

## The Malaise Trap Ponds

A researcher from the University of Florida set up three malaise traps in each of ten seasonal ponds. Jackson Mosley, the other invertebrate lab intern went around to all of the ponds every Friday to check the traps and to change the sample bottles. I went with him almost every Friday during my internship. Most of the time he did not need my help. However, I did help him right some traps that had fallen and I helped him take down a badly damaged trap.

Usually, I sampled the ponds while Jackson collected the bottles. I could only take a few samples in each pond, because collecting the bottles did not take Jackson very long. I either sampled the pond directly with the aquatic net or used the sweep net to collect insects on pond vegetation. I caught many adult Hemipterans and Coleopterans. I kept some of them for my personal collection. Once, I caught a species of pygmy backswimmer that was not in the station's collection. I pinned and labeled it and donated it to the station's collection. I caught Hemiptera, Coleoptera, and Dipteran larvae that I did not keep because they have to be preserved in alcohol. I also caught many Odonate larvae.

I caught several species of dragonflies and damselflies using the sweep net. I caught a few insects on vegetation in and around the ponds, also. I looked for pollinators on the pond plants that were flowering, but I only found a few.



## My Collection

During my internship, I started and maintained my own collection of insects. The insects were collected from many sources. Some were collected in and around the malaise trap ponds. Others I collected while sampling the ponds in my study. Some I found while walking to my study sites.

The light at the foot of the stairs leading up to the dorms was often left on all night. Many insects were attracted to it. Some landed on the door and others flew inside when someone opened the door. I caught many insects that were attracted to this light.

Jackson also gave me some insects for my collection. He let me keep some of the insects he caught at Bio Blitz that there were multiple specimens of. He also gave me some beetles that he had many specimens of.

I identified the insects to family using the key in my textbook or using other keys present in the lab. I used the station's collection to identify most of my insects to genus. I identified many of my insects to species.

### **Blattaria:**

*Eurycotis floridana* (Waiter)

*Periplanta australasie* (Fabricius)

### **Coleoptera:**

Buprestidae:

*Acmaeodera pulchella* (Herbs)

*Actenoeles auronotata* (Laporte & Gary)

*Brachinus* sp.

*Chalcophora* sp.

Carabidae:

*Brachinus* sp.

*Calosama sayi* (Dejean)

*Cicindela trifasciata trifasciata* (Fabricius)

*Colliuris dejeanellus* (Csiki)

*Megacephala carolina carolina* (Linnaeus)

Cerambycidae:

*Archodontes melanopus* (Linnaeus)

*Strangalia sexnotata* (Haidman)

*Tragidion coquus* (Linnaeus)

Chrysomelidae:

*Caryobreachus gleditsiae* (Linnaeus)

*Hemisphaerota cyanea* (Say)

*Kuschelina floridana* (Blake)

Curculionidae:

one specimen not identified to genus

Dytiscidae:

*Laccophilus proxionus* (Say)

*Thermonectus dasillaes* (Hans)

Gyrinidae:

*Dineutus carolinus* (LeConte)

*Dineutus emarginatus*

*Dineutus serrulatus* (LeConte)

Hydrophilidae:

*Berosus aculeatus*

*Berosus infuscatus* (LeConte)

*Berosus sp.*

Noteridae:

*Hydrocanthus oblongus*

Scarabaeidae:

*Ataenus sp.*

*Diplotaris bidentata* (LeConte)

*Dyscinitus morator* (Fabricius)

*Euphoria limbalis* (Fall)

*Hybotrichia spissipes* (LeConte)

*Phanaeus igneus* (Mauleay)

*Strategus antaeus* (Mury)

*Trigonpeltastes delta* (Forster)

Scirtidae:

*Ora texana* (Champion)

Silphidae:

*Necrotes surinamensis* (Fabricius)

Tenebrionidae:

*Eutochia Pica* (Melsho)

*Platydema micans* (Horn)

## **Diptera:**

Brachycera:

Cyclorrhapa:

Schizophora:

*Synthesiomyia nudista* (Wulg)

Nematocera:

Bibionidae:

*Dilophus* sp.

Bibionidae:

*Plecia nearctica* (Hardy)

Chironomidae:

Chironomini:

two specimens not identified to genus

Tipulidae:

one specimen not identified to genus

## **Hemiptera:**

Heteroptera:

Anthrocoridae:

*Lassiochius pallidulus* (Reater)

Belastomatidae:

*Lethocerus uhleri* (Montandon)

Corixidae:

*Trichorixia* sp.

Coreidae:

*Acanthocephala canfraterana* (Uhler)

Gelastocoridae:

*Gelastocoris oculatus* (Fabricius)

Gerridae:

*Neogerris hesione* (Kirkaldy)

Lygaeidae:

*Ochrimnus lineoloidea* (Slater)

Mesoveliidae:

*Mesovelia mulsanti* (White)

Nepidae:

immature

*Rantara drakei* (Hungerford)

Notonectidae:

*Buenoa artafrons* (Truxal)

*Buenoa confusa* (Truxal)

*Buenoa scimitra* (Bare)

*Notonecta indica* (Linnaeus)

*Notonecta undulata* (Say)

Pentatomidae:

*Banasa lenticularis* (Uhler)

Phymatidae:

*Phymata spp.*

Reduviidae:

*Rupipta taurus* (Fabricius)

*Zelus longipes* (Linneaus)

Homoptera:

Cercopidae:

*Prosapia bicineta* (Say)

Cicadidae:

*Tibicen davisi* (Smith and Grossbeck)

Phymatidae:

*Spissistilus festinus* (Say)

**Hymenoptera:**

Apocrita:

*Megachile sp.*

*Mimumesa sp.*

Formicidae:

*Pogonomyrmex sp.*

one specimens not identified to genus

Halictidae:

*Agapostemon splendens* (Lepeletier)

Scoliidae:

*Campsomeris quadrinotata* (Fab)

Vespidae:

*Vespula squamosa* (Drury)

**Lepidoptera:**

Arctiidae:

*Syntomeida epilais jucundissima* (Dyar)

Geometridae:

*Anocamptodes depectoria* (Guenee)

Heliozelidae:

one specimen not identified to genus

Saturniidae:

*Automeris io* (Fabricius)

Noctuidae:

*Schinia sordida* (Smith)

Pyralidae:

*Mocrothica sp.*

*Samea ecclesialis* (Guenee)

**Neoptera:**

Chrysopidae:

one specimen not identified to genus

**Odonata:**

Anisoptera:

Libellulidae:

*Pachydiplax longipennis* (Burmeister)*Erythrodiplax miniscula* (Chambur)*Libellula axilema* (Westward)

Zygoptera:

Lestidae:

*Lestes vigilax* (Hagen)**Orthoptera:**

Acrididae:

*Romalea guffula* (Houttuyn)

Gryllidae:

*Gryllus ovisois* (Walker)

Tettigonidae:

*Microcentrum rhombifolium* (Saussure)**Phasmatodea:***Anisomorpha buprestoides* (Stoll)**Pollinator Records**

One of my main tasks during my internship was to collect pollinator records.

There are many bee, wasp, beetle, and fly records from many different plants in the

station's collection. However, there are some plants with few records. I collected records from several plants. Most of the time, Jackson and I collected records together. Sometimes Dr. Deyrup would come with us and sometimes one of us would collect alone. Jackson and I pinned and labeled the insects we collected. Here are the plants I collected records from during my internship:

### **Yellow Button (*Balduina angustifolia*)**

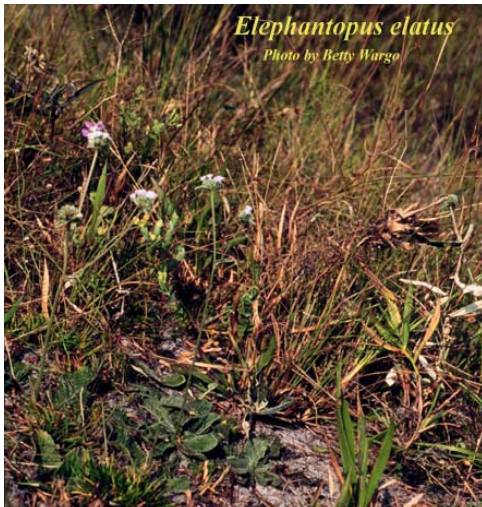


Yellow Buttons occur in dry habitats throughout Florida. They are common in scrub habitats. They can grow to a height of three feet. Yellow Buttons are unusual, being one of the scrub's few annuals.

Yellow Buttons are abundant on Red Hill, an elevated portion of the station property located in the southeast tract. Jackson and I often collected records on Red Hill. There are many records for this plant in the station's collection. Dr. Deyrup would ask Jackson and I to look for specific species that only a few records existed for. In the process, we caught many other records, also.

### **Florida's Elephantsfoot (*Elephantopus elatus*)**

Florida's Elephantsfoot, also called Tall Elephantsfoot occurs in dry woods and pine barrens, usually associated with pines. It is a perennial, like most scrub plants and can reach a height of 1.2 meters or 2 feet. It blooms from late summer through



station and only a few records had previously been collected from it. There are several clumps of the plant on the main road up to Red Hill. Jackson and I also found a fairly large population along one of the roads in the middle of the station property.

#### **Highland's Scrub St. John's Wort (*Hypericum cumulicola*)**



This species of St. John's Wort is endemic to the Lake Wales Ridge. It occurs primarily in open, sandy areas in the Florida rosemary scrub. It is a perennial that can grow up to 70cm in height. It flowers between April and October, although most flowering takes place between June and July.

Small populations of this species occur in the rosemary scrub habitats present on the station's property. The largest population occurs in the Calamintha scrub tract, which is located at the southernmost end of the station. Few records had previously been



collected from this species. Jackson and I collected records from this plant several times.

### **Florida Keys Hempvine (*Mikania cordifolia*)**



Florida Keys Hempvine is common in wet habitats. As its common name implies, it is found in the Florida Keys. It is a perennial vine. Its leaves are used for many medicinal purposes in

South America.

There is a small population of this plant on the station's property, not far from malaise pond 7. Few records had previously been collected from this plant, because it is not very common on the station. Jackson and I collected records from the known population several times.

### **Sand Butterfly Pea (*Centrosema arenicola*)**



The sand butterfly pea is endemic to central Florida. It occurs in scrubby flatwoods, sandhill, and dry upland woods habitats. It is a perennial vine with stems that can grow up to 10 feet in length. It flowers from June to October. Each

individual flower lasts only one day.

There are two small populations of this vine on the station's property. One population grows along one side of the main entrance road. The other grows up on Red Hill. There were no records from this plant in the collection. Jackson and I looked for pollinators many times when we passed the population growing along the entrance road. One evening while I was taking a walk, I caught a large bee pollinating one of the vine's flowers.

### Flowering Pond Vegetation

Dr. Deyrup asked Jackson and I to look for any insects pollinating pond flowers that were in bloom while we were working in the ponds. I often checked different plants while Jackson checked his malaise traps and also while I was sampling my ponds. I caught a few records from Edison's Ascyrum (*Hypericum edisonianum*). However, there are many records from this plant in the station's collection, and I never found anything of note.



Edison's Ascyrum is endemic to central Florida. It is a common inhabitant of the station's seasonal ponds. It is an annual that can grow up to 5 feet tall. It flowers year round.

## Live Insects in the Laboratory

There were many insects living in various containers in the lab during my internship. I helped take care of several of them, including Giant Grey Sphinx Moth caterpillars (*Pseudosphinx tetrio*), some saw fly larvae, Oleander Moth caterpillars (*Sybtomeida epilais jucundissima*), and a predacious diving beetle larvae.

### Giant Grey Sphinx Moth Caterpillars



Around the second to last week of October, a woman brought in some very large caterpillars that were attacking a Frangipani tree in her yard. There were initially ten of them. Three of the caterpillars died, one in the process of pupating. On October 29, the first caterpillar pupated. Three more pupated the following day and the last two pupated the day after that. I helped Jackson clean the hatbox the caterpillars were living in twice before all of them had pupated.

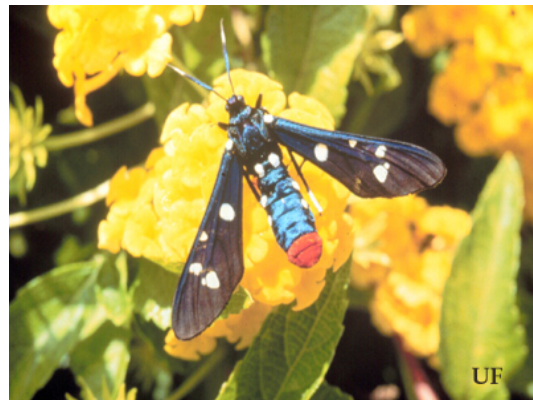
Once all of the caterpillars had pupated, Dr. Deyrup moved them into a large bucket with soil and plant debris on the bottom. The bucket also had mesh in it so that the moths could spread their wings when they emerged.

During the later half of the month of November, I checked the bucket every morning to see if any moths had emerged. On the morning of November 25, one had. Three more emerged the next day. Another emerged the day after that. The last moth emerged on November 30. One did not emerge. I helped Jackson catch the moths. He spread their wings. I made labels for them and put them in a box.

### **Saw Fly Larvae**

The second to last week of November, Dr. Deyrup collected some sawfly larvae he planned to rear into adults to add to the station's collection because there were only a few specimens in the collection at the time. The Wednesday before Thanksgiving, since Dr. Deyrup was away, Jackson and I collected some fresh pine needles for the larvae and cleaned the jar they were living in. By the time I left, all of the larvae had pupated, although none had emerged yet.

### **Oleander Moth Caterpillars**

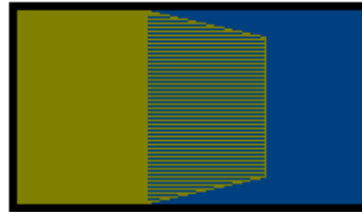


On October 26, I caught ten of a large number of Oleander moth caterpillars that were feeding upon an Oleander bush in my parent's yard. I preserved two of the caterpillars in alcohol for my collection. The others I placed in a small container along with a bunch of fresh leaves. One caterpillar died. Another managed to get out of the container and also died. On November 1, I cleaned the container and put fresh leaves in it. Two of the caterpillars had pupated by this time. During the next week, three more pupated. I cleaned the cage again on November 8. The last caterpillar pupated on November 14.

Two of the pupa died. One was damaged, possibly by a caterpillar that had not pupated yet. The other never emerged.

Two moths emerged on November 26. One I pinned. The other I discarded because it had gotten trapped in the mesh I put in the container and could not expand its wings. The other two moths emerged on November 30. I pinned and spread them. I donated one to the station's collection, along with a pupal case, because there were only two on record there. The other two I kept.

## The Predacious Diving Beetle Larvae



Predacious Diving Beetle  
Larva Habitat

On October 15, Jackson gave me a predacious diving beetle larva he had caught. I decided to keep it to see if it would pupate. I filled about one third of a larval pan with sand. I filled the rest of the pan with water up to the level of the sand. I caught food for the larvae every day except the weekends and made sure that the water level in the pan did not get to low (I used pond water, not sink water).

Over the weekend of October 26, the larvae pupated. I kept the water level up so that the sand would not dry out. Unfortunately, an adult never emerged. Before I left, I cleaned the pan and found the remains of the pupa.

## **The Beetle People**

In the middle of November, the Coleoptera society had a meeting in Florida. Afterwards a group of about fifteen of them came to Archbold to collect beetles. In preparation for their arrival, Jackson and I helped Dr. Deyrup get the station's beetle collection up to snuff, so to speak. It was our job to replace the old species labels, some of which were handwritten, with new labels.

## **Bio Blitz**

On October 19, Jackson went to an event called Bio Blitz. It was held in Citrus County. Interested insect collectors spend the day trying to catch as many different species of insects as possible using whatever methods they choose. The purpose is to compile a list of all of the different species that are collected.

I helped Jackson sort, pin, and label all of the insects he caught. I also helped him identify some of them. Once we identified them we put them in the station's collection. If there were already a lot of specimens of a particular species in the collection, he kept the insect for his own personal collection. He even let me keep a few.



## **Seminars**

I attended many seminars during my internship at Archbold. There are scheduled seminars about once every three weeks. These are given by scientists invited to the station by the various labs. These seminars started at 3:30pm and lasted about an hour. They were usually interesting as well as informative. I also attended three seminars given by ornithologists applying for a postdoctoral position in the Ornithology Laboratory. These also lasted about an hour and were fairly interesting. Several interns also gave seminars while I was there. Intern seminars last about a half an hour. I found them to be the most interesting because they were about research conducted on the station.

This was the schedule of the scheduled seminars:

12 Sept.	Reed Noss , University of Central Florida	The Science of Conservation Planning
----------	--	--------------------------------------

10 Oct.	Jim Carrel, University of Missouri - Columbia	Long-term Studies of Spiders in Florida
31 Oct.	Mark Burgman, University of Melbourne, Australia	Uncertainty in Habitat Models: Epistemic and Vague Quantities
14 Nov.	Steven R. Beissinger, Museum of Vertebrate Zoology, UC Berkley	Linking Behavior and Population Dynamics: Does the Source-Sink Paradigm Apply to Birds?
5 Dec.	Richard T. Holmes, Dartmouth College, Hanover, NH	Population Change in Migratory Songbirds: Insights from long-term studies in breeding and wintering areas.

Six interns gave seminars during my internship. Two bird lab interns gave back-to-back seminars on their projects on aspects of scrub jay ecology. One project studied survivorship in suburban populations. The other project studied the effects of fire on colonization.

Two plant lab interns also gave seminars, though at different times. One of the interns did her project on the ecotones between the various scrub habitats. The other did her project on the ecology of a plant that grows in seasonal ponds when they are dry.

An intern from the MacArthur Agro-ecology Research Center, a ranch owned by Archbold Expeditions, gave a seminar also. She did her project on the effects of sod farming on soil health.

Jackson gave his seminar on tiger beetle larvae and what they eat a week after I gave my seminar.