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Federally and State-Listed Species Report for the Kings Mountain Lithium Mine, Cleveland County, North Carolina

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PREPARED FOR

Albemarle U.S., Inc.

PREPARED BY

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FEDERALLY AND STATE-LISTED SPECIES REPORT FOR THE KINGS MOUNTAIN LITHIUM MINE, CLEVELAND COUNTY, NORTH CAROLINA

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1 INTRODUCTION

On behalf of Albemarle Corporation (Albemarle), SWCA Environmental Consultants (SWCA) has prepared an assessment of federally and state-listed species for the Kings Mountain Lithium Mining Project (Project) located in southeastern Cleveland County, North Carolina. This assessment addresses plant and animal species protected under the Endangered Species Act of 1973, as amended (ESA), as well as North Carolina state-listed species protected under Endangered and Threatened Wildlife and Wildlife Species of Special Concern of the State of North Carolina (North Carolina General Statutes 113-331). A desktop review in combination with field observations were used to determine the potential for listed plants and wildlife to occur in the Project area.

1.1 Location

The Project is on private land owned or leased by Albemarle and consists of approximately 1,403 acres (Project area). The Project is located approximately 2 miles south of downtown Kings Mountain, North Carolina, and is located on the U.S. Geological Survey (USGS) Kings Mountain, North Carolina, 7.5-minute quadrangle (Figure 1). The Project area is divided by Interstate-85 (I-85), with the main parcel on the north side of the highway and two smaller parcels on the south side of the highway. The main parcel is bordered by South Battleground Avenue (Highway 216), Parkgrace Road, and Tin Mine Road to the west; Quarry Road to the north; and I-85 to the south and east.

1.2 Project Area Description

The main parcel is mostly developed/disturbed and includes Albemarle's lithium salts and compound processing facility and Albemarle's Global Technical Center. The west side along South Battleground Avenue includes an active drive-in theater, remnants of a textile mill, old school building, and recreational vehicle campground. Five utility rights-of-way (ROWS) cross the northern and central portions of the parcel. The parcel directly south of I-85 is mostly undeveloped, but previously disturbed by mining. The Kings Mountain Gateway Trail goes around the northern and eastern boundaries of this parcel with an access point and parking area off Galilee Church Road. Additionally, three utility ROWs cross the parcel running northeast-southwest. The Albemarle East Property, east of York Road, is undeveloped with only a few unpaved roads for access. Undeveloped land in the three parcels consists primarily of upland forest and wetland habitats.

The Project area is surrounded by residential, commercial, and industrial development to the north, west, and south (Figure 2). The Martin Marietta mine borders the Project area to the north. To the east is primarily undeveloped land associated with Crowders Mountain State Park.

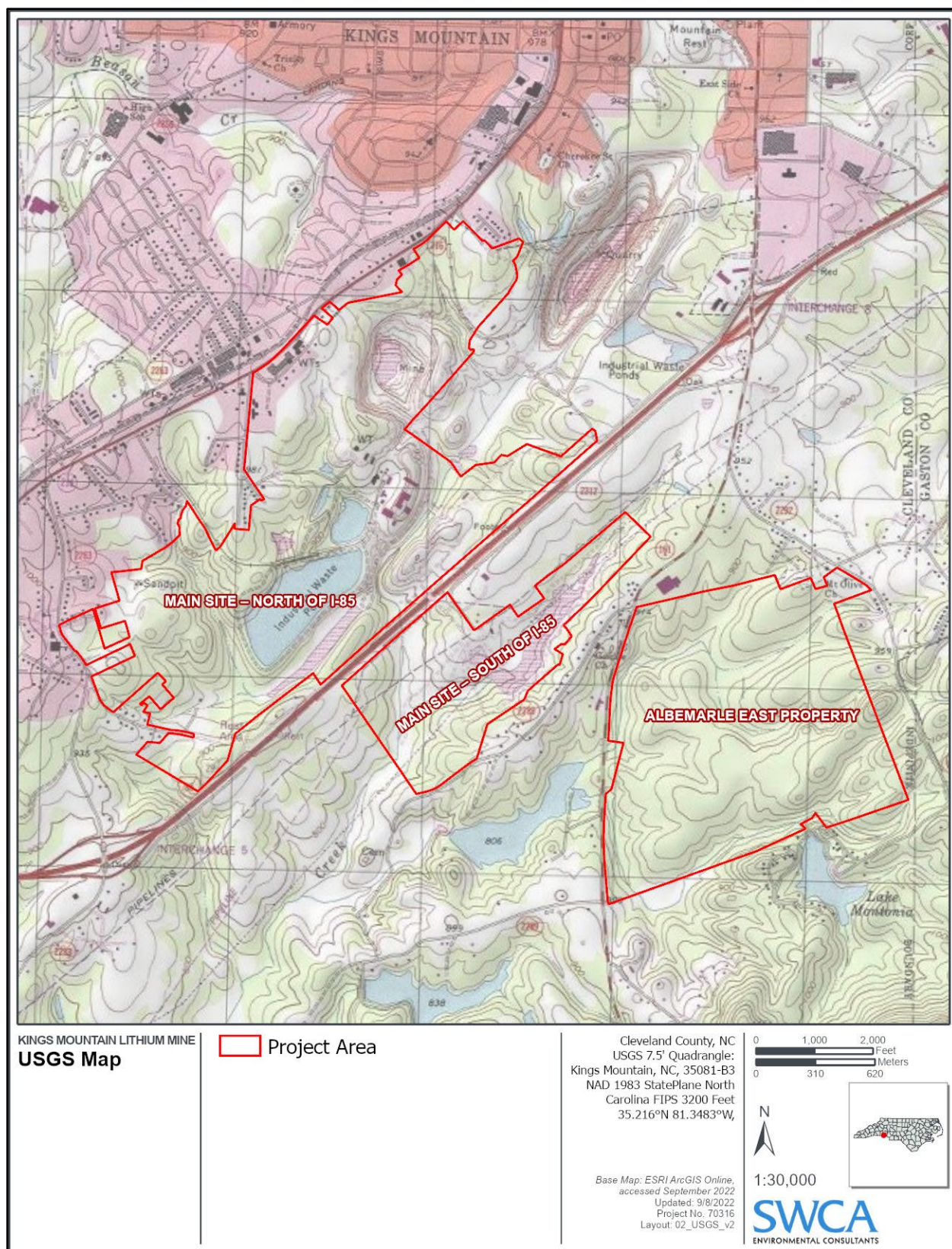


Figure 1. Project location.

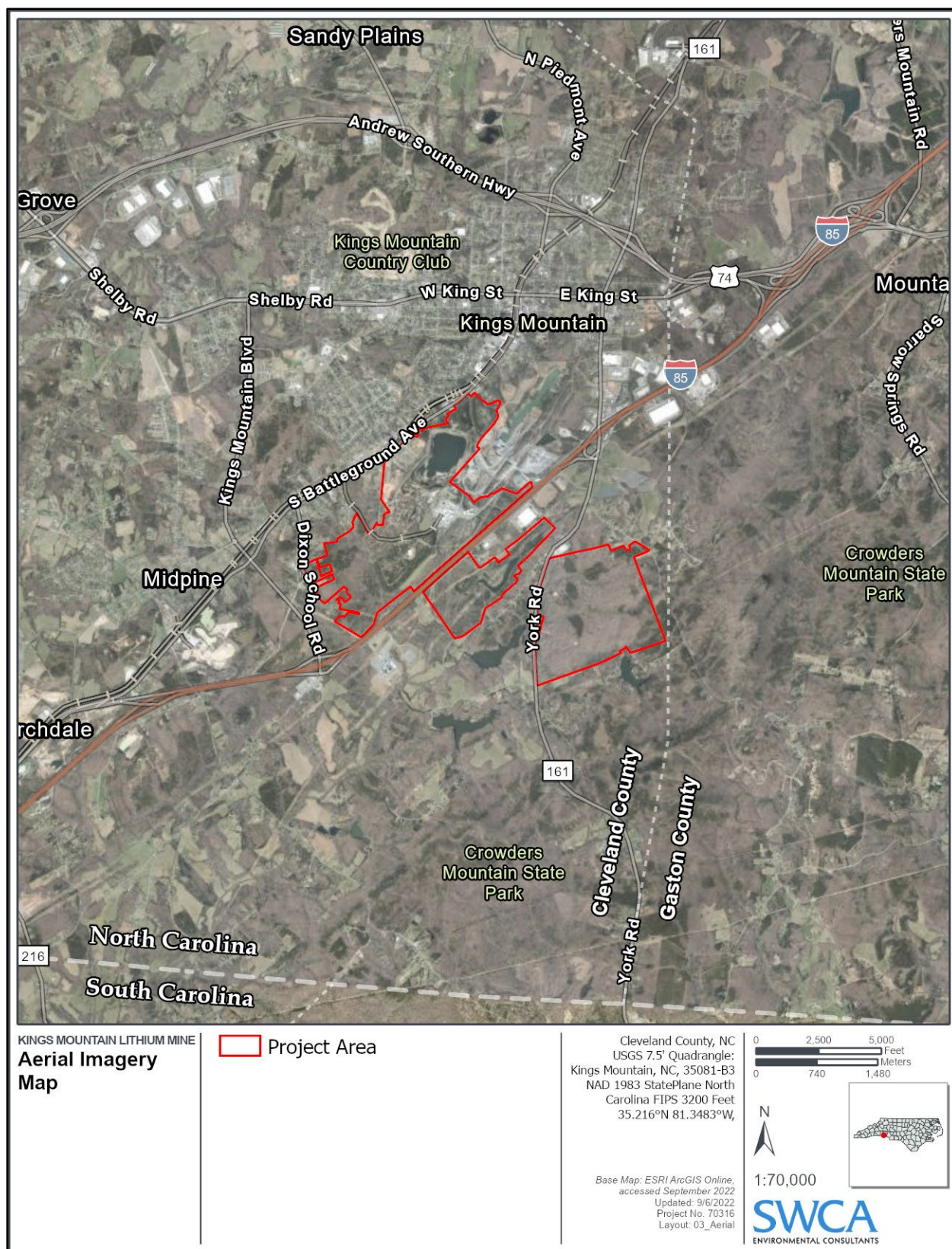


Figure 2. Aerial imagery of the Project area.

2 METHODS

The following categories were used to define the potential for protected species to occur:

- Very low: The Project area is outside the known range of the species or is within the range, but there is no suitable habitat or the species is historical.
- Low: The Project area is located within the known range of the species, but there is limited suitable habitat or the species has not been observed in the vicinity.
- Moderate: Known species' range includes the Project area, and suitable habitat is present.
- High: There are known species occurrences within the Project area.

2.1 Desktop Analysis

A preliminary desktop analysis was completed for the Project prior to field surveys by using a combination of existing information obtained from available public sources, including reports, published literature, online databases, and geographic information system (GIS) data. The following publicly available data sources were used to complete a desktop analysis.

- U.S. Geological Survey (USGS) National Land Cover Database (USGS 2019a)
- Natural Resources Conservation Service (NRCS) Web Soil Survey maps (NRCS 2022)
- USGS National Hydrology Dataset (USGS 2019b)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory maps (USFWS 2022a)
- USFWS list of threatened and endangered species within the Project area and county (USFWS 2022b, 2022c)
- North Carolina Natural Heritage Program (NCNHP) data and planning tools (NCNHP 2020, 2021, 2022a, 2022b)
- North Carolina Wildlife Resources Commission (NCWRC) state-listed species information (NCWRC 2022)

These sources were used to characterize the resources in the Project area and surrounding area.

2.2 Field Surveys

Several field surveys were completed by SWCA in spring and summer 2022, including a general field reconnaissance, comprehensive wetland delineation, migratory bird nest surveys, aquatic surveys, bat acoustic surveys, a monarch butterfly (*Danaus plexippus*) habitat assessment, and presence/absence surveys for the federally listed dwarf-flowered heartleaf (*Hexastylis naniflora*). Biologists covered most of the 1,403-acre Project area over approximately 40 days of various biological surveys and used information gathered on habitat conditions to assess the potential for listed species to occur.

3 RESULTS

3.1 Habitat

Factors such as elevation, soil type, and vegetation cover are taken into account when determining a species' potential to occur. Elevation in the Project area ranges from approximately 755 to 1,074 feet above mean sea level (amsl). The Project area generally drains towards lower elevations to the south. The highest elevation in the surrounding area is Crowders Mountain State Park, at approximately 1,700 feet amsl.

Eighteen mapped soil types are depicted within the Project area (NRCS 2022). Soils consist primarily of Udorthents, loamy, 0 to 15 percent slopes (27% of Project area); Uwharrie silt loam, 2 to 8 percent slopes (14% of Project area); Uwharrie-Tatum complex, 8 to 15 percent slopes (8.5% of Project area); and Tatum-Montonia complex, 15 to 30 percent slopes (6.3% of Project area). Most of the soils within the Project area are classified as well drained, and approximately 5.4% are considered hydric soils (NRCS 2022). Hydric soils are soils that are saturated or inundated with water long enough to have a higher likelihood of supporting wetland conditions (NRCS 2018).

The Project area is located within the Kings Creek (hydrologic unit code [HUC] 0305010509) and Buffalo Creek (HUC 0305010508) watersheds of the Broad River Basin (North Carolina Department of Environmental Quality 2022). The Broad River is located approximately 15 miles west-southwest of the Project area. Kings Creek, a tributary of the Broad River, runs through the Project area. SWCA scientists conducted a field investigation to delineate wetlands and waterbodies within the Project area in February and March 2022. SWCA biologists identified 60 wetlands (59.52 acres total), 80 waterways (67,940 linear feet total), and 12 waterbodies (ponds, lakes, mining pits). Details are provided in the wetland and waterbody delineation report (SWCA 2022a).

The landscape has been significantly altered on the main site parcels (both north and south of I-85) due to historic mining. Land cover maps (USGS 2019a) indicate the Project area consists primarily of deciduous forest, mixed forest, and evergreen forest with smaller portions of pasture/herbaceous, medium- to high-intensity development, open water (e.g., ponds, lakes, mining pits), and wetland habitats. Field surveys confirmed that most of these land-cover types are fairly accurate, and SWCA recorded dominate species within each habitat. Outside of developed areas and open water, habitat in the Project area falls into five major categories as described below.

3.1.1 Forested Upland

The forested upland community is the dominant habitat present in the Project area. Approximately 1,000 acres of forested uplands (i.e., deciduous, mixed, and evergreen forest) are present in the Project area. Dominant trees include American sweetgum (*Liquidambar styraciflua*), loblolly pine (*Pinus taeda*), tulip tree (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*), white oak (*Quercus alba*), red oak (*Quercus rubra*), mockernut hickory (*Carya tomentosa*), and chestnut oak (*Quercus montana*). Understory species commonly observed in the forested areas are flowering dogwood (*Cornus florida*), greenbrier (*Smilax* spp.), blackberry (*Rubus* spp.), spicebush (*Lindera benzoin*), and various successional hardwoods (oaks, hickories, sweetgum, maples). Many of the forests are secondary forests that have not been logged in the past 25 years, while some forests in the western and central portions were logged between 2006 and 2008.

3.1.2 Herbaceous Upland

The herbaceous upland and edge communities consist of non-wetland areas dominated by non-woody vegetation. Dominant herbaceous species include broom-sedge (*Andropogon virginicus*), wild garlic/onion (*Allium* spp.), Kentucky bluegrass (*Poa pratensis*), goldenrod (*Solidago* spp.), clover (*Trifolium* spp.), hemp dogbane (*Apocynum cannabinum*), Japanese honeysuckle (*Lonicera japonica*), American burnweed (*Erechtites hieraciifolia*), wild strawberry (*Fragaria virginiana*), and southern crabgrass (*Digitaria ciliaris*). Herbaceous uplands are found primarily within the maintained utilities ROWs. Approximately 100 acres of herbaceous uplands are present in the Project area.

3.1.3 Palustrine Emergent Wetland

The emergent wetland communities consist of a prevalence of hydrophytic non-woody vegetation less than 3 feet in height. Dominant herbaceous species include giant cane (*Arundinaria gigantea*), bushy bluestem (*Andropogon glomeratus*), lamp rush (*Juncus effusus*), cottongrass bulrush (*Scirpus cyperinus*), lesser poverty rush (*Juncus tenuis*), fowl bluegrass (*Poa palustris*), shallow sedge (*Carex lurida*), and goldenrod species. Based on delineations, approximately 6 acres of palustrine emergent wetlands are present in the Project area (SWCA 2022a).

3.1.4 Palustrine Forested Wetland

The forested wetland community consist of a prevalence of hydrophytic woody species over 20 feet tall. The tree strata are dominated by red maple, American sycamore (*Platanus occidentalis*), water oak (*Quercus nigra*), sugarberry (*Celtis laevigata*), American elm (*Ulmus americana*), and American sweetgum. Based on wetland delineations, approximately 43 acres of forested wetlands are present in the Project area (SWCA 2022a).

3.1.5 Palustrine Shrub-Scrub Wetland

The shrub-scrub wetland communities consist of a prevalence of hydrophytic woody vegetation less than 20 feet tall. The shrub-scrub strata are dominated by brookside alder (*Alnus serrulata*), American sycamore, black willow (*Salix nigra*), Chinese privet (*Ligustrum sinense*), and red maple. Based on delineations, approximately 10 acres of palustrine shrub-scrub wetlands are present in the Project area (SWCA 2022a).

3.2 Federally Listed Species

Species are designated by the USFWS as threatened, endangered, proposed, candidate, or under review under the ESA. Federally listed threatened and endangered species are protected from “take.” Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Two federally listed threatened species, one candidate, one proposed, and one species currently under review were identified in the USFWS Information for Planning and Consultation resource list (Appendix A) as having potential to occur in the Project area or vicinity (Table 1). Under the ESA, the USFWS can also propose and designate critical habitats for threatened or endangered species. There are no USFWS-designated critical habitats for federally listed species within the Project area (USFWS 2022b).

Table 1. USFWS Federally Listed Species with Potential to Occur within the Project Area

Common Name (Scientific Name)	Listed Status	Habitat	Potential to Occur within Project Area
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Threatened, with 4(d) rule; proposed endangered	Summer roosting in trees with loose bark over 3 inches in diameter, winters in caves, forages in forest understory.	Low; on edge of range and not detected during 2022 bat acoustic surveys.
Tricolored bat (<i>Perimyotis subflavus</i>)	Proposed endangered	During the spring, summer, and fall (i.e., non-hibernating seasons), it primarily roosts among live and dead leaf clusters of live or recently dead deciduous hardwood trees. During winter, it hibernates in caves, culverts, and abandoned water wells. Forages both in tree tops and closer to ground.	High; detected during 2022 bat acoustic surveys.
Little brown bat (<i>Myotis lucifugus</i>)	Under review	Roosts include trees, buildings, wood piles, and under rocks. Forages around water sources, forest edge.	Low; not detected during 2022 bat acoustic surveys.
Monarch butterfly (<i>Danaus plexippus</i>)	Candidate	Prairies, meadows, grasslands, and roadsides with milkweed (<i>Asclepias</i> spp.) and flowering plants.	Low; very limited suitable habitat along utility ROWs; individuals not identified during 2022 habitat surveys.
Dwarf-flowered heartleaf (<i>Hexastylis naniflora</i>)	Threatened	Acidic soils along bluffs and adjacent slopes, boggy areas next to streams and creek heads, and along slopes of nearby hillside and ravines. Endemic to upper Piedmont of North Carolina and South Carolina.	Low; suitable habitat observed; however, this species was not identified during presence/absence surveys in 2022.

Source: USFWS (2022b).

3.2.1 Northern Long-eared Bat

The range of the federally threatened northern long-eared bat (*Myotis septentrionalis*) extends throughout most of southern Canada and the eastern and Midwestern United States (excluding parts of the southeast United States); the species is primarily associated with North American forests (USFWS 2015). Foraging occurs over open fields near caves and forests where the bats roost (USFWS 2015). Caves and mines are used for winter hibernation, and the bats require very high humidity associated with selected hibernacula. After hibernation, the bats are found in wooded or semi-wooded habitats for the duration of the summer months. The northern long-eared bat utilizes crevices and loose bark on trees (≥ 3.0 inches in diameter at breast height) for roosting, although it is considered to be opportunistic (USFWS 2015). Northern long-eared bat populations are declining due primarily to white-nose syndrome.

The Project area is within the known range of the northern long-eared bat, a species currently listed as threatened under the ESA, with a 4(d) rule. The 4(d) rule allows tree clearing when not within 150 feet of known roosts and 0.25 mile of known hibernacula with no restrictions or survey requirement. USFWS has proposed to reclassify the species as endangered, and a final rule is expected in November 2022.

Northern long-eared bats are not likely to hibernate in the Project area because of the lack of suitable habitat (i.e., no caves or mines). Approximately 736 acres of suitable roosting habitat are within the Project area; however, the potential for occurrence of the northern long-eared bat is low since Kings Mountain is on the extreme southeastern edge of this species' range. In summer 2022, acoustic detectors were deployed at 15 locations within suitable roosting habitat, for a total of 99 detector nights, following the USFWS (2022d) Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines. Northern long-eared bat was not detected during the acoustic bat surveys (SWCA 2022b).

3.2.2 Tricolored Bat

Tricolored bats (*Perimyotis subflavus*) are on the decline from white-nose syndrome in North Carolina. Whereas they used to be common from the mountains to the coastal plain, they are now common only in patches and uncommon everywhere else. Some tricolored bats may migrate long distances, but most retreat to caves and mines to hibernate in winter. In the summer, tricolored bats can be found in a variety of habitats, from woodlands to small towns and farms, though usually not heavily populated areas. They may roost in trees or sometimes in old buildings, culverts, or tunnels. Tricolored bats roost in foliage of live trees and may form small maternity colonies during the pup-rearing season (North Carolina Bat Working Group 2013). The smallest bat in North America, the tricolored bat flies slowly in the evening to forage over openings, water, and farm fields.

Due to its decline from white-nose syndrome, tricolored bats are considered “rare or uncommon” in North Carolina. Tricolored bats have not been previously documented in Cleveland County; however, variable survey efforts are likely to contribute to lacking records (LeGrand et. al 2022; NCNHP 2022b). In September 2022, the USFWS proposed to list the tricolored bat as an endangered species in response to observed population declines resulting primarily from white-nose syndrome (Federal Register 87:56381). A final decision regarding the listing status of the species is expected in the fall of 2023. The tricolored bat was detected throughout the Project area during the acoustic bat surveys (SWCA 2022b).

3.2.3 Little Brown Bat

The little brown bat (*Myotis lucifugus*) has a widespread range in North America from Alaska-Canada boreal forests south through most of the contiguous United States and into central Mexico (USFWS 2022e). In the winter, little brown bats primarily hibernate in caves and cave-like structures. In summer, they can be found in trees, artificial structures, and bat houses, and under rocks and in piles of wood. Foraging habitat includes areas with streams and other bodies of water, particularly in woodlands near water.

This species was once abundant but has declined, particularly in eastern North America, due to white-nose syndrome. This species is also subject to mortality by turbines at wind energy facilities. The USFWS is currently reviewing the status of the little brown bat as a result of these described threats. The little brown bat was not detected during the acoustic bat surveys (SWCA 2022b).

3.2.4 Dwarf-Flowered Heartleaf

The federally threatened dwarf-flowered heartleaf is a perennial woodland herb generally found in acidic soils along bluffs and adjacent slopes, in boggy areas next to streams and creek heads, and along the slopes of nearby hillsides and ravines (USFWS 2017). This plant is usually associated with mountain laurel (*Kalmia latifolia*) or American pawpaw (*Asimina triloba*) (Krings et al. 2021). The flowering period is March 1 through May 31.

Approximately 100 acres of potentially suitable habitat for the dwarf-flowered heartleaf are present in the Project area consisting of forested slopes adjacent to stream sides. Most of the suitable habitat (87%) is on the Albemarle East Property. SWCA botanists conducted presence/absence surveys within potentially suitable habitat on May 2–5, 23, 24, 2022. Several populations of the little heartleaf (*Hexastylis minor*), a common *Hexastylis* species, were observed during the surveys. No dwarf-flowered heartleaf individuals were observed (SWCA 2022c).

3.2.5 Monarch Butterfly

The monarch butterfly is a candidate for listing across most of the United States and is known to occur within North Carolina during migration from its overwintering habitat in Mexico. The USFWS will decide whether the monarch butterfly should be listed under the ESA in 2024. Monarch breeding habitat includes agricultural fields; pastureland; prairie remnants; and urban and suburban residential gardens, trees, and roadsides. This species is highly dependent on the presence of milkweed (*Asclepias* spp.) for breeding and a diversity of flowering nectar plants for foraging (Monarch Joint Venture 2022; USFWS 2020, 2022f). Unsuitable habitat includes areas such as grasslands dominated by invasive grass species, or woody thickets too dense to support herbaceous flowering vegetation.

In spring and summer 2022, approximately 39 acres of potential monarch butterfly habitat were surveyed to assess the suitability of the habitat for monarch (SWCA 2022d). Surveys focused on utility ROWs that may provide open herbaceous habitat with nectar plants. Butterfly milkweed (*Asclepias tuberosa*) and common milkweed (*Asclepias syriaca*) were observed during summer surveys, but these host plants were generally uncommon with sparse distribution where observed. Many of the areas surveyed were densely populated with briars (*Rubus* spp.) and lacked the open, herbaceous habitat preferred by monarch butterflies. Overall, 25 acres were low quality and 13 acres were moderately suitable for monarch. Based on the data review and field reconnaissance, the potential for monarch butterflies to occur within the Project area is low due to the limited quantity and quality of the habitat. No monarch individuals were observed during 2022 spring and summer surveys.

There is a butterfly garden on the north side of the Project area along the Kings Mountain Gateway Trail. The garden was not part of the survey but is known to provide approximately 1 acre of suitable habitat for monarch butterflies.

3.3 State-Listed Species

3.3.1 Regulatory Background

In North Carolina, endangered, threatened, and special concern animals (referred to as “state-listed” for this report) are protected by the NCWRC via the North Carolina Endangered Species Act of 1987; and plants are legally protected by the North Carolina Plant Conservation Program via the North Carolina Plant Protection and Conservation Act of 1979. The Acts also state that they do not limit the rights of a landowner in the lawful management of his/her land. Generally, state-listed plants are protected from collection, selling, and poaching on private property without permission from the property owner and a permit from the North Carolina Department of Agriculture and Consumer Services. Overall, state-listed plants and animals receive little protection on private land if illegal development activities are avoided.

State endangered species are those determined by the NCWRC to be in jeopardy. State threatened species are likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. State special concern species are determined by the NCWRC to require monitoring but may be taken under adopted regulations. Significantly rare designations indicate rarity and need for population monitoring and conservation action. Significantly rare is a non-regulatory NCNHP designation, and species are not legally protected but have been included in the assessment below.

3.3.2 Species List

The list of state-listed species for Cleveland County was reviewed to assess whether the species have potential to occur in the Project area (Table 2) (NCNHP 2022a, 2022b). Five species are considered

historical in the county, which, according to NCNHP, are species either extirpated, that have not been found in recent surveys, or that have not been surveyed recently enough to be confident they are still present, but there is still some expectation that the species may be rediscovered. Occurrences are regarded as historical after 20 to 40 years depending on the species and the amount of habitat alteration in the area. A county status of “historical” in Table 2 should not be regarded as a definitive statement that the species is gone from the county but rather indicates that its continued existence is uncertain.

According to occurrence records provided by NCNHP (2022a, 2022b), no state-listed threatened, endangered, or special concern plant or animal species have been identified within the Project area (Appendix B). Five state-listed species have been observed within 1 mile of the Project area. Four of these species observations occurred within Crowder Mountain State Park (timber rattlesnake [*Crotalus horridus*], Carolina pygmy rattlesnake [*Sistrurus miliarius miliarius*], dwarf juniper [*Juniperus communis* var. *depressa*], and bear oak [*Quercus ilicifolia*]). The other species observed within 1 mile of the Project area, oldfield deermouse (*Peromyscus polionotus*), has not been recorded since 1977.

Table 2. State-listed Species for Cleveland County and their Potential to Occur

Common Name	Scientific Name	State Listing Status	County Status	Potential to Occur
Birds				
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	Current	Very low; lack of rivers and lakes
Loggerhead shrike	<i>Lanius ludovicianus</i>	Special Concern	Current	Low; lack of open lands
Barn owl	<i>Tyto alba</i>	Special Concern	Current	Low; lack of open lands
Mammal				
Oldfield deermouse	<i>Peromyscus polionotus</i>	Special Concern	Historical	Very low; last observed in 1977 and lack of habitat
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	Current	Low; on edge of range, not identified during 2022 bat acoustic surveys
Little brown bat	<i>Myotis lucifugus</i>	Significantly Rare	Current	Low; not detected during 2022 bat acoustic surveys
Reptile				
Timber rattlesnake	<i>Crotalus horridus</i>	Special Concern	Current	Moderate; recorded within 1 mile of Project and suitable habitat
Carolina pygmy rattlesnake	<i>Sistrurus miliarius miliarius</i>	Special Concern	Historical	Low; recorded within 1 mile in 1990, limited suitable habitat
Crustacean				
Carolina foothills crayfish	<i>Cambarus johnei</i>	Significantly Rare	Current	Low; not detected during 2022 aquatic surveys
Broad River stream crayfish	<i>Cambarus lenati</i>	Significantly Rare	Current	Low; not detected during 2022 aquatic surveys
Broad River spiny crayfish	<i>Cambarus spicatus</i>	Special Concern	Current	Low; not detected during 2022 aquatic surveys
Fish				
Carolina quillback	<i>Carpionodes</i> sp. cf. <i>cyprinus</i>	Significantly Rare	Current	Very low; not detected during 2022 aquatic surveys
Seagreen darter	<i>Etheostoma thalassinum</i>	Significantly Rare	Current	Low; not detected during 2022 aquatic surveys

Common Name	Scientific Name	State Listing Status	County Status	Potential to Occur
Mollusks				
Dwarf threetooth	<i>Triodopsis fulciden</i>	Special Concern	Current	Low; not known to occur in the vicinity
Plants				
American bittersweet	<i>Celastrus scandens</i>	Endangered	Current	Low; potential habitat observed, but not identified during presence/absence surveys
Smooth sunflower	<i>Helianthus laevigatus</i>	Special Concern - Vulnerable	Historical	Low; potential habitat observed, but not identified during presence/absence surveys
Dwarf-flowered heartleaf	<i>Hexastylis naniflora</i>	Threatened	Current	Low; potential habitat observed, but not identified during presence/absence surveys
Dwarf juniper	<i>Juniperus communis</i> var. <i>depressa</i>	Threatened	Current	Low; recorded within 1 mile but lack of suitable habitat
Rough blazing-star	<i>Liatris aspera</i>	Special Concern - Vulnerable	Historical	Low; no basic soils with high pH present
Spotted phacelia	<i>Phacelia maculata</i>	Endangered	Current	Low; lack of rivers, not near known occurrences
Dwarf chinquapin oak	<i>Quercus prinoides</i>	Endangered	Historical	Very low; lack of suitable rocky slope habitat, historical
Bear oak	<i>Quercus ilicifolia</i>	Endangered	Current	Low; recorded within 1 mile but not known in Cleveland County, lack of suitable habitat
Pursh's wild petunia	<i>Ruellia purshiana</i>	Special Concern – Vulnerable	Current	Very low; lack of suitable habitat, very rare in the southwestern Piedmont

Source: NCNHP (2022a, 2022b)

3.3.2.1 BALD EAGLE

The bald eagle (*Haliaeetus leucocephalus*) is one of the largest raptors in North America and was listed under the ESA until 2007. The eagle is still federally protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The bald eagle prefers habitat near lakes, large rivers, and shorelines of sounds and bays (NCWRC 2022). It perches and nests in tall, isolated trees. Nests can be up to 8 feet wide and 20 feet deep. Pairs often return to the same nest each year and layer new nest material over the old.

The bald eagle is not expected to nest or forage in the Project area due to a lack of the habitat required by this species. According to the NCWRC (personal communication, Clint Barden, Biologist, NCWRC, with Simon King, SWCA Environmental Consultants, July 29, 2022), the closest nesting pair was documented in 2021 at Moss Lake approximately 6.5 miles northwest of the Project area. Bald eagles may still be present, but the area was not surveyed in 2022. According to the eBird database, there are no records within the Project area and a low (0%–10%) frequency of reporting in the Kings Mountain area (eBird 2022). No eagles were observed during any of the spring and summer 2022 biological surveys. While bald eagles could occasionally fly over the Project area, there are no large waterbodies nearby that would attract them to the vicinity. Therefore, the bald eagle has a very low potential to occur.

3.3.2.2 LOGGERHEAD SHRIKE

The loggerhead shrike (*Lanius ludovicianus*) is a songbird that inhabits large open areas with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns (Cornell Lab of Ornithology 2019). They frequent agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, and cemeteries. Loggerhead shrikes are often seen along mowed roadsides with access to fence lines and utility poles, which they use for viewing prey when foraging. Populations are declining, likely due to changes in agricultural practices and the use of certain pesticides (NCWRC 2020)

The NCWRC (2022) states that this species can be “locally fairly common” in Cleveland County, likely due to the high amount of agricultural land in the county, where this species has open fields and fences to support its behavior. However, according to the eBird database, there are no records within the Project area and a low (0%–2%) frequency of reporting in the Kings Mountain area (eBird 2022). The Project area lacks open fields, and potential habitat is limited to the ROWs with open habitat for foraging and utility poles for perching. No loggerhead shrikes were observed during the spring and summer 2022 biological surveys. Therefore, this species is not expected to occur.

3.3.2.3 BARN OWL

Barn owls (*Lanius ludovicianus*) generally occur in open country areas with farmland and where there are barns or abandoned buildings for nesting (Cornell Lab of Ornithology 2019; NCWRC 2022). They also nest in woodland areas or within city limits where there are good open areas for foraging, although this is less typical. This species likely occurs in parts of Cleveland County with high amounts of agricultural land. The recent population decline is attributed to habitat loss due to changes from agriculture and open land to urban developed land.

According to the eBird database, there are no records within the Project area and a low (0%–2%) frequency of reporting in the Kings Mountain area (eBird 2022). The Project area lacks large open areas for hunting. Nest in forested or urban habitats near their hunting grounds. The Project area is largely forested, and the open areas that do exist are mainly disturbed areas associated with the mine. No barn owls observed during spring and summer 2022 biological surveys; however, this species is mostly active at night. Overall, the barn owl has a low potential to occur.

3.3.2.4 OLDFIELD DEERMOUSE

The oldfield deermouse is a burrowing species that strongly favors sandy soils in brushy and weedy grasslands and fields (LeGrand et al. 2022). This species can occur along the sandy borders of cultivated fields, as well as overgrown sites. The deermouse tends to avoid wet habitats and forests. The oldfield deermouse can be locally common in South Carolina but is rare in North Carolina.

According to the Cleveland County inventory, this rare species has been confirmed only from Rutherford County and from evidence of its distinctive mounds along the median of I-85 in southeastern Cleveland County in 1977 (NCNHP 2003, 2022a). The Project area lacks the grasslands and weedy fields with sandy soils preferred by this mouse. Due to its historic status and lack of suitable habitat in the Project area, the oldfield deermouse is not expected to be present. No species-specific surveys were conducted.

3.3.2.5 NORTHERN LONG-EARED BAT

See Section 3.2.1.

3.3.2.6 LITTLE BROWN BAT

See Section 3.2.3.

3.3.2.7 TIMBER RATTLESNAKE

The timber rattlesnake is a large venomous snake that feeds on rodents and birds. Most timber rattlesnakes rely on their camouflage for protection and are reluctant to rattle or bite (NC Partners in Amphibian and Reptile Conservation 2022). In North Carolina, this snake is most common in the mountains and the Coastal Plain. Their populations are declining due to agriculture and development. Timber rattlesnakes are often found in wooded rocky hillsides or in mature hardwood forests with many downed logs and a layer of leaves and humus. This species is difficult to observe in the field due to its secretive nature, strong camouflage abilities, and generalized habitat.

Timber rattlesnake has not been recorded in the Project area but was observed within 1 mile at Crowders Mountain State Park in 2019 (NCNHP 2003, 2022b). The state park contains suitable timber rattlesnake habitat, including numerous rock outcroppings with surrounding forests, which is not found in the Project area. Based on habitat suitability, there is a moderate potential for this snake to occur on the Albemarle East Property and a low potential on the main parcel. The Project area generally lacks the predictive areas to locate this species such as exposed rock outcroppings with surrounding mature forests. No timber rattlesnakes were observed during the spring, summer, or fall 2022 biological surveys that included a diversity of habitats such as mature forests and floodplains. However, species-specific presence/absence surveys were not conducted because the secretive nature of the species makes the snake difficult to detect, likely leading to inconclusive results.

3.3.2.8 CAROLINA PYGMY RATTLESNAKE

The Carolina pygmy rattlesnake is the smallest species of rattlesnake in the United States. In North Carolina, this snake is found in pine flatwoods, pine/oak sandhills, and other pine/oak forests in the southeastern Coastal Plain and Sandhills (NC Partners in Amphibian and Reptile Conservation 2022). The Carolina pygmy rattlesnake is very rare in the Piedmont but has been observed on dry, rocky locations in the Crowders Mountain/Kings Mountain area.

The Project area generally lacks the dry, rocky habitat that this species is known to use in the Piedmont. The Albemarle East Property is close to historic (1990s) observations at Crowders Mountain State Park, but dry rocky habitat, steep slopes, and higher elevations are very limited. There is a low potential for this snake to occur on portions of the Albemarle East Property, but it is not expected to occur on the main parcel. No Carolina pygmy rattlesnakes were observed during the spring, summer, or fall 2022 biological surveys; however, no species-specific surveys were conducted.

3.3.2.9 CAROLINA FOOTHILLS CRAYFISH

The Carolina foothills crayfish (*Cambarus johnei*) is known only from headwater streams in the Yadkin-Pee Dee, Catawba, and Broad River basins of the Blue Ridge Foothills and Upper Piedmont Plateau (NCWRC 2022). Streams are typically 3 to 4 meters wide with sandy substrates, beneath undercut banks, and in leaf packs and root wads. Threat and trends have not been assessed, but the species' wide range is indicative of a secure status for a state endemic (NatureServe 2022).

The upper reaches of Kings Creek and South Creek and larger streams on the Albemarle East Property have potential suitable habitat. However, both Kings Creek and South Creek have upstream industrial or residential development, which generally reduces crayfish diversity abundance (NatureServe 2022). This

species was not found within Kings Creek or other waterbodies surveyed during the 2022 aquatic assessment (SWCA 2022e).

3.3.2.10 BROAD RIVER STREAM CRAYFISH

The Broad River stream crayfish (*Cambarus lenati*) occurs in small to medium streams in the Broad River drainage. This species is found only in the headwaters of the First Broad River subdrainage, which is in the northern portion of the river basin (NCNHP 2003; NCWRC 2022). It is not known to occur in the Kings Creek subdrainage. This species was not found within Kings Creek or other waterbodies surveyed during the 2022 aquatic assessment (SWCA 2022e).

3.3.2.11 BROAD RIVER SPINY CRAYFISH

The Broad River spiny crayfish (*Cambarus spicatus*) occurs in small to medium streams with debris in the channel and along margins (NCWRC 2022). It is known to occur in the First Broad River and North Pacolet subdrainages of the Broad River drainage, which are west of the Project area (NCNHP 2003; NCWRC 2022). It is not known to occur in the Kings Creek subdrainage. This species was not found within Kings Creek or other waterbodies surveyed during the 2022 aquatic assessment (SWCA 2022e).

3.3.2.12 CAROLINA QUILLBACK

The Carolina quillback (*Carpionodes cyprinus*) is restricted to the Broad, Catawba, and Yadkin River basins. This species is found in warm, low- to moderate-gradient reaches of most major rivers, including upper portions of associated reservoirs (South Carolina Department of Natural Resources 2015a). The Project area lacks the large, deep, and slow-moving streams and rivers preferred by this species, and therefore, this species is not expected to be present. This species was not found within Kings Creek or other waterbodies surveyed during the 2022 aquatic assessment (SWCA 2022e).

3.3.2.13 SEAGREEN DARTER

The seagreen darter (*Etheostoma thalassinum*) is endemic to North Carolina and South Carolina and is restricted to the Broad and Catawba River basins. This species is found in rock, rubble, or gravel riffles in large creeks and rivers with moderate to swift currents (South Carolina Department of Natural Resources 2015b). Within the Project area, this species has a low potential to occur in the upper portions of Kings Creek and South Creek, as well as a few of the larger streams on the Albemarle East Property. This species was not found within Kings Creek or other waterbodies surveyed during the 2022 aquatic assessment (SWCA 2022e).

3.3.2.14 DWARF THREETOOTH

The dwarf threetooth (*Triodopsis fulciden*) is a small terrestrial snail species. It is endemic to North Carolina in the southwestern Piedmont in Burke, Catawba, Cleveland, and Lincoln Counties (NatureServe 2022). There is little information available about this species due to lack of research. Based on the very broadly defined habitat (NCNHP 2020), suitable habitat is potentially present in the more dense, moist forests along South Creek and on the Albemarle East Property. No species-specific surveys were conducted due to lack of information on this species.

3.3.2.15 AMERICAN BITTERSWEET

American bittersweet (*Celastrus scandens*) is a high-climbing or sprawling woody vine reaching 30 feet. Habitat includes woodlands, stream banks, rocky hillsides, thickets, fence rows, and roadsides. In North

Carolina, the species is typically only found on moist slopes with rich soils over mafic rocks in mesic and rich cove forests. Mafic rocks are igneous rocks with a high content of magnesium, iron, and often calcium that typically weather into deeper, higher-pH (less acidic) soils that can be rich and productive (US Forest Service 2022). It generally does not grow along forested borders where the invasive Asiatic bittersweet (*C. orbiculatus*) grows. The native American bittersweet is being replaced in the northeastern United States by the more aggressive Asiatic bittersweet, which has escaped from cultivation (University of Texas 2012). Potentially suitable habitat is present along sloped areas adjacent to streams on the Albemarle East Property and along the upper portions of South Creek and a tributary on the main parcel. The flowering period is May through June, but this plant can be identified by its showy scarlet fruit in the fall.

Between October 24-28, 2022, SWCA biologists conducted surveys to confirm the presence or absence of American bittersweet in potential suitable habitat (Appendix C, Figure 1). No American bittersweet was observed within the 79.3-acre survey area. The invasive Asiatic bittersweet was observed along some forested edges of the Gateway Trail on the Albemarle Main Site – South of I-85 property. The bittersweet observed had five or greater seeds per fruit, broadly obovate leaves, and fruits scattered along the branches, which are all characteristics of Asiatic bittersweet, not American bittersweet (LeGrand et al. 2022; USGS 2007). Based on the surveys, it is unlikely the American bittersweet is present within the Project area.

3.3.2.16 SMOOTH SUNFLOWER

Smooth sunflower (*Helianthus laevigatus*) occurs locally in Maryland, West Virginia, Virginia, western North Carolina, and northern South Carolina. Although smooth sunflower has a somewhat restricted range, it is abundant in glades, barrens, and along roadsides within that range, especially in Virginia (NatureServe 2022). In North Carolina and South Carolina, all occurrences are in disturbed areas on slate-derived soils. The principal threats to this species are fire suppression, succession to woody species, and invasion by exotic plant species. Other threats include development, herbicide use, and mowing during the flowering and growing seasons. This sunflower has a potential to occur in suitable habitat along woodland edges and within the existing ROWs. This plant grows up to 7 feet tall and flowers August through November.

Between October 24-28, 2022, SWCA biologists conducted surveys to confirm the presence or absence of smooth sunflower in potential suitable habitat (Appendix C, Figure 1). Habitats surveyed included both open and dense ROWs, and open areas adjacent to on-site roads and the Gateway Trail. No smooth sunflower individuals were observed within the 68.7-acre survey area. Another *Helianthus* species, the small wood sunflower (*Helianthus microcephalus*) was observed in a few areas within ROWs and along the edges of the Gateway Trail. The observed *Helianthus* species had longer leaf stalks (> 1 cm, typically 1-3 cm) and lacked the typical “rubbery” texture of *H. laevigatus* (LeGrand et al. 2022). Based on the surveys, it is unlikely the smooth sunflower is present within the Project area.

3.3.2.17 DWARF-FLOWERED HEARTLEAF

See Section 3.2.4.

3.3.2.18 DWARF JUNIPER

The dwarf juniper (*Juniper communis*) is a low-spreading, evergreen shrub, with bluish berry-like fruits and no flowers. This species is widely distributed throughout the United States; however, it is rare and local in the southwestern Piedmont, where it occurs only in a restricted set of habitats (very dry west-facing slopes). The variety in North Carolina (*Juniper communis* var. *depressa*) is found in thin,

rocky soils on slopes around granitic domes and rocky summits (LeGrand et al. 2022). Dwarf juniper is susceptible to juniper blight.

Dwarf juniper was recorded within 1 mile of the Project area at Crowder Mountain State Park in 2003 and 2018 (NCNHP 2022a, 2022b). This is one of only three populations known in the state (NCNHP 2003). The Project area lacks the required rocky slope habitat, and this species is not expected to be present in the Project area. No species-specific surveys were conducted due to lack of suitable habitat.

3.3.2.19 ROUGH BLAZING-STAR

Rough blazing-star (*Liatris aspera*) is found in dry soil of prairies and plains, openings in rocky woodlands, and along power lines and roadsides through these habitats. This species prefers basic soils with high pH (LeGrand et al. 2022). This flower is rare in the southwestern Piedmont. It is found in dry and often rocky places in the southwestern part of the state (LeGrand et al. 2022). All recorded occurrences in Cleveland County are either extirpated, have not been found in recent surveys, or have not been surveyed recently enough to be confident they are still present. Rough blazing-star has lavender flowers August through September and fruits starting early October.

The Project area contains acidic soils (NRCS 2022), which are unlikely to support this species. The Project area also generally lacks open, dry habitats. Therefore, rough blazing-star is not expected to be present. No species-specific surveys were conducted due to lack of suitable habitat.

3.3.2.20 SPOTTED PHACELIA

The spotted phacelia (*Phacelia maculata*) is an annual herb found in granite flatrocks and bottomland openings that flowers in April. The spotted phacelia is moderately widespread from south-central North Carolina south to Georgia and west to Mississippi. It is most abundant in the southwestern part of its range and very rare in North Carolina (NatureServe 2022). There are only two known occurrences in North Carolina along a river in Cleveland County, where it occurs in openings in bottomland forests (LeGrand et al. 2022). The source does not state which river it is located along; however, there are no rivers within the nearby Project vicinity. This plant is not expected to be present in the Project area as it is considered very rare and there is a lack of suitable habitat. No species-specific surveys were conducted due to lack of suitable habitat.

3.3.2.21 DWARF CHINQUAPIN OAK

The dwarf chinquapin oak (*Quercus prinoides*) is a deciduous shrub, typically 5 to 6 feet tall (LeGrand et al. 2022). It grows in dry or mesic edge or opening habitat in acidic soils. Most records are from dry acidic slopes with openings or other early succession vegetation, often with rocky areas. This species is very rare and strongly declining in the Piedmont. Declines are likely due to fire suppression. All recorded occurrences in the county are from the 1950s, and this species has not been found in recent surveys (NCNHP 2003). Therefore, it is considered historic in Cleveland County. The Project area lacks rocky slopes, and dwarf chinquapin oak is not expected to be present. No species-specific surveys were conducted due to lack of suitable habitat.

3.3.2.22 BEAR OAK

Bear oak is a small deciduous tree, typically only reaching 15 to 20 feet tall. These trees are typically found as scattered individuals or very small stands (LeGrand et al. 2022). In North Carolina it is restricted to thin, dry, acidic soils near the highest elevations of a ridge or mountain. Bear oak is not known to occur in Cleveland County but has been recorded within 1 mile at higher elevations in Crowder Mountain State

Park in 2003 (NCNHP 2022a, 2022b). The populations in the park are experiencing shading from competing vegetation leading to declines from competition with other woody species (NCNHP 2003). The Project area lacks suitable rocky outcrop, mountainous habitat, and bear oak is not expected to be present in the Project area. According to LeGrand et al. (2022), it is unlikely new sites will be discovered for this species. No species-specific surveys were conducted due to lack of suitable habitat.

3.3.2.23 PURSH'S WILD PETUNIA

Pursh's wild petunia (*Ruellia purshiana*) is a perennial herb restricted to dry to somewhat mesic, high-pH soil in partly shaded conditions (LeGrand et al. 2022). It favors glades and barrens, woodland borders, open woods, and other similar sites. In the Piedmont, this species blooms in May. There are disturbed areas on the main site north of I-85 that are relatively similar to the barren, open forest habitat preferred by this species. However, based on field observation of that area, it would be unlikely to support this plant. Soils within the Project area are acidic, ranging from 4.6 to 6.2 pH (NRCS 2022). Therefore, this species is not expected to be present in the Project area. No species-specific surveys were conducted due to lack of suitable habitat.

4 SUMMARY AND CONCLUSIONS

No federally listed species have been identified within the Project area. The northern long-eared bat was not detected during acoustic surveys, and the site is on the extreme southeastern edge of its range. Although suitable habitat is present, the dwarf-flowered heartleaf was not identified during presence/absence surveys. The limited potential monarch butterfly habitat within the Project area is mostly low quality and there is very little milkweed present to support this species. Tricolored bat was detected throughout the Project area during acoustic surveys. This bat is not state or federally listed, but the USFWS has proposed listing this species as endangered under the ESA.

Timber rattlesnake, American bittersweet, and smooth sunflower are state-listed species that have potential to occur based on suitable habitat. However, surveys did not find American bittersweet or smooth sunflower to be present. Surveys were not conducted for timber rattlesnake due to the lack of predictive survey areas within the Project area (e.g., rock outcrops) and the secretive nature of the species. However, numerous biological surveys were conducted throughout a diversity of habitats (e.g., forests, floodplains) in the Project area during the spring, summer, and fall of 2022, and no timber rattlesnakes were observed. Additionally, the most suitable habitat for timber rattlesnake is on the Albemarle East Property, which is expected to remain relatively undeveloped. Therefore, it is unlikely for this species to be encountered during Project activities. All other state-listed species have a low or very low potential to occur, primarily due to lack of suitable habitat.

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APPENDIX A

USFWS IPaC List

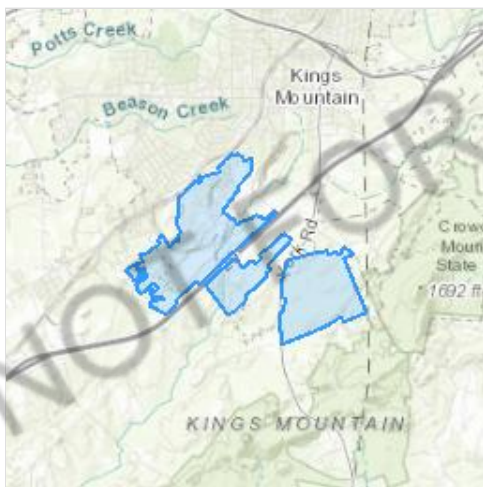
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Cleveland County, North Carolina



Local office

Asheville Ecological Services Field Office

☎ (828) 258-3939

📠 (828) 258-5330

160 Zillicoa Street
Asheville, NC 28801-1082

<http://www.fws.gov/nc-es/es/countyfr.html>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
 2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Dwarf-flowered Heartleaf <i>Hexastylis naniflora</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2458	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the [FAQ below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

Breeds Sep 1 to Jul 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Eastern Whip-poor-will *Antrostomus vociferus*

Breeds May 1 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Kentucky Warbler *Oporornis formosus*

Breeds Apr 20 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prairie Warbler *Dendroica discolor*

Breeds May 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prothonotary Warbler *Protonotaria citrea*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wood Thrush *Hylocichla mustelina*

Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

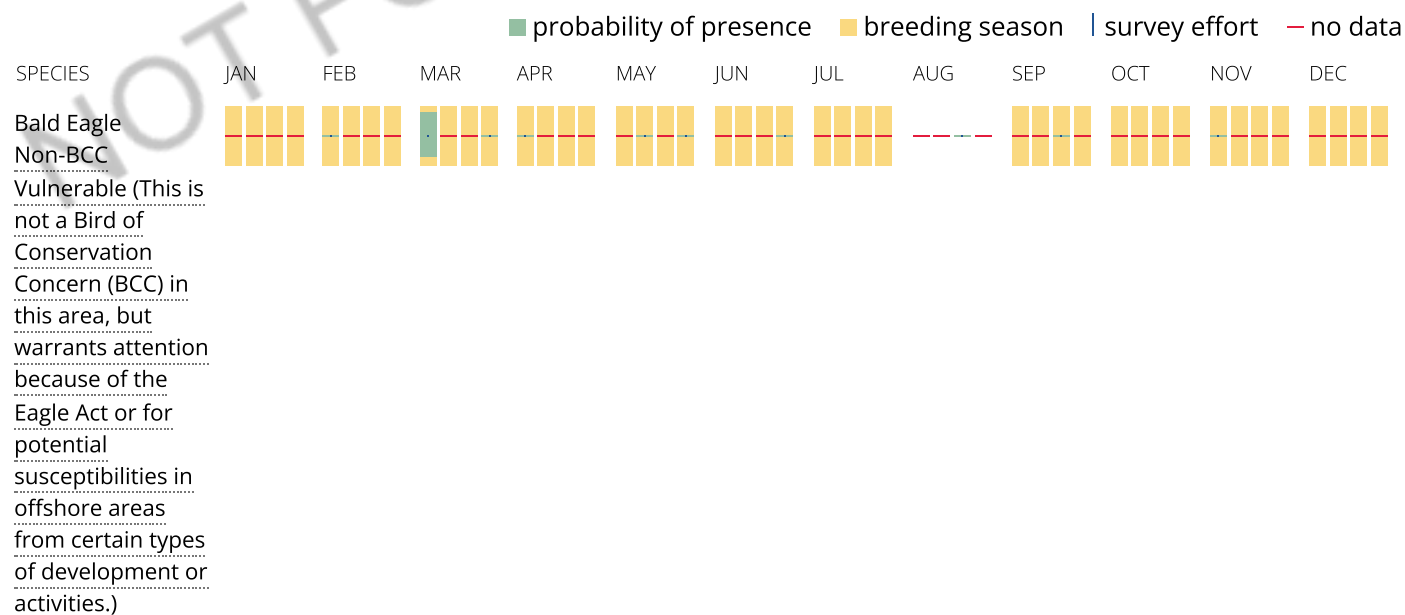
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Wood Thrush
BCC Rangewide
(CON) (This is a
Bird of
Conservation
Concern (BCC)
throughout its
range in the
continental USA
and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds](#)

[guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid

or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted.

Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX B
NCNHP Report



Roy Cooper, Governor

D. Reid Wilson, Secretary

Misty Buchanan
Deputy Director, Natural Heritage Program

NCNHDE-17108

February 9, 2022

Simon King
SWCA Environmental Consultants
4001 Winecott Drive
Apex, NC 27502
RE: Albemarle Main Boundary; 00070316-000-RDU

Dear Simon King:

The North Carolina Natural Heritage Program (NCNHP) appreciates the opportunity to provide information about natural heritage resources for the project referenced above.

Based on the project area mapped with your request, a query of the NCNHP database indicates that there are no records for rare species, important natural communities, natural areas, and/or conservation/managed areas within the proposed project boundary. Please note that although there may be no documentation of natural heritage elements within the project boundary, it does not imply or confirm their absence; the area may not have been surveyed. The results of this query should not be substituted for field surveys where suitable habitat exists. In the event that rare species are found within the project area, please contact the NCNHP so that we may update our records.

The attached 'Potential Occurrences' table summarizes rare species and natural communities that have been documented within a one-mile radius of the property boundary. The proximity of these records suggests that these natural heritage elements may potentially be present in the project area if suitable habitat exists. Tables of natural areas and conservation/managed areas within a one-mile radius of the project area, if any, are also included in this report.

If a Federally-listed species is found within the project area or is indicated within a one-mile radius of the project area, the NCNHP recommends contacting the US Fish and Wildlife Service (USFWS) for guidance. Contact information for USFWS offices in North Carolina is found here:

<https://www.fws.gov/offices/Directory/ListOffices.cfm?statecode=37>.

Please note that natural heritage element data are maintained for the purposes of conservation planning, project review, and scientific research, and are not intended for use as the primary criteria for regulatory decisions. Information provided by the NCNHP database may not be published without prior written notification to the NCNHP, and the NCNHP must be credited as an information source in these publications. Maps of NCNHP data may not be redistributed without permission.

The NC Natural Heritage Program may follow this letter with additional correspondence if a Dedicated Nature Preserve, Registered Heritage Area, Land and Water Fund easement, or Federally-listed species are documented near the project area.

If you have questions regarding the information provided in this letter or need additional assistance, please contact Rodney A. Butler at rodney.butler@ncdcr.gov or 919-707-8603.

Sincerely,
NC Natural Heritage Program

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Within a One-mile Radius of the Project Area
 Albemarle Main Boundary
 Project No. 00070316-000-RDU
 February 9, 2022
 NCNHDE-17108

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Mammal	38341	Peromyscus polionotus	Oldfield Deermouse	1977	H	4-Low	---	Special Concern	G5	S1
Natural Community	1261	Low Mountain Pine Forest (Montane Pine Subtype)	---	2010	NR	4-Low	---	---	G3G4	S2?
Vascular Plant	17711	Pycnanthemum torreyi	Torrey's Mountain-mint	1935-07-23	H	4-Low	---	Significantly Rare Throughout	G2	S1

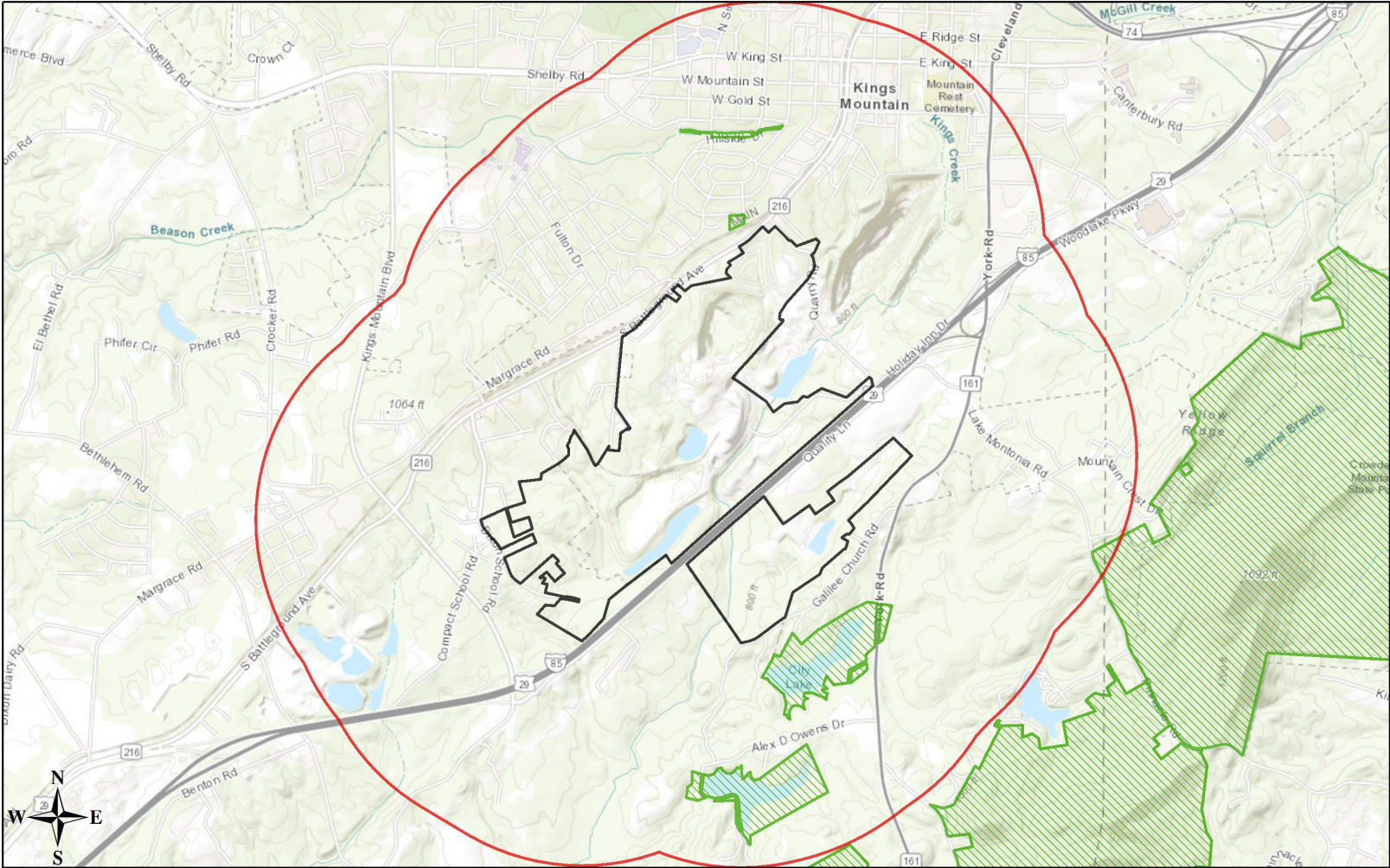
No Natural Areas are Documented Within a One-mile Radius of the Project Area

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
City of Kings Mountain Open Space	City of Kings Mountain	Local Government
City of Kings Mountain Open Space	City of Kings Mountain	Local Government
City of Kings Mountain Open Space	City of Kings Mountain	Local Government
City of Kings Mountain Open Space	City of Kings Mountain	Local Government
Crowders Mountain State Park	NC DNCR, Division of Parks and Recreation	State

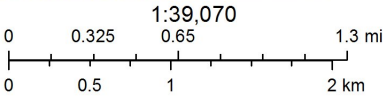
Definitions and an explanation of status designations and codes can be found at <https://ncnhde.natureserve.org/help>. Data query generated on February 9, 2022; source: NCNHP, Q4, January 2022. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

NCNHDE-17108: Albemarle Main Boundary



February 9, 2022

- Project Boundary
- Buffered Project Boundary
- Managed Area (MAREA)



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Roy Cooper, Governor

D. Reid Wilson, Secretary

Misty Buchanan
Deputy Director, Natural Heritage Program

NCNHDE-17109

February 9, 2022

Simon King
SWCA Environmental Consultants
4001 Winecott Drive
Apex, NC 27502
RE: Albemarle Separate Parcel; 00070316-000-RDU

Dear Simon King:

The North Carolina Natural Heritage Program (NCNHP) appreciates the opportunity to provide information about natural heritage resources for the project referenced above.

A query of the NCNHP database indicates that there are records for rare species, important natural communities, natural areas, and/or conservation/managed areas within the proposed project boundary. These results are presented in the attached 'Documented Occurrences' tables and map.

The attached 'Potential Occurrences' table summarizes rare species and natural communities that have been documented within a one-mile radius of the property boundary. The proximity of these records suggests that these natural heritage elements may potentially be present in the project area if suitable habitat exists. Tables of natural areas and conservation/managed areas within a one-mile radius of the project area, if any, are also included in this report.

If a Federally-listed species is documented within the project area or indicated within a one-mile radius of the project area, the NCNHP recommends contacting the US Fish and Wildlife Service (USFWS) for guidance. Contact information for USFWS offices in North Carolina is found here: <https://www.fws.gov/offices/Directory/ListOffices.cfm?statecode=37>.

Please note that natural heritage element data are maintained for the purposes of conservation planning, project review, and scientific research, and are not intended for use as the primary criteria for regulatory decisions. Information provided by the NCNHP database may not be published without prior written notification to the NCNHP, and the NCNHP must be credited as an information source in these publications. Maps of NCNHP data may not be redistributed without permission.

Also please note that the NC Natural Heritage Program may follow this letter with additional correspondence if a Dedicated Nature Preserve, Registered Heritage Area, Land and Water Fund easement, or an occurrence of a Federally-listed species is documented near the project area.

If you have questions regarding the information provided in this letter or need additional assistance, please contact Rodney A. Butler at rodney.butler@ncdcr.gov or 919-707-8603.

Sincerely,
NC Natural Heritage Program

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Intersecting the Project Area
Albemarle Separate Parcel
Project No. 00070316-000-RDU
February 9, 2022
NCNHDE-17109

No Element Occurrences are Documented within the Project Area

There are no documented element occurrences (of medium to very high accuracy) that intersect with the project area. Please note, however, that although the NCNHP database does not show records for rare species within the project area, it does not necessarily mean that they are not present; it may simply mean that the area has not been surveyed. The use of Natural Heritage Program data should not be substituted for actual field surveys if needed, particularly if the project area contains suitable habitat for rare species. If rare species are found, the NCNHP would appreciate receiving this information so that we may update our database.

No Natural Areas are Documented within the Project Area

Managed Areas Documented Within Project Area*

Managed Area Name	Owner	Owner Type
City of Kings Mountain Open Space	City of Kings Mountain	Local Government

* NOTE: If the proposed project intersects with a conservation/managed area, please contact the landowner directly for additional information. If the project intersects with a Dedicated Nature Preserve (DNP), Registered Natural Heritage Area (RHA), or Federally-listed species, NCNHP staff may provide additional correspondence regarding the project.

Definitions and an explanation of status designations and codes can be found at <https://ncnhde.natureserve.org/help>. Data query generated on February 9, 2022; source: NCNHP, Q4, January 2022. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Within a One-mile Radius of the Project Area
 Albemarle Separate Parcel
 Project No. 00070316-000-RDU
 February 9, 2022
 NCNHDE-17109

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Butterfly	12302	Satyrrium favonius ontario	Northern Oak Hairstreak	2001-05-15	C?	3-Medium	---	Significantly Rare	G4G5T4	S2S3
Natural Community	18325	Dry Oak--Hickory Forest (Piedmont Subtype)	---	2010	B?	4-Low	---	---	G4G5	S4
Natural Community	8178	Low Elevation Rocky Summit (Acidic Subtype)	---	2010	A	2-High	---	---	G3?	S2
Natural Community	1261	Low Mountain Pine Forest (Montane Pine Subtype)	---	2010	NR	4-Low	---	---	G3G4	S2?
Natural Community	5921	Piedmont Monadnock Forest (Typic Subtype)	---	2010	AB	2-High	---	---	G3G4	S3
Reptile	34819	Crotalus horridus	Timber Rattlesnake	2019-08-20	E	3-Medium	---	Special Concern	G4	S3
Reptile	504	Sistrurus miliarius miliarius	Carolina Pigmy Rattlesnake	1990-Fall	H?	3-Medium	---	Special Concern	G5T4T5	S2
Vascular Plant	516	Asplenium bradleyi	Bradley's Spleenwort	2006-11-09	B	3-Medium	---	Significantly Rare Peripheral	G4	S2
Vascular Plant	19543	Fothergilla major	Large Witch-alder	1919-05	H	4-Low	---	Significantly Rare Throughout	G3	S3
Vascular Plant	23605	Juniperus communis var. depressa	Dwarf Juniper	2003-08-15	E	3-Medium	---	Threatened	G5T5	S1
Vascular Plant	3853	Juniperus communis var. depressa	Dwarf Juniper	2003-08-15	E	3-Medium	---	Threatened	G5T5	S1
Vascular Plant	23408	Juniperus communis var. depressa	Dwarf Juniper	2018-06-15	E	2-High	---	Threatened	G5T5	S1

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Vascular Plant	17711	<i>Pycnanthemum torreyi</i>	Torrey's Mountain-mint	1935-07-23	H	4-Low	---	Significantly Rare Throughout	G2	S1
Vascular Plant	1485	<i>Quercus ilicifolia</i>	Bear Oak	2003-08-15	E	3-Medium	---	Endangered	G5	S2
Vascular Plant	863	<i>Thermopsis mollis</i>	Appalachian Golden-banner	2001-06-15	E	2-High	---	Significantly Rare Throughout	G3G4	S2

Natural Areas Documented Within a One-mile Radius of the Project Area

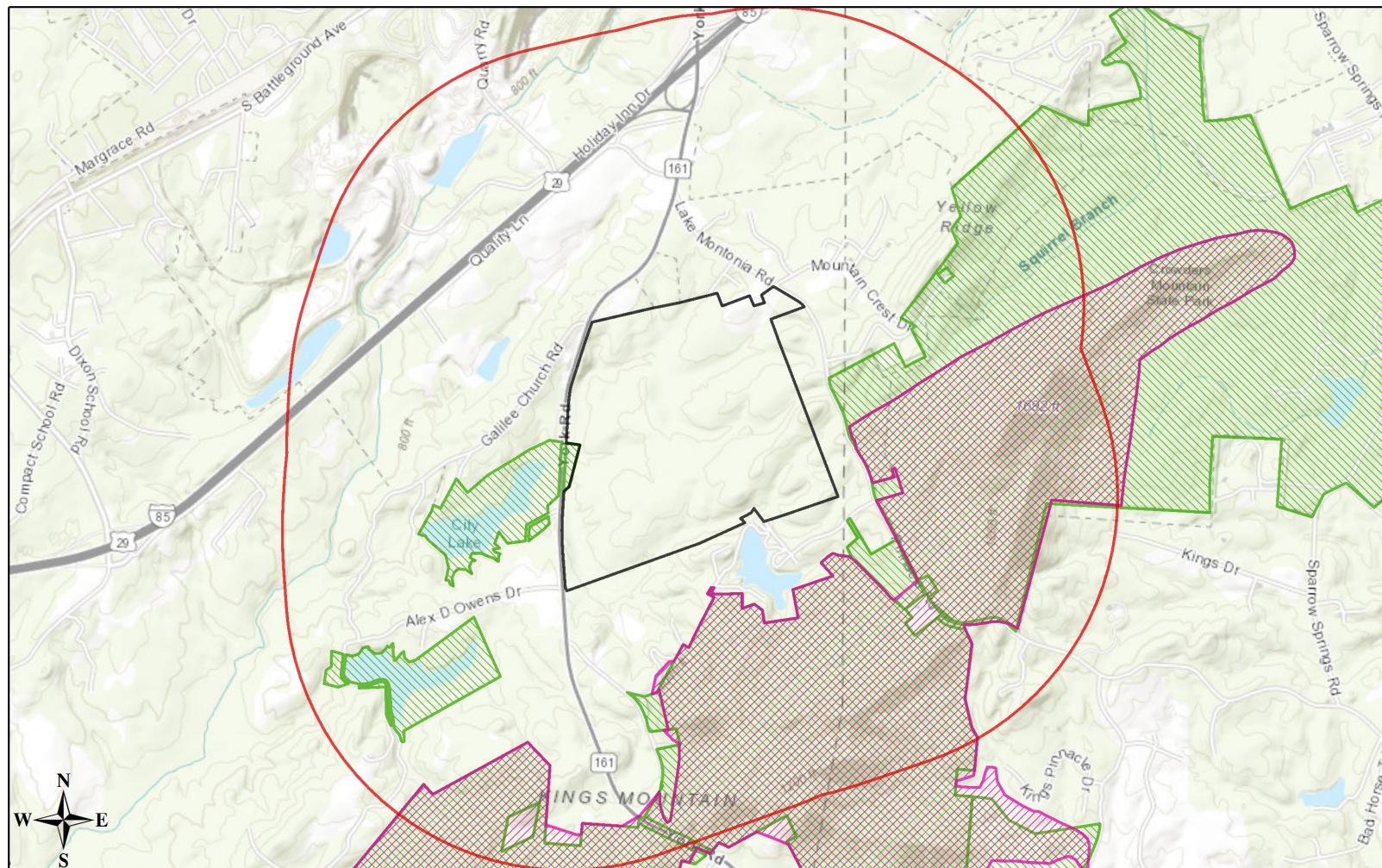
Site Name	Representational Rating	Collective Rating
Crowders Mountain State Park and Vicinity	R2 (Very High)	C2 (Very High)

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
City of Kings Mountain Open Space	City of Kings Mountain	Local Government
City of Kings Mountain Open Space	City of Kings Mountain	Local Government
Crowders Mountain State Park	NC DNCR, Division of Parks and Recreation	State
Crowders Mountain State Park Dedicated Nature Preserve	NC DNCR, Division of Parks and Recreation	State

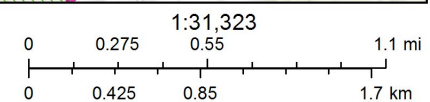
Definitions and an explanation of status designations and codes can be found at <https://ncnhde.natureserve.org/help>. Data query generated on February 9, 2022; source: NCNHP, Q4, January 2022. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

NCNHDE-17109: Albemarle Separate Parcel



February 9, 2022

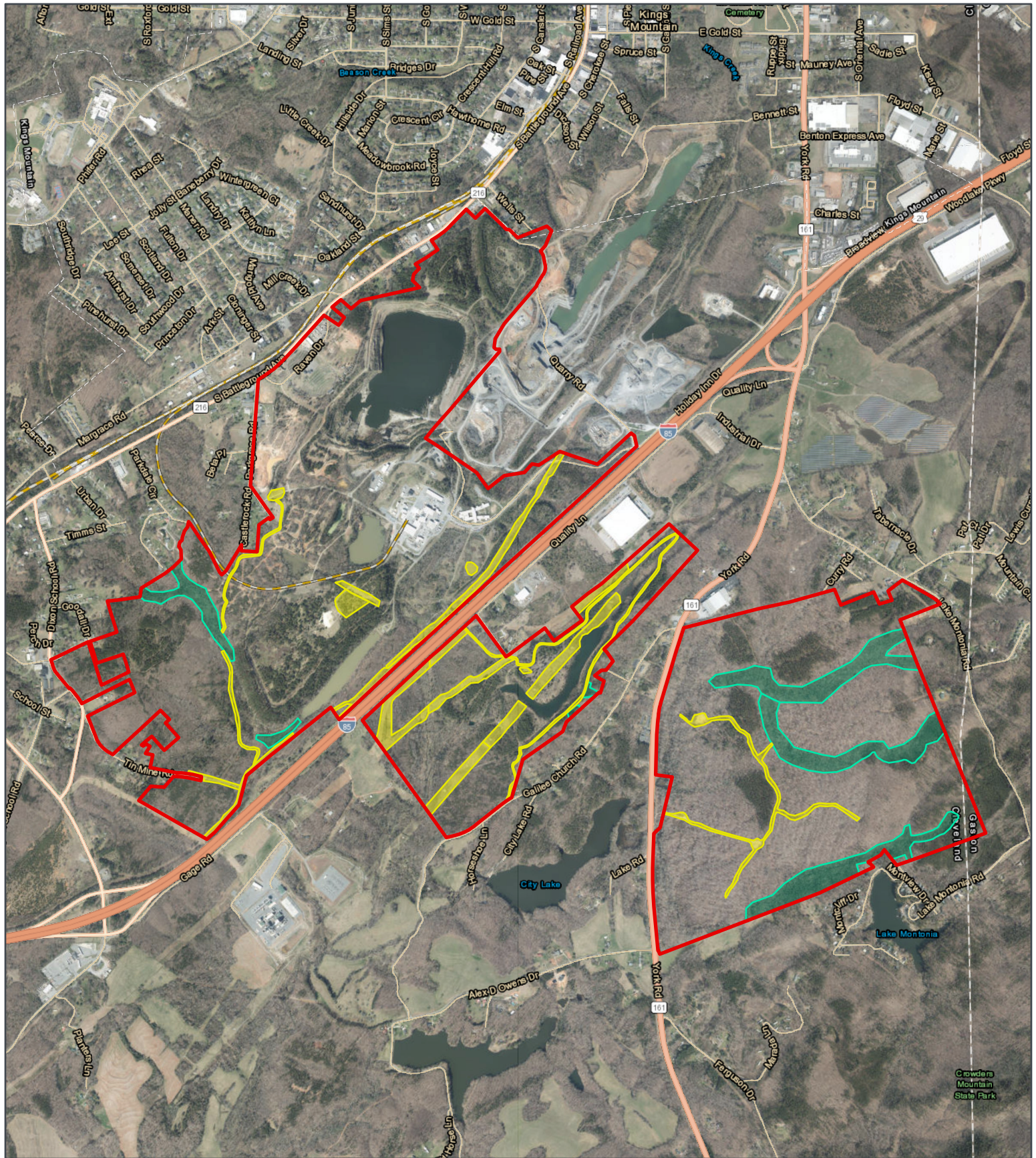
- Project Boundary
- Buffered Project Boundary
- NHP Natural Area (NHNA)
- Managed Area (MAREA)



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

APPENDIX C

Survey Map



ALBEMARLE KING'S MOUNTAIN MINE

Appendix C Figure 1

Smooth
Sunflower and
American
Bittersweet
Survey Areas

- American Bittersweet Habitat Survey Area
- Smooth Sunflower Habitat Survey Area
- Project Area

Cleveland County, NC
USGS 7.5' Quadrangle:
Kings Mountain, NC, 35081-B3
NAD 1983 UTM Zone 17N
35.2141°N 81.348°W

Base Map: Esri ArcGIS Online,
accessed November 2022
Updated: 11/21/2022
Project No. 70316
Layout: AppendixC_Figure1
Aprx: 70316_TE_Species

