

PROTECTED SPECIES EVALUATION
PROPOSED RDA LIMESTONE MINE
August 28, 2017

I. Project Location and Description

Environs, LLC has completed a protected species evaluation for a proposed limestone mine in Williamsburg County, South Carolina. The project site is approximately 804 acres and is generally bound by Seaboard Road to the south and Wheeler Road to the east. Jumpin Run Road bisects the project site north to south from US Highway 521 to Seaboard Road. The project site is in the Black River drainage (8-Digit HUC-03040205) and lies within the Carolina Flatwoods (63h) eco-region at coordinates 33.484471° lat. and -79.633950° long. Figure 1 shows the site's location relative to a 7.7 minute geodetic map.

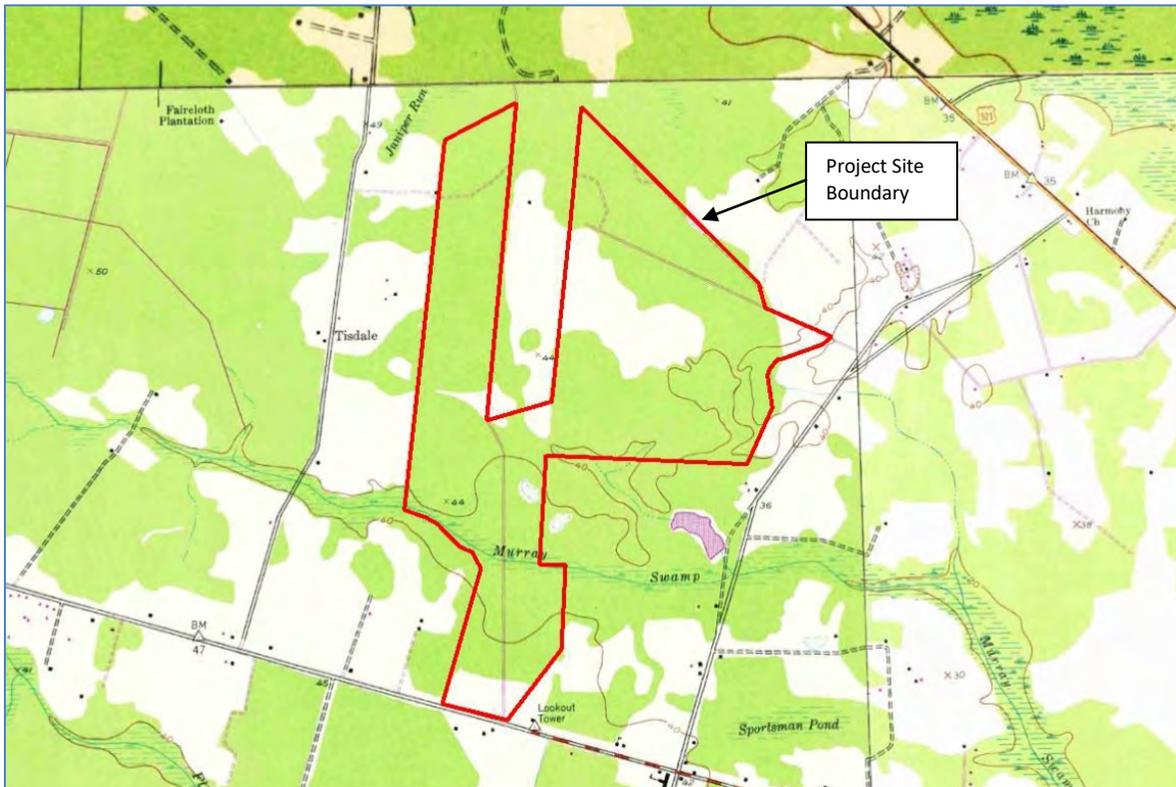


Figure 1. USGS Location Map

Historically, the site was been converted from piney flatwoods dominated by long-leaf pine to agriculture then into silviculture. As a result, much of the terrain has been altered, and potential habitat for most of the listed species has been significantly disturbed or eliminated. Further, unlike some managed pine plantations, this site has not been routinely burned for timber stand improvement or game bird habitat. Environs spoke with nearby landowners and

were told that prescribed burns have not occurred on the site since the mid-1990's. No evidence of recent fires or prescribed burning was noted during field investigations. No long-leaf pine species were found on the site and most of the planted pine is loblolly or slash species.

Murray Swamp flows west to east through the southern end of the site. Its floodplain contains a typical secondary successional bottomland hardwood (BLH) community but does not appear to have incurred channel alteration. Another BLH community exists along un-named tributary flowing north to south generally towards Murray Swamp forming the easternmost site boundary. Dozens of lime sink depressions occur throughout the site with mid-successional wetland communities. Only five of these wetlands have persistent standing water and depending, upon prior disturbances, all five are dominated by tupelo gum-cypress or red maple-sweetgum in the canopy with fetterbush, sweetbay magnolia, wax myrtle and red bay the dominant shrubs found along the margins of these depressions. Several of the smaller depression wetlands have been periodically disturbed by logging activities.

II. General Species Information

Enviroins obtained available protected species information for Williamsburg County through the U.S. Fish and Wildlife Service (USFWS) and the South Carolina Department of Natural Resources (SCDNR) on-line databases. We also conducted a literature review for the listed plant species including their Recovery Plans, Species Profiles and Five Year Review reports.

On May 9, 2017, we requested an initial consultation with USFWS to provide a list of protected species, critical habitat locations and proximity to refuges. An update to this report was requested on August 25, 2017. Copies of both reports are attached with this evaluation.

There are six species listed as federally protected in Williamsburg County: one bat, one fish, two birds and two plants. The federal Endangered Species Act requires that evaluation for these species be completed utilizing the most current information and accepted methods for projects that require federal action, such as permitting or funding. South Carolina lists one bird species and one bat species as endangered. The species investigated for this project include:

- Red-cockaded woodpecker, *Picoides borealis* – Endangered (federal and state);
- Wood stork, *Mycteria americana* – Threatened (federal);
- Rafinesque's big-eared bat, *Corynorhinus rafinesquii* - Endangered (state only)
- Northern long-eared bat, *Myotis septentrionalis* – Threatened (federal)
- Shortnose sturgeon, *Acipenser brevirostrum* – Endangered (federal);
- Canby's dropwort, *Oxypolis canbyii* – Endangered (federal); and,
- American chaffseed, *Schwalbea americana* – Endangered (federal).

The two bird species are known from the project's region but are specific to certain habitats, and their presence can be very apparent. Impact to these birds are unlikely due to lack of their required critical habitats in the planned mine permit area. Similarly, the shortnose sturgeon requires large freshwater streams and rivers, neither of which is located on the project site. While habitat for the two plant species has the possibility of occurrence, due to their rarity, it's unlikely they inhabit the project site.

The two bat species are uncommon woodland bats but with differing life habits in South Carolina. The northern long-eared bat is typically found in the mountains and interior highlands of the state. It hibernates almost exclusively in caves and then migrates to forests in the summer to roost in decaying trees and mature forest. The Rafinesque's big-eared bat's range is limited to the coastal plain where it hibernates and roosts in dilapidated buildings, bridge structures and old decaying trees. There are no caves on the project site and only one dilapidated building. Due to the extensive conversion and management of pine plantation on this project site, the forest habitats where either bat might roost, forage or raise young in the summer are limited to the larger extant wetland areas which will not be affected by the proposed mine.

Most of our field investigations have focused on the listed plants, particularly during their flowering periods and in areas of the project site that are most likely their preferred habitats. Environs is familiar with the Canby's dropwort habitat and identification from previous work in Dooly County, Georgia, where the Nature Conservancy and Georgia DNR protect and manage a small population within the Oakbin Pond Preserve. To support field identification of American chafseed, we inspected two of the four areas of its known occurrence near Stoney Run Branch in Williamsburg County. It was noted that these conservation areas were dominated by long-leaf pine and contained recent evidence of fire.

III. Species Evaluation and Field Survey Results

Since September of 2016 through August of 2017, Environs has been on-site numerous times conducting wetland assessments and evaluations for protected species and their habitats. Areas of possible territory and habitat were searched, but none of the species and very little preferred habitat was observed. The entire site has been disturbed by previous farming and logging activities, forcing out much of the endemic and rare wildlife and removing what viable habitat may have historically existed for most of the protected species.

The red-cockaded woodpecker (RCW), *Picoides borealis* is listed as endangered by USFWS and SCDNR. The greatest threat to the RCW is destruction and fragmentation of mature pine

forests. A RCW grows to about 8 inches in length. They are mostly black with white horizontal broken white stripes along the back. Adult males have a tiny patch of red feathers just behind the eye, but it's not displayed unless they are excited. Red-cockaded woodpeckers prefer a diet rich in ants, wood roaches, boring beetles, spiders and other invertebrates.

Unlike other woodpeckers, which typically nest in dead wood, RCW create nesting cavities in 60-80 year old living pines making their habitat very specific. Red-cockaded woodpeckers are cooperative breeders that roost in a cluster of family trees. Because of this, they are victims of isolation as well as habitat destruction and have little chance of finding suitable trees or mate if they leave their home territory. Based on our on-site investigations there are no clusters of 60-80 year old pine trees within the proposed mine area. The oldest clustered pines were no more than 30 years in age. Within the floodplain of Murray swamp there are a few scattered, older loblolly pine trees. These trees were closely inspected, and there were no red-cockaded woodpeckers or evidence of nesting cavities noted.

The wood stork, *Mycteria americana* is listed as endangered by the USFWS. The decline of the American wood stork population is due to the loss of suitable feeding and nesting habitat, predation and human disturbance of rookeries. Wood storks are large (33-44 in. in height), long-legged wading birds that use a variety of freshwater and estuarine wetlands for nesting, feeding, and roosting. The mostly white *M. americana* is the only true stork in the U.S. They primarily feed on fish, crayfish, and amphibians in fresh and brackish water.

Wood storks are colony nesters, and they require trees that are in standing water or on islands surrounded with water. There are some small isolated cypress domes in the property area, but none contain trees with large nests typical of a wood stork rookery. The disturbance by logging and lack of large areas of older growth swamp, as well as limited marsh type wetland, indicate that there is little, if any habitat suitable for wood stork roosting at the site. No wood storks have been noted on or flying near the project site.

The state listed Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) normally roosts (and raise young) in dilapidated buildings or tree cavities near water. They also hibernate in winter in similar structure. It is possible maternity roost trees or winter hibernacula are on the project site within older cypress or tupelo trees, but the proposed mine plan should not affect the wetland areas where those type trees occur. The isolated and small wetland areas that are proposed for impact have been evaluated, and no cavity trees were noted. The one dilapidated building is located on a portion of the project for future mine expansion. The building appears to be a barn or possibly a tobacco shed. Inspection of the building's interior revealed no evidence of use by any bat species.

The other bat species is the northern long-eared bat (*Myotis septentrionalis*). This bat's normal range is further north in the upstate but now extends to the coastal plain due to finding a lactating female and juveniles in Berkley County. They normally roost (and raise young) in tree cavities or tree crevices near water in the summer then migrate further north to hibernate in caves or mines. No caves and therefore winter hibernacula are located on the project site. It is possible there are maternity roost trees in older cypress or tupelo trees, but the proposed mine plan should not affect the wetland areas where those type trees occur. The isolated and small wetland areas that are proposed for impact have been evaluated, and no cavity trees were noted. Further, as a precautionary measure the mine owner/operator intends to follow the USFWS rule for prohibitive taking of the northern long eared bat, as published in the Federal Register from January 14, 2016:

For northern long-eared bats outside of hibernacula, we have established separate prohibitions from take for activities involving tree removal and activities that do not involve tree removal. Incidental take of northern long-eared bats outside of hibernacula resulting from activities other than tree removal is not prohibited. Incidental take resulting from tree removal is prohibited if it: (1) Occurs within a 0.25mile (0.4 kilometer) radius of known northern long-eared bat hibernacula; or(2) cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot (45-meter) radius from the known maternity tree during the pup season (June 1 through July 31).

To avoid affects to trees which might become utilized as maternity roosts in the future, no trees will be cut or removed from June 1 through July 31 within the area proposed for mining disturbance. The action may also help with conservation of Rafinesque's big-eared bat.

The short-nosed sturgeon is an ancient freshwater fish that mainly inhabits large coastal rivers and streams. It sometimes ventures into more brackish estuary streams and even saltwater bays, however it lives and spawns in freshwater for most of its long lived lifespan. In Williamsburg County, the primary habitat and occurrence range of this sturgeon will be the Black and Santee Rivers along with their estuaries and large direct tributary streams. The project site is the Black River watershed and Murray Swamp eventually flows into the river over eight river miles downstream. Future work in Murray Swamp may be the improvement of the Jumpin Run Road crossing which will have no effect on the sturgeon or its habitat.

Canby's dropwort is a perennial herb with erect, hollow stems, aromatic foliage and elongate, stoloniferous rhizomes. It has minute white flowers produced in terminal or axillary umbels.

The sepals may be tinged red. The fruit is a strongly-winged schizocarp. The species flowers from late May through early August and fruits in early fall.

This species occurs in pond cypress savannas, shallows and edges of cypress/pond pine sloughs, and wet pine savannas. The groundwater table must not be altered to maintain this species. Populations of Canby's dropwort that potentially occur on the project site would likely be located near pond cypress/swamp gum depressions with gaps in their canopies or in more open and emergent savannah wetlands with highly saturated soil or standing water conditions. Depressional wetlands and more open areas of bottomland wetlands were surveyed for suitable habitat and for individual specimens from May to August of 2017. No specimens were noted during the field surveys and habitat for the species was marginal at best.

American chaffseed is listed as endangered and is a perennial, erect herb in the figwort family (Scrophulariaceae). It grows to a height of 12 to 31 inches and has large, purplish-yellow tubular flowers. The fruit is a long and narrow capsule, enclosed in a sac like structure that provides the basis for chaffseed name. Flowering occurs from April to July.

American chaffseed occurs in sandy acidic, seasonally moist to dry soils. It typically occurs in fire-maintained ecosystems, such as the longleaf pine-wiregrass ecosystem of the southeastern coastal plain. American chaffseed requires fire for persistence and a continued threat to its existence is fire-suppression. While the majority of the site has been and is currently used for pine plantation, there is little on-site evidence to support recent management by prescribed burning method. The open margins of wetlands, previously logged depression wetlands and underneath powerline easements were surveyed for suitable habitat and for individual specimens from May to August of 2017. No specimens were noted during the field surveys and suitable habitat routinely maintained by fire is non-existent.

IV. Conclusions

Based on field surveys and knowledge of the listed species, it is Environs professional opinion that it is highly unlikely that the species currently listed for Williamsburg County or their critical habitat exist on the project site. Therefore, no affects to the listed species are expected as a result of developing a limestone mine on the project site.

V. Limitations

Results and opinions presented in this report are based on the evaluator's professional experience and knowledge of the Federal Endangered Species Act. No warranty is expressed or implied herein.

References

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