APPENDIX A DEPARTMENT OF THE AIR FORCE COOPERATING AGENCY LETTER

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MATERIEL COMMAND
WRIGHT-PATTERSON AIR FORCE BASE OHIO

Mr. Ronald Onderko
Command Senior Civil Engineer
Logistics, Civil Engineering, Force Protection
and Nuclear Integration
4225 Logistics Ave, Bldg. 266
Wright-Patterson AFB, OH 45433-5332

Mr. Fred E. Pozzuto
Director, NEPA Policy and Compliance Division
Department of Energy
3610 Collins Ferry Rd, Bldg. 26, Rm 102, MS 107
Morgantown, WV 26505

Mr. Pozzuto,

The Department of the Air Force (DAF) requests formal participation from the Department of Energy (DOE) in the preparation of the Albemarle Kings Mountain Environmental Assessment (EA) analyzing the impacts of resuming mining operations at the Kings Mountain Mine as prescribed in the President's Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations, 40 CFR § 1501.8, *Cooperating Agencies*. Consistent with these regulations, participation of the DAF generally includes assuming responsibility for developing information and preparing analyses on issues for which the DAF has special expertise. For this action, the DAF's participation is limited to

- Defining the DAF's purpose and need and scoping information as it relates to the Defense Production Act, Title III Program;
- Breaking out the DAF's cost share funding being provided to Albemarle; and
- Reviewing the draft EA to ensure the requirements of 32 CFR § 989 are being met.

The DAF supports DOE as the lead agency for all NEPA requirements as well as any Section 7 consultations of the Endangered Species Act (16 USC §1531 et. seq.) and Section 106 consultations of the National Historic Preservation Act (54 USC § 300101 et. seq.) to include consultations with federally recognized Indian Tribes, and for any other similar regulatory consultations or coordination requirements. The lead point of contact is Ms. Shari Fort, AFMC NEPA Liaison, AFIMSC Det 6, who can be reached at shari.fort@us.af.mil.

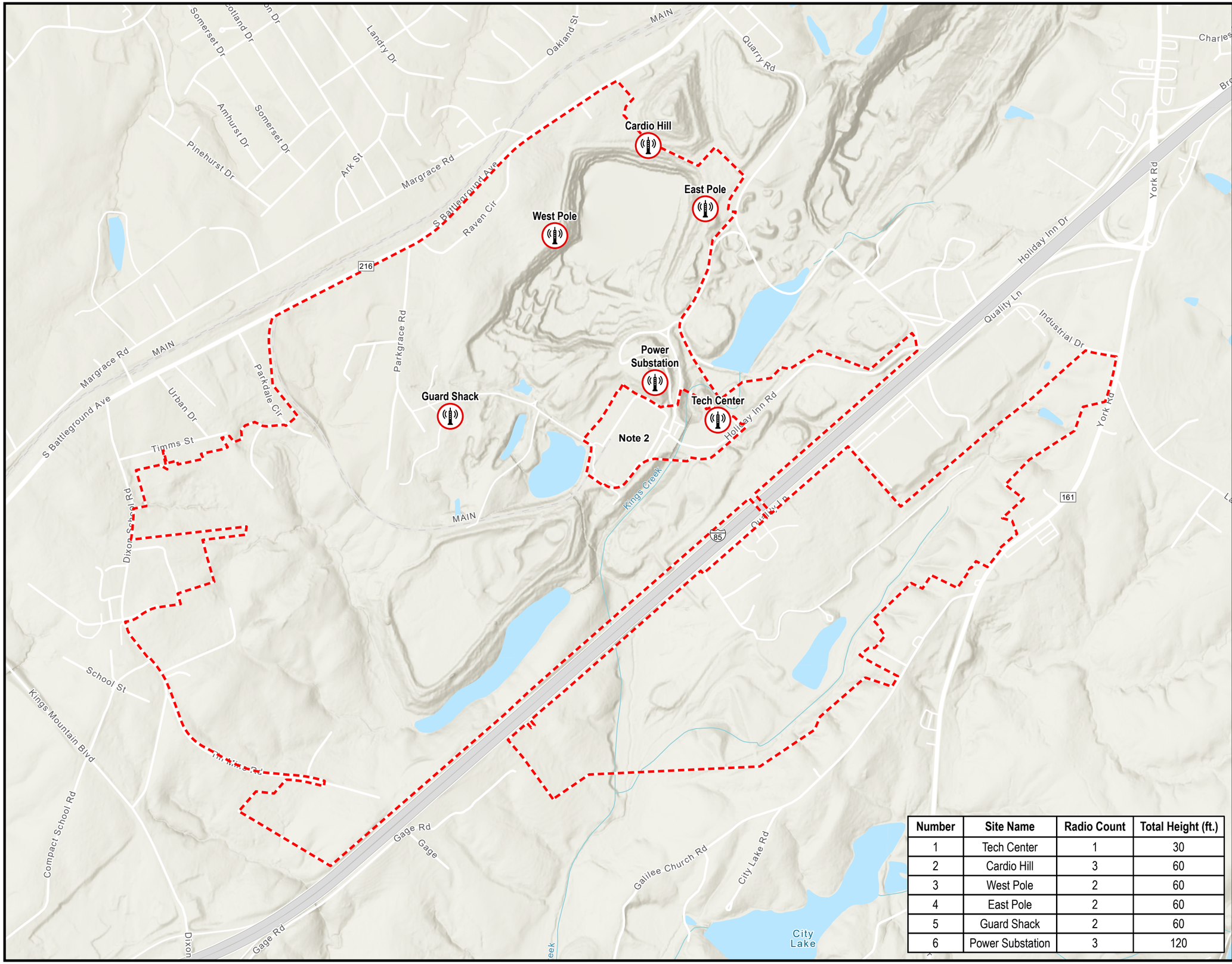
Sincerely

RONALD J. ONDERKO, P.E., NH-04, DAF
Chief, Civil Engineering Division

cc:
AF/A4CP
AFIMSC Det 6/CEB
AFMC/JAOE
AFRL/RMX

APPENDIX B DESIGN DRAWINGS

APPENDIX B-1 COMMUNICATIONS TOWERS LOCATIONS



Project Boundary

Proposed Communications Tower

Number	Site Name	Radio Count	Total Height (ft.)
1	Tech Center	1	30
2	Cardio Hill	3	60
3	West Pole	2	60
4	East Pole	2	60
5	Guard Shack	2	60
6	Power Substation	3	120

Notes:
- Note 1: Project Boundary updated by ERM on September 3 2024.
- Note 2: Area excluded from the permit boundary, existing facilities are not related to mining activity in North Carolina.

N

0 0.2 0.4

Miles

1 inch = 0.2 mile when printed at 11"x17"

Communications Tower Locations
Kings Mountain Lithium Mine

Albemarle
Kings Mountain
Cleveland County,
North Carolina

APPENDIX B-2 MINING AND CONCENTRATOR FACILITY

POTENTIAL EMISSIONS SOURCE ●

DESCRIPTION	EASTING	NORTHING
EP-011 - CONVEYOR TRANSFER POINT	1297243.1771	540684.2656
EP-012 - CONCENTRATE LOAD-OUT BINS	1297328.1302	540567.4635
EP-013 - CONCENTRATE LOAD-OUT BINS	1297374.4323	540514.6823
EP-014 - CONVEYOR TRANSFER POINT	1297384.7031	540401.5677
EP-015 - CONCENTRATE TRUCK LOAD-OUT	1297297.6771	540719.5521
EP-016 - ORE SORTING BAGHOUSE	1297784.9115	540923.9792
EP-017 - CONVEYOR TRANSFER POINT	1297898.3177	541111.0990
EP-018 - CONVEYOR TRANSFER POINT	1297921.0990	541085.1146
EP-019 - CONVEYOR TRANSFER POINT	1297981.4479	541138.0365
EP-020 - SORTING SIZING SCREEN BAGHOUSE	1297964.0365	541189.8646
EP-021 - TERTIARY CRUSHER BUILDING BAGHOUSE	1297988.4010	541172.5156
EP-022 - CRUSHER SIZING SCREENS BAGHOUSE	1298371.5990	541454.0260
EP-023 - SECONDARY CRUSHER BUILDING BAGHOUSE	1298286.4740	541592.6042
EP-024 - SORTER REJECTS BIN TRANSFER POINT	1298378.5833	541762.9531
EP-025 - COARSE TAILS REJECTS BIN TRANSFER POINT	1298399.2656	541781.0938
EP-026 - CONVEYOR TRANSFER POINT	1298703.1250	541929.4010
EP-027 - CONVEYOR TRANSFER POINT	1298852.1823	541759.4323
EP-028 - PRIMARY CRUSHER BUILDING BAGHOUSE	1299348.6979	542166.6146
EP-029A - ROM PAD TRUCK DUMPING AREA	1299646.4586	542609.2344
EP-029B - ROM PAD TRUCK DUMPING AREA	1299410.6771	542878.0938
EP-029C - ROM PAD TRUCK DUMPING AREA	1298652.9583	542213.5938
EP-029D - ROM PAD TRUCK DUMPING AREA	1298888.7396	541944.7344
EP-030 - CONVEYOR TRANSFER POINT	1298521.7656	541599.6719
EP-031 - CONVEYOR TRANSFER POINT	1298540.6354	541637.2917
EP-032 - CONVEYOR TRANSFER POINT	1298564.5104	541558.6979
EP-033 - CONVEYOR TRANSFER POINT	1298633.7083	541497.2813
EP-034 - CONVEYOR TRANSFER POINT	1299062.9427	541024.2813
EP-035 - CONVEYOR TRANSFER POINT	1299086.0469	541015.2760
EP-036 - CONVEYOR TRANSFER POINT	1299182.3854	541129.0469
EP-037 - CONVEYOR FRONT END LOADER POINT	1299208.6927	541152.1250
EP-038 - CONVEYOR TRANSFER POINT	1299109.8954	541211.7500
EP-039 - ROTARY DRIER BUILDING BAGHOUSE	1299566.0990	541318.9583
EP-040 - CONCENTRATE STOCKPILE TRANSFER POINT	1299720.4063	541571.4896
EP-041 - CONVEYOR TRANSFER POINT	1299878.9635	541390.6458
EP-042 - CONVEYOR TRANSFER POINT	1299736.3854	541116.4219
EP-043 - CONVEYOR TRANSFER POINT	1299407.1250	540976.8958
EP-044 - CONVEYOR TRANSFER POINT	1299399.2969	540984.2396
EP-045 - CONVEYOR TRANSFER POINT	1299413.3542	540968.2083
EP-046 - CONVEYOR TRANSFER POINT	1299407.6406	540872.1771
EP-047 - CONVEYOR TRANSFER POINT	1299277.8333	540745.2656
EP-048 - CONVEYOR FRONT END LOADER POINT	1299298.9323	540721.2083
EP-049 - CONVEYOR FRONT END LOADER POINT	1299336.0000	540696.3177
EP-050 - FINE TAILS REJECTS BIN TRANSFER POINT	1293971.4063	538017.6146

NOTES:

1. COORDINATES AND NORTH ORIENTATION SHOWN ARE BASED ON THE FOLLOWING COORDINATE SYSTEM: NAD83 NORTH CAROLINA STATE PLANES, US FOOT (OR NC83F).

PRELIMINARY
NOT FOR CONSTRUCTION
FOR PERMITTING

HATCH

DRAFTSPERSON	K. PIOTROWSKI	NR	
DESIGNER	K. PIOTROWSKI	NR	
CHECKER			
DESIGN COORD.	K. PIOTROWSKI		
RESP. ENG.	K. WHEERY		
LEAD DISC. ENG.			
ENG. MANAGER	C. CLARKE		
PROJ. MANAGER	K. YOUNG		
ROLE	NAME	SIGNATURE	DATE

HATCH DRAWING NUMBER: H371132-0000-240-290-0005

REV #	DESCRIPTION	CADD	CHK'D	APPR'D	DATE
	INTERNAL REVIEW			---	

ALBEMARLE™ CORPORATION

KINGS MOUNTAIN
348 HOLIDAY INN DRIVE
KINGS MOUNTAIN, NC 28286

MINING AND CONCENTRATOR FCILITY
CRUSHER AND CONCENTRATOR AREAS
MINE SELCT PAHSE
EMISSION SOURCE LOCATION PLAN

JOB NO.	DRAFTER:	DRAWING NO.	SHT. 1 of 1	REVISION
KM22040	K. PIOTROWSKI	KM00-ME-GA-00105		A
SCALE: 1"=200'-0"	DATE			

APPENDIX C FEDERALLY LISTED SPECIES FOR KINGS MOUNTAIN

APPENDIX C-1 U.S. FISH AND WILDLIFE SERVICE IPAC RESOURCE LIST – KINGS MOUNTAIN

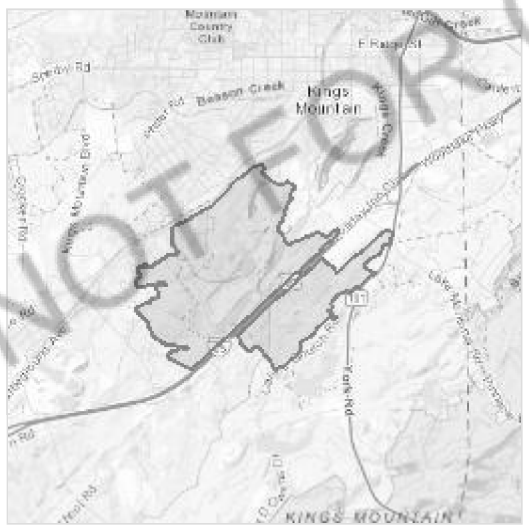
IPaC resource list

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, Suite B

Asheville, NC 28801-1082

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 species[1] 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 Fisheries[2]).

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.

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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
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus 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 Hexastylis naniflora 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.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

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

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* 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.	Breeds Sep 1 to Jul 31

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

"Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "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.

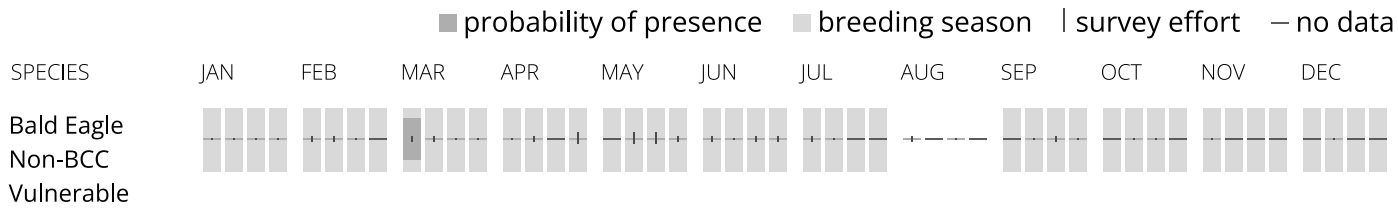
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence 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). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles 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 Rapid Avian Information Locator (RAIL) Tool.

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. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

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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:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

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, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

Bald Eagle *Haliaeetus leucocephalus* 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.	Breeds Sep 1 to Jul 31
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Chuck-will's-widow *Antrostomus carolinensis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 10 to Jul 10
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Grasshopper Sparrow *Ammodramus savannarum perpallidus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Prairie Warbler *Setophaga discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

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 "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "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.

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 list of migratory birds that potentially occur 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 Rapid Avian Information Locator (RAIL) 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 or migrating in my 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 query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. 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 (NWI)

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1Kx
- PEM1Fh

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1Ah
- PFO1Ah
- PFO1C

FRESHWATER POND

- PUBHh
- PUSKx
- PUBHx
- PUSCh
- PUBKx
- PUSCx

RIVERINE

- R2UBH
- R4SBC
- R5UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

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 tuberficid 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 C-2 BIOLOGICAL RESOURCES SUMMARY REPORT FOR THE KINGS MOUNTAIN LITHIUM MINE, CLEVELAND COUNTY, NORTH CAROLINA

Biological Resources Summary Report for the Kings Mountain Lithium Mine, Cleveland County, North Carolina

INTERIM DRAFT - APRIL 2023

PREPARED FOR

Albemarle U.S., Inc.

PREPARED BY

SWCA Environmental Consultants

BIOLOGICAL RESOURCES SUMMARY REPORT FOR THE KINGS MOUNTAIN LITHIUM MINE, CLEVELAND COUNTY, NORTH CAROLINA

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SWCA Project No. 70316

Interim Draft

April 2023

CONTENTS

Appendices

Figures

Tables

1 INTRODUCTION

Albemarle U.S. Inc. (Albemarle) plans to reopen the former Kings Mountain lithium mine site and construct a new processing facility (Project) in Kings Mountain, Cleveland County, North Carolina. In 2022, SWCA Environmental Consultants (SWCA) conducted a desktop review in combination with several field surveys to determine the existing biological resources within the Project area. The following surveys and reports have been completed and are summarized within this biological resources summary report. In addition to the specific surveys, SWCA has conducted multiple field surveys to document general vegetation, habitats, migratory birds, and other wildlife:

- Wetland and waterbody delineation (SWCA 2022a)
- Bat survey (SWCA 2022b)
- Dwarf-flowered heartleaf survey (SWCA 2022c)
- Monarch habitat assessment (SWCA 2022d)
- Aquatic assessment (SWCA 2022e)
- Federally and State-Listed Species Report (SWCA 2022g)

In 2023, SWCA will conduct biological surveys on additional properties acquired by Albemarle subsequent to the 2022 surveys. This interim report will be finalized with the additional 2023 data.

1.1 Location

The Project is on private land owned or leased by Albemarle. The Project area is 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 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, an old school building, and a 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 abuts 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.

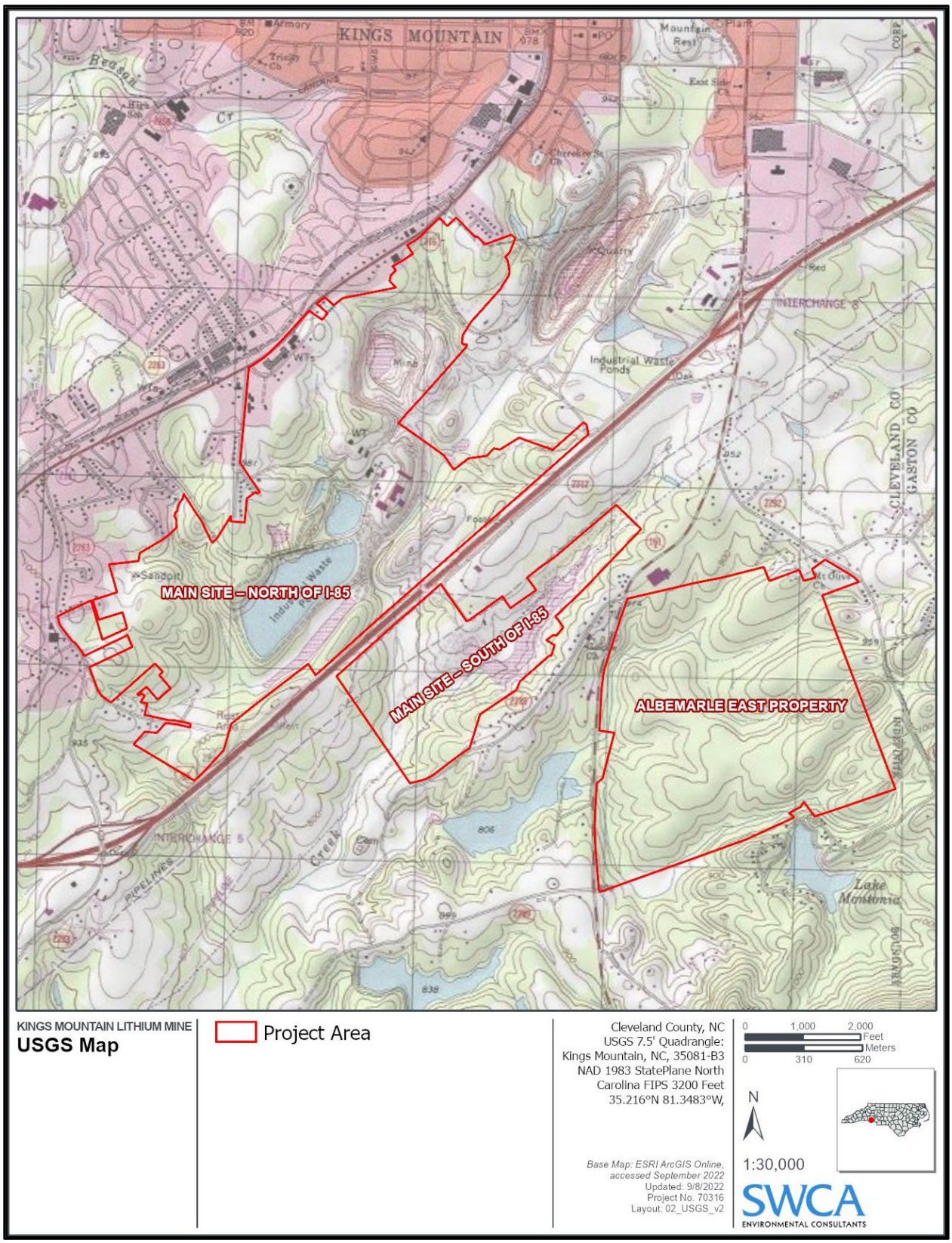

Figure 1. Project location.

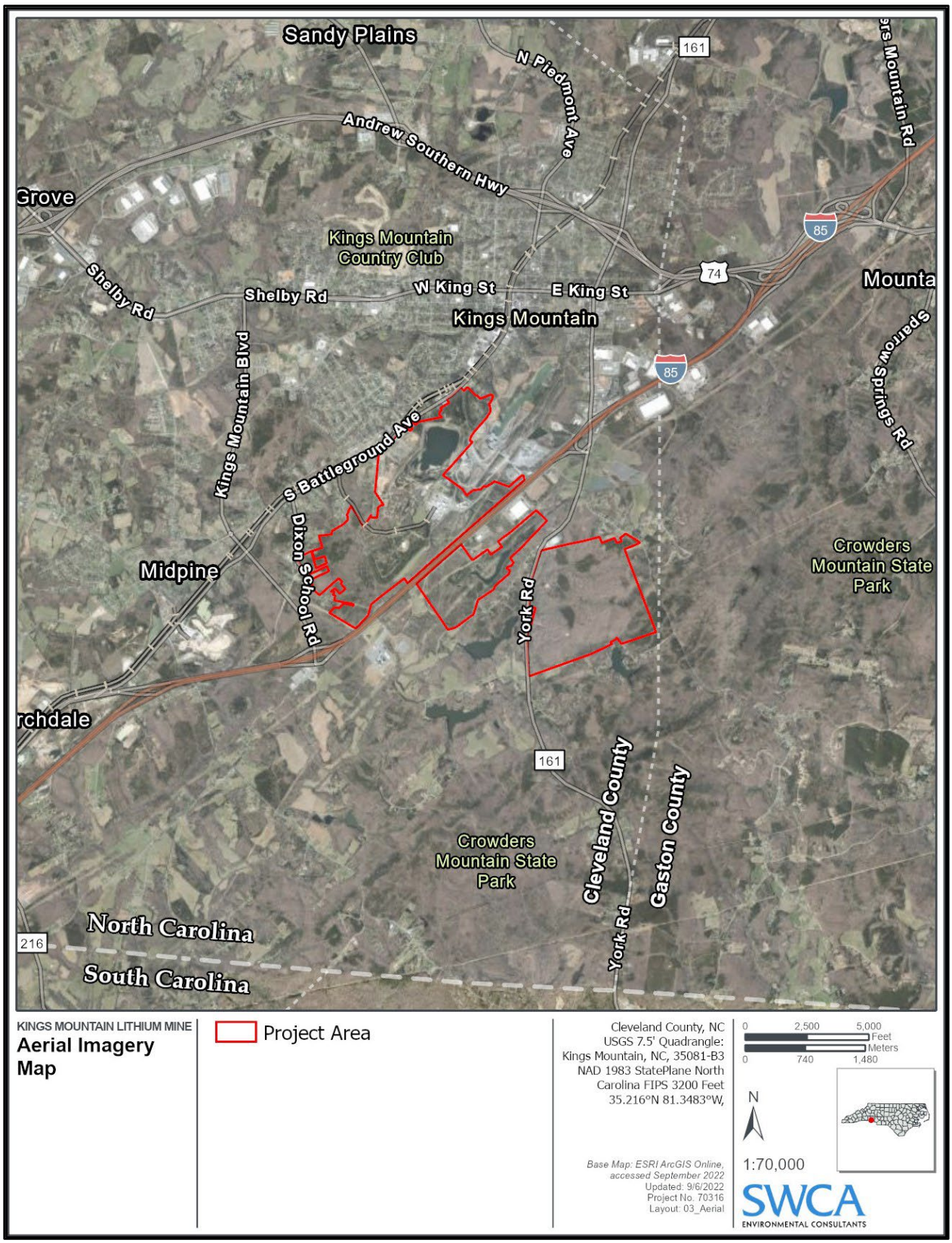

Figure 2. Aerial imagery of the Project area.

2 METHODS

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.

Vegetation Communities and Land Use:

- Soil Conservation Service Soil Survey of Cleveland County, North Carolina (Natural Resources Conservation Service [NRCS] 2006)
- NRCS Web Soil Survey maps (NRCS 2022)
- U.S. Geological Survey (USGS) National Land Cover Database (USGS 2019a)
- USGS National Hydrology Dataset mapping (USGS 2019b)
- USGS National Gap Analysis Program (USGS 2020)
- USGS topographic maps (USGS 2022)

Wetland and Water Resources:

- Federal Emergency Management Agency (FEMA) National Flood Hazard Map (FEMA 2022)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Wetlands Mapper (USFWS 2022a)

Plant and Wildlife Species of Concern:

- 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)
- USFWS Information for Planning and Consultation (IPaC) (USFWS 2022b, 2023)

Avian Resources:

- Christmas Bird Count data (National Audubon Society [Audubon] 2022)
- Important Bird Areas (Audubon 2020)
- eBird (2022)
- All About Birds (Cornell Lab of Ornithology 2019)
- USFWS Birds of Conservation Concern (BCC) (USFWS 2008)
- USGS North American Breeding Bird Survey database (USGS 2019c)

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*). Survey methods are detailed in the individual reports (SWCA 2022a–e). Biologists conducted various biological surveys over approximately 40 days and used information gathered on habitat conditions to record baseline conditions and assess the potential for listed species to occur.

3 RESULTS

3.1 Vegetation Communities and Land Use

Elevation in the Project area ranges from approximately 755 to 1,074 feet above mean sea level (amsl). The Project area generally drains toward 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 Udorthents soil consists of areas where natural soil properties and qualities have been greatly altered by excavation or intensive grading, or the natural soils have been covered by earthy fill material.

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. SWCA refined the land cover maps and recorded dominant species within each vegetation community (Table 1; Figure 3). Outside of developed areas and open water, habitat in the Project area falls into the categories as described below.

Table 1. Vegetation Communities

Community	Acres	Percent of Project Area
Forested, Upland Deciduous	430.91	30.7
Forested, Upland Mixed	365.06	26.0
Forested, Upland Evergreen	177.1	12.6
Herbaceous Upland	70.18	5.0
Shrub-scrub Upland	33.75	2.4
Wetland	59.29	4.2
Open Water	77.53	5.5
Disturbed/Developed	189.55	13.5

3.1.1 Forested Upland

The forested upland community is the dominant habitat present in the Project area (i.e., deciduous, mixed, and evergreen forest) making up approximately 70% of the land cover. 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.

3.1.1.1 DECIDUOUS

Dominant trees include American sweetgum (*Liquidambar styraciflua*), 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).

3.1.1.2 EVERGREEN

The evergreen forest community is dominated by stands of loblolly pine (*Pinus taeda*) with some understory growth mainly consisting of successional hardwood species. Other less common evergreen trees observed included Virginia pine (*Pinus virginiana*) and shortleaf pine (*Pinus echinata*).

3.1.1.3 MIXED

The mixed forest community includes a combination of loblolly, shortleaf, and Virginia pine with deciduous trees and shrubs. The mixed forests observed generally do not have well developed herbaceous layers, but often consisted of Christmas fern (*Polystichum acrostichoides*), groundcedar (*Diphasiastrum digitatum*), Japanese honeysucke (*Lonicera japonica*), and wild onion/garlic (*Allium* spp.) when present.

3.1.2 Herbaceous Upland

The herbaceous upland and edge communities consist of 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 Shrub-Scrub

The shrub-scrub upland community is dominated by blackberry, Chinese privet (*Ligustrum sinense*), winged sumac (*Rhus copallinum*), Chickasaw plum (*Prunus angustifolia*), tree-of-heaven *(Ailanthus altissima*), and sweetgum. This community is found primarily along Executive Club Lake, along the edge of the evergreen forest adjacent to South Creek Reservoir, within portions of the ROWs, and various recently disturbed areas throughout the site in an early stage of succession.

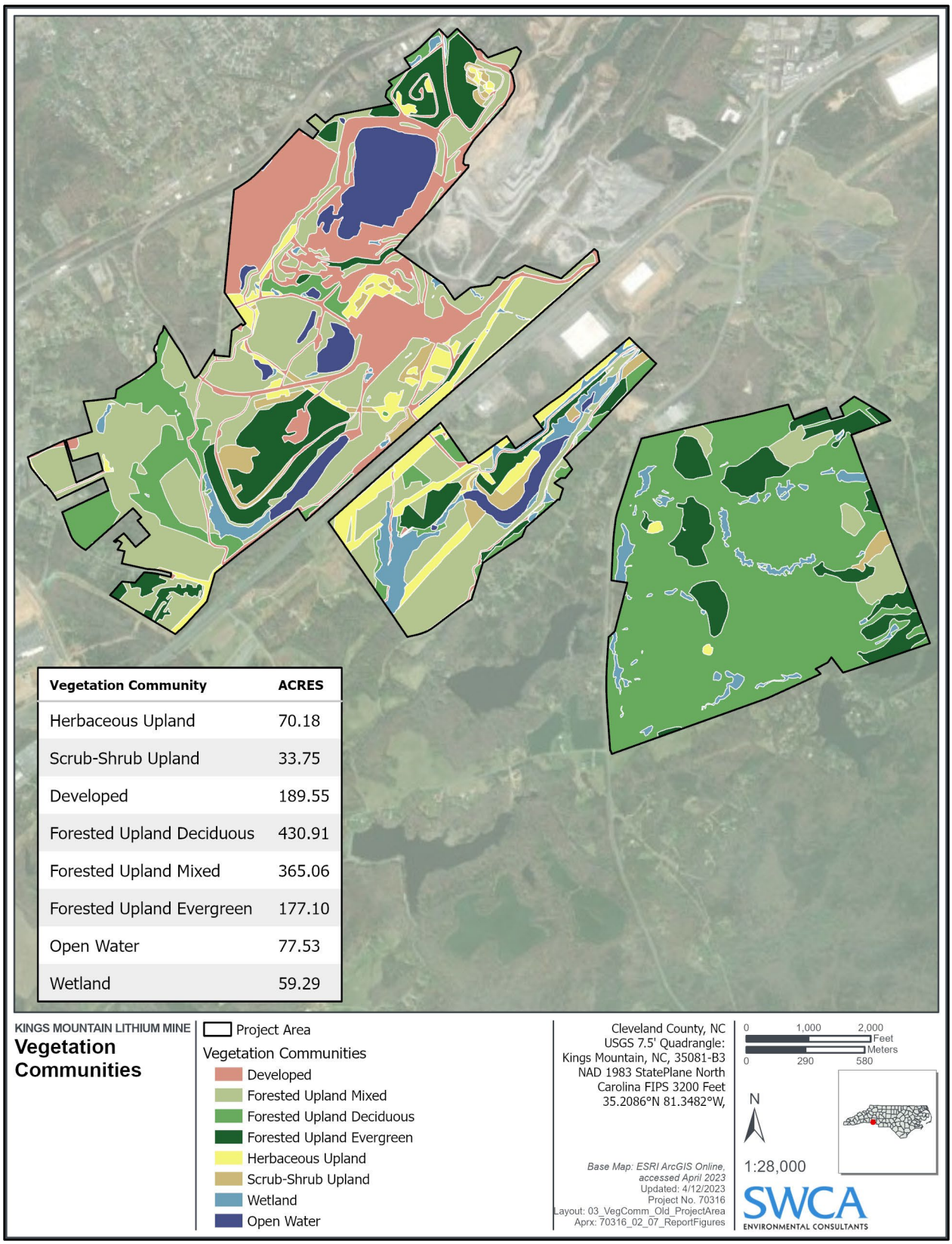

Figure 3. Vegetation communities in the Project area.

3.1.4 Wetland

Wetlands are areas where water covers the soil or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. Based on field delineations, approximately 136 acres of wetlands are present in the Project area (SWCA 2022a). Section 3.2 describes the different types of wetlands recorded, as well as the difference between jurisdictional and non-jurisdictional wetlands.

3.2 Wetlands and Waterbodies

3.2.1 Regulatory Background

Wetlands and other waters within the Project area may be subject to U.S. Army Corps of Engineers (USACE) and North Carolina Department of Environmental Quality (NCDEQ) jurisdiction under Section 404 and/or 401 of the Clean Water Act (CWA). Section 404 of the CWA and 33 CFR 323 require authorization from the USACE to discharge dredged or fill material into waters of the U.S. and jurisdictional wetlands. Projects also require a 401 water quality certification from NCDEQ to certify the project will not degrade waters of the state or violate state water quality standards. Additionally, North Carolina requires an Isolated and Other Non-404 Jurisdictional Wetland and Waters Permit for impacts to waters the USACE determines are federally non-jurisdictional.

3.2.2 Waterbodies

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) (Figure 4). 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.

There are also on-site resources named by Albemarle for Project purposes. These human-made features include Pit Lake, Mud Pond 1, Mud Pond 2, No. 1 Mill Pond, Executive Club Lake, and South Creek Reservoir (Figure 5). Pit Lake is a mining pit that has filled with water since mining ceased. Mud Pond 1, Mud Pond 2, and No. 1 Mill Pond on the main site north of I-85 are potentially isolated (pending USACE verification). South Creek is a south-flowing stream in the western portion of the main site north of I-85, with the South Creek Reservoir making up the dammed-up portion that eventually empties in Kings Creek to the east. Executive Club Lake is an old tailings pond on the main site south of I-85 that has an outflow channel to Kings Creek. Small tributaries contribute flow to this lake.

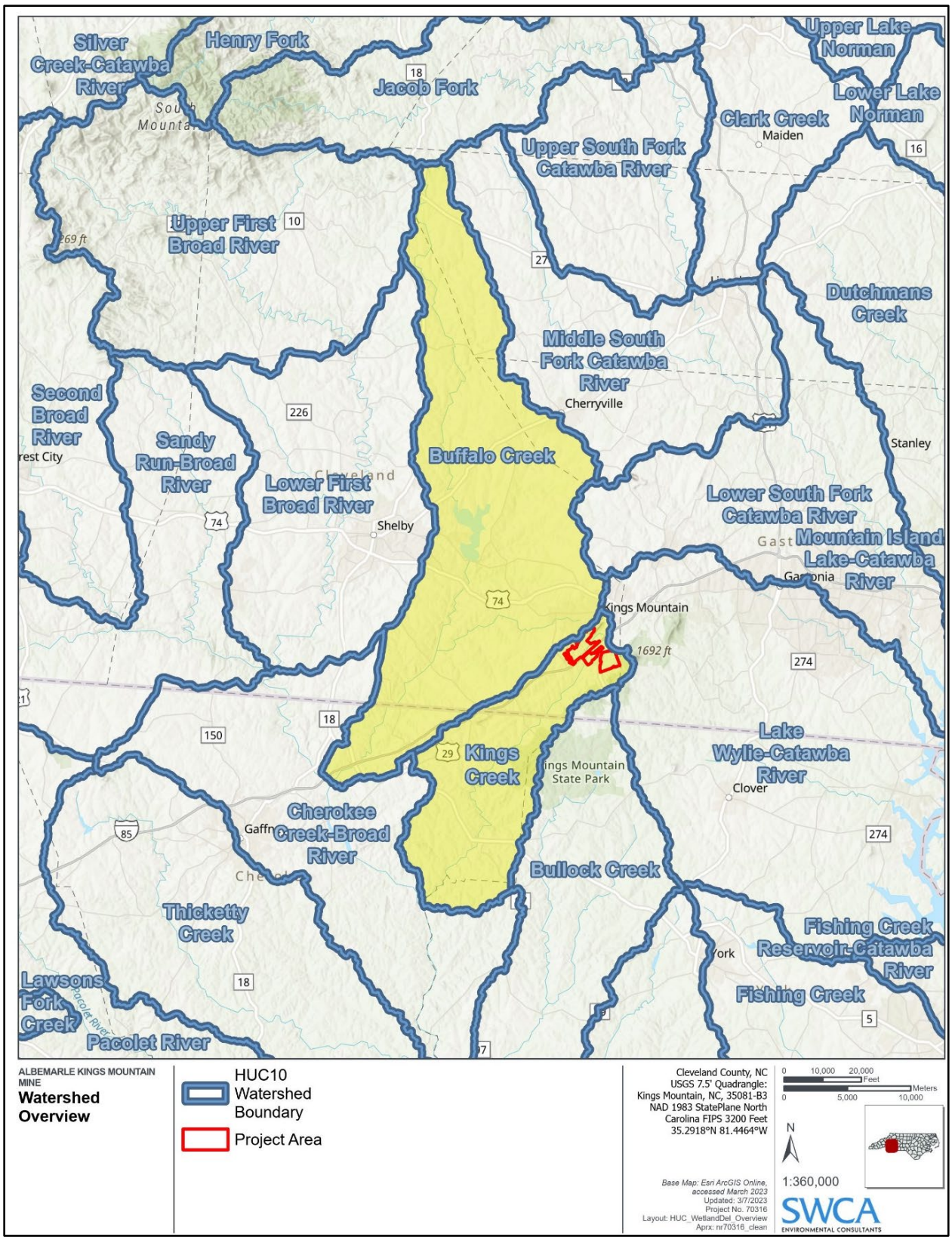

Figure 4. Watersheds.

3.2.3 Wetlands

3.2.3.1 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.

3.2.3.2 PALUSTRINE FORESTED WETLAND

The forested wetland community consists 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).

3.2.3.3 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).

3.2.4 Jurisdictional Determination

A delineation of wetlands and waterbodies was conducted to verify National Wetlands Inventory mapping (USFWS 2022a) and National Hydrography Dataset (USGS 2019b) within the Project area (SWCA 2022a). The USACE jurisdictional wetlands and USACE jurisdictional palustrine unconsolidated bottom (PUB) features (e.g., ponds, lakes, mining pits) delineated in 2022 are depicted in Figure 5. Additional resources were determined to be USACE non-jurisdictional based on their isolation within the Project area or lack of a significant nexus to a downstream traditional navigable water (TNW). Detailed maps are provided in the *Wetland and Waterbody Delineation Report for the Albemarle Kings Mountain Lithium Mining Project, Cleveland County, North Carolina* (SWCA 2022a).

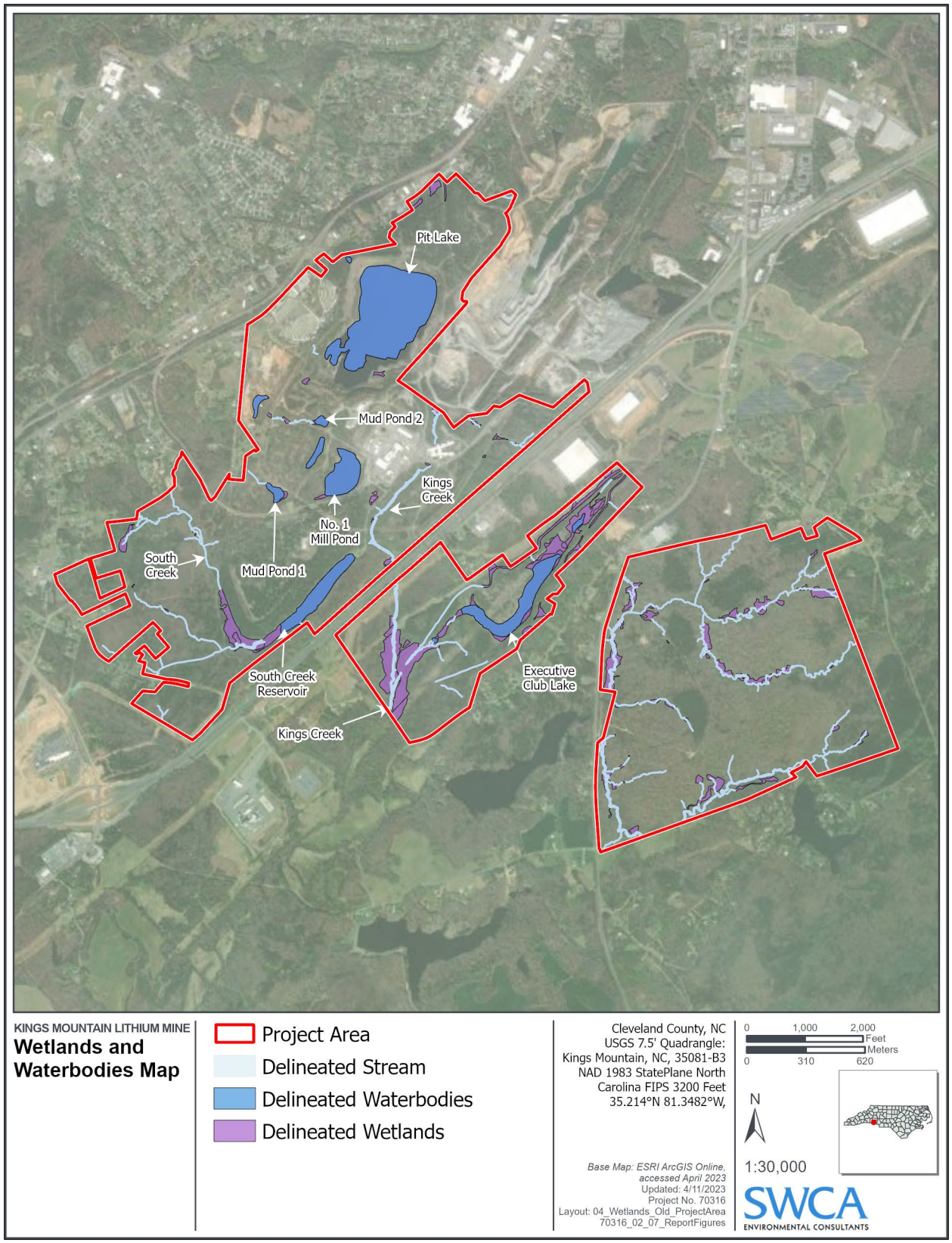

Figure 5. Overview of wetlands and waterbodies.

Table 2 summarizes the number and acreage of potential jurisdictional and non-jurisdictional features, as determined by SWCA. The final determination is pending the Approved Jurisdiction Determination (AJD) from USACE. Hydrology within portions of the Project area has been modified through historical mining land use practices. Additionally, most of the sizable wetlands and waterways have been influenced by beaver activity.

Table 2. Wetlands and PUB features

Classification	Number of Unique Features	Total Acres within Project Area
USACE Jurisdictional Wetlands	**50**	**55.34**
Palustrine forested wetland (PFO)	28	40.44
Palustrine shrub-scrub (PSS)	12	10.05
Palustrine emergent wetland (PEM)	10	4.85
USACE Jurisdictional PUBs	**4**	**20.27**
USACE Non-jurisdictional Wetlands	**15**	**3.95**
USACE Non-jurisdictional PUBs	**8**	**57.26**

Based on the waterway delineation (SWCA 2022a), there are 71 streams comprised of 30 ephemeral, 27 intermittent, and 21 perennial segments (Table 3). Some of the intermittent and perennial streams segments originate as either sheet flow, ephemeral, or intermittent before transitioning into their final classification. The ordinary high-water marks of streams averaged between 2 and 5 feet wide. Common substrates are sand, silt, and cobble. Non-jurisdictional features included upland swales and streams with no significant nexus.

Table 3. Waterways

Classification	Total Linear Feet within Project Area
USACE Jurisdictional Ephemeral Stream	9,213.8 feet
USACE Jurisdictional Intermittent Stream	10,614.4 feet
USACE Jurisdictional Perennial Stream	36,199.2 feet
USACE Jurisdictional Delineated Waterway	56,068.8 feet
USACE Non-jurisdictional Feature	5,114.5 feet

3.3 Federally Listed Species

3.3.1 Regulatory Background

Species are designated by the USFWS as threatened, endangered, proposed, candidate, or under review under the Endangered Species Act of 1973, as amended (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, one candidate, one proposed endangered, and one species currently under review were identified in the USFWS IPaC resource list (Appendix A) as having potential to occur in the Project area or vicinity (Table 4). Under the ESA, the USFWS can also propose and designated Critical Habitats for

threatened or endangered species. There are no USFWS-designated Critical Habitats for federally listed species within the Project area (USFWS 2022b, 2023).

3.3.2 Species List

Based on desktop research and field assessments, the potential for a species to occur in the Project area is defined as follows.

- 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.

Table 4. 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 (*Myotis septentrionalis)*	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 (*Perimyotis subflavus*)	Proposed endangered	During the spring, summer, and fall (i.e., non-hibernating seasons), tricolored bat 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 (*Myotis lucifugus*)	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.
Bog turtle (*Glyptemys muhlenbergii*)	Similarity of appearance (Threatened)	Boggy marsh habitats, wet pastures, wet thickets.	Low; not detected during 2022 aquatic surveys. Does not inhabit forested wetlands or heavily impacted wetland areas.
Monarch butterfly (*Danaus plexippus*)	Candidate	Prairies, meadows, grasslands, and roadsides with milkweed (*Asclepias* spp.) and flowering plants.	Low; very limited suitable habitat along utility ROWs; individuals not identified during 2022 habitat surveys.
Dwarf-flowered heartleaf (*Hexastylis naniflora*)	Threatened	Acidic soils along bluffs and adjacent slopes, boggy areas next to streams and creek heads, and along slopes of nearby hillsides 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, 2023a).

*Reclassification from threatened to endangered becomes effective January 30, 2023.

3.3.2.1 NORTHERN LONG-EARED BAT

The range of 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 on the southeastern edge of the known range of the northern long-eared bat. On November 30, 2022, the USFWS published a final rule reclassifying this species from threatened to endangered status under the ESA. The rule will take effect March 31, 2023. USFWS released guidance documents on March 6, 2023, outlining consultation and Endangered Species Act compliance pathways for northern long-eared bats during a 1-year interim period beginning on the effective date of their reclassification to endangered (USFWS 2023b).

Northern long-eared bats are not likely to hibernate in the Project area because of the lack of suitable winter habitat (i.e., no caves or mines). While suitable summer roosting habitat is present within the Project area, 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 *Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines* (USFWS 2022c). Northern long-eared bat was not detected during the acoustic bat surveys (SWCA 2022b).

3.3.2.2 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).

3.3.2.3 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

2022d). 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).

3.3.2.4 BOG TURTLE

While the bog turtle (*Glyptemys muhlenbergii*) is not known to occur in Cleveland County and was not on the IPaC list for the Project area, it may occur downstream or in nearby Gaston County. This species prefers boggy, marsh habitats and generally does not inhabit forested wetlands or heavily impacted wetland areas, like those found in the Project area. Bog turtles were not encountered during the aquatic habitat assessment (SWCA 2022e).

3.3.2.5 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 (Figure 6). SWCA botanists conducted presence/absence surveys within potentially suitable habitat on May 2–5, 23, and 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).

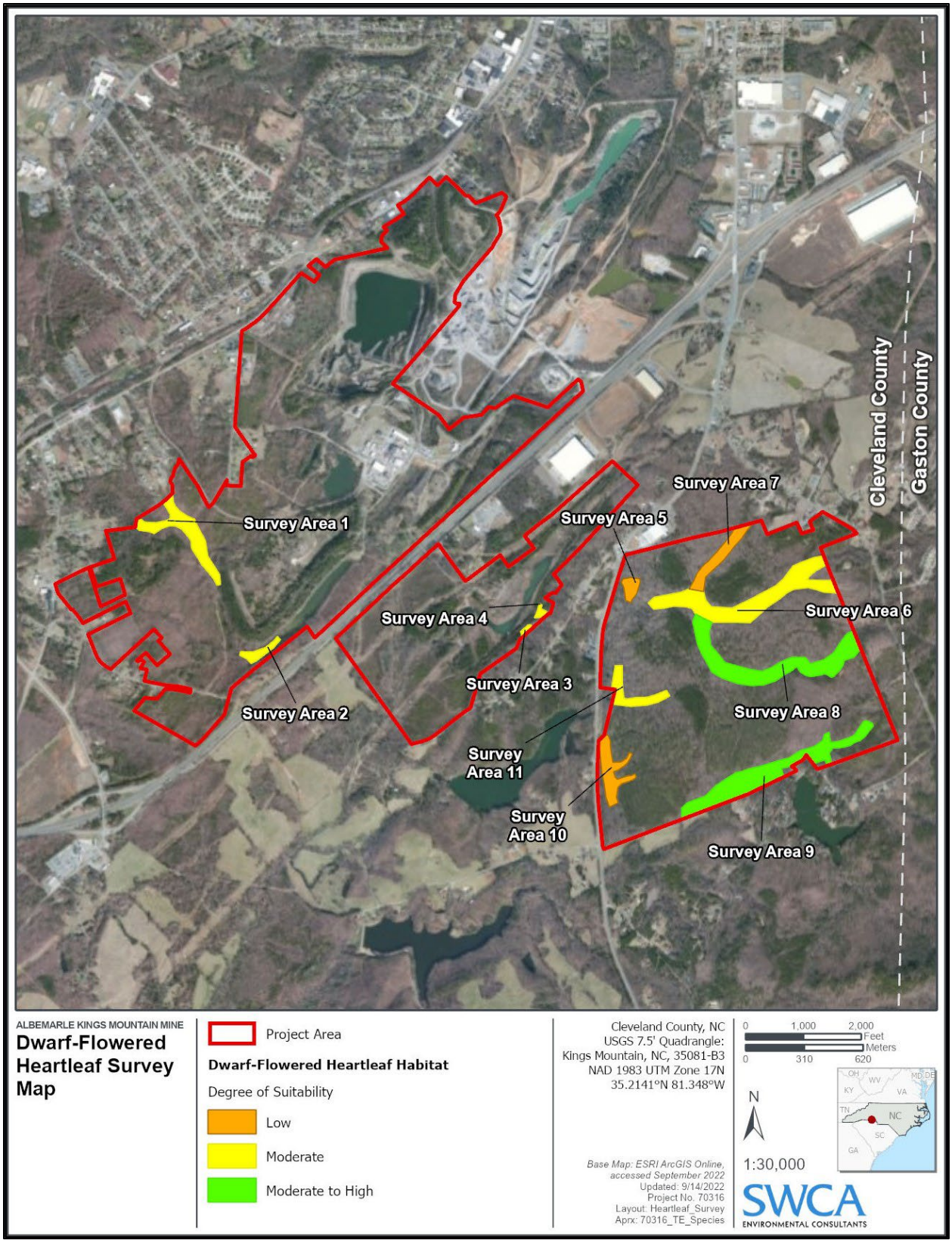

Figure 6. Dwarf-flowered heartleaf habitat.

3.3.2.6 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, 2022e). 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 butterflies (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 blackberry (*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 butterflies (Figure 7). 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.

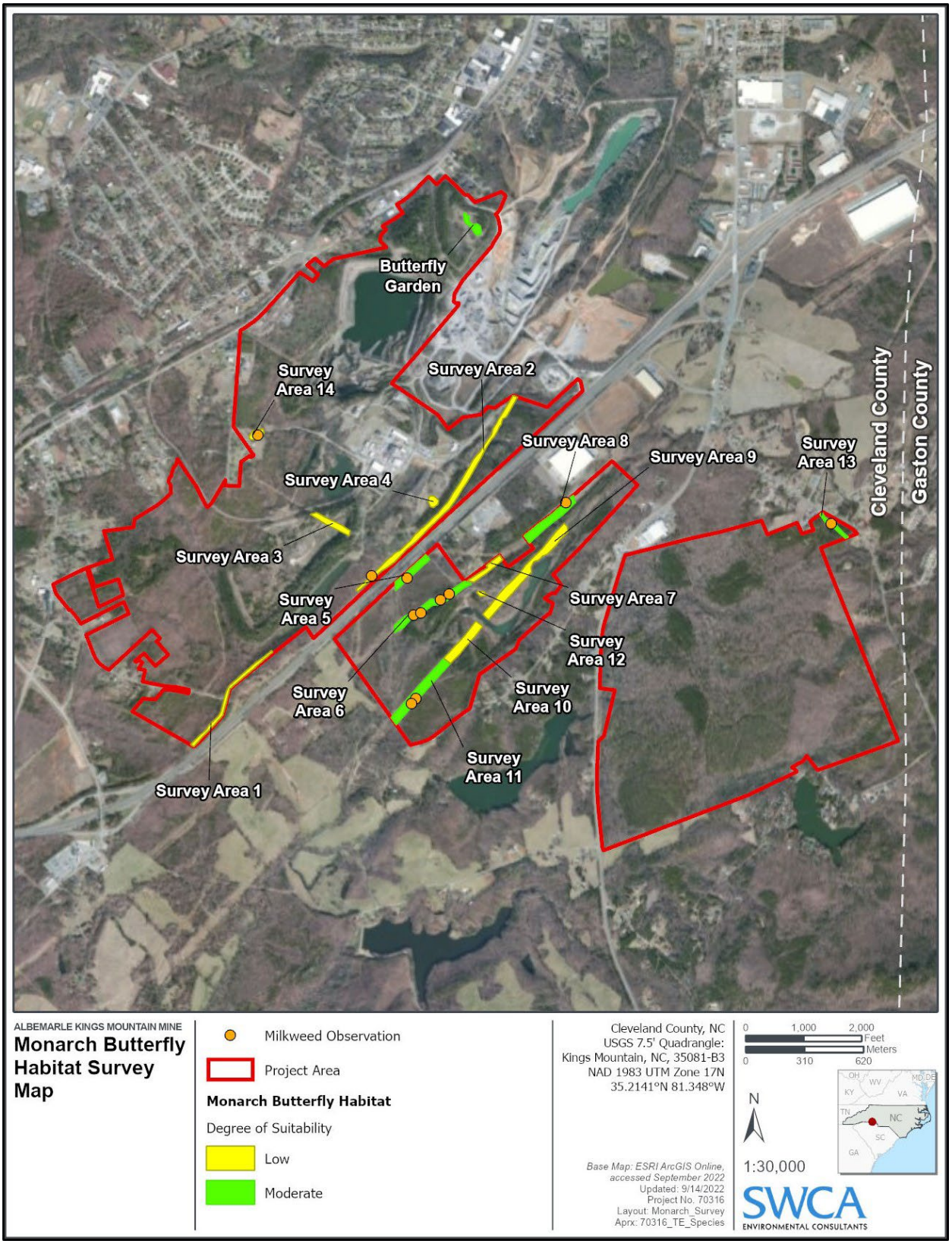

Figure 7. Monarch butterfly habitat.

3.4 State-Listed Species

3.4.1 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. A state threatened species is 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.

3.4.2 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 5) (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 for which 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 5 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 5. 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	*Haliaeetus leucocephalus*	Threatened	Current	Very low; lack of rivers and lakes
Loggerhead shrike	*Lanius ludovicianus*	Special concern	Current	Low; lack of open lands
Barn owl	*Tyto alba*	Special concern	Current	Low; lack of open lands

Common Name	Scientific Name	State Listing Status	County Status	Potential to Occur
Mammal				
Oldfield deermouse	*Peromyscus polionotus*	Special concern	Historical	Very low; last observed in 1977 and lack of habitat
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Current	Low; on edge of range, not identified during 2022 bat acoustic surveys
Little brown bat	*Myotis lucifugus*	Significantly rare	Current	Low; not detected during 2022 bat acoustic surveys
Reptile				
Timber rattlesnake	*Crotalus horridus*	Special concern	Current	Moderate; recorded within 1 mile of Project area and suitable habitat
Carolina pygmy rattlesnake	*Sistrurus miliarius miliarius*	Special concern	Historical	Low; recorded within 1 mile of Project area in 1990, limited suitable habitat
Crustacean				
Carolina foothills crayfish	*Cambarus johni*	Significantly rare	Current	Low; not detected during 2022 aquatic surveys
Broad River stream crayfish	*Cambarus lenati*	Significantly rare	Current	Low; not detected during 2022 aquatic surveys
Broad River spiny crayfish	*Cambarus spicatus*	Special concern	Current	Low; not detected during 2022 aquatic surveys
Fish				
Carolina quillback	*Carpiodes* sp. cf. *cyprinus*	Significantly rare	Current	Very low; not detected during 2022 aquatic surveys
Seagreen darter	*Etheostoma thalassinum*	Significantly rare	Current	Low; not detected during 2022 aquatic surveys
Mollusks				
Dwarf threetooth	*Triodopsis fulciden*	Special concern	Current	Low; not known to occur in the vicinity
Plants				
American bittersweet	*Celastrus scandens*	Endangered	Current	Low; potential habitat observed, but not identified during presence/absence surveys
Smooth sunflower	*Helianthus laevigatus*	Special concern - vulnerable	Historical	Low; potential habitat observed, but not identified during presence/absence surveys
Dwarf-flowered heartleaf	*Hexastylis naniflora*	Threatened	Current	Low; potential habitat observed, but not identified during presence/absence surveys
Dwarf juniper	*Juniperus communis* var. *depressa*	Threatened	Current	Low; recorded within 1 mile but lack of suitable habitat
Rough blazing-star	*Liatris aspera*	Special concern - vulnerable	Historical	Low; no basic soils with high pH present
Spotted phacelia	*Phacelia maculata*	Endangered	Current	Low; lack of rivers, not near known occurrences

Common Name	Scientific Name	State Listing Status	County Status	Potential to Occur
Dwarf chinquapin oak	*Quercus prinoides*	Endangered	Historical	Very low; lack of suitable rocky slope habitat, historical
Bear oak	*Quercus ilicifolia*	Endangered	Current	Low; recorded within 1 mile but not known in Cleveland County, lack of suitable habitat
Pursh's wild petunia	*Ruellia purshiana*	Special Concern – Vulnerable	Current	Very low; lack of suitable habitat, very rare in the southwestern Piedmont

Source: NCNHP (2022a, 2022b)

3.4.2.1 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.

3.4.2.2 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.

3.4.2.3 BARN OWL

Barn owls (*Tyto alba*) 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. Barn owls 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 were 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.

3.4.2.4 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.

3.4.2.5 NORTHERN LONG-EARED BAT

See Section 3.3.2.1.

3.4.2.6 LITTLE BROWN BAT

See Section 3.3.2.3.

3.4.2.7 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, which covered 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.

3.4.2.8 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 the location of 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.

3.4.2.9 CAROLINA FOOTHILLS CRAYFISH

The Carolina foothills crayfish (*Cambarus johni*) in 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). The species is found in streams that 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 species (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).

3.4.2.10 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).

3.4.2.11 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).

3.4.2.12 CAROLINA QUILLBACK

The Carolina quillback (*Carpiodes 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).

3.4.2.13 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).

3.4.2.14 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 on the Albemarle East Property. No species-specific surveys were conducted due to lack of information on this species.

3.4.2.15 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 found only 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 (U.S. 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 2022). 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 and 28, 2022, SWCA biologists conducted surveys to confirm the presence or absence of American bittersweet in potential suitable habitat (SWCA 2022g). 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 main site south of I-85. 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, Sorrie, et al. 2022; USGS 2007). Based on the surveys, it is unlikely the American bittersweet is present within the Project area.

3.4.2.16 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 and 28, 2022, SWCA biologists conducted surveys to confirm the presence or absence of smooth sunflower in potential suitable habitat (see Figure 8). Habitats surveyed included both open and dense ROWs, as well as open areas adjacent to on-site roads and the Gateway Trail. No smooth sunflower individuals were observed within the 68.7-acre survey area (SWCA 2022g). 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, Sorrie, et al. 2022). Based on the surveys, it is unlikely the smooth sunflower is present within the Project area.

3.4.2.17 DWARF-FLOWERED HEARTLEAF

See Section 3.3.2.5.

3.4.2.18 DWARF JUNIPER

The dwarf juniper (*Juniperus 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, Sorrie, 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.

3.4.2.19 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, Sorrie, 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, Sorrie, 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 in 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.

3.4.2.20 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, Sorrie, 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.

3.4.2.21 DWARF CHINQUAPIN OAK

The dwarf chinquapin oak (*Quercus prinoides*) is a deciduous shrub, typically 5 to 6 feet tall (LeGrand, Sorrie, 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.

3.4.2.22 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, Sorrie, 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. It is unlikely new sites will be discovered for this species (LeGrand, Sorrie, et al. 2022). No species-specific surveys were conducted due to lack of suitable habitat.

3.4.2.23 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, Sorrie, 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.

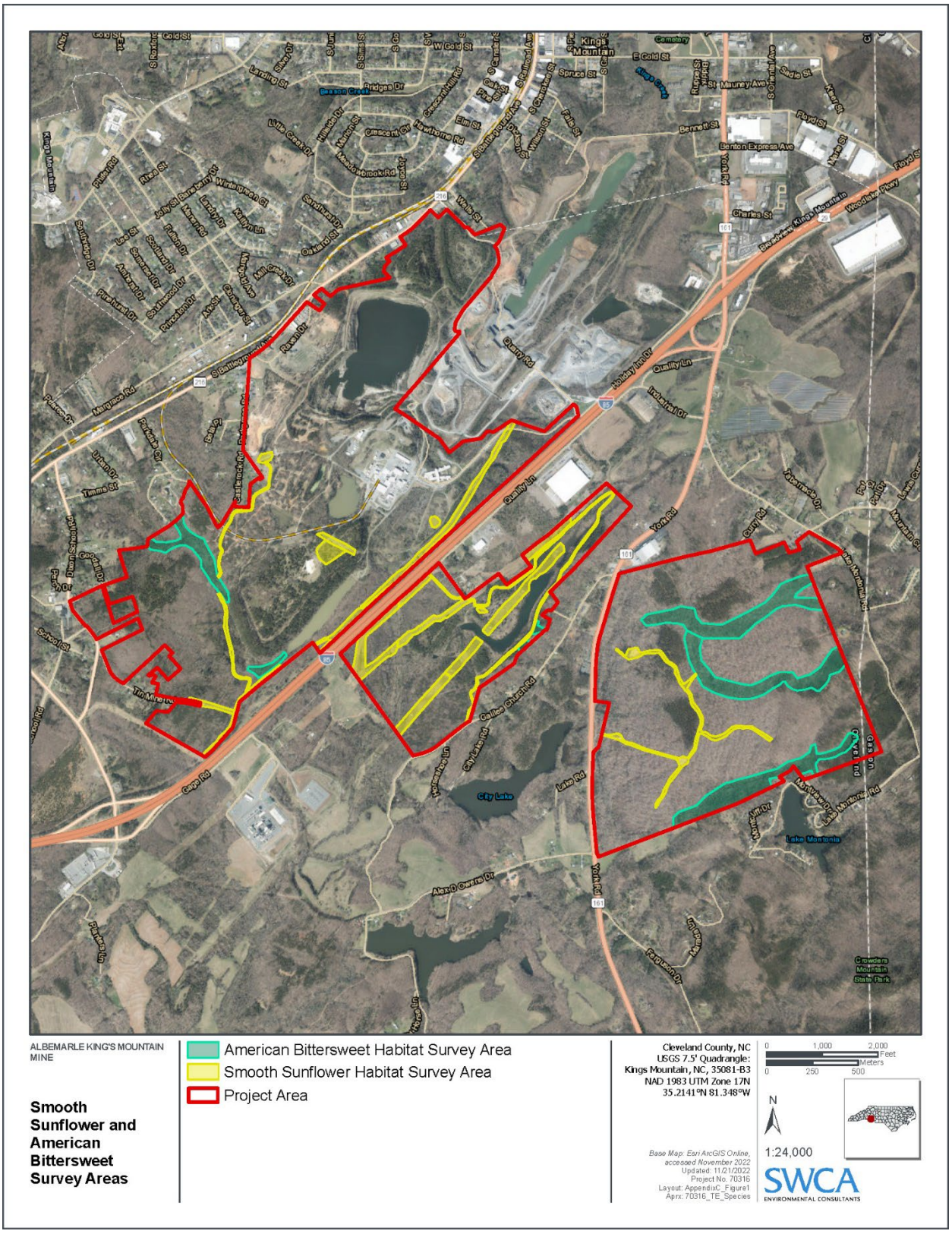

Figure 8. Smooth sunflower and American bittersweet habitat.

4 MIGRATORY BIRDS

Migratory birds are protected under the federal Migratory Bird Treaty Act of 1918 (MBTA), which makes it illegal to destroy or disturb nests with birds or eggs in them. The MBTA prohibits the "take" (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS. "Take" may be intentional or unintentional and is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." The MBTA applies to most bird species and their nests, eggs, feathers, or other parts. The MBTA does not apply to introduced species such as rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and non-migratory upland game birds. Table 6 lists the species commonly observed in the survey area during the summer 2022 surveys (SWCA 2022f).

Table 6. Bird Species Commonly Observed within the Survey Area

Common Name	Scientific Name
Tufted titmouse	*Baeolophus bicolor*
Northern cardinal	*Cardinalis cardinalis*
American crow	*Corvus brachyrhynchos*
Blue jay	*Cyanocitta cristata*
Downy woodpecker	*Dryobates pubescens*
House finch	*Haemorhous mexicanus*
Northern mockingbird	*Mimus polyglottos*
Indigo bunting	*Passerina cyanea*
Eastern towhee	*Pipilo erythrophthalmus*
Summer tanager	*Piranga rubra*
Carolina chickadee	*Poecile carolinensis*
Northern parula	*Setophaga americana*
Prairie warbler	*Setophaga discolor*
Pine warbler	*Setophaga pinus*
Eastern bluebird	*Sialia sialis*
American goldfinch	*Spinus tristis*
Field sparrow	*Spizella pusilla*
Carolina wren	*Thryothorus ludovicianus*
White-eyed vireo	*Vireo griseus*
Mourning dove	*Zenaida macroura*

The bird species observed in the Project area are all species observed regularly in the region (LeGrand et al. 2022) and are regularly recorded during the annual Breeding Bird Survey, a volunteer-based program designed to monitor the status and trends of North American breeding bird populations, along the nearby Flay Route (USGS 2019c). None of the bird species observed in the Project area are USFWS Birds of Conservation Concern. Birds of Conservation Concern are listed by the USFWS and defined as "species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973" (USFWS 2021).

5 GENERAL WILDLIFE

5.1 Terrestrial

Various biological surveys were conducted during each season in 2022. During these field efforts, some common mammals, reptiles, and amphibians were regularly observed. Mammals observed include white-tail deer (*Odocoileus virginianus*), eastern gray squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), and raccoon (*Procyon lotor*). Additionally, black bears (*Ursus americanus*) have been observed occasionally within the site. Common reptiles observed include eastern rat snake (*Pantherophis alleghaniensis*), northern water snake (*Nerodia sipedon*), Carolina anole (*Anolis carolinensis*), five-lined skink (*Plestiodon fasciatus*), eastern fence lizard (*Sceloporus undulatus*), eastern box turtle (*Terrapene carolina*), eastern mud turtle (*Kinosternon subrubrum*), and common musk turtle (*Sternotherus odoratus*). Common amphibians include American toad (*Anaxyrus americanus*), green frog (*Lithobates clamitans*), bullfrog (*Lithobates catesbeianus*), northern cricket frog (*Acris crepitans*), spring peeper (*Pseudacris crucifer*), northern dusky salamander (*Desmognathus fuscus*), and spotted salamander (*Ambystoma maculatum*) (egg masses only).

5.2 Aquatic

An aquatic habitat assessment was conducted in 2022 to determine the aquatic faunal assemblage of the ponds and streams within the Project area (SWCA 2022e). In ponds, bluegill (*Lepomis macrochirus*) was the most common fish species, accounting for 98.4% of observations. Other fish species recorded included the redbreast sunfish (*Lepomis auritus*), spotted bass (*Micropterus punctulatus*), largemouth bass (*Micropterus salmoides*), and pumpkinseed (*Lepomis gibbosus*). Other fauna in pond habitats included mud turtles (*Kinosternon subrubrum*), musk turtles (*Sternotherus odoratus*), painted turtles (*Chrysemys picta*), a yellow-bellied slider (*Trachemys scripta scripta*), a northern water snake (*Nerodia sipedon*), and bullfrog tadpoles and adults (*Lithobates catesbeianus*).

Eleven fish species were observed in Kings Creek, South Creek, and two unnamed streams. The most abundant species observed in the stream habitats was the creek chub (*Semotilus atromaculatus*), which accounted for 51% of observed individuals. In-stream riffle/runs were dominated by creek chub, bluehead chub (*Nocomis leptocephalus*), and rosyside dace (*Clinostomus funduloides*). Pool structures in the streams were dominated by bluegill and redbreast sunfish. Less common, but also observed in pool structures with woody debris or other cover, were spotted bass and warmouth (*Lepomis gulosus*). White crappie (*Pomoxis annularis*), largemouth bass (*Micropterus salmoide*s), flathead catfish (*Pylodictis olivaris*) were observed but were very uncommon.

The only freshwater bivalve observed was Asian clam (*Corbicula* sp.), an introduced species of mollusk that is considered invasive. Asian clams were observed only on the Albemarle East Property. No aquatic snail species were observed in the four streams surveyed. Numerous individuals of crayfish were observed and captured in the two streams within the Albemarle East Property. All crayfish were members of the *Cambarus* (*Puncticambarus*) sp. *C* (*acuminatus*) complex.

Overall, South Creek showed very low species diversity above the lower sections that were flooded by beaver dams, with the upper stream sections being composed of only creek chub. King's Creek had a significant fish barrier (a low water dam), and no species were observed above the dam except a single mosquito fish (*Gambusia affinis*). Below the dam, some species diversity was observed, including bluehead chub, bluegill, redbreast sunfish, spotted bass, and mosquito fish. The Albemarle East Property streams had the highest species diversity longitudinally across entire stream sections. Sampled sections demonstrated classic species compositions associated with pool vs. riffle run habitats, with deeper pools

containing bluegill, warmouth, and occasionally spotted bass. Riffle/run habitats contained primarily chub and dace species with some bluegill. Larger-bodied creek chub and rosyside dace were also found in pools with associated woody debris or other cover.

All fish, crustacean, and bivalve species observed have an International Union for Conservation of Nature (IUCN) status of Least Concern, which is a species that the IUCN has classified as not being a priority for species conservation because the species is still abundant in the wild. They are not endangered, vulnerable, threatened, near threatened, or conservation dependent (IUCN 2022). Additionally, none are listed by the USFWS under the ESA, and none are state listed.

6 SUMMARY AND CONCLUSIONS

The Project area is dominated by forested upland vegetation (69.3%), and 13.5% is disturbed/developed. Jurisdictional and non-jurisdictional wetlands and streams are present and detailed in the *Wetland and Waterbody Delineation Report for the Albemarle Kings Mountain Lithium Mining Project, Cleveland County, North Carolina* (SWCA 2022a). SWCA submitted both an Approved Jurisdictional Determination (AJD) and Preliminary Jurisdictional Determination (PJD) request to the USACE in February 2023. This will determine the final wetland acreage and linear feet of streams that are jurisdictional.

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 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, American bittersweet and smooth sunflower were not present during biological surveys. 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 and no timber rattlesnakes were observed. All other state-listed species have a low or very low potential to occur, primarily due to lack of suitable habitat.

This report will be updated after additional biological surveys are conducted in 2023.

7 LITERATURE CITED

National Audubon Society. 2022. Christmas Bird Count Historical Results. https://netapp.audubon.org/cbcobservation/historical/resultsbycount.aspx. Accessed August 2022.

_____. 2020. Important Bird Areas in NC. https://nc.audubon.org/iba. Accessed August 2022.

Cornell Lab of Ornithology. 2019. All About Birds. Cornell Lab of Ornithology, Ithaca, New York. Available at: https://www.allaboutbirds.org. Accessed August 2022.

eBird. 2022. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available at: http://www.ebird.org. Accessed August 2022.

Federal Emergency Management Agency (FEMA). 2022. FEMA Flood Insurance Rate Map (FIRM). Available at: https://www.fema.gov/about/reports-and-data/openfema. Accessed April 2022.

International Union for Conservation of Nature (IUCN). 2022. IUCN Red List of Threatened Species. Available at: https://www.iucn.org/resources/conservation-tool/iucn-red-list-threatened-species. Accessed August 2022.

Krings, A., S. Goyette, D. Suiter., and M. Samuels. 2021. Rare plants of North Carolina. Available at: https://projects.ncsu.edu/cals/plantbiology/ncsc/rare/. Accessed April 2022.

LeGrand, H., B. Sorrie, and T. Howard. 2022. Vascular Plants of North Carolina [Internet]. Raleigh (NC): North Carolina Biodiversity Project and North Carolina State Parks. Available at: https://auth1.dpr.ncparks.gov/flora/index.php. Accessed August 2022.

LeGrand, H., L. Gatens, E. Corey, and T. Howard. 2022. Mammals of North Carolina: their Distribution and Abundance [Internet]. Raleigh (NC): North Carolina Biodiversity Project and North Carolina State Parks. Available at: https://auth1.dpr.ncparks.gov/mammals/accounts.php. Accessed August 2022.

Monarch Joint Venture. 2022. Monarch Habitat Evaluator. Available at: https://monarchjointventure.org/mjvprograms/science/roadsidehabitat/habitat-evaluator-tool#:~:text=Overview,using%20the%20Rapid%20Assessment%20protocol. Accessed August 2022.

National Resources Conservation Service (NRCS). 2006a. Web Soil Survey for Cleveland County. Available at: https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=NC. Accessed April 2022.

Natural Resources Conservation Service (NRCS). 2018. *Field indicators of hydric soils in the United States*, Version 8.2. Edited by J.F. Berkowitz, G.W. Hurt, and L.M. Vasilas. U.S. Department of Agriculture, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

———. 2022. United States Department of Agriculture. Web Soil Survey. Available at http://websoilsurvey.nrcs.usda.gov/. Accessed April 2022.

NatureServe. 2022. NatureServe Explorer. Available at https://explorer.natureserve.org/. Accessed September 2022.

NC Partners in Amphibian and Reptile Conservation. 2022. Amphibians and Reptiles of North Carolina. Available at https://herpsofnc.org/.

North Carolina Bat Working Group. 2013. Bats of North Carolina. Available at: https://www.ncbwg.org/bats-of-north-carolina/. Accessed September 2022.

North Carolina Department of Environmental Quality. 2022. Find Your HUC in North Carolina. Available at: https://ncdenr.maps.arcgis.com/apps/PublicInformation/index.html?appid=ad3a85a0c6d644a0b97cd069db238ac3#!. Accessed May 2022.

North Carolina Natural Heritage Program (NCNHP). 2003. An Inventory of the Significant Natural Areas of Cleveland County, North Carolina. Prepared by N. C. Natural Heritage Program Office and Foothills Conservancy of North Carolina. April.

_____. 2020. List of Rare Animal Species of North Carolina. Available at: https://www.ncnhp.org/publications/nhp-publications/rare-animal-list. Accessed May 2022.

_____. 2021. List of Rare Plant Species of North Carolina. Available at: https://www.ncnhp.org/publications/nhp-publications/rare-plant-list. Accessed May 2022.

_____. 2022a. 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

_____. 2022b. Species/Community Search. Cleveland County. Available at: https://www.ncnhp.org/data/speciescommunity-search. Accessed August 2022.

North Carolina Wildlife Resources Commission (NCWRC). 2020. Loggerhead shrike species profile. https://www.ncwildlife.org/Portals/0/Learning/documents/Profiles/Birds/Loggerhead-Shrike-Profile.pdf

_____. 2022. North Carolina Species. Available at: https://www.ncwildlife.org/Learning/Species. Accessed August 2022.

South Carolina Department of Natural Resources. 2015a. Supplemental Volume: Species of Conservation Concern – Quillback (*Carpoides cyprinus*). Available at: https://www.dnr.sc.gov/swap/supplemental/freshwaterfish/quillback2015.pdf. Accessed August 2022.

_____. 2015b. Supplemental Volume: Species of Conservation Concern - Seagreen Darter (*Etheostoma thalassinum*). Available at: https://www.dnr.sc.gov/swap/supplemental/freshwaterfish/seagreendarter2015.pdf. Accessed August 2022.

SWCA Environmental Consultants (SWCA). 2022a. *Wetland and Waterbody Delineation Report for the Albemarle Kings Mountain Lithium Mining Project, Cleveland County, North Carolina*. April.

_____. 2022b. *Bat Survey Report for the Albemarle Kings Mountain Lithium Mining Project, Cleveland County, North Carolina*. November.

_____. 2022c. *Dwarf-flowered Heartleaf Survey Report for the Albemarle Kings Mountain Lithium Mining Project, Cleveland County, North Carolina*. December.

_____. 2022d. *Monarch Habitat Assessment for the Albemarle Kings Mountain Lithium Mining Project, Cleveland County, North Carolina*. November.

_____. 2022e. *Aquatic Assessment for the Albemarle Kings Mountain Lithium Mining Project, Cleveland County, North Carolina*. October.

_____. 2022f. *Migratory Bird Nest Surveys for the Albemarle Kings Mountain Lithium Mining Project, Cleveland County, North Carolina*. November.

_____. 2022g. *Federally and State-Listed Species Report for the Albemarle Kings Mountain Lithium Mining Project, Cleveland County, North Carolina*. December.

University of Texas. 2022. Lady Bird Johnson Wildflower Center Plant Database. Available at https://www.wildflower.org/plants/. Accessed September 2022.

U.S. Fish and Wildlife Service (USFWS). 2015. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Northern Long-Eared Bat With 4(d) Rule; Final Rule and Interim Rule. Federal Register 80(63): 17974–18033. Available at https://www.govinfo.gov/content/pkg/FR-2015-04-02/pdf/2015-07069.pdf. Accessed April 2022.

———. 2017. *Dwarf-flowered heartleaf* (*Hexastylis naniflora*). Available at: https://www.fws.gov/raleigh/species/es_dwarf-flowered_heartleaf.html. Accessed April 2022.

———. 2020. *Monarch (*Danaus plexippus*) Species Status Assessment Report*, version 2.1. Available at: https://ecos.fws.gov/ServCat/DownloadFile/191345. Accessed June 2021.

———. 2021. *Birds of Conservation Concern 2021*. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia.

———. 2022a. National Wetland Inventory (NWI) Surface Waters and Wetlands. Available at: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed February 2022.

———. 2022b. Information for Planning and Consultation (IPaC) – Explore Resources. Project Area List. Available at: https://ipac.ecosphere.fws.gov/location/52KWJIY2SZGELBJ5RMERHQX2CE/resources. Accessed February 2022.

_____. 2022c. *Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines*. March 2022. Available at https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines. Accessed June 2022.

_____. 2022d. Little Brown Bat. https://www.fws.gov/species/little-brown-bat-myotis-lucifugus. Accessed September 2022.

———. 2022e. Species profile for monarch butterfly (*Danaus plexippus*). https://ecos.fws.gov/ecp/species/9743. Accessed April 2022.

———. 2023a. Information for Planning and Consultation (IPaC) – Explore Resources. Project Area List. Available at: https://ipac.ecosphere.fws.gov/location/52KWJIY2SZGELBJ5RMERHQX2CE/resources. Accessed February 2023.

———. 2023b. Interim Consultation Framework for the Northern Long-eared Bat. Available at: https://www.fws.gov/library/collections/interim-consultation-framework-northern-long-eared-bat. Accessed March 31, 2023.

U.S. Geological Survey (USGS). 2007. American and Oriental Bittersweet Identification. Available at: 2007-2 Identifying Bittersweet.pub (usda.gov). Accessed October 2022.

———. 2019a. National Land Cover Database (NLCD). Available at: https://www.usgs.gov/data/national-land-cover-database-nlcd-2019-products. Accessed March 2022.

_____. 2019b. National Hydrography Dataset (ver. USGS National Hydrography Dataset Best Resolution (NHD) for Hydrologic Unit (HU) 4 - 2001 (published 20191002)). Available at https://www.usgs.gov/national-hydrography/access-national-hydrography-products. Accessed February 2022.

———. 2019c. Patuxent Wildlife Research Center, North American Breeding Bird Survey. Species List for North American Breeding Bird Survey Route FLAY. https://www.pwrc.usgs.gov/bbs/ Accessed May 2022.

———. 2020. Gap Analysis Project (GAP), Protected Areas Database of the United States (PAD-US) 2.1: U.S. Geological Survey data release. Available at https://www.usgs.gov/ programs/gap-analysis-project/science/pad-us-data-overview. Accessed May 2022.

———. 2022. TopoView. Available at https://ngmdb.usgs.gov/topoview/. Accessed February 2022.

Appendix A. IPaC List

IPaC **U.S. Fish & Wildlife Service**

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 species[1] 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 Fisheries[2]).

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.

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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 Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus 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 Hexastylis naniflora 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 Act[1] and the Bald and Golden Eagle Protection Act[2].

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 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	Breeds Sep 1 to Jul 31

Eastern Whip-poor-will Antrostomus vociferus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Kentucky Warbler Oporornis formosus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

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.

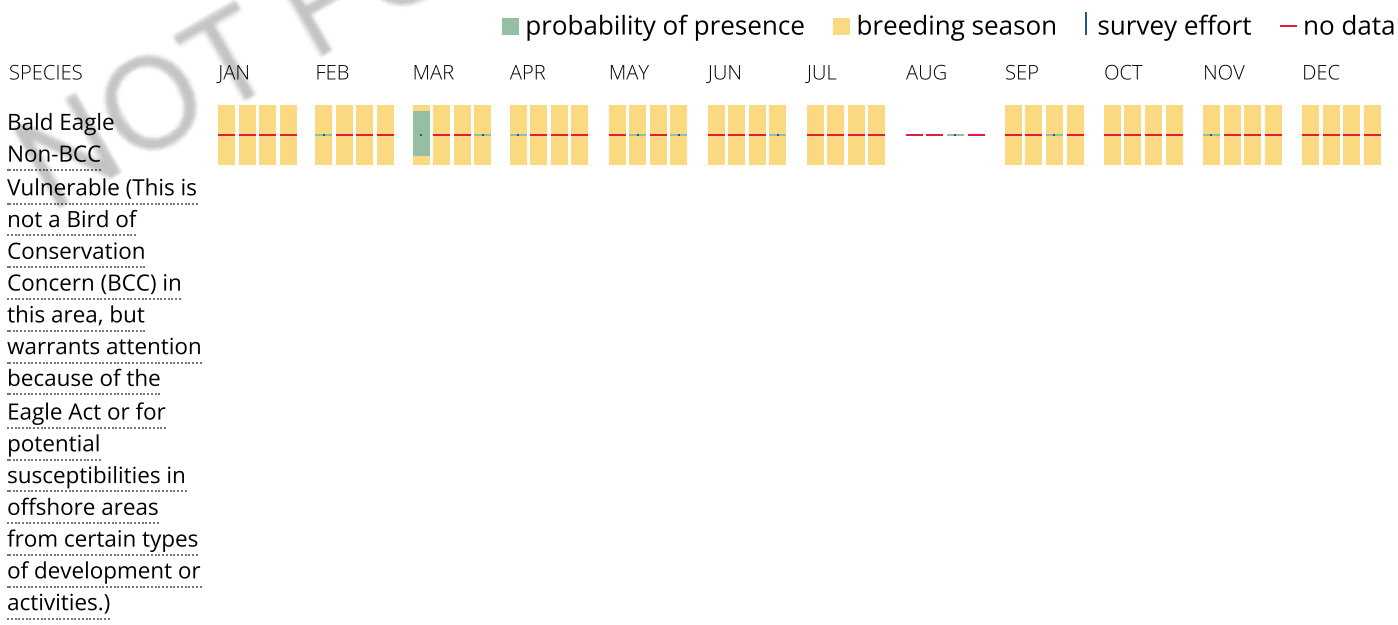
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.

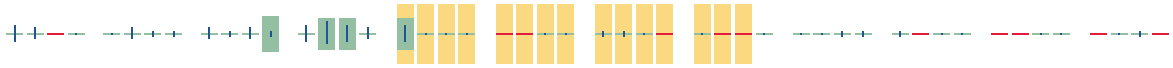
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

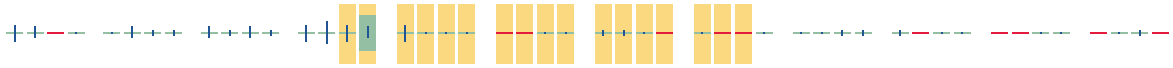
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



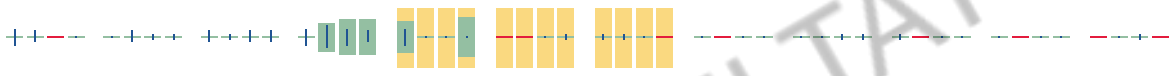
Eastern Whip-poor-will BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



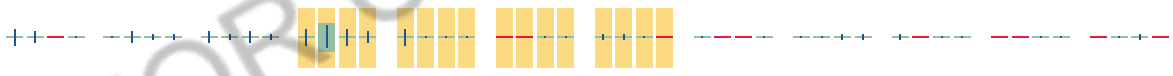
Kentucky Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



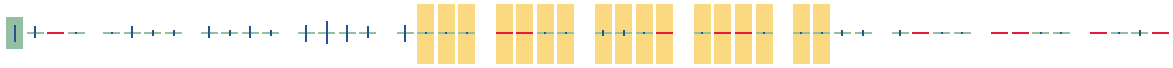
Prairie Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



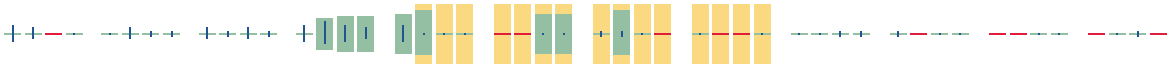
Prothonotary Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Red-headed Woodpecker BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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 tuberficid 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 List

NC DEPARTMENT OF
NATURAL AND CULTURAL RESOURCES

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

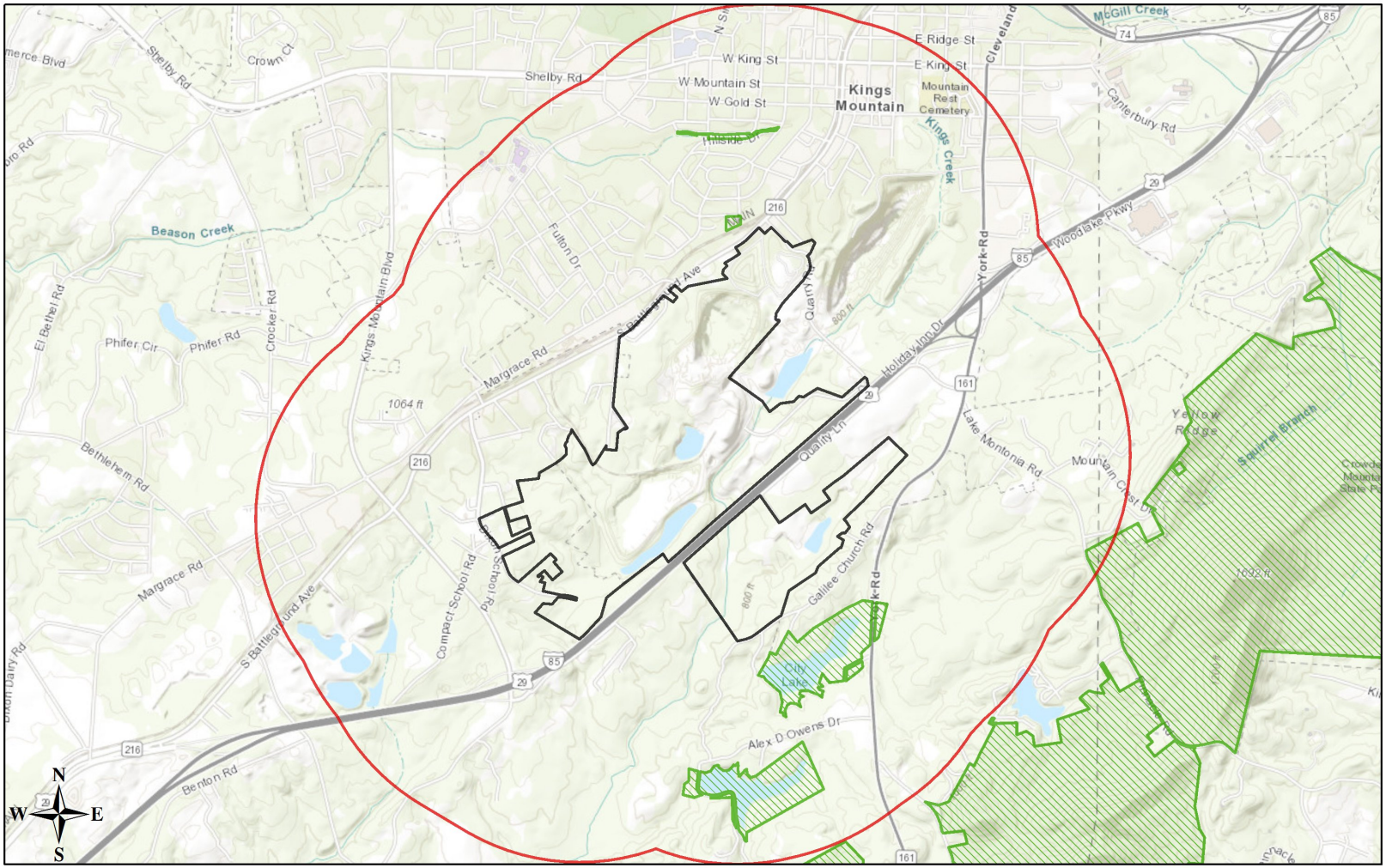
No Natural Areas are Documented Within a One-mile Radius of the Project Area

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)

1:39,070

0 0.325 0.65 1.3 mi

0 0.5 1 2 km

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

NC DEPARTMENT OF
NATURAL AND CULTURAL RESOURCES

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	Satyrium 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	Pycnanthemum torreyi	Torrey's Mountain-mint	1935-07-23	H	4-Low	---	Significantly Rare Throughout	G2	S1
Vascular Plant	1485	Quercus ilicifolia	Bear Oak	2003-08-15	E	3-Medium	---	Endangered	G5	S2
Vascular Plant	863	Thermopsis mollis	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

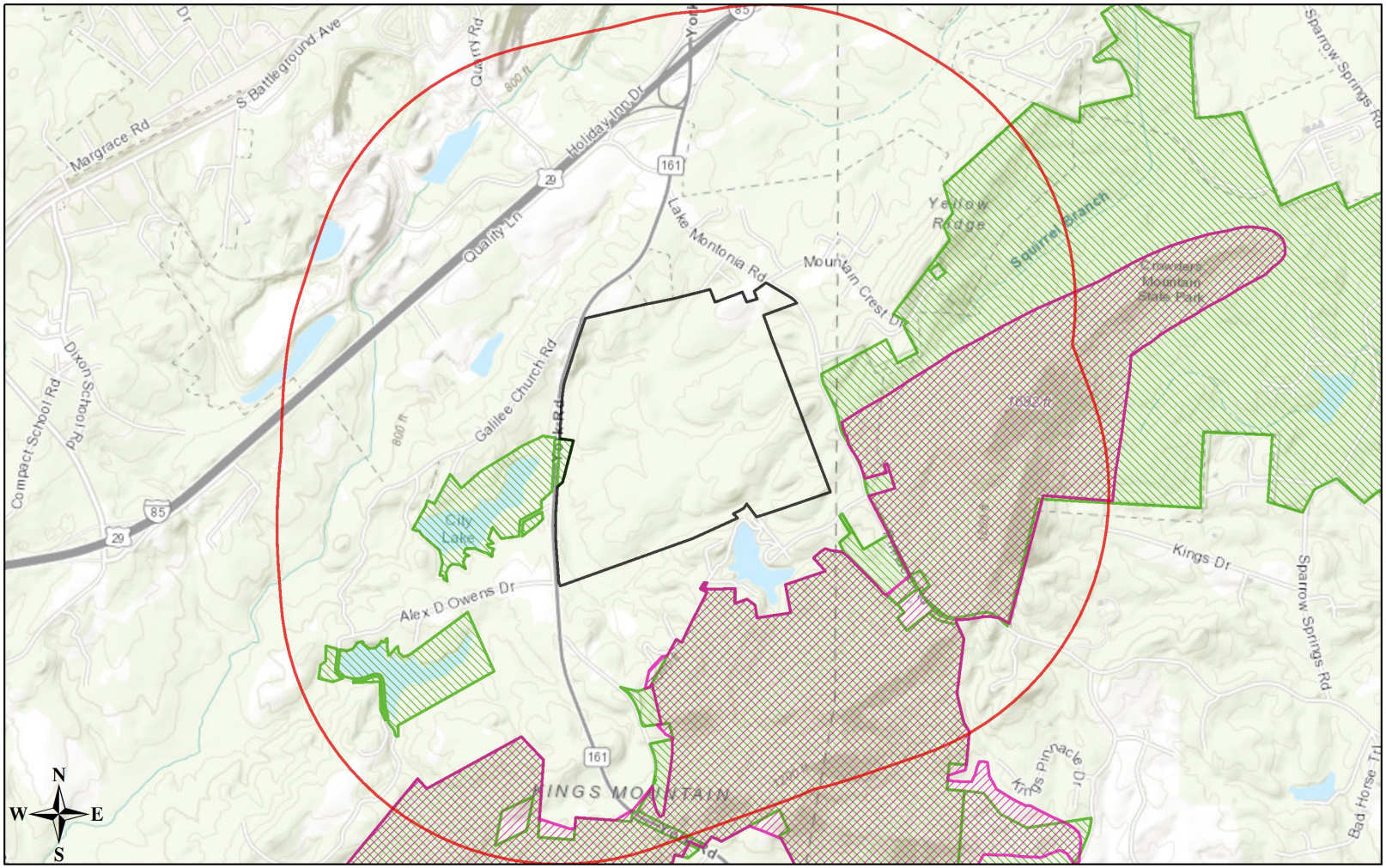
Site Name	Representational Rating	Collective Rating
Crowders Mountain State Park and Vicinity	R2 (Very High)	C2 (Very High)

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)

1:31,323

0 0.275 0.55 1.1 mi

0 0.425 0.85 1.7 km

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