insects. Young froghoppers protect themselves with 'cuckoo spit' - white froth found on plants.





BEETLES

Scientific Name: COLEOPTERA

- ~ 40% of all insect species are beetles
- > 1 million species

Identification features:

- ✓ Front wings form a hard shell that covers the body
- Some have short front wings like an earwig but never have pincers at the end of the body

Beetles develop as grubs or larvae, which look very different from the adults.

BUTTERFLIES & MOTHS

Scientific Name: LEPIDOPTERA

~ 180,000 species

Identification features:

- $\checkmark\,$ Four wings not see-through and covered in microscopic scales
- \checkmark Wings sometimes with colourful patterns
- \checkmark Coiled 'proboscis' under the head for sipping nectar

Butterflies and moths develop as caterpillars that eat plants. Many moths fly at night, some have colourful, patterned wings.



DRAGONFLIES & DAMSELFLIES

Scientific Name: ODONATA

~ 5,900 species

Identification features:

- ✓ Four see-through wings, all about the same size
- ✓ Antennae very short
- ✓ Large, body at least 25mm long and thin

Young dragonflies & Damselflies are called nymphs.

They live in ponds and streams. The adults and

nymphs are predators that hunt other insects.

GRASSHOPPERS AND CRICKETS

Scientific Name: ORTHOPTERA

> 20,000 species

Identification features:

- ✓ Long back legs for jumping
- ✓ Front wings are held over the body, they are not see-through (Young ones have no, or very short wings)

Grasshoppers and crickets eat plants. They 'sing' to each other by rubbing their legs against their wings or other parts of their body.

LACEWINGS

Scientific Name: NEUROPTERA

~ 2,000 species

Identification features:

- \checkmark Wings with lots of fine veins
- ✓ Wings held together over the body
- ✓ Body normally bright green or brown

Lacewings are often attracted to light at night. Young lacewings (larvae) look very different to the adults and are predators - eating garden pests such as aphids.

EARWIGS

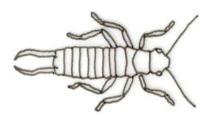
Scientific Name: DERMAPTERA

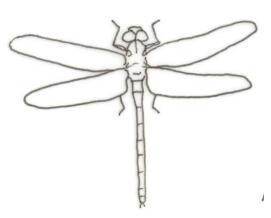
~ 2,000 species

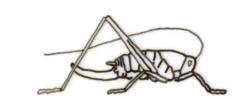
Identification features:

- \checkmark Front wings, short, square and leathery
- ✓ Pincers at the end of the body

Earwigs are often found close to the ground where they eat the remains of dead plants.

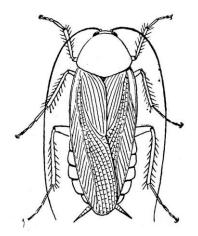


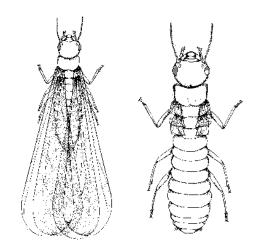




COCKROACHES & TERMITES

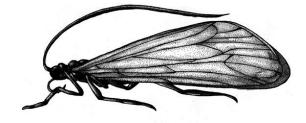
Scientific Name: **BLATTODEA** ~ 7,400 species





CADDISFLY

Scientific Name: **TRICHOPTERA** ~ 12,000 species



INVERTEBRATES THAT AREN'T INSECTS

CENTIPEDES & MILLIPEDES

Scientific Name: MYRIAPODA

Identification features:

- ✓ More than 14 legs
- Many segments to the body
- Centipedes have a flat body and one leg on each side of each segment
- ~ Millipedes have a rounded body and two legs on each side of each segment

EARTHWORMS

Scientific Name: ANNELIDA Identification features:

- ✓ No legs
- \checkmark Body with many segments one near the front is longer than all the others
- ✓ Found on the ground or in the soil

SLUGS & SNAILS

Scientific Name: GASTROPODA Identification features:

- ✓ No legs
- ✓ One big muscular 'foot' underneath the body
- ✓ Eyes on stalks on the front of the head
- ~ Snails have a protective shell

WOODLICE

Scientific Name: ISOPODA Identification features:

- ✓ 14 legs
- \checkmark Many segments to the body
- \checkmark Often under stones and wood in damp places

SPIDERS

Scientific Name: ARANEAE Identification features:

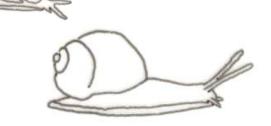
- ✓ 8 legs
- ✓ Two segments to the body

Harvestmen (Scientific name: Opiliones) are related to spiders. They have eight long legs but only one body segment.

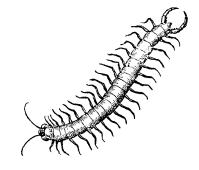
Identification Guide by kind permission of World Museum Liverpool

NATIONAL MUSEUMS LIVERPOOL











Directions to Ordway-Swisher Biological Station from UF & Gainesville



From UF Campus, Gainesville

- 1. Go east on University Ave (SR26) for \approx 8 miles until you come to a stop sign at the intersection of SR26 & SR222.
- 2. Turn RIGHT and follow SR26 east until you come to Melrose (≈ 11 miles)

To North Entrance Gate – 693 SR 26, Melrose, Fl 32666	To West Entrance Gate – 590 N SR21, Hawthorne
 Go through the traffic light in Melrose staying on SR26 Go approximately 2.7 miles past the light on SR26 until you see the OSBS brick sign on your right. 	 Turn right at the light in Melrose (intersection of SR26 & SR21) onto SR21. Head south for 2.6 miles. The Station sign & entrance gate will be on your left.

All visitors are required to sign-in/out at the check stations located at each entrance gate. Exit from the same gate that you entered the Station.

Visitor Notes...

- 1. Be sure to look at the notice postings when signing in to a check station. They will alert you to prescribed fires, herbicide treatments, or other information that may influence your visit.
- 2. Driving considerations...
 - a. If you <u>do not</u> have a 4x4 vehicle: In order to reduce the chances of becoming stuck in sand areas, it is suggested that you let some air out of your tires in order to increase your surface area.
 - b. If you happen to get your vehicle stuck in a sandy area, please fill in your hole after getting unstuck.
 - c. Turn around at road intersections and not into management units in order to avoid soil and groundcover disturbance.
 - d. When parking along a road, please pull off parallel to the road so other vehicles may pass.
 - e. The boundary fire break is disked often and therefore very soft. Please avoid driving along it unless you have a 4x4 vehicle. If you do drive the boundary, please stay in the established driving ruts.
 - f. Fire Breaks are not roads and cannot be driven. Foot traffic is permitted.
- 3. Conservation Center (CC)...
 - a. A bathroom is available in Bldg. 2205 (maintenance and fabrication shop).
 - b. Refrigerators are available for use. Please remove all items after use.
 - c. There is an ice machine in Bldg. 2201.
 - d. Wireless Internet access is available around the CC.
- 4. If you need to locate staff while onsite, try the CC or the station's management offices which are located at Bldg. 2202 (Butler Bldg).
- 5. Orange safety vests are available for use. It is suggested that users wear them during hunting season (Dec-Jan).
- 6. Information on prescribed fire activity is posted daily at the check station by the North, West and Aux gates and is sent out by text message to users who request it. When fire operations (Rx and wild) are being conducted, the roads surrounding the burn area are closed to access.
- 7. Trash & Recycling: All trash generated by visitors should be placed in receptacles in Bldg. 2201 or be packed out. Recycling receptacles are also located in Bldg. 2201.

ORDWAY-SWISHER BIOLOGICAL STATION



POLICIES 9/13

All users of the Ordway-Swisher Biological Station (OSBS) must abide by all University of Florida (UF) and OSBS policies while visiting the facility. The policies, procedures, and fees of OSBS are subject to change without prior notice. All visitors are responsible for observing any and all updates to UF and OSBS policies. Current OSBS policies can be found at http://ordwayswisher. ufl.edu/policies.htm. Violation of UF or OSBS policies may result in termination of projects and activities on the Station and may result in restrictions or prohibition of future use of the facility.

PRE-STATION USE REQUIREMENTS:

- 1. **University of Florida DSR**. All research proposals involving work at the Station that are submitted through the University of Florida DSR should be signed off and approved by the Station Director on the DSR-1 form.
- Use Permit. An appropriate application (Research, Education, or Special-Use) must be completed and approved prior to activity on the Station. Application forms may be obtained from http://ordway-swisher.ufl.edu/docs.htm. All relevant permits (institutional, state, federal) provided before a project can be reviewed for use of the Station and its resources.
- 3. **Student Projects.** Faculty members are required to complete a research application for each graduate/ undergraduate student study.
- 4. **Fee Schedule:** Use of the Station is subject to the Fee Schedule. The Fee Schedule may be reviewed at http://ordwayswisher.ufl.edu/docs.htm.
- 5. Liability waiver: Applicants not officially affiliated with UF must sign a liability waiver.
- 6. **Project Keys.** Projects that may require access to locked facilities must complete a key agreement form before keys are provided. All keys provided must be turned in at the completion of research and should not be given or loaned to other individuals.

STATION USE:

- 7. Access to Station. Access to the Station is permitted with an approved use permit or prior arrangement with managers.
- 8. **Entrance Gates.** The Station has two entrance gates for users. Visitors will use these gates for entering and exiting the Station. The gate is to never be left open unless attended.
 - I. 693 SR 26, Melrose
 - II. 590 N SR 21, Hawthorne
- 9. Visitor Registration. Visitors are required to sign-in & out at the check Station located at both entrance gates each day the Station is used. The following information is required: Date, Full Name, # in party, Time in, Time out, Purpose of visit, Location(s) visiting (use Management Unit or Area ID).
- 10. Station Speed Limit. The speed limit throughout the Station is 15 MPH.

11. Lodging

- I. **Cottage use**: The station has a 3 person lake cottage. Users can rent individual rooms or reserve the whole cottage. See OSBS Fee Schedule for cost.
- II. **Bunkhouse**: The station has an 8 person bunkhouse (multiple occupancy per room). There is a 4 person minimum to reserve. See OSBS Fee Schedule for cost.
- III. **RV sites:** The Station has 3 full hook-up RV sites. At least one site is reserved for Work Campers. Inquire regarding availability. See OSBS Fee Schedule for cost.
- IV. Tent Camping: Tent camping may be allowed at the Station's designated camp sites in support of approved research and teaching activities. Course instructors or TAs are required to stay onsite with students when camping. See OSBS Fee Schedule for cost.
- 12. Alcohol Beverages: Following the UF Policy on alcohol beverages, alcohol beverages may not be served, consumed, or possessed at OSBS.
- 13. Trash. General trash generated by visitors may be deposited in designated containers in Bldg 2201 located at the
- 14. Conservation Center. Classes/Groups using the station for more than 1 day are required to pack their trash out offsite.
- 15. **Recycling.** General recycling materials such as aluminum cans, plastic bottles, paper, and cardboard may be deposited in the designated containers located in Bldg 2201 at the Conservation Center.
- 16. **Off-road Vehicle Use.** No vehicle may leave designated roads without explicit permission by Station managers. To reduce impact to groundcover vegetation and soil erosion, vehicles should turn around at road or firebreak intersections instead of turning around into management units.
- 17. Fire Breaks. Fire breaks are not to be driven. Foot traffic is permitted.
- Collecting and Capturing of Species: Capturing and collecting of species on the Station is prohibited without an approved OSBS permit.
- 19. **Hunting and Fishing.** Hunting and fishing are prohibited on the Station. Violation of this policy may result in cancellation of use of OSBS and arrest by law enforcement representatives.
- 20. Use of Firearms. Firearms are prohibited on the Station.

- 21. **Recreation Use:** Recreational opportunities are available for users staying at OSBS lodging facilities. Walking, jogging, or bliking is permitted on interior roads, but not along the Station's boundary fence line. Swimming is permitted in Lake
- 22. McCloud, but there are no life guards and alligators may be present.
- 23. **Domestic Animals**. Domestic animals (dogs, etc.) are not permitted on the Station, unless they are part of an approved research project, are necessary to help a disabled user, or have special permission from Station administration. Please notify the managers if you have a special need.
- 24. **Prescribed Fires.** When a controlled burn is being conducted at the Station, access to the burn area and bordering roads are closed to access. Once a burn has been conducted, the burn area is closed to access for 7 days post fire to let the area settle for safety reasons. The surrounding roads may be utilized.
- 25. **Cultural Artifacts.** Removal of any Native American or homesteader artifacts (e.g., arrowheads, pottery, etc.) is prohibited.
- 26. **Bidg 2202 Use.** Visitors wanting to use the classroom/kitchen/camping facilities at Bidg 2202 (Butler Bidg) are required to sign the Use Instructions Form.
- 27. **Biosecurity Measures.** Biosecurity is defined as practical steps that can be taken to minimize the spread of unwanted organisms. The Station will follow the following guidelines for biosecurity:
 - I. Introduction of species: The introduction or use of species not found on OSBS is prohibited without an approved OSBS permit.
 - II. **Removal of Wildlife for Research Purposes**: In order to minimize the transmission of wildlife diseases, projects that have been authorized to move wildlife off the Station will not be permitted to bring them back.
 - III. Aquatic flora/fauna. Aquatic flora/fauna must be removed from nets before they are moved between waters.
 - IV. Use of Aquatic Sampling Equipment. All aquatic sampling equipment (nets, dredges, etc) shall be cleaned with a 5% bleach solution between use in other lakes/ponds/streams.
 - V. **Use of Boats.** To reduce introduction of exotic species into the lakes and ponds, outside canoes and boats are prohibited from being used unless an individual receives written permission from Station managers. The Station has boats and canoes that are available for use. A minimum of 2 floatation devices must be present in a boat when being used.
- 28. Use Locations. Only use locations approved under the appropriate OSBS permit may be used for the designated activities.
- 29. **Changes in Activities.** Requests for any change from permitted activities (e.g., study location, personnel, species of focus, sample collection, project time-line, impact to habitats-species- environment, OSBS resources needed, etc.) must be submitted in writing for review prior to enacting the change. Updates to institutional (IACUC, ARC, etc), state, federal permits shall be provided to OSBS managers at the time of their approval.
- 30. **Use of Marking Material.** Projects needing the use of flagging or marking material must be approved with managers to ensure that multiple projects on the Station are not using the same color/pattern. All flagging and other equipment is to be removed once the activity has been completed unless otherwise agreed upon by Station managers.
- 31. **Removal of Equipment.** Once a project or class activity has been completed, all equipment shall be removed from OSBS unless otherwise agreed upon by Station managers.

USE OF STATION EQUIPMENT:

- 32. **Station Vehicles.** Designated Station vehicles are available for use on an available basis and may be subject to the Station's fee schedule. They may not to be driven unless permission has been obtained from managers. When using state vehicles, users must complete mileage log stored in each vehicle.
- 33. **Station Boats.** Canoes, jon boats, and v-haul boats are available for use on an available basis and may be subject to the Station's fee schedule.
- 34. **Other Station Equipment.** Permission must be obtained from managers before borrowing any equipment. Equipment loaned for studies using OSBS wholly or partly and may be subject to the Station's fee schedule.

POST-PROJECT REQUIREMENTS:

- 35. **Annual Report.** Researchers are required to provide a text file summarizing their project's status and research results by January 31 each year a project is active. These results will be published in the Station's Annual Report. Minimum required metadata include the title of each data set, the investigator's name, mailing address, e-mail address, and a one-page abstract of activities and results accomplished during the previous year.
- 36. **Acknowledgement in Publications.** Publications resulting from the use of the Station must acknowledge the University of Florida and the Ordway-Swisher Biological Station.
- 37. **Copies of Publications.** Electronic copies of all publications including theses and dissertations generated from work will be provided to Station managers.
- 38. **Data Management.** Researchers may be required to provide a hard and soft copy of data sets derived from work on the Station, which will be archived at the Station.

Safety Procedures / Considerations

- 1. **ONSITE CARETAKER**: The Station's after-hour caretaker is Andy Rappe. His contact information is listed below.
- 2. **MEDICAL EMERGENCIES**: Individuals needing emergency medical attention should dial 911 for assistance. The Station's two main entrance gates are used as primary access points to OSBS for 911 emergencies. Their 911 addresses are:
 - I. 693 SR 26, Melrose

Ordway-Swisher

BIOLOGICAL STATION

II. 590 N SR 21, Hawthorne

University of Florida

- 3. FIRST AID KIT & PHONE ACCESS. A first aid kit is located in Bldg 2205 (shop) at the Conservation Center. A first aid kit and phone are also located at Bldg 2202 (Butler building), where OSBS staff have their offices.
- 4. **NOTIFICATION OF INJURIES.** Users of the Station shall notify Station Managers as soon as possible of any injury or medical emergencies that occur while using OSBS.
- 5. **HELISPOT.** An emergency helispot has been established with UF-Shands Hospital. It is located at the Conservation Center, east of Bldg 2201 (old barn). Its coordinate location is:
 - Lat/Lon: 29°41'45.14" N, 81°58'54.90 W
 - UTM: 405006.93 E, 3285490.49 N
- 6. CELL PHONES. It is recommended that visitors carry a cell phone with them while working in the field.
- 7. WILDLIFE & PLANTS. Potentially dangerous animals such as venomous snakes (eastern diamondback rattlesnake, dusky pigmy rattlesnake, coral snake, and the Florida cotton mouth) and arthropods, alligators, as well as poisonous plants, occur on the Station. Visitors are expected to be knowledgeable and take proper precautions. Visitors to the Station who are sensitive to insect stings or bites are expected to carry their own medication.
- 8. **SNAKE LEGGINGS.** It is strongly recommended that boots or snake leggings be worn that can deflect the bite of a snake when in areas where visual inspection of the ground is limited, especially along the Mill Creek Swamp drainage system.
- 9. WEATHER. Be very wary of Florida's inclement weather, especially thunderstorms and lightning. Find proper shelter immediately if conditions are threatening.
- 10. **WILDLAND FIRE.** Wildfires do occur on the Station either from lightening, escape fires from prescribed burning, and/or arson. Be aware of such an event and how to navigate through the Station in case of a wildfire. Prescribed fire notification will be posted at the check-station by the entrance gates and by email/text messaging.
- 11. DRIVING. Speeds should not exceed 15 MPH. Be aware, there are a number of blind corners as well as wildlife using the roads.
- 12. BOAT USE: Canoes and boats may be used for aquatic surveys but visitors must demonstrate competence in handling such equipment and wear life preservers or carry flotation cushions when on the lakes.
- 13. **TREE CLIMBING.** Any work involving the use of tree-climbing equipment should be cleared with Station managers. Research proposals involving tree climbing should be undertaken as a team. It is recommended that two persons cooperate in these endeavors.
- 13. **HUNTING SEASON.** During the deer hunting season, which can run from mid-September through the end of January, it is recommended that users of the Station wear blaze orange safety vests when working in the field. Vests may be found in the bathroom at the barn. Please return at the end of the day.
- 14. **CONTACTS.** If assistance is needed, the following individuals and numbers are provided. A phone is located at the bathroom of Bldg 2201.

NAME	PHONE NUMBER(S)
Station Offices	352.475.2300
Andy Rappe – Sr. Land Management Specialist, After hour Manager - Mobile	352.727.1715
Vickie Hall, Office Manager	352.294-3692
James Perry, Maintenance Specialist – Mobile	352.538.4842
Nate Burmester, Land Management Specialist – Mobile	952.454.2196
Lisa Huey, Conservation Steward – Mobile	352.246.1895
Larry Treadaway, IT Engineering Technician - Office	352.294.3692

Having been warned of possible hazards, visitors are urged to use appropriate safety procedures while conducting research/visiting on the Ordway-Swisher Biological Station.

Medical Emergency

Directions to UF Shands Emergency Room/Trauma Center

West gate: 590 N SR 21, Hawthorne

- Turn RIGHT onto SR 21 heading north. 2.6 mi.
- Turn LEFT onto SR 26 heading west. 20 mi.
- Turn LEFT onto US-441 S / FL-25 S / DR MARTIN LUTHER KING JR HWY. 0.7 miles.
- Turn RIGHT onto FL-24 W / SW ARCHER RD. 0.3 miles.
- Turn LEFT on SW 16th ST.
- Take the first LEFT; The Emergency Room entrance will be on your left.

North Gate: 693 State Road 26, Melrose

- Turn LEFT onto SR26 heading west. ≈ 22.4 mi.
- Turn LEFT onto US-441 S / FL-25 S / DR MARTIN LUTHER KING JR HWY. 0.7 miles.
- Turn RIGHT onto FL-24 W / SW ARCHER RD. 0.3 miles.
- Turn LEFT on SW 16th ST.
- Take the first LEFT; The Emergency Room entrance will be on your left.
- Sante Fe Lake Putnam Ha North Gate Orange Heights 693 State Road 26 Aux Gate 245 Mason Rd OSBS 100.00 West Gate 590 N SR 21 SW 16th Ave Campvil 1474 Beckhamtow wnans Lake Newnans Homesites Windson Lake Kincaid Hills Res Daysvill 25 Robinson 329 Heights 2082 21 2 km 1 mile # 2012 Microsoft Corporation # 2013 Noko

Information

- Call 911 for serious injuries.
- OSBS 911 gate addresses:
 - NORTH: 693 State Rd 26, Melrose
 - o AUX: 245 Mason Rd, Melrose
 - WEST: 590 N SR 21, Hawthorne
- Nearest Emergency Hospital:

UF Shands Emergency Room/Trauma Center

1515 SW Archer Rd, Gainesville, FL 32608 Phone: 352.733.0111 The Station has established a fee schedule for resources and services to help recoup some of the maintenance costs of the facility. Availability of some items may be limited due to use by others, damage, or be under repair. The cost of equipment or facility damage repair or replacement will be the responsibility of the borrower

Station Fee Schedule (5/16)

• A 1.61% overhead fee is applied to each fee invoice. This fee is subject to change.

University of Florida

RESEARCH USE FEE:

<u>Description</u>: A use fee based on use days is assessed against all approved research projects in order to assist with general maintenance upkeep costs.

UF Investigators (day visits/year)

• 0 days - Keep project active, but no visits during a year: \$50

ORDWAY-SWISHER

BIOLOGICAL STATION

- 1-7 days: \$200
- 8-20 days: \$500
- 21-75 days: \$1000
- 76+ days: \$2000

Academic Non-UF Investigators & Private Industry (day visits/year)

- 0 days Keep project active, but no visits during a year: \$100
- 1-7 days: \$400
- 8-20 days: \$1000
- 21-75: \$2000
- 76+ days: \$4000

Agencies/NGO's (day visits/year)

- 0 days Keep project active, but no visits during a year: \$25
- 1-7 days/yea: \$50
- 8-20 days: \$150
- 21-75 days: \$300
- 76+ days: \$500
- Projects needing to establish long-term use of the Station or installation of semi-permanent or permanent infrastructure may be subject to a different fee based on the level of use and impacts.
- Invoices are mailed out at a project's completion or at the end of the calendar year if the project is still active.
- Projects that have not used OSBS during the calendar year and want to maintain their active status will be charged the minimum use fee (fee based on their UF affiliation).

CLASSROOM USE (Bldg 2202)

Description:

- 36-person multi-use classroom.
- Training tables/chairs
- Television & DVD/VCR
- Digital projector & video screen
- Wireless Internet access

- Audio system
- Network printer
- Restrooms and a shower
- Full kitchen (oven, microwave, refrigerator, sink, pots/pans/dishes/cups).
- Phone

Facility Uses: Classroom for field courses; departmental retreats, social gatherings (restricted to UF community).

<u>Fee:</u> It is suggested that UF instructors cover OSBS use fees through establishing a lab fee.

• \$40.00/day

<u>Note</u>: The Station does not have custodial staff or convenient waste disposal capabilities. A \$50.00 clean-up fee will be charged if the following requirements are not observed:



Station Fee Schedule (5/16)

- All trash generated from visit is removed from Station.
- Bathroom(s) & kitchen are cleaned after use.
- Food is removed from refrigerators.
- Carpets are vacuumed.
- Faculty will be responsible for clean-up fee for classes.

VEHICLES

Description: Field trucks for transportation supporting research and teaching activities.

Fee: \$30.00/day/truck

Availability: When available

Restrictions:

- Vehicles cannot leave the Station.
- Users must follow UF policies regarding operation of state vehicles.
- Repair of vehicles damaged will be the responsibility of the borrower (researcher) or course faculty.
- Trash is removed from vehicles after use.

<u>Note</u>: It is recommended that courses look into using their department's or unit's vehicle fleet first before utilizing the Station's vehicles.

LODGING

COFRIN COTTAGE

<u>Description</u>: Lodging at OSBS is available year-round at the Cofrin cottage for Station users. The cottage can accommodate up to three guests, with single occupancy per guest room. The cottage is fully furnished with ac/heat, a shared bath, full kitchen (including microwave), washer & dryer, and a beautiful screened porch overlooking Long Pond. Each guest room has a twin captain's bed, closet, bureau, writing table, and a television. Residents are responsible for keeping the cottage neat and orderly during their stay. Cooking is permitted. Internet access is not provided at the cottage, but is available at the Conservation Center.

Fee:

Full Cottage	
\$150/night**	

* Rooms that are not reserved are available to other guests for rent.

** If available, guests have the option to rent the full cottage for their use.

Guidelines for cottage use.

- Check-in: 12:00 PM, Check-out: 10:00 AM. These hours may be flexible depending on use level. Check with Office Manager when scheduling your visit.
- The cottage is stocked with an initial supply of toilet paper, trash bags, and dish soap.
- In each guest room: Two sets of bed linens, towels, and wash rags are provided.
- The kitchen is fully stocked with dishware and cookware. Guests are expected to wash dirty dishes and cookware before leaving.
 A \$20 charge will be added if not completed.
- Use of the fireplace is prohibited.
- Before leaving, please:
 - $\circ~$ Remove garbage from kitchen and bathroom and place in garbage can outside.
 - Remove food items from refrigerator and cabinets.
 - \circ Strip beds and place dirty bed linens, dirty towels, and dirty washcloths on the bathroom floor.
 - \circ $\,$ Notify Office Manager of any damages or issues during your stay.

Station Fee Schedule (5/16)

CYPRESS BUNKHOUSE

<u>Description</u>: Group lodging at OSBS is available year-round at the Station's bunkhouse. The bunkhouse can accommodate up to eight guests, with multiple occupancy per room. The facility is fully furnished with ac/heat, two full bathrooms, full kitchen (including microwave & oven), washer & dryer, TV and DVD player. Residents are responsible for keeping the bunkhouse neat and orderly during their stay. Internet is not provided, but is available at the Conservation Center.

Fee:

Use Rate*

\$140/night

* A minimum of 4 persons is required to reserve bunkhouse.

Guidelines for bunkhouse use.

- Check-in: 12:00 PM, Check-out: 10:00 AM. These hours may be flexible depending on use level. Check with Office Manager when scheduling your visit.
- The cottage is stocked with an initial supply of toilet paper, trash bags, and dish soap.
- Each bed: Two sets of bed linens, towels, and wash rags are provided.

ORDWAY-SWISHER

BIOLOGICAL STATION

University of Florida

- The kitchen is fully stocked with dishware and cookware. Guests are expected to wash dirty dishes and cookware before leaving.
 A \$20 charge will be added if not completed.
- Use of the fireplace is prohibited.
- Before leaving, please:
 - \circ $\,$ Remove garbage from kitchen and bathroom and place in garbage can outside.
 - o Remove food items from refrigerator and cabinets.
 - \circ Strip beds and place dirty bed linens, dirty towels, and dirty washcloths on the bathroom floor.
 - Notify Office Manager of any damages or issues during your stay.

RV CAMPING

<u>Description</u>: OSBS has a three (3) site RV campground. Each site has 20/30/50AMP power, water & sewer hookups, fire pit, and picnic table.

Fee:

o \$20/night

<u>Availability</u>: 1-2 of the sites are reserved for Work Campers employed at OSBS during the winter. Sites are available to researchers when not occupied.

TENT CAMPING

Description: The Station has two rustic campsites (no power).

Fee:

- Researchers \$10/night/person. The project PI is responsible for collecting and submitting the individual fees from accompanying group members.
- UF Courses No charge*. A UF faculty member or TA must accompany classes wishing to camp. UF& Station policies must be observed.

<u>Note</u>: The Station does not have custodial staff or convenient waste disposal capabilities. A \$50.00 clean-up fee will be charged if the following are not observed:

- All trash generated from visit is removed from Station.
- Bathroom(s) are cleaned from use.
- Food is removed from refrigerators.
- *Faculty will be responsible for clean-up fee for classes.



PRESCRIBED FIRE SERVICES

Description: Planning and conducting Rx fire in support of research projects and UF courses.

Fee:

- Burn crew and supporting equipment: \$1,500/day. Fee may be reduced if qualified fire personnel are provided by researcher to supplement staff.
- Rental of fire water equipment (if available)
 - Type 6 engine: \$40/day
 - o ATV/UTV: \$25/day
- UF courses: No charge*

*Instructors should understand that there is no guarantee a burn will be conducted on a planned date. This will depend on obtaining a burn authorization from DOF, weather, availability of PPE for students, and the schedule of staff and qualified fire personnel on planned dates.

HEAVY EQUIPMENT SERVICES

Description: Heavy equipment (tractors, loader/backhoe) and operator.

Fee:

\$25/hour

HANDHELD RADIOS W/ REPEATER ACCESS

Fee:

\$15/two radios/day

TRIMBLE GEO Explorer 6000 GPS RECEIVER

<u>Description</u>: Real-time DGPS, capable of < 1.0 m accuracy.

Fee:

- Researchers: \$20.00/day
- UF courses: None

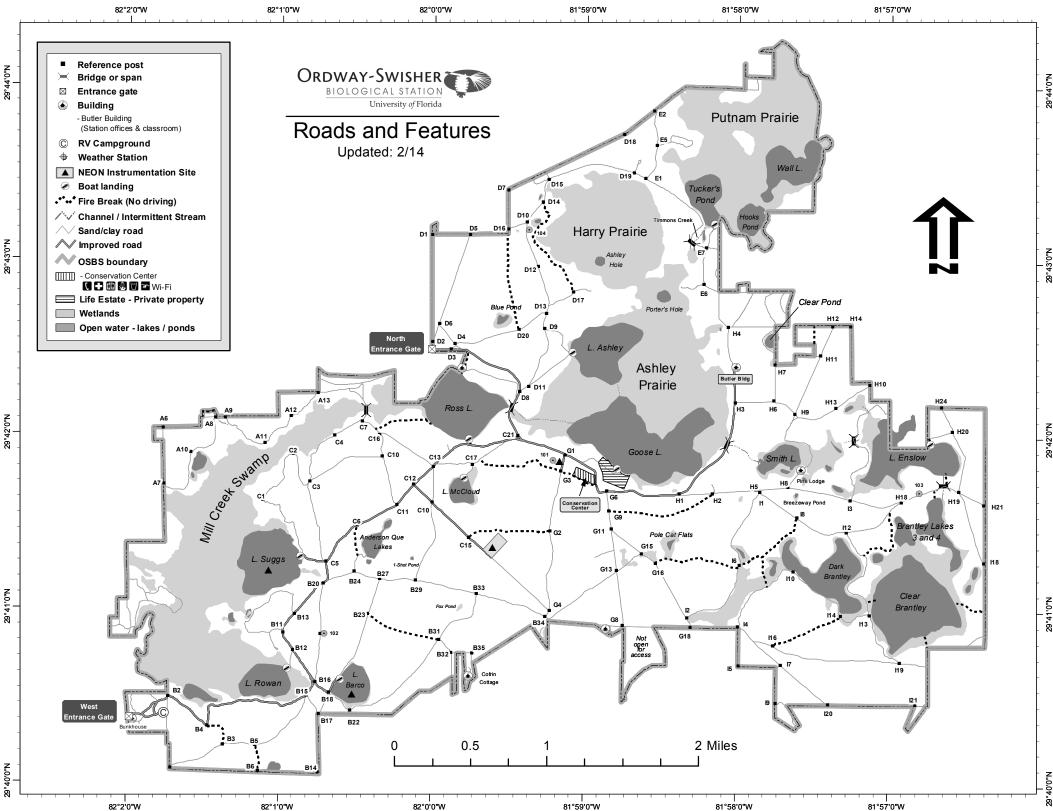
Restrictions:

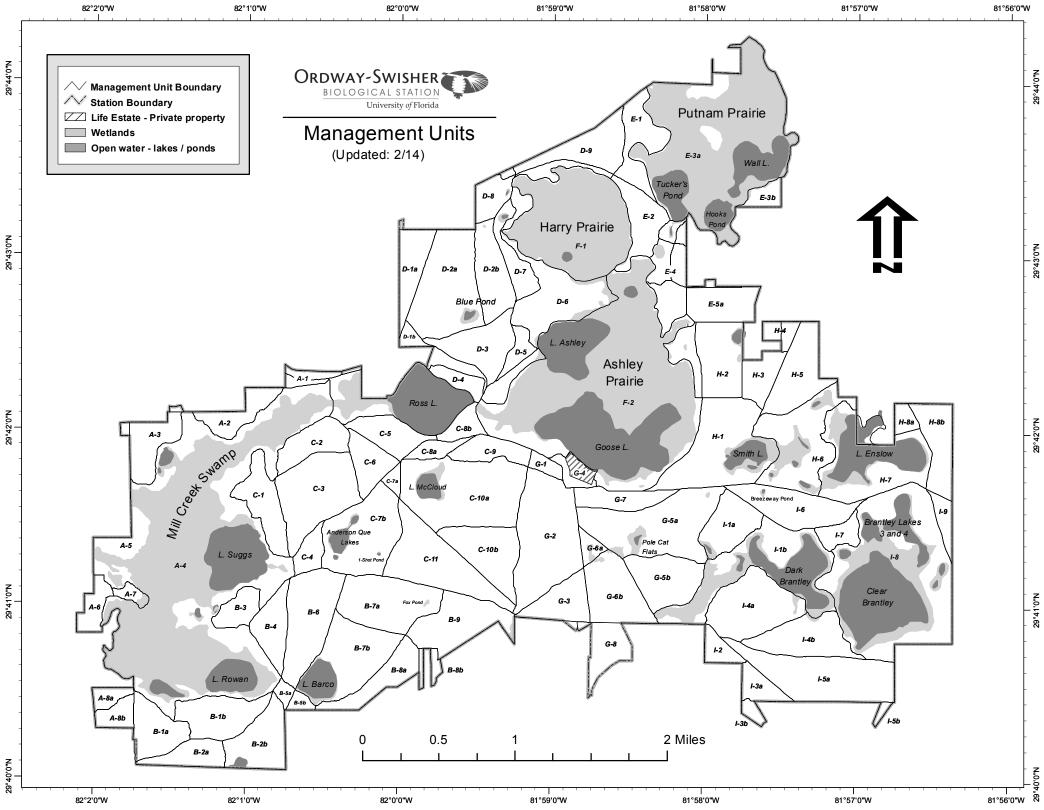
- Equipment cannot leave the Station.
- The repair or replacement cost of equipment damaged, broken beyond repair, or lost will be the responsibility of the borrower.

For billing questions regarding this fee schedule, please contact the Office Manager Vickie Hall at vickiev@ufl.edu.

LOCAL RESOURCES in the MELOSE & KEYSTONE AREA

RESOURCES	APPROX. DISTANCE FROI OSBS
Mailing	
US Post Office: 859 SR 21, Melrose, FL 32666. Tel: 352.475.1701	4 mi
FedEx Express Drop Box: Williamson Grocery – Outside. 840 N State Rd 21. Melrose, FL 32666	4 mi
FedEx Express Drop Box: Keystone Office – Outside. 275 S Lawrence Blvd	9 mi
Keystone Heights, FL 32656	
Grocery Stores	
Williamsons Food Store: 849 N SR 21, Melrose, FL. Tel: 352.475.1144.	4 mi
Harveys: 3212 SE SR 21, Melrose, FL. Tel: 352.475.1115.	7 mi
Hitchcock's Grocery Store: 7380 SR 100, Keystone Heights, FL. Tel: 352.473.4982	11 mi
Dollar General: 3186 SE 31st Way Melrose, FL 32666 Tel: 352.792-1231	7 mi
Family Dollar: 881, Melrose, FL 32666 Tel: 352.448.3538	4 mi
Drug Stores	
CVS Pharmacy: 120 West Walker Drive, Keystone Heights, FL 32656 Tel: 352.473.7122	10 mi
Walgreens: 115 North Lawrence Boulevard, Keystone Heights, FL 32656 Tel: 352.473.4621	10 mi
Restaurants/Fast Food	
Blue Water Bay: 319 SR 26, Melrose, Fl. Tel: 352.475.1928	4 mi
Fryers Chicken : 321 SR 26, Melrose, FL. Tel: 352.475.1928	4 mi
Betty's Pizza & Subs: 855 North SR 21, Melrose, FL. Tel: 352.475.5717	4 mi
Melrose Café: 886 N SR 21, Melrose, FL. Tel: 352.475.2626	4 mi
McDonald's: 7370 SR 100, Keystone Heights, FL. Tel: 352.473.2288	11 mi
Wendy's: 210 W Walker Dr Keystone Heights, FL Tel: 352.473-3636	10 mi
Hardees: 7401 SR 21, Keystone Heights, FL. 352.473.7745	11 mi
Johnny's BBQ: 7415 SR 21, Keystone Heights, FL. Tel: 352.473.4445	11 mi
Subway: 400 SR 26, Melrose, FL Tel: 352.475.1549	2 mi
Gator Bait Sports Bar & Grill: 304 SR 26 Melrose, FL 32666 Tel 352.475.1360	2 mi
Hardware & Auto Parts Stores	
Bryan's Ace Hardware: 871 N SR 21, Melrose, FL. Tel: 352.475.2400	4 mi
Bryan's Ace Hardware: 190 S Lawrence Blvd, Keystone Heights, FL. Tel: 352.473.9917	10 mi
Futch's Power Depot: 101 Commercial Dr, Keystone Heights, FL. Tel: 352.473.4001	10 mi
True Value Hardware: 200 NE Commercial Cir, Keystone Heights, FL Tel: 352.473.9991	10 mi
Keystone Auto Parts: 7419 State Road 21, Keystone Heights, FL. Tel: 352.473.3561	11 mi
Carquest Auto Parts: 7419 Hwy 21, Keystone Heights, FL. Tel: 352.473.2469	11 mi
Advance Auto Parts: 7360 SR 100, Keystone Heights, FL. Tel: 352.473.6996	11 mi
-uel	
Various grades of gasoline and diesel fuel are available in the Melrose and Keystone Heights area from BP, Shell, Citgo, Kangaroo, and Chevron gas stations.	3 - 11 mi radius
<u>RV Repair & Parts</u>	
J D Sanders RV Center: 12380 NW US Hwy 441, Alachua, FL. Tel: 386.462.3039	33 mi
Revels Nationwide RV Accessory: 206 W Madison St, Starke, FL. Tel: 904.966.2020	21 mi
Intertainment	
Redbox Kiosks:	
 Kangaroo, 400 State Road 26, Melrose, FL 32666 	2 mi
 Kangaroo, 3186 SE State Road 21, Melrose, FL 32666 	10 mi
Mike Roess Gold Head Branch State Park: 6239 SR 21, Keystone Heights, FL Tel: 352.473.4701	16 mi
Melrose Bay Art Gallery: 103 SR 26 in Melrose, Fl Tel: 352.475-3866	2 mi
Melrose Library: 312 Wynnwood Ave, Melrose, Florida Tel: 352.475.3382	3 mi
Offsite Lodging	





29°41'0"N

29°40'0"N I