

Pictorial Journey of Florida's Ecosystems

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Excursion 1: Wetlands Area

During this group trip to the Orlando Wetlands Park on June 6, 2018, I noticed that a large portion of the park looked quite a lot like freshwater marsh and wet prairie. According to the City of Orlando, the ecology is a mix of deep



marsh, mixed marsh, wet prairie, hardwood-cypress swamps, and freshwater lake (City of Orlando, n.d.). The air was quite humid and there were an abundance of insects, particularly dragonflies, mosquitoes, butterflies, and wasps. The most abundant visible wildlife were the wading or perched birds, but we also heard a number of amphibians (likely toads, from the sounds), and observed a few reptiles (turtles and alligators).

The park's flora consisted primarily of grasses (abundant bulrush and cattail grasses) as well as some small, water-loving trees. There were also some pines, oaks, palms, and other tall trees - some native to a wetland ecosystem, some remnants from when the area was still dry prairie.

I found the history and purpose of the park fascinating. The area was first settled in the early 19th century, after which it was slowly cleared and repurposed by humans. The area was cleared of trees and used as open cattle grazing field, and finally as a dairy farm in the 1940s (City of Orlando, n.d.). Orlando purchased the 1220 acre lot in 1986 for the purpose of receiving the "highly treated effluent from the regional treatment facility" (City of Orlando, n.d.) where initial chemical treatments are



applied to the wastewater; as the water moves through the man made wetlands, nitrogen and phosphorus are removed by natural processes (largely from the grasses in the marsh) and then outflows into the St. John's River (City of Orlando, n.d.).

Thus, the interaction among biotic and abiotic factors in the wetlands park is the very reason for its existence - the purpose of the ecosystem is to treat water (abiotic) via plant activity (biotic) and natural filtration through sediment (abiotic). The wildlife in the system are not a direct part of the effluent processing system, but naturally migrated into the area as habitats developed. Their presence is a sign that the wetlands is achieving its purpose of filtering effluent into water that is safe to return to the natural waterways. The success of the Orlando Wetlands makes it a landmark site, and one of the case studies for constructed wetlands according to the United States Environmental Protection Agency (1993). *The Conservation status of the species in this section are taken from the FWC "Endangered and Threatened Species List" (2017).*

Wetlands Photo Diary



Water hemlock
Cicuta maculata (Common)

Observations: Flat clusters of tiny white and off-white flowers. Long stems with pinnate leaves. Observed throughout park along edges of berms and marshes.



Firewheel / "Indian Blanket"
Gaillardia pulchella (Common)

Observations: A small wildflower with a yellow-centered and brown disk. Numerous ray petals, pink-orange with symmetrical yellow tips.



Sandhill Crane
Antigone canadensis
 (State-Designated Threatened)

Observations: Long-legged wading birds with webbed feet. Gray-brown plumage with white on chest and face, and a darker cap. Saw only these three during the trip, walking along a marshy road.



Great Egret
Ardea alba (Common)

Observations: Entirely white wading bird with long thin legs, webbed feet, and slim necks with no plumes. Long yellow bill. Seen alone and in groups, always in the marsh. Abundant.



Common Moorhen
Gallinula chloropus (Common)

Observations: Black ground-walking marsh bird with pigeon-like bobbing head motions while walking. Pecked occasionally at the ground. Red frontal shield. Streaks of white plumage around the tail.



Anhinga
Anhinga anhinga (Common)

Observations: Long-billed, long-necked wading bird. Entirely black save for a stripe of white feathers on the wing. Individuals spotted, ungrouped, in marshy areas. Low grunting sounds.



Phaon crescent (butterfly)
Phyciodes phaon (Common)

Observations: A medium-sized butterfly, about 2 inches in length. Black-lined wings including orange and white cells. Found in an open field flitting between grasses and wildflowers, among dragonflies.



Florida Scoliid Wasp
Family Scoliidae, possibly *Campsomeris quadrimaculata* (Common)

Observations: Small wasp found on the shrubs on the edge of an open field. Black head and thorax with yellow spots on 2 abdomen segments (possibly segments 2 and 3). Rounded two-part wings and thick antennae.



Orchard Orbweaver
Leucauge venusta (Common)

Observations: Medium-sized web-weaving spider with green and brown pattern and bright orange spots on abdomen and back. Found on a diagonal web in medium-height brush.



Allegheny Mound Ant
Formica exsectoides (Common)

Observations: Small ant with red thorax and bulbous black abdomen. Found on flat, gravelly path, in a sparse group of fellow ants. Dirt is pocked with holes, perhaps entrances to mounds.



Red-shouldered Hawk (Juvenile)
Buteo lineatus (Common)

Observations: With a curved beak and curved talons, this raptor sitting standing in an open field is most likely a juvenile (from the small size of still-fluffy plumage). The reddish-brown mottled wings and lighter underbelly suggest it's a red-shouldered hawk.



American Alligator
Alligator mississippiensis (Threatened due to Similarity of Appearance)

Observations: Alligators were abundant throughout the marsh. Found in both shallow and deep water areas, usually water foliage provided partial camouflage. Eyes high on the skull allow for floating deeper in water.

Excursion 2: Zoological Park

On Friday, June 8th, my spouse and I visited the Central Florida Zoo & Botanical Gardens in Sanford, Florida. The zoo contains a variety of local and exotic species--faunal and floral--and clearly labels the conversation status of all species, which I found refreshing. The placards for the plants and animals were helpful and engaging. It's a popular zoo; when we visited, even though it was a week day, there were several large groups moving through the park.



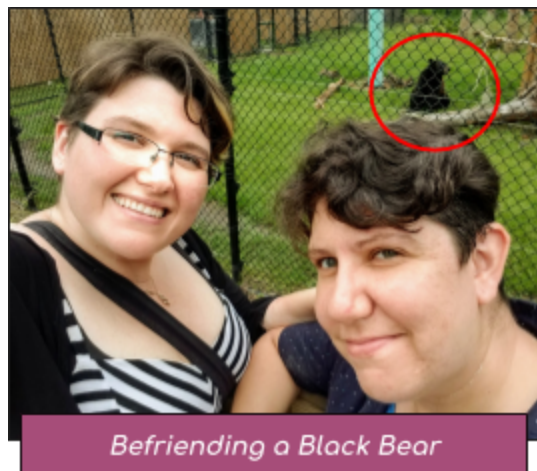
Relaxing with the Aldabra Tortoise



Hanging with a Spider Monkey

Getting foot traffic through the zoo is important, because the one of the primary conservation goals of a zoo is public education and awareness. Educating the public about biodiversity allows a better understanding of specialized habitats and niches, allowing people to appreciate the dangers of habitat destruction and the delicate balance within ecosystems. Central Florida Zoo

has a dedicated conservation program, partnering with several conservation organizations to supply dedicated education programs such as “endangered species day” and allowing the public to “adopt” an animal (such as a cougar, leopard or fossa) by donating a certain



Befriending a Black Bear

amount and in return receiving gifts and news about their animal (Central Florida Zoo & Botanical Gardens, n.d.).

In addition, zoos are important to biodiversity as many of them participate in harboring, rehabilitating and breeding at-risk species. Captive breeding allows members of the species to flourish in a protected environment. The Central Florida Zoo, for example, participates in the “Species Survival Plan” program (SSP) :



Settling in with the Flo Pine Snake



Lounging with a Red Ruffed Lemur

“Each SSP manages the breeding of a species in order to maintain a healthy and self-sustaining zoo population that is both genetically diverse and demographically stable” (Central Florida Zoo & Botanical Gardens, n.d.). Once a species is selected for SSP at a particular facility, the individuals of the species are managed by an expert which facilitates population management, research, and in some cases,

reintroduction into the wild (Central Florida Zoo & Botanical Gardens, n.d.).

Please note that the conservation statuses listed in the photo diary below are taken either from the Central Florida Zoo placards, or from the IUCN Red List of Threatened Species (International Union for Conservation of Nature and Natural Resources, 2017).

Zoo Photo Diary

Exotic Animals

Local to Florida



Aldabra giant tortoise
Aldabrachelys gigantea
 Seychelle Islands - Vulnerable

Observations: Tortoise was quite large and slow-moving. Shell is quite tall, plates are relatively flat. Feet are broad with what look to be claws; to help movement, perhaps? Long neck, pointed nose; muted colors.



Black-handed Spider Monkey ([Video](#))
Ateles geoffroyi
 Central America / Mexico - Endangered

Observations: Monkey was alone in the habitat. Continually moving, perhaps restless. Swung along in a swaying circular manner. Prehensile tail helps climbing. Brown fur.



Clouded Leopard
Neofelis nebulosa
 SE Asia / China - Endangered (Vulnerable)

Observations: Could barely see the leopard because it was curled up taking a midday nap! I saw the tail; spotted, thin fur, tan and dark brown.



Red Ruffed Lemur
Varecia rubra
 Madagascar - Endangered

Observations: Medium-sized lemur with orange-red fur, dark hands and feet. Appears comfortable hanging on to the cage; possibly similar to lounging and hanging on trees. Black tail, white around head.



Grand Cayman Iguana / Blue Iguana
Cyclura lewisi
 Grand Cayman Islands - Endangered

Observations: Iguana was completely still, sunbathing in the warm afternoon sun. It was quite large. Striking blue shade. Spiky spine ridge.



Cotton-Top Tamarin
Saguinus oedipus
 Colombia - Critically Endangered

Observations: 12+ tamarins in the group. Very social: running and crawling over each other. Habitat had plenty of climbing surfaces, connected cages and tunnels. Striking fur pattern; white tuft on top of head.



Black-breasted leaf turtle
Geoemyda spengleri
 SE Asia - Endangered

Observations: This is a tiny, adorable turtle; not surprising that they're taken as pets in Asia. Difficult to spot at first, blending in with the red dirt, hiding as a pair in a rock nook. Has relatively flat shell, webbed feet, and bright yellow eyes.



Aruba island rattlesnake
Crotalus durissus unicolor
 Aruba - Critically Endangered

Observations: Beautiful, tan and yellow-patterned snake. Blends in with its yellowish, sandy soil. Subdued pattern with well-defined scaling. Thick body settled in the classic rattlesnake curling pose.



Ring-tailed Lemur
Lemur catta
 Madagascar - Endangered

Observations: Very playful and social animals. A little shy with humans, uninterested in passersby. Some cat-like features; interestingly striped tail, curious why this lemur developed that pattern.



Florida Kingsnake
Lampropeltis getula floridana
 Florida - Common

Observations: Well-camouflaged snake, tawny dirt-like color. Medium sized (a few feet long but slim). Moved quite a lot, approached edge of glass.



American Alligator
Alligator mississippiensis
 Florida / SE US - Threatened (Least Concern)

Observations: Body is broader than crocodile's, eyes closer together and more towards the top of the head. Alligator laying higher in water, with frogs nearby.



American Crocodile
Ateles geoffroyi
 Florida & Caribbean - Endangered (Vuln.)

Observations: Laid low in the water, using surface flora for camouflage; no nearby fauna. Eyes lower and towards side of head; turned head to look at us.

**Florida Black Bear**

Ursus americanus floridanus

Florida / SE US - Common (recently delisted)

Observations: Medium-sized bear. Constantly wandering and chewing as he went, possibly seeking food. Had a large habitat far away from all other animals, and a significant back area. Slow-moving, relatively thin fur in a dark brown, with a tan snout.

**Florida Pine Snake**

Pituophis melanoleucus mugitus

Florida & SE US - Least Concern

Observations: Large, active snake. Beautiful tan and brown, repeating camouflage pattern. Distinct scaly look. Seemed content in a sandy habitat.

Excursion 3: Coastal Area

On Sunday, June 18th, my spouse and I visited Canova Beach Park in Indialantic, Florida, a popular beach recreation area. To prepare for the trip, we put on sunscreen, wore water-safe shoes to walk comfortably on sand and in the tidal area, and kept bug repellent with us. Canova Beach



Park is popular because it is public access and has several amenities such as bathrooms, showers, a picnic area, and accessibility to leashed dogs. While there, we observed people engaged in a recreational activities such as kitesurfing, sunbathing, wading, exercising, picnicking, and playing with their children and dogs.



It was a sunny day with relatively low tides, and though there weren't many sea birds present that day, we spotted a number of tiny fish - possibly newly born - swimming in the tidal pools that formed. Though a pleasant environment, the presence of dogs discouraged birds and other small animals from visiting the area as they usually do. Some pollution in



the form of debris had been left behind, though not as much as I've seen at other beach areas. Some people were smoking cigarettes, creating some air pollution; and the proximity of cars contributed to that as well. The people kitesurfing

Beach Debris
 Dropped Pizza Slice
 Lost Sunglasses
 Abandoned Socks
 Beach ball in dunes
 Plastic Bag
 Chip Bag
 Snow cone wrapper
 Tissues / Napkins
 Cigarette Butts
 Hair clips
 Plastic shovel

 A small photograph showing a yellow and green plastic bag lying on a sandy surface, likely a beach.



may also have been disturbing local marine wildlife.

In the dune areas, plentiful flora existed in the form of grasses, shrubs, palms and wildflowers (see photo diary for examples). Dunes and dune flora are important because they resist erosion from the tidal areas; they are a natural boundary between beach and land, and the root systems in the dune areas help

stabilize the soil. The dunes are also an important habitat for shore-dwelling species that still need to be harbored from the salt spray.

In the tidal area there were no large plants due to the salt water, but there was plentiful algae and small seaweeds, which were adapted to the salty environment. There were also small fish and invertebrates in the water.



Due to human disturbance, it's likely the amount of faunal life in the tidal area was reduced.

“Open ocean space is not legally claimed by any one nation. Therefore, its resources are more susceptible to overuse than resources that are on land.” This statement reflects the harsh reality of the dangers facing our oceans. The MarineBio Conservation Society states that 16% of the world’s protein originate from fishing activities, with approximately 88 million ton caught per year in recent years (n.d.), with certain areas routinely overfished due to lack of oversight.

To make matters worse, In the last two decades, oxygen-deprived “dead zones” have arisen due largely to industrial and agricultural pollution. “Humankind is engaged in a gigantic, global

experiment as a result of the inefficient and often overuse of fertilizers, the discharge of untreated sewage and rising emissions from vehicles and factories” (MSNBC Staff, 2004). This occurs because industrial sources need to find a place to direct refuse, and their options are limited; oceans and other unsupervised waterways are appealing due to their lack of ownership or oversight.



Canova Beach Park Overview Photo: Dunes, Beach, Tidal Area, Human Visitors, and Recreational Kitesurfing.

Coastal Area Photo Diary



Sea Oats
Uniola paniculata

Observations: Tall grasses (over 6 feet tall) with seedy heads, found throughout the dune areas.



Saw Palmetto
Serenoa repens

Observations: Wide-growing shrubby palm plant, deceptively tall. Found growing in disturbed area of dune, directly beside boardwalk.



“Pointed Leaf” / Wild Poinsettia
Euphorbia cyathophora

Observations: Small plant found among grasses in the disturbed dune area near boardwalk. Bud clusters surrounded by pointed leaves, green with red bases.



“Tread Softly” / Spurge Nettle
Cnidocolus stimulosus

Observations: Tiny five-petaled white flowers with small white stamen indicating pollen production, spines on stems & buds. Found in disturbed dune.



Prickly Pear Cactus
Opuntia humifusa

Observations: Mid-height cacti shrub in disturbed dune areas and near parking lot. Broad, flat succulent leaves with spines. Yellow cup-shaped flowers.



Boat-tailed grackle (Male)
Quiscalus major

Observations: Ground-hopping black bird foraging in the dunes and picnic areas. Fanned tail, long pointed beak. Male black, brown/white females also present.



Sea Lettuce
Ulva spp.

Observations: Very small, lettuce-like algae growing on the rock outcrops in the tidal area.



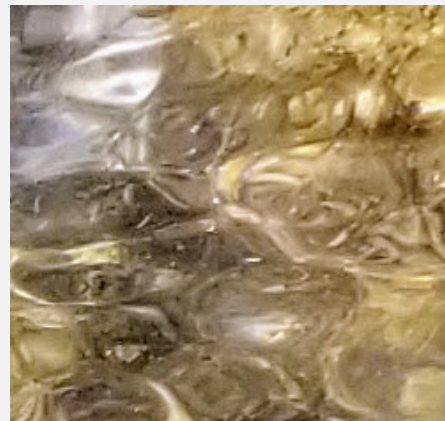
Gulfweed
Sargassum spp.

Observations: Macroalgae washed up into the tidal area. Brown-green with stem, leaves, and grape-like sacs.



“Sea Lice” / Thimble Jellyfish (larvae)
Linuche unguiculata ([Video](#))

Observations: Tiny, camouflaged creature that looks like a darting insect, burrowing in the sand.



Goby, possibly Tiger Goby
Gobiidae / Tigriobius macrodon

Observations: Tiny schools of transparent fish with vertical stripes, darting throughout tidal pool area.

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