Juno Dunes Natural Area

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The Juno Dunes Natural Area is an unassuming 569-acre preserve in Juno Beach, Florida, connecting the vast Atlantic Ocean to the Atlantic Intracoastal Waterway. This natural area was acquired with funding from Palm Beach County and State Preservation 2000 funding programs for the purpose of preserving, restoring, and managing the area's rare and endangered natural communities and local groundwater resources. Acquisition of the site, which opened in 2001, provides recreational activities for the public.

Historically, development in southeastern Florida razed coastal scrub habitats along the Atlantic Coastal Ridge. However, the Juno Dunes stand as a reminder of what the barrier islands and dune areas along Florida's east coast used to look like. Unfortunately, as with many natural areas in Florida, Juno Dunes is divided by a major road, US Highway 1 (see Figure 1). Yet, through conservation efforts, both the east and west tract contain a mix of handicap accessible walkways, board walks, and sandy trails that meander through diverse coastal scrub habitat, sawgrass wetland, and pine flatwoods, allowing us a window into this once-common Florida coastal habitat.

Many people drive by, unimpressed by the modest landscape they pass through. But these habitats contain well-drained, sandy soils and a vibrant, fire-dependent endangered plant community that supports a host of rare animal species, such as the Florida scrub jay and the gopher tortoise. Ultimately, it was the gopher tortoise that led me to this place. I began studying gopher tortoise conservation in Florida during my master's degree and continue this research in my Ph.D. program. These reptiles are a keystone species-and live in upland habitats where they burrow in well-drained soils. Gopher tortoise burrows provide over 360 different species protection from weather, fire, and predators. Mammals, reptiles, amphibians, insects and even birds are all known to use gopher tortoise burrows. Due to their important role in the ecosystem, Florida lists gopher tortoises as threatened. A threatened designation means gopher tortoises may not be in immediate danger of extinction, but the species populations are decreasing may become endangered if it is subjected to increased stress from further modification of its environment.

Figure 1. Map of the Juno Dunes Natural Area (provided by Google Earth).

Upon returning to my hometown of Jupiter, Florida for a visit, I was determined to visit the dunes. I knew gopher tortoises are found in coastal dune areas and vaguely remembered this natural area. So, on a sunny, warm December afternoon, I traveled to the preserve in hopes of spotting a gopher tortoise wandering around foraging, or at least seeing a burrow, proof of tortoise inhabitance. I parked on the east side of US 1 and wandered along the sandy trail into the coastal hammock. This area is flush with a barrage of plant life, providing shade from the hot sun. I took in the surroundings while weaving through the preserve. Slowly, I emerged from the hammock into dunes blanketed with saw palmetto. Sandy patches occasionally appear in the palmettos, and I stopped often to see if I could spot a gopher tortoise or burrow. While I didn't see a tortoise, I did discover an array of different scrub plants, such as jeweled blue-eyed grass, necklace pod, and sand live oak (Figure 2).

Figure 2. Plants native to the Juno Dunes Natural Area. Necklace pod (*Sophora tomentosa*) (left) and jeweled blue-eyed grass (*Sisyrinchium xerophyllum*) (right). Photos by author.

At some point, the sandy path becomes paved. The occasional butterfly fluttered by, and ants traveled across the path as I slowly made my way up a slight incline to the top of a dune where a pavilion sits. This is the highest natural point in Palm Beach County – a whooping 44 feet above sea level. There are some manmade off-trail paths weaving through the palmettos and I eagerly went to investigate. Maybe I would find a tortoise or a burrow, but instead, all I found was a dead end and scrapes along my legs.

I walked down from the highest point and made my way across US 1. Along the road are bright yellow gopher tortoise crossing signs. As it happens, the west side of the natural area is much larger (Figures 1 and 3). From here, one can follow the trails through coastal scrub and boardwalks across marshy wetlands west to the Atlantic Intracoastal Waterway. Wandering the sandy trails looking for tortoises, I came across some scrub jays hopping through the scrub's modest trees. While not the threatened species I was hoping to see, it is amazing to come across these rare Florida birds.

Figure 3. Trail on the west side of the natural area near where scrub jays can be seen. Photo by author.

As it got darker, I resigned myself to not seeing any tortoises and headed back towards the sound of cars, taking a slightly different path. Shortly, a sandy mound among the foliage emerged. I perked up, hoping it was the apron to a gopher tortoise burrow, and it was! The half-mooned shaped burrow entrance sat near some scrub oak and a patch of prickly pear cacti. The apron of the burrow was free of debris, kept clean by the resident tortoise. Finding this single burrow felt like a win. Even if there did not appear to be a tortoise nearby, a gopher tortoise was likely in that burrow.

The joy of finding signs of more-than-human life, within the scrub that makes the Juno Dunes Natural Area one of my favorite places in Florida. Not only does the area represent some of the last remaining undeveloped coastal dune habitat along the Atlantic Coastal Ridge, it also now reminds me of my own growth as a person, geographer, and researcher. Like many people, I used to view Florida's scrub habitat as bland and uninteresting. But studying the gopher tortoise and

learning more about the importance of upland ecosystems led me to appreciate the scrub's biological diversity. Today, I look forward to returning to the dunes.