

SITE SURVEY REPORT

SITE NAME: Emerald Island-Archers Creek Woods (Surfside Realty tract)

DATES VISITED: April 12, 2017

INVESTIGATORS: Mike Schafale

REPORT AUTHOR: Mike Schafale

DATE OF REPORT: April 2017

BACKGROUND INFORMATION/PURPOSE OF VISIT: I visited the tract in response to an application for Clean Water Management Trust Fund funding. The tract had apparently not been inventoried for natural heritage resources, and finding some would affect the scoring for funding.

OWNER: Surfside Realty

OWNER CONTACT + NOTES: Frank Rush of the Town of Emerald Isle showed me the accesses and trails within the tract.

COUNTY: Carteret

QUAD: Swansboro

LOCATION / ACCESS: The site is location at the headwaters of Archers Creek. It is north of Emerald Drive, a short way west of Lee Avenue. It is behind the town community center and maintenance facilities, across the street from the town office at 7509 Emerald Drive.

GENERAL DESCRIPTION: This site lies on stabilized old dunes in the interior of the barrier island. The uplands that make up most of the site support a Maritime Evergreen Forest natural community, dominated by a characteristic mix of loblolly pine and sand laurel oak. The forest is mature and in good condition, though it shows evidence of natural disturbance by hurricanes over the last several decades. A low-lying finger connected to Archers Creek contains wetland communities, including small areas of Tidal Freshwater Marsh (Sawgrass Subtype) and Tidal Freshwater Marsh (Threesquare Subtype), along with a more extensive area of marsh-edge Salt Shrub (High Subtype) dominated by wax-myrtle, silverling, marsh-elder, and red cedar.

SIGNIFICANCE OF SITE: R4/C5. The Maritime Evergreen Forest community is the defining element.

SPECIAL STATUS SPECIES: None known.

POTENTIAL FOR OTHER SPECIAL STATUS SPECIES: Low, but there is some potential for the rare species known elsewhere in the Emerald Isle/Bogue Banks maritime forests: spreading sandwort (*Arenaria lanuginosa* var. *lanuginosa*), four-angled flatsedge (*Cyperus tetragonus*), and the liverworts *Plagiochila miradorensis* var. *miradorensis* and *Lejeunea dimorphophylla*.

OTHER NOTEWORTHY SPECIES AND FEATURES:

SIZE: 29.53 acres in the Surfside Realty tract.

ELEVATION: 1-22 feet.

TOPOGRAPHY: Relict dunes, with irregular ridges and swales, dropping to a low-lying wetland.

HYDROLOGY AND MOISTURE: Dry-mesic to dry in the uplands, saturated and tidally flooded in the wetlands.

PRESENCE OF STREAMS AND SEEPS: Archers Creek is a tidal creek in the downstream part. The ditch in the upper part does not appear to be tidal.

GEOLOGY: Unconsolidated sands.

SOIL:

Fripp fine sand (Thermic uncoated Typic Quartzipsamment): Uplands, making up most of the tract.

Duckston fine sand (Siliceous, thermic Typic Psammaquent): Wetlands. The mucky soils observed some of the wetland do not seem to fit this series where it is mapped.

COMMENTS ON PHYSICAL DESCRIPTION:

NATURAL COMMUNITY DESCRIPTION

Maritime Evergreen Forest (Mid-Atlantic Subtype): Occupies all of the upland parts of the site. The canopy is dominated by loblolly pine (*Pinus taeda*) and sand laurel oak (*Quercus hemispherica*), with smaller numbers of live oak (*Quercus virginiana*) and a few large pignut hickory (*Carya glabra*). The understory includes swamp red bay (*Persea palustris*), American olive (*Cartrema americana*), American holly (*Ilex opaca*), Carolina laurel cherry (*Prunus caroliniana*), as well as canopy species. The open shrub layer is dominated by yaupon holly (*Ilex vomitoria*), but includes a few witch-hazel (*Hamamelis virginiana*) and American beauty berry (*Callicarpa americana*), as well as saplings of canopy and understory trees. Vines are fairly abundant though not dense, with poison ivy (*Toxicodendron radicans*), greenbriers (*Smilax bona-nox*, *Smilax smallii*), and Virginia creeper (*Parthenocissus quinquefolius*) abundant, and muscadine grape (*Muscadinia rotundifolia*), yellow jessamine (*Gelsemium sempervirens*), and supplejack (*Berchemia scandens*) present in small numbers. Herbs are sparse.

The forest is mature, though it shows the effects of intense hurricanes about 20 years ago. The old canopy trees are interspersed with gaps of up to an acre or two where understory-size trees predominate. Trees in the older canopy average about 12" dbh, and range from 10" to 18" or more, with loblolly pines the largest. Old logs, now nearly rotted away, show that these areas are the result of natural dynamics. The forest was not old-growth, and the abundance of pine and scarcity of live oak probably reflects past logging. Because of the dense understory in so much of the area, the shrub layer is not dense, and walking through the forest is easy.

A small area along the ditch opposite the town maintenance complex contains some sugarberry trees (*Celtis laevigata*). This species, in maritime sites, is generally associated with shell deposits and is not typical of Maritime Evergreen Forest. However, the associated canopy, understory, shrubs, and herbs are those found throughout the Maritime Evergreen Forest, and no

other calcium-loving species were seen.

Salt Shrub (High Subtype): At the upper (west) end of the marsh is a sizeable area of shrubby wetland on mucky soil. This community also extends as a narrow fringe along the edge of the marsh. Wax-myrtle (*Morella cerifera*) is the dominant shrub, with red bay, coastal red cedar (*Juniperus silicicola*), marsh-elder (*Iva frutescens*), and silverling (*Baccharis halimifolia*) present in smaller numbers. Poison ivy and American ampelopsis (*Nekemias arborea*) are present, though not dense. There is a dense herbaceous layer in much of this community. Abundant species include knotweeds (*Persicaria virginiana*), marsh goldenrod (*Solidago* sp.), and swamp dock (*Rumex verticillatus*). A few patches are dominated by cattail (*Typha latifolia*) or sawgrass (*Cladium jamaicense*). Other frequent species include camphorweed (*Pluchea* sp.), marsh pennywort (*Hydrocotyle verticillata/triradiata*), another knotweed species (*Persicaria punctata?*), tidal marsh obedient-plant (*Physostegia leptophylla*), and wand loosestrife (*Lythrum lineare*). This community appears to be in good condition through most of its extent. Its composition is not the most characteristic for Salt Shrub, in that wax-myrtle is dominant rather than silverling or marsh-elder.

Tidal Freshwater Marsh (Sawgrass Subtype): This is one of two subtypes that make up most of the open marsh finger. The two subtypes somewhat occur in a mosaic, but this one tends to be farther from the channel. Sawgrass is the dominant plant, and is dense enough in many parts to exclude most other plants. Associated species, where present, include marsh goldenrod, swamp dock, and tidal marsh obedient-plant, with wass three-square (*Schoenoplectus pungens*). The marshes here presumably are largely fresh or oligohaline water most of the time, due to rain water and ground water input. As is characteristic, they may receive salt water intrusion during major storms. This community appears to be in good condition, but the ditching of Archers Creek may have altered its hydrology. It is, in any case, too small in extent to be highly significant.

Tidal Freshwater Marsh (Threesquare Subtype): This subtype occurs closer to the channel. Threesquare dominates, but there is abundant salt grass (*Distichlis spicata*) in much of it. This subtype presumably is more salty than the Sawgrass Subtype, and salt may be concentrated by evaporation after salt water penetration. This community too is not large enough to be highly significant.

OTHER COMMUNITIES PRESENT: Salt Marsh is present along the Archer Creek channel where viewed from Lee Street, and a small amount may be present in the tract.

Within the ditch channel in the upstream part of the site are several aquatic and wetland plants not found elsewhere. These include swamp water pennywort (*Hydrocotyle ranunculoides*) and duckweed (*Lemna* or *Wolffia* sp.) in the water, and jewelweed (*Impatiens capensis*), cursed buttercup (*Ranunculus sceleratus*), and some of the invasive common chickweed (*Stellaria media*) along its banks.

ANIMAL HABITAT COMPONENTS

POOLS AND SEEPS: One dune swale was seen in the Maritime Forest that had no vegetation rooted in the bottom. It had not been flooded within the year, but maybe subject to a high water table.

ROCK DENNING SITES:

BIG TREES/LARGE CAVITIES:

SNAGS AND LOGS: Numerous logs, most about the same age, in fairly late stages of decomposition. A few snags, most of trees snapped off. These presumably mostly date to Hurricane Fran and Hurricane Bertha in 1996, though the forest is mature enough that a few new trees die regularly.

AQUATIC HABITAT FACTORS: Archers Creek presumably is tidally influenced, though the vegetation along it in most of the site suggests fresh or oligohaline water. Saltier water appears to extend beyond Lee Street, but not to the middle of this tract. There is an old ditch which feeds and possibly replaces the creek channel at the upper end. It runs along the edge of the tract next to the town maintenance facility, where it was observed to have flowing water and freshwater vegetation. The channel in this area is separated from the

SITE INTEGRITY

LAND USE IMPACTS: Frank Rush indicated that the Surfside Realty tract was intended for a subdivision in the 1960s, that lots were platted and roads cleared but not paved, before the project was abandoned. The road corridors, wide enough for two-lane roads, remain as trails, but most of their width has grown up in young loblolly pines. The land appears to have had no systematic use since that time, though there is evidence of campfires and visitation.

The site appears not to have had intensive use for some time before that. The abundance of pine and scarcity of live oak in the forest probably suggests logging longer ago, possibly harvest of live oak for ship joints, but the pine may also result from hurricane disturbance. The maturity of the older trees suggests no logging for many decades.

EXOTIC/WEEDY SPECIES: The only exotic species noted was *Stellaria media* in the ditch channel. Maritime forests are generally not very susceptible to exotic species invasion.

DIRECT HUMAN INTRUSION: Moderate. It appears that enough people visit the tract to keep trails open. Evidence of a campfire, and small amounts of litter, were present.

DISTURBANCE SENSITIVE SPECIES: None noted.

FIRE REGIME: No sign of fire. Natural fire may have occurred occasionally when the island was covered with continuous maritime forest.

ADJACENT LAND USE/OFFSITE STRESSES: The site is entirely surrounded by developed areas, with the exception of the marshes along Archers Creek. Houses abut the property line, and the town community center and maintenance facilities form a large clearing on the seaward site. The area probably has intrusion by pets from neighboring houses, as well as by people. The disrupted dunes and vegetation on the seaward has changed the salt spray patterns, though the vegetation structure appears to be in equilibrium with this.

RELATION/CONNECTION TO OTHER SITES AND HABITAT PATCHES: No connection to other natural areas.

DEGREE OF THREAT/POTENTIAL FOR CHANGE: Extreme. Much of the site is upland that could readily be developed. If unprotected, it appears likely to be bought for residential development soon. The town's proposal to retain 9 acres of the tract for recreational development would also be a serious threat to the natural integrity of the site, given the small size of the site.

BOUNDARY EXPLANTATION/JUSTIFICATION: The boundary is drawn to include the intact natural communities as the primary part of the site. This includes most of the tract, with the exception of several local disturbed areas. More altered areas are included as buffer where they intrude into the primary area or buffer Archers Creek and its tributary ditch.

RECOMMENDATIONS FOR PROTECTION: All of the natural area as drawn is recommended for protection, with the strongest protection needed on the primary areas. Though not as natural, the buffer areas along the creek and ditch need protection from disturbance to protect the water quality in Archers Creek. The upland buffer areas ideally would be protected also, but if facilities are needed, would be the best place to put them. The town is encouraged to use the land as a natural recreation area, with trails and small parking lots, but without facilities that would require large clearings or remove any of the intact maritime forest or wetlands.

MANAGEMENT RECOMMENDATIONS AND RESTORATION NEEDS: No special management appears to be needed, beyond protection from development and from vandalism. However, given the small size and isolation of the site, monitoring of the deer population and its impact would be a good idea. Excessive browsing may be a reason for action.

The proposed reserving of 9 acres for park development is a significant concern. Though development in the wetlands would be unacceptable, and protection of them is needed to protect the creek, the most significant feature of the site is the maritime forest. At 23 acres, it is a small example, but it is one of the few last remnants of the extensive forest that once covered the interior of Emerald Isle, and is one of the better remnants in this region of the coast. A loss of 9 acres would be a serious loss. If recreational development were to occur in the middle of the site, it would destroy virtually all of its ecological value, since the remnant would be a narrow ring. Development along the edge, adjacent to neighboring houses, would be less completely destructive, but would leave the remnant very diminished and reduce the natural area's significant rating.

NEED FOR FURTHER STUDY: Survey for rare animals and for the rare bryophytes would be worthwhile.

REFERENCES: No earlier reports known.

PLANT SPECIES OBSERVED:

THOROUGHNESS OF LIST: Moderate for wetlands due to early season; nearly complete for maritime forest.

F = Maritime Evergreen Forest (Mid-Atlantic Subtype)

M = Tidal Freshwater Marsh (Sawgrass Subtype)

3 = Tidal Freshwater Marsh (Threesquare Subtype)

S = Salt Shrub

c = Archer Creek

canopy

<i>Carya glabra</i>	F	c
<i>Celtis laevigata</i>	F	c
<i>Pinus taeda</i>	F	c
<i>Quercus hemispherica</i>	F	c
<i>Quercus virginiana</i>	F	c

understory

<i>Cartrema americana</i>	F	u
<i>Cornus florida</i>	F	u
<i>Ilex opaca</i>	F	u
<i>Juniperus silicicola</i>	F	u
<i>Nyssa sylvatica</i>	F	u
<i>Persea palustris</i>	F, S	u
<i>Prunus caroliniana</i>	F	u

shrubs

<i>Baccharis halimifolia</i>	S	s
<i>Callicarpa americana</i>	F	s
<i>Hamamelis virginiana</i>	F	s
<i>Hypericum hypericoides</i>	F	s
<i>Ilex vomitoria</i>	F	s
<i>Iva frutescens</i>	S	s
<i>Morella cerifera</i>	S	s
<i>Vaccinium formosum</i>	F	s

shrubs

<i>Baccharis halimifolia</i>	S	s
<i>Callicarpa americana</i>	F	s
<i>Hamamelis virginiana</i>	F	s
<i>Hypericum hypericoides</i>	F	s
<i>Ilex vomitoria</i>	F	s
<i>Iva frutescens</i>	S	s
<i>Morella cerifera</i>	S	s

Vaccinium formosum	F	s
vines		
Berchemia scandens	F	v
Gelsemium sempervirens	F	v
Muscadinia rotundifolia	F	v
Nekemias (Ampelopsis) arborea	S	v
Parthenocissus quinquefolia	F	v
Smilax bona-nox	F	v
Smilax smallii	F	v
Toxicodendron radicans	S, F	v
herbs		
Carex (joorii?)	c	h
Cladium jamaicense	M	h
Dichanthelium commutatum?	F	h
Dichanthelium sp.	F	h
Distichlis spicata?	3	h
Eupatorium capillifolium	F	h
Galium sp.	F	h
Hydrocotyle ranunculoides	c	h
Hydrocotyle verticillata/triradiata	S	h
Impatiens capensis	c	h
Lemna/Wolffia sp.	c	h
Lythrum lineare	S	h
Mitchella repens	F	h
Persicaria pensylvanica	S	h
Persicaria punctata?	S	h
Physostegia leptophylla	S, M, 3	h
Pluchea sp.	S	h
Pteridium aquilinum	F	h
Ranunculus sceleratus	c	h
Rumex verticillatus	S, M	h
Samolus parvulus	S	h
Schizachyrium littorale	F	h
Schoenoplectus pungens	3	h
Setaria magna	S	h
Sium suave	S	h
Solidago sp.	S, M	h
Stellaria media	c	h
Typha latifolia	S	h

ANIMAL SPECIES OBSERVED

Snapping turtle – one very large individual seen in the ditch near the western property corner.
Eastern glass lizard (*Ophisaurus ventralis*) – one individual seen in the maritime forest

Emerald Isle Archers Creek Natural area boundaries

-  primary
-  buffer



Emerald Isle Archers Creek Natural communities and surveyed areas

- Maritime Evergreen Forest
- Salt Shrub
- Threesquare Subtype
- Sawgrass Subtype

+ GPS points

--- survey track

