

Biological Resources Evaluation Report

Prepared for:
USDA-Forest Service, Blue Ridge Ranger District

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PREFACE

This Biological Resource Evaluation Report was prepared by Nutter & Associates, Inc. as directed by the USDA-Forest Service to aid in their review of the proposed project and in development of the associated Environmental Assessment (EA) document. Establishment of the proposed project need, alternatives considered, and final content of the EA were tasks under the purview of the USDA-Forest Service, and not considered part of the scope of this evaluation. Inputs utilized in the report are documented herein, and include publicly available data, personal communication with agency personnel, a limited site reconnaissance, published documents and literature, and consultation with the US Fish & Wildlife Service.

1.0 INTRODUCTION

This report presents and evaluates potential environmental consequences on biological resources that may result with implementation of the Union County Target Range Project via issuance of a Special Use Permit (SUP). It examines two alternatives, 1) no action, and 2) establishing and operating a rifle and pistol target range at the selected site in Union County, Georgia. A detailed project description of the proposed action Alternative 2 is provided in Appendix A, along with site location, design layout, and topographic maps. Specifically, this report outlines potential impacts on federal and/or state designated threatened and endangered species, the Chattahoochee-Oconee National Forests sensitive species, and Management Indicator Species (MIS) that are known to be or may be present on the proposed project area. The process by which species listings were narrowed is explained for each group, followed by a description of the existing condition and determination of potential impacts for each species evaluated. This is followed by a discussion on the potential impacts on noise as would be expected from the proposed project on wildlife.

The objectives of this report are to ensure that listed threatened, endangered and sensitive (TES) and MIS species are considered in the decision making process such that the proposed Forest Service action does not contribute to a loss of viability or listing of native plant or animal species as directed under the Forest Plan (USFS, 2004a). This document has been prepared in general accordance with the National Forest Management Act (NFMA), the Endangered Species Act (ESA) and other relevant federal and state laws and regulations.

1.1 Site Description

The proposed Union County Target Range site is located on an approximately 15-acre tract in Union County, Georgia. The site is located in the Level IV Southern Crystalline Ridges and Mountains ecoregion, within the Level III Blue ridge ecoregion of Georgia. This ecoregion is described as having "the highest and wettest mountains in Georgia" (Griffith et al., 2001). These mountains occur primarily on Precambrian-age igneous and high-grade metamorphic rocks. The common crystalline rock types include gneiss, schist, and quartzite, covered by well-drained, acidic, brownish, loamy soils. Some mafic and ultramafic rocks also occur here, producing more basic soils" (Griffith et al., 2001). The site is bordered to the west by Gillam Branch, a first order perennial tributary that drains into Powell Valley Creek, a tributary of the Nottely River within the Hiwassee River watershed (HUC 0602002). Site elevations range between 2,300 and 2,400 feet with a northwest facing aspect (Appendix A).

The proposed site is comprised of mixed hardwood forest and open grassland. The approximate ten-acre forested area is a mature forest dominated by large oaks and hickories. Evergreen species, including white pines and immature hemlocks, are integrated

throughout the overstory and midstory. A history of disturbance has resulted in an approximate 5-acre densely vegetated grassland within the 15-acre project site that consists of grasses, sedges, and vine species that are maintained to create a “wildlife opening” by USFS personnel. The area is currently subjected to annual mowing via bush hog, and was historically a homestead site. Based on the layout of the proposed project, the footprint of the range utilizes the grassland as much as possible and therefore the removal and disturbance of mature forest trees are minimized (Appendix A). Interspersed throughout the site are boulders and boulder piles either naturally occurring or from anthropogenic sources.

Terrestrial species are assumed to utilize this site and surrounding area as a corridor and/or their home range. This includes birds, mammals, reptiles, amphibians, and terrestrial invertebrates. Threatened, endangered, and sensitive (TES) species that potentially utilize the surrounding area are further described below. Non-TES species considered in this report include, USFS Management Indicator Species (MIS) such as white-tail deer, black bear, and migratory and resident bird species, whose presence in the forest can be indicative of specific forest management practices.

1.2 Bounds of Analysis

- Botanical Resources

The bounds for the botanical resource analysis include the approximate 15 acres of the proposed Union County Target Range site.

- Terrestrial Wildlife Resources

The bounds for terrestrial wildlife analysis are based primarily on available habitat within the proposed Union County Target site. Adjacent habitat may also be considered when evaluating the potential of wildlife use in the project vicinity.

- Aquatic Resources

As proposed, Alternative 2 does not include a direct connection to surface waters, including Gillam Branch (Appendix A). A 125-foot buffer from the stream would be maintained and would be outside of the construction footprint of the project. During the construction and decommissioning periods, the project is subject to Georgia Water Quality Control Act and appropriate Union County codes and ordinances. This includes an approved Sediment and Erosion Control (ESC) Plan and Land Disturbance Permit by Union County, a local issuing authority (LIA). Further, permanent site drainage features would not directly connect to surface waters. Given that there are no direct connections to surface waters as proposed, aquatic resources are not considered further as part of this evaluation.

- Timing

This evaluation includes timing of construction, operation and decommissioning of the proposed Union County Target Range as described in Appendix A.

2.0 THREATENED, ENDANGERED, AND SENSITIVE SPECIES (TES)

The Chattahoochee-Oconee National Forests Land and Resource Management Plan (USFS, 2004a), herein referred to as the Forest Plan, includes specific goals, objectives, and standards designed to protect, restore, maintain and enhance wildlife and plant populations and communities. The Forest Service is tasked with conserving and assisting in the recovery of threatened, endangered, and sensitive species. Threatened, Endangered, and Sensitive Species (TES) lists for the Chattahoochee-Oconee National Forest were compiled in reference to the proposed project site (Appendix B). The lists were narrowed down based on known occurrences and/or presence of habitat in or near the project area. For instance, species on the Chattahoochee-Oconee National Forest sensitive species list that do not occur in the Blue Ridge, are known to only occur in the Oconee NF, or have habitat requirements that do not occur at the proposed project site were eliminated from consideration. As detailed below, information used in the species list refining process include: (1) review of Forest Service inventory, Georgia Natural Heritage Program (GNHP) records, and U.S. Fish and Wildlife Service (USFWS) listings for potential species in the affected area, (2) personal communication with agency biologists, (3) field reconnaissance conducted on November 8, 2018 to confirm and characterize habitat on the proposed site, and (4) review of relevant literature and species habitat requirements. It is noted that the field reconnaissance was conducted during the dormant season as directed by the Forest Service, which was within the time allotted for the proposed project evaluation. Efforts to characterize existing habitat are limited as such. The potential for presence or absence of a particular species on the proposed site was determined using the best science available including historic records for the region, habitat availability and professional judgement. The projected determination of potential effects was then summarized. This evaluation was conducted in accordance with Forest Service Manual 2670 and included consultation with the USFWS as discussed below.

In compliance with Section 7 of the Endangered Species Act, the Forest Service consulted with the USFWS to ensure that the proposed action is not likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat, as defined under the Act, exists only after USFWS officially designates it. Critical habitats are

- 1) areas within the geographic area that contain features essential to the conservation of the listed species and that may require special management consideration or protection; and
- 2) those specific areas outside the geographic area, occupied by a species at the time it is listed, essential to the conservation of the species.

Critical habitat was evaluated for each species in the USFWS consultation letters. The consultation letters from the USFWS are attached in Appendix C. Appendix C includes a letter with an official species list that fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information as to whether any species which is listed or proposed to be listed may be present in the area of a proposed action". Appendix C also includes the Verification Letter [Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency]. No Critical Habitat is listed in the project area.

2.1 Threatened and Endangered Species

The threatened or endangered (T&E) species in the table below are addressed due to their occurrence in the project vicinity, or due to their potential to occur within the district based on occurrence and inventory records detailed above, species distribution, and habitat preferences. Determinations of effects are based on USFWS consultation, review of the project description, and confirmed habitat as observed on the site.

Table 1. Threatened and Endangered Species

Group	Scientific name	Common name	Federal Status	State Status
Mammals	<i>Myotis sodalis</i>	Indiana Bat	Endangered	Endangered
	<i>Myotis septentrionalis</i>	Northern Long-eared Bat	Threatened	Threatened
Reptiles	<i>Clemmys muhlenbergii</i>	Bog Turtle	Threatened (Similarity of Appearance)	Threatened (Similarity of Appearance)
Flowering Plants	<i>Isotria medeoloides</i>	Small Whorled Pogonia	Threatened	Threatened
	<i>Sarracenia oreophila</i>	Green Pitcher-plant	Endangered	Endangered
	<i>Helonias bullata</i>	Swamp Pink	Threatened	Threatened

Indiana Bat

Existing Condition: Indiana bat (*Myotis sodalis*) was federally listed as endangered in 1967. Its population at that time was estimated at 880,000 bats with designated critical habitat of 11 caves and 2 mines located in Missouri, Indiana, and Kentucky. The latest estimate is a population size of 537,297 (USFWS, 2019). Since 2010, white-nose syndrome (WNS) (*Pseudogymnoascus destructans*), has caused the mortality of thousands of Indiana bats, and the "degree of threat" category for the species' has been elevated from "moderate" to "high" in the Indiana Bat Recovery Plan. The "high" category means extinction is almost certain in the immediate future. Along with impacts from WNS, disturbance within hibernacula, and forest fragmentation (including conversion to urban land uses) are the most significant rangewide threats (USFWS, 2009).

This migratory species is restricted to caves (with specific requirements) in the winter. There are currently 223 hibernacula known in 16 states (USFWS, 2019), although no substantial hibernacula are known for Georgia; however in 2016, one Indiana bat was

observed hibernating in a cave on National Park Service land in Walker County, GA. In mid to late March, Indiana bats emerge from their winter caves and migrate northward or southward to wooded areas and roost in snags or live trees during the day. Males roost alone, and females roost in groups of 100 or more (USFWS, 2009).

The forests of north Georgia/north Alabama represent the southern edge of the Indiana bat's summer range, and population densities in north Georgia are typically extremely low. Summer roosting and possible maternity habitat in this region differs from summer habitat in the Indiana bat's core range north of Georgia. Preferences for open-canopied, patchy stands with yellow pine snags have been documented within Georgia. In general, the largest available snags or trees with exfoliating bark or cavities with at least some exposure to sunlight are the most likely to be used as summer roosts. Yellow pine snags in an open canopy on south and west aspects are preferred roost trees in Georgia (Hammond et al 2016). Such sites are also used as maternity colony roosts by females and their non-volant young (Loeb and O'Keefe 2006).

Yellow pine dominated forests are essentially absent from the analysis area and the project site has a northwest aspect. Based on project information provided to the USFWS, it is not anticipated that the project would require formal consultation under the Endangered Species Act (USFWS correspondence, 2019). The project area is unlikely to be occupied by roosting or maternity colonies of Indiana bats.

Determination of Effect: Alternative 2 plus cumulative effects may affect but are not likely to adversely affect bat species including the Indiana bat. Tree removal may affect summer roosting Indiana bats by disturbing them with logging equipment or more importantly, if roost trees or maternity roost trees are removed during the active season. Although the risk of impacts to Indiana bats is unlikely due to a lack of suitable summer roosting habitat in the project area, a potential for harassment and harm does exist.

Northern Long-Eared Bat

Existing Condition: Northern long-eared bats (*Myotis septentrionalis*) were formerly widespread across their range, including the forests of north Georgia, but their numbers have been reduced range-wide due to losses from WNS. Northern long-eared bats utilize cracks and crevices in live trees of many species and sizes for summer roosts and maternity habitat. They are known to utilize a network of roost trees and switch between them every few days (Silvis et al., 2014). Due to the species' extreme population decline, northern long-eared bats were federally listed as threatened with a species-specific 4(d) rule in 2015. The interim 4(d) rule was replaced with a final 4(d) rule in January 2016. Incidental take resulting from activities including timber harvest are exempt from the take prohibitions provided that the activities (such as timber harvest):

- occur more than 0.25 mile (0.4 kilometer) from a known hibernacula;

- avoid cutting or destroying known, occupied maternity roost trees during the pup season (April 1-July 31); and
- avoid clearcutting and similar harvest methods within 0.25 mile of known, occupied maternity roost trees during the pup season (April 1- July 31).

As stated above, the Forest Service must consult with the USFWS if its actions may affect a federally listed species, regardless of a 4(d) rule. See Appendix C for the USFS Regulatory Review dated April 10, 2019 that determined that the proposed action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). Under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this list should be verified after 90 days. An updated list was requested on July 17, 2019 (Appendix C).

GA-DNR non-game biologists stated during correspondence that there are northern long-eared bat records within Union County (GA-DNR correspondence, 2019). However, the nearest location is a capture and associated summer roost that is located approximately 5 miles south of the project area. There are no records of hibernacula or roosts within 0.25 miles of the proposed shooting range.

Determination of Effect: Alternative 2 plus cumulative effects may affect but are not likely to adversely affect bat species including northern long-eared bat. Tree removal may affect summer roosting bats by disturbing them with logging equipment or more importantly, if roost trees or maternity roost trees are removed during the active season. Although the risk of impacts to northern long-eared bats is unlikely due to a lack of suitable summer roosting habitat in the project area, a small potential for harassment and harm does exist.

Bog Turtle

Existing Condition: The bog turtle (*Clemmys muhlenbergii*) has a discontinuous and spotty distribution along its range in the eastern United States. Georgia bogs inhabited by the bog turtle are generally found along slowly flowing spring creeks and seepages within low mountain valleys. Habitats capable of supporting a viable bog turtle population may be as small as an acre. Though the habitat type of this turtle varies from spring seepages, bogs, and wet meadows, the presence of soft, deep, mucky organic soil and open wet areas with shallow water are prerequisites to inhabitation by bog turtles. These bogs are ideally quite open and characterized by a rich growth of sedges, rushes, bulrushes, and, especially, sphagnum moss. Woody vegetation present often includes red maple, tag alder, willow, and swamp rose. This habitat does not occur on the project construction footprint.

Determination of Effect: Alternative 2 plus cumulative effects would have no effect on bog turtles because the likelihood of their presence in the project area is low due to the absence of suitable habitat.

Small Whorled Pogonia

Existing Condition: Small whorled pogonia is an orchid federally listed as Threatened under the Endangered Species Act of 1973. Although widely distributed, this species is rare. The determination of presence is limited given the orchid may lie dormant for long periods of time. It is found in 18 eastern states. Populations are typically small (between 1 and 50 plants). This species occurs on upland sites within canopy gaps in mixed deciduous or mixed deciduous/coniferous forests that are generally second-growth or younger successional stages, often with old logging roads and streams nearby.

There are approximately ten known extant populations of small whorled pogonia on the Chattahoochee National Forest, all in the Blue Ridge Mountains ecozone. The proposed project site is within the potential historic range of this species; however, none of these populations are known to occur on the project site. The densely vegetated grassland area is not consistent with the more open forested setting with canopy gaps where this species would likely occur, and the forested area within the project site provides near full canopy closure that would not be considered suitable habitat.

Determination of Effect: Alternative 2 plus cumulative effects are unlikely to affect small whorled pogonia because of the likely lack of presence and quality habitat within the impact area and the land disturbing activities (e.g., mowing) that have continuously occurred on the site. In addition, the activity would not occur within any of the existing or historic colony sites.

Green Pitcher-Plant

Existing Condition: Three distinct habitat types have been described for green pitcher plant (*Sarracenia oreophila*). They are sandstone streambanks, mixed oak or pine flatwoods, and seepage bogs (USFWS, 1985). Woodland and bog soils are sandy clays and loams with an upper layer of organic material, while the streambank soils are composed almost purely of sand (USFWS, 1985). All of these habitats exhibit generally moist soil conditions, but this plant species does not grow in areas where regular flooding occurs and the soils are continually saturated. Within the bog habitat, the green pitcher plants grow away from wet sloughs and are typically found along stream banks. Thirty-five populations are known in Georgia, northeast Alabama, and southwest North Carolina. Historically, these pitcher plants also occurred in eastern Tennessee. Only one natural population is located in Georgia and this population is not on the project site.

Determination of Effect: Alternative 2 plus cumulative effects are unlikely to affect green pitcher plants because the likelihood of their presence in the project is low due to the absence of suitable habitat. Additionally, the location of the known population or occurrence in Georgia is not within the project area.

Swamp Pink

Existing Condition: The swamp pink (*Helonia bullata*) is a federally threatened member of the lily family. It grows in acidic wetlands with perennially saturated soils. Typically, swamp pink grows with such species as sphagnum moss, red maple, spicebush, greenbrier, black gum, and various wetland ferns and sedges. This obligate wetland species only exists in eight states in the eastern U.S. and is not found on the project site.

Determination of Effect: Alternative 2 plus cumulative effects would have no effect on swamp pink because the likelihood of their presence in the project is low due to the absence of suitable habitat. Additionally, the location of the known population or occurrence in the Chattahoochee-Oconee National Forest is not within the project area.

2.2 Sensitive Species

The following sensitive species listed below are further addressed due to their occurrence in the project vicinity, or due to their potential to occur within the district based on occurrence and inventory records, species distribution, and habitat preferences.

American Barberry

Existing Condition: One population of American barberry (*Berberis canadensis*) has been observed in the last 60 years in Georgia; it occurs on private land in Bartow County. This plant has never been documented on the Chattahoochee NF. Only 50 populations remain in 10 states. Preferred habitat includes sunny patches of land in dry, open woods, often over limestone, shale, or mafic rock.

Determination of Effect: Alternative 2 plus cumulative effects would have no effect on American barberry because the likelihood of their presence in the project area is low due to the absence of suitable habitat.

Large Witch-Alder

Existing Condition: Three populations of large witch-alder (*Fothergilla major*) have been seen in the last 30 years, with two occurring on conservation lands: Zahnd Natural Area in Walker County and Chattahoochee River National Recreation Area in Fulton County. This plant has never been documented on the Chattahoochee NF. Preferred habitat type is mixed hardwood-pine forests on dry, rocky (sandstone or granite) slopes and bluffs, often with pine, scarlet oak, and black oak; occasionally, moist forests with tulip poplar, silverbell, and cucumber tree along rocky stream banks. This species prefers acidic soils.

Determination of Effect: Alternative 2 plus cumulative effects would have no effect on large witch-alder because the likelihood of their presence in the project area is low due to the absence of suitable habitat.

Butternut

Existing Condition: Butternut (*Juglans cinerea*) is in decline due to butternut canker which has killed more than 75% of these trees in the southern U.S. This species prefers cove forests with rich, moist soils; drier hardwood forests over soils high in calcium or magnesium; or forests along mountain streams.

Determination of Effect: Potential suitable habitat for butternut occurs in the project area. However, any impacts to this species at the project location, if present, would not likely impact the listing status or the viability of this species.

Stone Mountain Mint

Existing Condition: Stone Mountain mint (*Pycnanthemum curvipes*) occurs in dry rocky woodlands and granite or mafic rock outcrops.

Determination of Effect: Potential suitable habitat for Stone Mountain mint occurs in the project area. However, any impacts to this species at the project location, if present, would not likely impact the listing status or the viability of this species.

Mountain Catchfly

Existing Condition: Mountain catchfly (*Silene ovata*) is found in high-elevation mountains, with rocky, oak forests, usually over mafic rocks. This species has been documented approximately 0.8 miles southeast of the site.

Determination of Effect: Potential suitable habitat for mountain catchfly occurs in the project area. However, any impacts to this species at the project location, if present, would not likely impact the listing status or the viability of this species.

Ash-leaf Bush-pea

Existing Condition: Ash-leaf bush-pea (*Thermopsis fraxinifolia*) is found in oak and oak-pine ridge forests.

Determination of Effect: Potential suitable habitat for ash-leaf bush-pea occurs in the project area. However, any impacts to this species at the project location, if present, would not likely impact the listing status or the viability of this species.

Carolina Golden Banner

Existing Condition: Carolina golden banner (*Thermopsis villosa*) prefers mesic forests, floodplains and roadsides; mostly in sandy soils

Determination of Effect: Alternative 2 plus cumulative effects would have no effect on Carolina golden banner because the likelihood of their presence in the project area is low due to the absence of suitable habitat.

Sweet White Trillium

Existing Condition: Sweet white trillium (*Trillium simile*) occurs in "rich coves of mature forests, edges of rhododendron thickets and at edges of forests, in moist humus soil" over mafic or calcareous rocks, often near seepages. This species has been documented approximately 2.1 miles east of the site.

Determination of Effect: Potential suitable habitat for sweet white trillium occurs in the project area. However, any impacts to this species at the project location, if present, would not likely impact the listing status or the viability of this species.

Rafinesque's Big-eared Bat

Existing Condition: Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) are typically found in forested habitats. Roosting sites are usually in or near areas of mature forest, including bottomland and upland hardwoods and pine flatwoods with water nearby; roosting sites are usually dimly lit sheltered areas such as dilapidated buildings, bridges, hollow trees, loose bark, rock shelters, and the entrance zones of caves and mines. Big-eared bats forage among the canopies of large trees.

Determination of Effect: Alternative 2 plus cumulative effects may affect but are not likely to adversely affect bat species including Rafinesque's big-eared bat. Tree removal may affect summer roosting bats by disturbing them with logging equipment or more importantly, if roost trees or maternity roost trees are cut down during the active season. Although the risk of impacts to Rafinesque's big-eared bats is unlikely due to a lack of suitable summer roosting habitat in the project area, a small potential for harassment and harm does exist.

Tri-colored Bat

Existing Condition: Tri-colored bat (*Perimyotis subflavus*) prefer open forests with large trees and woodland edges, roost in tree foliage, and hibernate in caves or mines with high humidity. This species has been documented approximately 1.0 miles north of the site.

Determination of Effect: Alternative 2 plus cumulative effects may affect but are not likely to adversely affect bat species including tri-colored bat. Tree removal may affect summer roosting bats by disturbing them with logging equipment or more importantly, if roost trees or maternity roost trees are cut down during the active season. Although the risk of impacts to tri-colored bats is unlikely due to a lack of suitable summer roosting habitat in the project area, a small potential for harassment and harm does exist.

2.3 Action Impacts for Threatened, Endangered, and Sensitive Species

Alternative 1: No Action

The wildlife opening would continue with current management and the forested area would not be altered. There would be no effects to the current botanical resources or terrestrial wildlife resources.

Alternative 2: Proposed Action

Based on consultation with the USFWS, there is no Critical Habitat listed in the project area.

There are potential impacts to the Indiana bat, Northern Long-eared bat, and other bat species as discussed above. The risk of impacts to bat species can be minimized or avoided by use of best management practices including 1) not allowing the removal of trees during the likely roosting/active period from April 1 – July 31, and 2) no cutting of snags >6 inches DBH. These practices, if implemented, would be beneficial to tree-roosting bats of all species.

As stated above, the proposed action would not contribute to a loss of viability or listing of the various sensitive plant species that could potentially be impacted.

3.0 MANAGEMENT INDICATOR SPECIES

Management indicator species (MIS) are utilized in forest management because their population changes are believed to be indicative of management activities. Species are selected to represent categories, such as commonly hunted or fished species, non-game species, and threatened and endangered species (addressed above).

The Forest plan identifies MIS to:

- Evaluate effects of management on composition, structure, and function of forest communities,
- Evaluate effects of management on successional habitats,
- Determine how well key terrestrial habitat attributes are being provided,
- Identify the status and trend of aquatic habitat conditions in relationship to aquatic communities,
- Determine the status and trends of forest health threats on the forest, and
- Monitor the status and trends of federally listed species and species with viability concerns in the forest.

The MIS listed in Table 2 were compiled from the Final Environmental Impact Statement for the Forest Plan (USFS, 2004b). MIS that are known to only occur in the Oconee NF (ex. red cockaded wood-pecker) were eliminated from consideration. Indicators on the lists presented in the Tables 2 and 3 below may or may not be found on the site due to specific habitat requirements as indicated under habitat occurrence level. Species indicated as having a habitat occurrence level of 'none' do not have habitat within the project site.

Table 2. MIS and Habitat indicator selected for as listed in the Forest Plan

MIS Type	Indicator	Habitat indicator selected for as listed in the Forest Plan	Habitat Occurrence Level
Indicators of Composition, Structure, and Function of Forest Communities	Hooded Warbler (<i>Wilsonia citrina</i>)	mature mesic deciduous forest; bottomlands and moist deciduous forests with fairly dense understories	None
	Field Sparrow (<i>Spizella pusila</i>)	woodlands, savannas, and grasslands; frequently burned open habitats, as well as habitats with scattered saplings or shrubs in tall weedy or herbaceous cover	Low
Indicators of Successional Habitats	Prairie Warbler (<i>Dendroica discolor</i>)	early successional forest	None
	Chestnut-sided Warbler (<i>Dendroica pensylvanica</i>)	high elevation early successional forest	Low
	Acadian Flycatcher (<i>Empidonax virescens</i>)	mature riparian forest; mature deciduous forest along streams and bottomland hardwoods	None
	Ovenbird (<i>Seiurus aurocapillus</i>)	mature forest interior in the mountains	None
	Scarlet Tanager (<i>Piranga olivacea</i>)	mature upland oak communities	Low
	Swainson's Warbler (<i>Limnothlypis swainsonii</i>)	canebrakes, tangles, and thick shrubby understories, and open bottomland hardwoods and mixed forests; forested riparian areas with fairly closed canopy and dense undergrowth	None
	Pine Warbler (<i>Dendroica pinus</i>)	pine and pine-oak forests	None
Indicators of Key Terrestrial Habitat Attributes	Pileated Woodpecker (<i>Dryocopus pileatus</i>)	forested habitats containing abundant snags, large dead trees, and fallen logs	High

Table 3. MIS and Reason Selected as Listed in the Forest Plan

MIS Type	Indicator	Reason Selected as Listed in the Forest Plan	Habitat Occurrence Level
Monitoring for Threatened and Endangered Species	Smooth coneflower (<i>Echinacea laevigata</i>)	Trends in populations of this species will be used to help indicate effectiveness of management activities designed specifically to meet recovery objectives for this species.	None
Trends for demand species and their use	Black Bear (<i>Ursus americanus</i>), White-Tailed Deer (<i>Odocoileus virginianus</i>)	Selected to help indicate the effects of management in meeting public demand for these species. These are commonly hunted species and monitoring will be in conjunction with Georgia Wildlife Resources Division	High

3.1 Action Impacts

Alternative 1: No Action

There would be no changes in MIS and their associated habitats within the project site.

Alternative 2: Proposed Action

Due to construction, change in land use, and operation of the target range, impacts to MIS are projected to be as followed. During construction and operation of the range, field sparrow, chestnut-sided warbler, scarlet tanager, pileated woodpecker, black bear, and white-tailed deer would likely avoid the project area and utilize other available habitat in the area.

Considering the disturbance at the site and habitat types available, it is expected that this project would have minimal to no long-term impact on MIS other than potentially causing avoidance of the project site during construction, operation, and decommissioning. For all MIS, any change in the quantity or quality of habitat would not likely be to the extent such that forest wide habitat or population trends would be altered. Therefore, implementation of the Proposed Action would not prohibit Forest plan goals and objectives for MIS and their associated habitat types.

4.0 IMPACTS OF TARGET RANGE OPERATION NOISE ON WILDLIFE

A literature review of the effect of anthropogenic noise on wildlife was conducted to determine what impacts might occur to local wildlife and migratory species as a result of the proposed action. The focus is to specifically address noise relating to operation of the target range. However, construction and decommissioning of the site are considered.

The majority of the research related to noise effects on wildlife has been military-related noise or noise effects to aquatic based species. The literature was inadequate in helping to draw conclusions that would cover all wildlife species in the affected area. Doresky, et al. (2001), reports that federally endangered red-cockaded woodpeckers exhibit no response to training activities, including gunfire, on a military base. However, Bayne et al. (2008) indicates that songbird density and pairing success declined with noise. In other studies on deer populations, deer that had been exposed to noise for longer periods were more acclimated and less sensitive to human caused noises than deer in less populated areas (Radle, 2007).

Any noise emitted from human activities would cause a level of disturbance and stress to terrestrial wildlife species. It is important to note that the area is not devoid of human stimuli. Brasstown Scenic Highway traffic noise can be heard from the site. Management of the site includes actively mowing the wildlife opening. Hikers through the wilderness areas and Appalachian Trail can be assumed to cause disturbance to wildlife as well. In addition, the Chatuge Gun Club target range is 3 linear miles from the proposed site. It can be assumed that some species in the area are already acclimated to the noise associated with target ranges.

Many researchers agree that excess anthropogenic noise can have negative effects on wildlife behavior, physiology, and reproduction (Larkin et al., 1996; Radle, 2007). However, research specific to individual wildlife species is sparse, making assertions as to direct effects of noise impacts on wildlife speculative. Impacts to wildlife from gun range noise is likely to occur in the immediate vicinity of the range and would vary depending on species. Changes in sound levels impact wildlife differently, and the impacts of sound on wildlife have been found to vary substantially depending on the species, the type of sound, and the context. The conclusion is that some wildlife species would acclimate to the new conditions and others would adjust by avoiding the area when users are present. Therefore, the range would not have an appreciably negative impact on wildlife as forest wide, ample habitat exists for wildlife to avoid noise impacts from the range.

Current vegetation and the variability of the terrain assists in distorting and lessening the impacts of the noise over the area.

4.1 Action Impacts

Action 1: No Action

Under the no action alternative, there would be no effects on existing noise conditions. Ambient noise created by the forest, noise from current land management practices, and current anthropogenic noises would persist.

Action 2: Proposed Action

Noise from the operation of the target range could adversely impact wildlife. Any impacts from noise to wildlife would be local and occur when shooting range patrons are present which is only during daylight hours (Appendix A). Based on an analysis of 2018 usage data for eight GA-DNR ranges, range visits are highest at opening time, weekends, and seasonally such as the fall deer hunting season. Migrating birds that hear the gun fire may alter migratory paths around the area. Bear, deer, wild turkey, and other resident specie are likely to disburse from the area, especially with an increase in traffic and human presence. Noise from the range might affect bat feeding behavior if shooting continues into dusk.

Noise associated with construction and decommissioning of the site would be temporary. However, it is expected that wildlife would generally avoid the area during active construction and decommissioning.

Some wildlife species would acclimate to the new conditions and others would adjust by avoiding the area when users are present in favor of ample forest habitats that surround the proposed target range. Therefore, the range is unlikely to have an appreciably negative impact on wildlife populations forest wide. Strategies to reduce or minimize noise produced by the proposed project are outlined in Appendix A, and include natural barriers such as backstops, berms and targeted vegetative plantings, along with an overhead containment baffle.

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APPENDIX A.

Target Range Project Description

**Project Description of the
Proposed Union County Government Target Range**

Prepared by:

Nutter & Associates, Inc.

July 2019

Introduction

The USDA-Forest Service is charged with evaluating a project proposed by the Union County Government to construct a target range facility on National Forest lands. Design plans and projected usage for the facility were not provided by the county; so to aid in the review process, the following project description was developed based on available sources listed below.

- The Union County Government Special Use Permit (SUP) application (Standard Form 299) and associated attachments, dated April 24, 2018;
- Proposed Shooting Range Location Map (Attachment A), which presents a conceptual site layout drawing of the facility, dated September 12, 2018;
- The Union County Gun Club Standard Operating Procedures (SOP), dated July 25, 2019;
- Personal communication with the USDA-Forest Service Interdisciplinary NEPA review team and the Blue Ridge Ranger District personnel;
- 2018 usage data for eight Georgia Department of Natural Resources (GDNR) ranges, including Ocmulgee, Dixon, Memorial, West Point, Cedar Creek, Wilson Shoals, Clybel, Chickasawhatchee, and Richmond Hill (Unpublished);
- National Shooting Sports Foundation's publication, *Environmental Aspects of Construction and Management of Outdoor Shooting Ranges*, Facility Development Series Number 2, published in 1997;
- National Rifle Association publication, *The NRA Range Source Book: A Guide to Planning and Construction*, published in 2012;
- The US Department of Energy's *Range Design Criteria*, published in 2012;
- The US Environmental Protection Agency's *Best Management Practices for Lead at Outdoor Target Ranges*, Report No. EPA-902-B-01-001, Region 2, originally published in January 2001, and revised June 2005; and
- The USDA-Forest Service's Built *Environmental Image Guide for National Forests and Grasslands* (BEIG), Publication No. FS-710, September 2001, Chapter 4.4 Southeast Mountain Province.

This description is intended for proposed project evaluation purposes only. It does not constitute a project design or operation plan. All of the items in this description have been

acknowledged by the USDA-Forest Service; however, final design and operation plans are to be completed by the SUP applicant, and are subject to USDA-Forest Service approval.

Proposed Project Location

The proposed site for this project is located off Highway 180 between mile markers 18 and 19 on Land lot 212, District 16, Section 1 south of FS Road 292 and consists of approximately 14.5 acres of National Forest land (Attachment A). The proposed site layout shows structures and features of the range and outlines the approximate 3-acre construction footprint. Gillam Branch serves as the western project boundary, but a buffer of 125-feet would be maintained and remain undisturbed for the life of the proposed project.

Implementation and Management

As proposed, the Union County Government would be the primary SUP holder and would assume the funding, maintenance and operation responsibilities, with the Union County Gun Club, a private entity, responsible for the day to day operation of the proposed target range. Per the permit application, the facility is designated for public use, but there are varying levels of membership for the Union County Gun Club.

The Union County Government would implement an approved Environmental Stewardship Plan (ESP) developed in accordance with *Best Management Practices for Lead at Outdoor Shooting Ranges* (US Environmental Protection Agency, 2001, revised 2005). The ESP is currently being developed by the USDA-Forest Service, and is subject to their approval prior to implementation.

Union County Government would also implement a site-specific operations and safety plan for users of the range (SOP), which is also subject to USDA-Forest Service approval prior to implementation. Included in those measures is a dedicated Range Safety Officer available during operation hours, who is certified by the NRA or similar organization.

Per the SUP application, the construction period is projected to be 60 to 90 days in length, and the specified site life is 100 years. Range operating hours would be limited to daylight times, seven days per week, throughout the year.

Decommissioning the Union County Government Target Range would include complete removal of all structures, reuse of the backstop material, and regrading and replanting of the site according to a USDA-Forest Service approved vegetation management plan. Lead would be removed/recycled in accordance with the ESP, and its removal would be confirmed through monitoring conducted by Union County.

Range Types

The project would include two shooting ranges, one for rifle usage (600 x 100 foot) and another for pistol usage (150 x 60 foot) (Attachment A). Per the Union County Gun Club SOP, the following gun would be permitted, as stated:

- *Single shot center fire and rim fire rifles and pistols less than .50 caliber.*
- *Bolt action or lever action, magazine fed, center fire rifles, rim fire rifles and pistols up to 50 caliber.*
- *Semiautomatic magazine fed, center fire rifles, rim fire rifles and pistols up to and including 50 caliber.*
- *Black powder muzzle loading rifles and pistols.*
- *Black powder muzzle loading smoothbore muskets.*

Projected Usage

Projected range usage was not provided by the Union County Government of the Union County Gun Club. Expected range use was estimated based on 2018 usage data for eight Georgia Department of Natural Resources (GDNR) ranges, including Ocmulgee, Dixon, Memorial, West Point, Cedar Creek, Wilson Shoals, Clybel, Chickasawhatchee, and Richmond Hill. Most of the ranges are closed on Mondays, and have varied operating hours. Three of the ranges closed for a portion of the year (2018) for repairs or other reasons. An overview of usage follows:

- Average total visitors per range (based on 5 ranges that were opened all of 2018) was approximately 5,000 users/year.
- Days of the week: Approximately 30 percent of the weekly visitation occurs on Saturdays, with Fridays and Sundays also receiving higher visitation. Tuesdays and Wednesdays had the lowest overall visitation.
- Hourly Visitation: In general, visitation peaked in the opening hour (9-10 am, Tuesday to Saturday, and 1-2 pm, Sunday), and tapered off during the late afternoon.
- Monthly Visitation: Use of the ranges peaked in autumn based on five ranges opened all of 2018 (see summary below).

Monthly average percentage of of annual visitation occurrence			
Jan	7	Jul	7
Feb	7	Aug	8
Mar	9	Sep	9
Apr	8	Oct	12
May	7	Nov	11
Jun	7	Dec	8

Similar total, daily, hourly and seasonal usage patterns are expected for the Union County Target Range. For the purposes of evaluating the proposed project, an estimated 5,000 users per year is utilized, including repeat visitors, each utilizing a vehicle for access to the facility.

Site Features

Site specific design plans and construction details (e.g., equipment or materials to be used) were not provided by the Union County Government, and any engineering drawings or plans would be subject to USDA-Forest Service approval. The following site feature descriptions are presented based on the best information available, including the guidance documents and other sources listed above, and the proposed site layout (Attachment A). Details provided have been acknowledged by the USDA-Forest Service, and are intended for evaluation purposes only.

Access Road:

The access road that connects State Highway 180 to the designated parking lot would be approximately 500 feet in length, with double lanes, and topped with the appropriate aggregate material to a minimum depth of 6 inches. All design/engineering would be consistent with Forest Service standards. The connection of the access road to Highway 180 is subject to modification of the existing Georgia Department of Transportation (GDOT) SUP. Therefore potential impacts of the connection are not included in the evaluation of the proposed project. Ongoing required maintenance would be consistent with standards for Road Maintenance, Level 3. Construction would involve tree and boulder/rock removal, grubbing and filling as needed with appropriate materials, grading and shaping, temporary installation of erosion and sediment control measures, and permanent installation of necessary drainage structure(s) (culvert or dip) along with a secure access gate. Grading is projected to be minimal, such that the existing slope of the site would be maintained, and would not include substantial cut and fill of soil and subsurface material. If merchantable timber is to be removed, trees would be identified and designated for removal by USDA-Forest Service personnel.

Parking Lot:

The parking lot would consist of a 60 x 200 foot cleared and graded area, topped with aggregate material to a depth of 6 inches. The projected capacity would be up to 40 vehicles. Construction would include boulder and rock removal, grading and shaping, gravel laying and temporary installation of erosion and sediment control measures. Grading is projected to be minimal, such that the existing slope of the site would be maintained, and would not include substantial cut and fill of soil and subsurface material.

Vaulted toilets:

Vaulted toilets would include subsurface installation of a 1,500 gallon concrete tank that is cleaned out routinely by the Union County Government or Union County Gun Club for waste management. Design and material selection would be in accordance with the BEIG guidelines, such that appropriate construction materials and color schemes are utilized. Construction would include boulder and rock removal from the surface and subsurface removal of soil and bedrock, installation of concrete and impervious surfaces, rain water control features (so the tank does

not fill with storm water), and building of an enclosed structure. No water source wells would be installed and there would be no running water associated with the vaulted toilets.

Structures:

Structures on the site would include a 175 x 15 foot pole barn that houses 16 stalls total on the two ranges, a 2,500 square-foot clubhouse, and two smaller storage units. An overhead containment baffle structure would be installed on the roof of the pole barn structure over the stalls. Construction would include clearing and rock removal, grading and shaping, and installation of concrete flooring, wooden posts/beams, wood siding, and standing seam metal roofing materials. Grading is projected to be minimal, such that the existing slope of the site would be maintained, and would not include substantial cut and fill of soil and subsurface material. Design and material selection would be in accordance with the BEIG guidelines, such that appropriate construction materials and color schemes are utilized. There would be no power supply to any structures located at the proposed facility.

Shooting Ranges:

The proposed project would include two shooting ranges, one for rifle usage (600 x 100 foot) and another for pistol usage (150 x 60 foot). Construction would include clearing and removing rock and vegetation, grading and shaping, installation of an access path along the length of each of the ranges, and installation of site specific water control measures. Grading is projected to be minimal, such that the existing slope of the site would be maintained, and would not include cut and fill of soil and subsurface material. The grade of the shooting lanes as proposed would be greater than the 2 percent grade recommended in the US Department of Energy and NRA guidelines. The National Shoot Sports Foundation guidelines recommend that the ranges be "relatively flat."

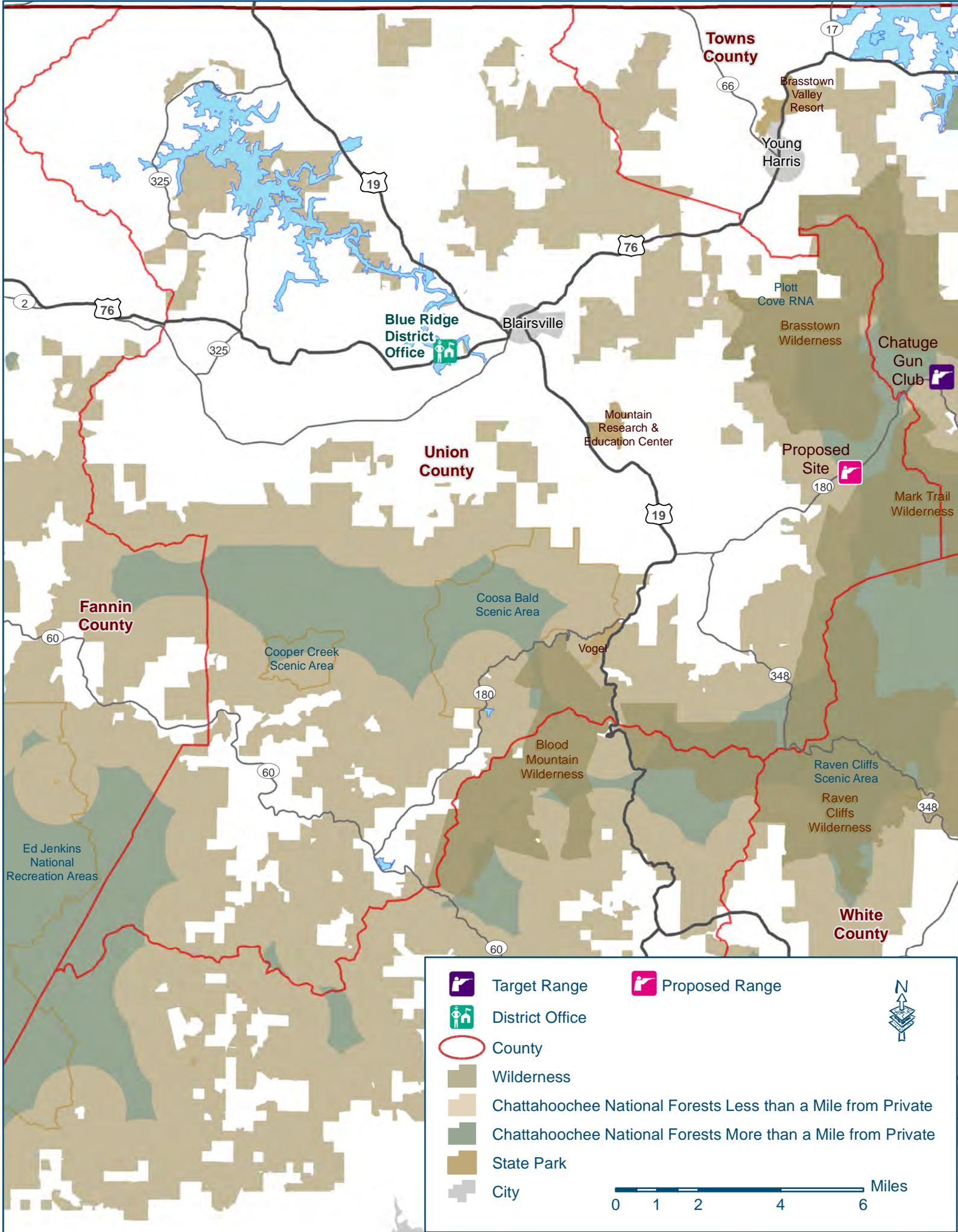
Protective backstops would be installed along the sides of each range to a minimum height of 8 feet, and along the primary back side of the range to a minimum height of 20 feet. Side slopes on the backstops are expected to be at a 1.5:1 ratio. Material for the backstops would be sourced locally, not originating from the USDA-Forest Service property, and tested for quality and appropriateness prior to use. Ballistic Sand may be utilized, as appropriate, on the primary backstops, as a cap. The anticipated volume of material (soil) to be sourced is estimated to be approximately 4,000 cubic-yards. The ranges and backstops would be grassed using a Forest Service approved Southeast Upland seed mix and maintained for full vegetative coverage of the site during operation of the range. Some example species include Brown top millet, Switchgrass, Big Bluestem, and Indiangrass for the spring and summer months, and Crimson clover, Hairy Vetch, and wheat for use during the fall and winter.

Drainage Management:

Water control structure(s) and drainage plans have not been developed for the facility. Artificial drainage would be provided temporarily for construction/decommissioning of the project, and permanently for operation and maintenance of the range. All sediment and erosion control measures, including any artificial drainage (e.g., vegetated buffers, turn outs, settling basins, etc.) would be designed, installed and maintained in accordance with both the Georgia Water Quality Control Act and appropriate Union County codes and ordinances. This includes an approved Erosion, Sedimentation and Pollution Control (ESPC) Plan and Land Disturbance Permit by Union County, a local issuing authority (LIA) during construction and decommissioning of the site. It is assumed that in no case would there be a direct connection of construction site stormwater to naturally occurring surface water in the vicinity of the project, and compliance with the approved ESPC Plan and the General Permit NPDES Permit No. GAR100001 would be maintained. Further, any permanent water control structure(s) that would remain or be constructed as part of the ongoing maintenance and operation of the facility would not provide a direct connection to surface water in the vicinity of the project.

Measures for Minimization/Mitigation of Potential Impacts

- Installed backstops/barriers would serve to aid in lead containment, lessen noise impacts, and add safety for users of the range.
- An overhead containment baffle unit would be installed on the pole barn roof above the shooting stalls to reduce noise impacts, and prevent to the extent possible, a weapon from firing directly out of a range.
- Vegetative tree plantings of appropriate native species are proposed in the area currently maintained as a wildlife opening. These trees, when mature, would lessen impacts from noise and provide for scenic resources.
- Tree removal associated with construction would not be allowed during the period of April 1st through July 31st to avoid potential impacts to bat species.
- Signage would be installed as needed to aid in safety for traffic and recreation users of the National Forest in the vicinity of the project.
- A security gate would be installed at the facility entrance to aid controlling access.
- Where appropriate, recommendations presented in the BEIG would be implemented in design and material selection to minimize scenic impacts.
- Access road placement would provide a minimum of a 400-foot line of site stopping distance to improve safety for thru-traffic and users of the proposed facility.
- Lead BMPs would include but are not limited to recycling/reclamation of lead, pH adjustment of soils within the range footprint and along artificial drainage features, bi-annual soil monitoring, maintenance of range and backstops with USDA-Forest Service approved grass mixes such that there is minimal bare ground surfaces for dust and erosion control, and no direct connection to surface waters in the stormwater and drainage control features that would be constructed on the site.



Towns County

Brasstown Valley Resort
Young Harris

Plott Cove RNA

Brasstown Wilderness

Chatuge Gun Club

Blue Ridge District Office

Blairsville

Mountain Research & Education Center

Proposed Site

Mark Trail Wilderness

Union County

Fannin County

Coosa Bald Scenic Area

Cooper Creek Scenic Area

Vogel

Blood Mountain Wilderness

Raven Cliffs Scenic Area

Raven Cliffs Wilderness

Ed Jenkins National Recreation Areas

White County



Target Range



Proposed Range



District Office



County



Wilderness



Chattahoochee National Forests Less than a Mile from Private



Chattahoochee National Forests More than a Mile from Private



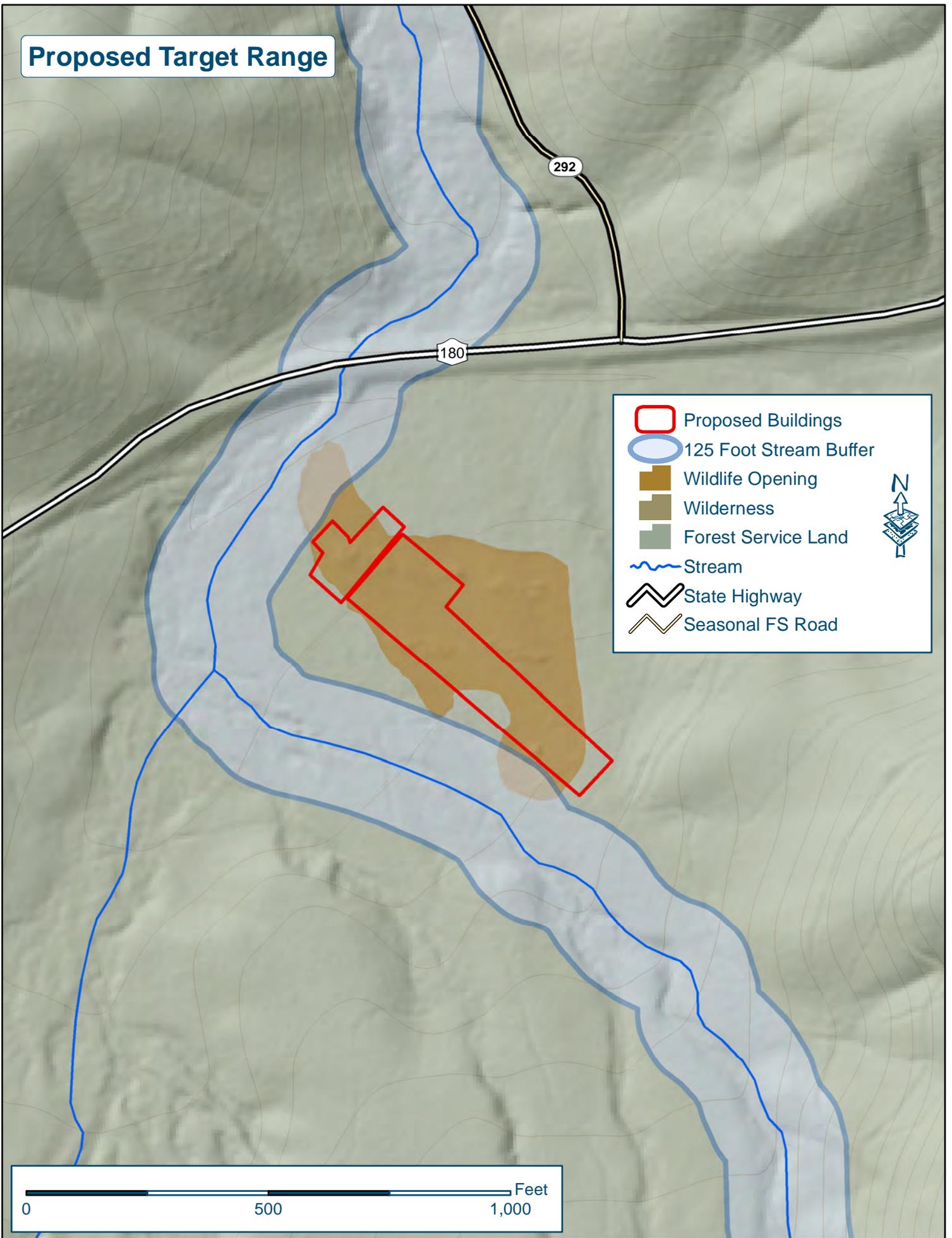
State Park



City



Proposed Target Range



0 500 1,000 Feet



Legend

	PROPOSED ROAD		RIFLE RANGE
	STREAMS		PISTOL RANGE
	Roads		BUILDINGS
	125 FT STREAM BUFFER		BERMS
	PROPOSED PARKING AREA		PROPOSED SHOOTING RANGE BOUNDARY
	FIRING LINE		



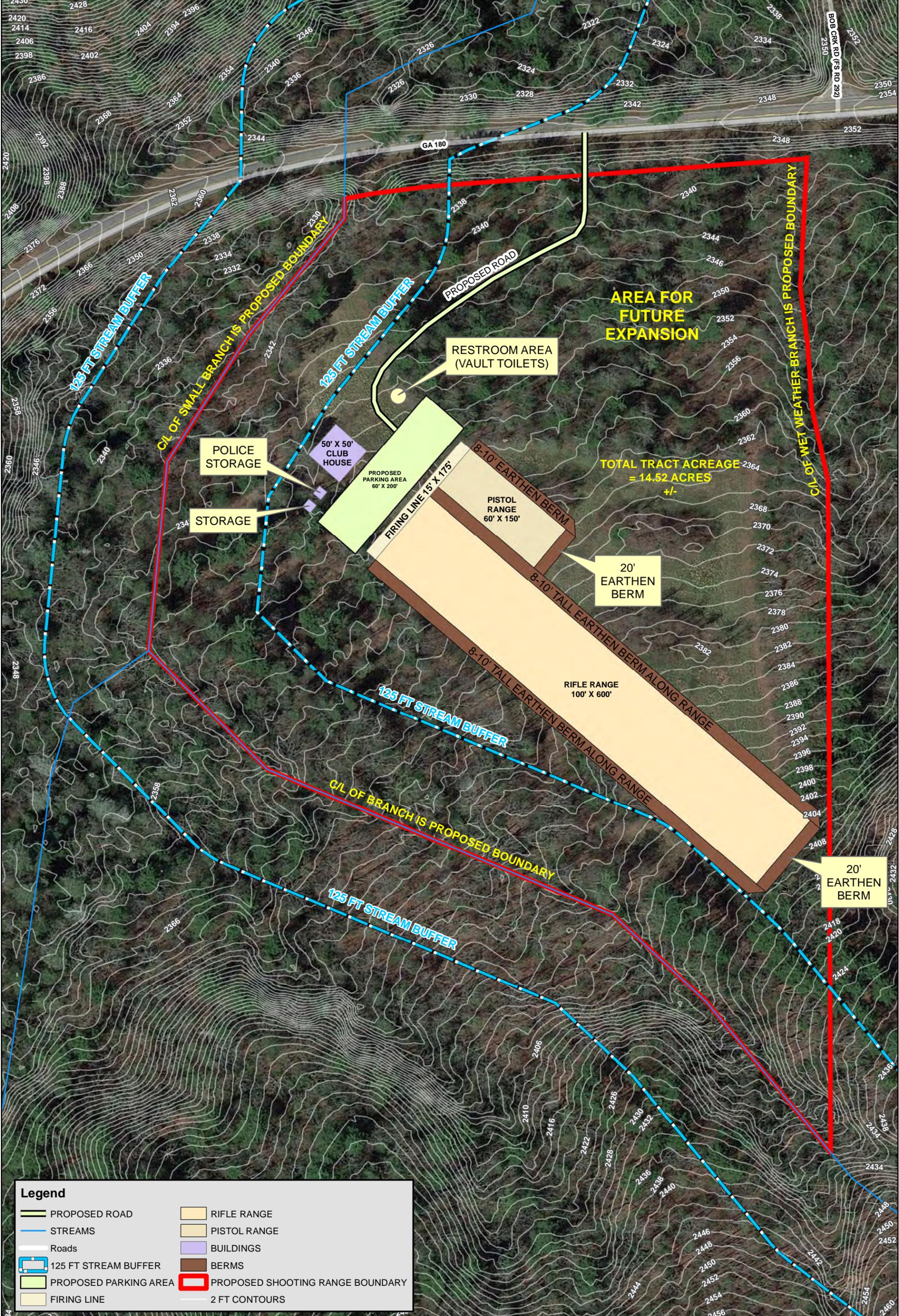
1 inch = 100 feet

**PROPOSED SHOOTING RANGE LOCATION
GA HWY 180 E NEAR USFS RD 292
UNION COUNTY, GEORGIA**



This is an official product of the Union County Geographic Information System. Although Union County has made reasonable efforts to ensure the accuracy of the Union County GIS Database, the end USER understands that the Union County GIS Database may contain errors. Union County makes no warranty of any kind regarding the accuracy or reliability of the Union County GIS Database or any part thereof.
Shawn Seabolt, GISP Director
The Union County Geographic Information System





Legend	
	PROPOSED ROAD
	STREAMS
	Roads
	125 FT STREAM BUFFER
	PROPOSED PARKING AREA
	FIRING LINE
	RIFLE RANGE
	PISTOL RANGE
	BUILDINGS
	BERMS
	PROPOSED SHOOTING RANGE BOUNDARY
	2 FT CONTOURS



1 inch = 100 feet

**PROPOSED SHOOTING RANGE LOCATION
GA HWY 180 E NEAR USFS RD 292
UNION COUNTY, GEORGIA**



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Date: 9/12/2018
Shawn Seabolt, GISP Director
The Union County Geographic Information System



APPENDIX B.

***USFS R8 Regional Forester's Sensitive
Species List. Feb 2 2018 (modified)***

Regional Forester's Sensitive Species List

Revised : 02/02/2018

USDA Forest Service Southern Region

Group	Scientific Name	Common Name	sprot	srank	grank	Habitat
Crustacean	<i>Cambarus cymatilis</i>	Conasauga Blue Burrower	E	S1	G1	Complex burrows adjacent to streams or in low areas where the water table is near the surface of the ground
	<i>Cambarus extraneus</i>	Chickamauga Crayfish	T	S2	G2	Spring runs to small rivers with slow to moderately flowing sections with rocky substrates, woody debris, or leaf material
	<i>Cambarus georgiae</i>	Little Tennessee Crayfish	E	S1	G2G3	"Flowing or quieter areas of large streams to medium-sized rivers under rocks or in leaf packs."
	<i>Cambarus parrishi</i>	Hiwassee Headwater Crayfish	E	S1	G2	Rocky areas between riffles in clear headwater streams
	<i>Cambarus speciosus</i>	Beautiful Crayfish	E	S2	G2	Medium-sized streams with clear water and moderate to swift current with rock-littered substrate
Fish	<i>Cyprinella callitaenia</i>	Bluestripe Shiner	R	S2	G2G3	Flowing areas in large creeks and medium-sized rivers over rocky substrates
	<i>Erimystax insignis</i>	Blotched Chub	E	S2	G4	Medium to large clear streams in moderate current with substrate of gravel to cobble
	<i>Etheostoma brevirostrum</i>	Holiday Darter	E	S1	G2	Small creeks to moderate sized rivers in gravel and bedrock pools
	<i>Etheostoma ditrema</i>	Coldwater Darter	E	S1	G2	Vegetated springs and spring runs or small streams with spring influence
	<i>Etheostoma vulneratum</i>	Wounded Darter	E	S1	G3	Fast rocky riffles of small to medium rivers
	<i>Hybopsis lineapunctata</i>	Lined Chub	R	S2	G3G4	Upland creeks over sandy substrate with gentle current
	<i>Moxostoma robustum</i>	Robust Redhorse	E	S1	G1	Medium to large rivers, shallow riffles to deep flowing water; moderately swift current
	<i>Moxostoma sp. 1</i>	Apalachicola Redhorse		S3	G3	Pools, runs, and riffles (shoals) of large rivers and their tributaries
	<i>Noturus munitus</i>	Frecklebelly Madtom	E	S1	G3	Shoals and riffles of moderate to large streams and rivers
	<i>Percina kusha</i>	Bridled Darter	E	S1	G2	Flowing pools and runs in large streams and small to medium sized rivers with clear water
	<i>Percina squamata</i>	Olive Darter	E	S1	G3	High gradient upland rivers with large rocky substrate in moderate to swift current
Gastropod	<i>Pleurocera showalteri</i>	Upland Hornsnail		S1	G2Q	Medium sized rivers
	<i>Alasmidonta varicosa</i>	Brook Floater		S2	G3	Medium rivers and creeks with gravel and boulders

Mussel	<i>Strophitus connasaugaensis</i>	Alabama Creekmussel			G3	This is a small to medium sized river species that inhabits shallow embayments of larger rivers. It is most often found in substrates composed of fine gravel, sand, and silt, typically in stretches with soem current in less than two feet of water
	<i>Toxolasma corvunculus</i>	Southern Purple Lilliput		S1?	G1	Flowing waters of creeks to medium rivers
	<i>Toxolasma lividum</i>	Purple Lilliput			G3	This species can inhabit fine-particle substrates and also sand, gravel, or cobbles and boulders in riffles or flats immediatly above riffles.
	<i>Villosa nebulosa</i>	Alabama Rainbow		S2	G3	Large rivers to small streams; flowing water with gravel and sand substrates, may be found in fine sediments among cobble and boulders
Lichen	<i>Heterodermia erecta</i>					
	<i>Rinodina chrysomeleana</i>					
	<i>Stereocaulon tennesseense</i>					
Non-Vascular Plant	<i>Cheilolejeunea evansii</i>	Evans' Cheilolejeunea			G1G2	Bark of trees in moist escarpment gorge or gorge-like habitats, with best development in relatively open microsites within shaded gorges. Found at lower elevations.
	<i>Frullania appalachiana</i>	Appalachian Frullania		S2?	G2?	On tree trunks and decaying wood above 3800 ft.
	<i>Lejeunea blomquistii</i>	Blomquist Lejeunea		S1S2	G1G2	Waterfall spray zones
	<i>Nardia lescurii</i>	a liverwort			G3?	On peaty soil over rocks, usually in shade and associated with water; in low elevations of mountains, rarely on the coastal plain
	<i>Plagiochila caduciloba</i>	Brittle-lobed Leafy Liverwort		S1?	G3	Moist cliff faces
	<i>Pohlia rabunbaldensis</i>	Rabun Bald Feather-Moss		S1?	G1	Rocky, moist openings, select high balds
	<i>Berberis canadensis</i>	American Barberry	E	S1	G3	Cherty, thinly wooded slopes
	<i>Cardamine clematitidis</i>	Mountain Bittercress		S1	G3	High elevation seepy rock cliffs
	<i>Carex radfordii</i>	Radford's Sedge	T	S1?	G3	Rich woods of marble ravines
	<i>Chelone cuthbertii</i>	Cuthbert's Turtlehead	T	S1	G3	Bogs and wet meadows
	<i>Cleistesiosis bifaria</i>	Spreading Pogonia			G4?	
	<i>Collinsonia verticillata</i>					
	<i>Fothergilla major</i>	Large Witch-alder	T	S1	G3	Rocky (sandstone, granite) woods; bouldery stream margins
	<i>Helianthus smithii</i>	Smith's Sunflower		S1	G2Q	Dry open woods and thickets
	<i>Hymenophyllum tayloriae</i>	Gorge Filmy Fern		S1?	G2	Wet ledges along the Chattooga River
	<i>Juglans cinerea</i>	Butternut		S2	G4	Openings in bottomland forests and in the mesophytic hardwood forests of rich mountain coves
<i>Lotus unifoliolatus var. helleri</i>						

Plant	<i>Lysimachia fraseri</i>	Fraser's Loosestrife	R	S2	G3	Moist, open, bouldery gravel bars and streambanks; edges of sandstone and granite outcrops
	<i>Monotropis odorata</i>	Sweet Pinesap	T	S1	G3	Upland forests
	<i>Packera millefolium</i>	Blue Ridge Golden Ragwort	T	S1	G3	High elevation rock outcrops
	<i>Parnassia grandifolia</i>	Largeleaf Grass-of-Parnassus		S1	G3	Seeps over ultramafic gravelly substrate
	<i>Pycnanthemum curvipes</i>	Stone Mountain Mint		S2	G3	Rocky, upland oak-hickory forests
	<i>Quercus oglethorpensis</i>	Oglethorpe Oak	T	S2	G3	Broad River bottomlands; upland seepage swamps over Iredell and Enon soils with seasonally wet clay beds
	<i>Schisandra glabra</i>	Bay Star-vine	T	S2	G3	Rich woods on stream terraces and lower slopes
	<i>Shortia galacifolia</i>	Oconee Bells	E	S1	G3	Mesic forests with mountain laurel and rhododendron
	<i>Silene ovata</i>	Mountain Catchfly	R	S1S2	G3	Mesic deciduous or beech-magnolia forests over limestone; bouldery, high elevation oak forests
	<i>Solidago simulans</i>	Cliffside Goldenrod	E	S1	G2	Seepy granite domes; cliffs
	<i>Symphotrichum georgianum</i>	Georgia Aster	T	S3	G3	Upland oak-hickory-pine forests and openings; sometimes with <i>Echinacea laevigata</i> or over amphibolite
	<i>Talinum teretifolium</i>	Roundleaf Fameflower			G4	Rock outcrops
	<i>Thermopsis fraxinifolia</i>	Ash-leaf Bush-pea		S2?	G3?	Oak and oak-pine ridge forests
	<i>Thermopsis villosa</i>	Carolina Golden Banner		S1?	G3?	Mesic forests, floodplains and roadsides; mostly in sandy soils
	<i>Trillium discolor</i>	Pale Yellow Trillium		S1S2	G4	Mesic hardwood forests only in Savannah River watershed
	<i>Trillium lancifolium</i>	Lanceleaf Trillium		S3	G3	Floodplain forests; also lower rocky slopes over basic soils
	<i>Trillium simile</i>	Sweet White Trillium		S2	G3	Cove hardwoods, sometimes with <i>Rhododendron maximum</i>
<i>Waldsteinia lobata</i>	Piedmont Barren Strawberry	R	S2	G3	Stream terraces and adjacent gneiss outcrops	
Amphibian	<i>Aneides aeneus</i>	Green Salamander	R	S3	G3G4	Moist rock crevices; canopies of trees; within hardwood forests
	<i>Desmognathus folkertsi</i>	Dwarf Black-bellied Salamander		S2	G2	Rocky streams and seeps in montane hardwood forests
	<i>Plethodon websteri</i>	Webster's Salamander			G3G4	mesophytic forest (maple, hickory, oak, poplar, and elm) bordering rocky feeder streams; usually found under logs, bark, and leaf litter on the forest floor and along rocky stream beds. It also occurs in moist forest on steep north-facing slopes with rock outcrops.
	<i>Urspelerpes brucei</i>	Patch-nosed Salamander		S1	G1	Headwater Streams
Bird	<i>Peucaea aestivalis</i>	Bachman's Sparrow	R	S2	G3	Open pine or oak woods; old fields; brushy areas, young large grassy pine regeneration areas

Insect	<i>Beloneuria georgiana</i>	Georgia Beloneurian Stonefly		S2	G2	Small spring seeps and splash zones in southern Appalachian streams
	<i>Danaus plexippus</i>	Monarch			G4	Cropland/hedgerow, Forest - Conifer, Grassland/herbaceous, Old field, Sand/dune, Savanna, Shrubland/chaparral, Suburban/orchard, Woodland - Conifer, Woodland - Hardwood, Woodland - Mixed
	<i>Gomphus consanguis</i>	Cherokee Clubtail	T	S2	G3	Spring-fed moderately-flowing forest streams, especially where they drain small ponds
	<i>Ophiogomphus edmundo</i>	Edmund's Snaketail	E	S1	G1G2	Clear, moderately flowing streams and rivers with riffles.
Mammal	<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	R	S3	G3G4	Pine forests; hardwood forests; caves; abandoned buildings; bridges; bottomland hardwood forests and cypress-gum swamps
	<i>Myotis leibii</i>	Eastern Small-footed Myotis		S2	G4	Caves; mines; abandoned buildings, bridges, rock shelters in Mtn. areas; high elevation talus fields
	<i>Perimyotis subflavus</i>	Tri-colored Bat		S2	G2G3	Open forests with large trees and woodland edges; roost in tree foliage; hibernate in caves or mines with high humidity
Reptile	<i>Clemmys muhlenbergii</i> (former <i>Glyptemys</i> genus)	Bog Turtle	E	S2	G3	Mountain bogs; wet meadows; edges of mountain streams
	<i>Gopherus polyphemus</i>	Gopher Tortoise	T	S3	G3	Sandhills; dry hammocks; longleaf pine-turkey oak woods; old fields
	<i>Pituophis melanoleucus</i> [excluding <i>P. m. lodingi</i>]	Pinesnake			G4	xeric, pine-dominated or pine-oak (50 to 80% pine) woodland with an open, low understory established on sandy soils. Longleaf pine sandhills appear to represent critical habitat over much of the southeastern United States. Pinesnakes also require forest openings, with level, well-drained sandy soils and little shrub cover, as nesting and hibernation sites.
Totals	75					

APPENDIX C.
USFWS Letters



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Georgia Ecological Services Field Office
355 East Hancock Avenue
Room 320
Athens, GA 30601
Phone: (706) 613-9493 Fax: (706) 613-6059

In Reply Refer To:
Consultation Code: 04EG1000-2019-SLI-1278
Event Code: 04EG1000-2019-E-02315
Project Name: Proposed Target Range Project

April 10, 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

This list identifies threatened, endangered, proposed and candidate species, as well as critical habitat, that may be affected by your proposed project. This list may change before your project is completed. Under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation.

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*). Projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html).

Wind energy projects should follow the wind energy guidelines <http://www.fws.gov/windenergy/> for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts of communication towers on migratory birds can be found under the "Bird Hazards" tab at: www.fws.gov/migratorybirds.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Georgia Ecological Services Field Office

355 East Hancock Avenue

Room 320

Athens, GA 30601

(706) 613-9493

Project Summary

Consultation Code: 04EG1000-2019-SLI-1278

Event Code: 04EG1000-2019-E-02315

Project Name: Proposed Target Range Project

Project Type: SPECIAL USE PERMIT

Project Description: The proposed site for this project is located off Highway 180 between mile markers 18 and 19 on Land lot 212, District 16, Section 1 south of FS Road 292 and consists of approximately 15 acres of National Forest land. The proposal consists of construction of a pole barn type structure, vaulted toilets, earthen backstops, road reconstruction and a parking lot.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/34.82202472971682N83.82041195532119W>



Counties: Union, GA

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [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.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Reptiles

NAME	STATUS
Bog Turtle <i>Clemmys muhlenbergii</i> Population: U.S.A. (GA, NC, SC, TN, VA) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6962	Similarity of Appearance (Threatened)

Flowering Plants

NAME	STATUS
Green Pitcher-plant <i>Sarracenia oreophila</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2896	Endangered
Small Whorled Pogonia <i>Isotria medeoloides</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened
Swamp Pink <i>Helonias bullata</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4333	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior



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Phone: (706) 613-9493 Fax: (706) 613-6059

In Reply Refer To:

July 17, 2019

Consultation Code: 04EG1000-2019-SLI-1278

Event Code: 04EG1000-2019-E-03873

Project Name: Proposed Target Range Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

This list identifies threatened, endangered, proposed and candidate species, as well as critical habitat, that may be affected by your proposed project. This list may change before your project is completed. Under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation.

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*). Projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html).

Wind energy projects should follow the wind energy guidelines <http://www.fws.gov/windenergy/> for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts of communication towers on migratory birds can be found under the "Bird Hazards" tab at: www.fws.gov/migratorybirds.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Georgia Ecological Services Field Office

355 East Hancock Avenue

Room 320

Athens, GA 30601

(706) 613-9493

Project Summary

Consultation Code: 04EG1000-2019-SLI-1278

Event Code: 04EG1000-2019-E-03873

Project Name: Proposed Target Range Project

Project Type: SPECIAL USE PERMIT

Project Description: The proposed site for this project is located off Highway 180 between mile markers 18 and 19 on Land lot 212, District 16, Section 1 south of FS Road 292 and consists of approximately 15 acres of National Forest land. The proposal consists of construction of a pole barn type structure, vaulted toilets, earthen backstops, road reconstruction and a parking lot.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/34.82202472971682N83.82041195532119W>



Counties: Union, GA

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [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.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Reptiles

NAME	STATUS
Bog Turtle <i>Clemmys muhlenbergii</i> Population: U.S.A. (GA, NC, SC, TN, VA) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6962	Similarity of Appearance (Threatened)

Flowering Plants

NAME	STATUS
Green Pitcher-plant <i>Sarracenia oreophila</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2896	Endangered
Small Whorled Pogonia <i>Isotria medeoloides</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened
Swamp Pink <i>Helonias bullata</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4333	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior



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In Reply Refer To:

April 15, 2019

Consultation Code: 04EG1000-2019-TA-1278

Event Code: 04EG1000-2019-E-02420

Project Name: Proposed Target Range Project

Subject: Verification letter for the 'Proposed Target Range Project' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Krisha Faw:

The U.S. Fish and Wildlife Service (Service) received on April 15, 2019 your effects determination for the 'Proposed Target Range Project' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"¹ prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with ESA Section 7(a)(2) only for the northern long-eared bat. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Bog Turtle, *Clemmys muhlenbergii* (Similarity of Appearance (Threatened))
- Green Pitcher-plant, *Sarracenia oreophila* (Endangered)
- Indiana Bat, *Myotis sodalis* (Endangered)
- Small Whorled Pogonia, *Isotria medeoloides* (Threatened)
- Swamp Pink, *Helonias bullata* (Threatened)

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Proposed Target Range Project

2. Description

The following description was provided for the project 'Proposed Target Range Project':

The proposed site for this project is located off Highway 180 between mile markers 18 and 19 on Land lot 212, District 16, Section 1 south of FS Road 292 and consists of approximately 15 acres of National Forest land. The proposal consists of construction of a pole barn type structure, vaulted toilets, earthen backstops, road reconstruction and a parking lot.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/34.82202472971682N83.82041195532119W>

**Determination Key Result**

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

Yes

2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")

No

3. Will your activity purposefully **Take** northern long-eared bats?

No

4. Is the project action area located wholly outside the White-nose Syndrome Zone?

Automatically answered

No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

7. Will the action involve Tree Removal?

Yes

8. Is the action the removal of hazardous trees for protection of human life or property?

No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

2.5

2. If known, estimated acres of forest conversion from April 1 to October 31

2.5

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

2.5

5. If known, estimated acres of timber harvest from April 1 to October 31

2.5

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?
0