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Environmental Assessment

Union County Target Range Project

Blue Ridge Ranger District
Chattahoochee-Oconee National Forests

Union County, Georgia

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SUMMARY

Proposed Action:

The Blue Ridge Ranger District of the Chattahoochee-Oconee National Forests is evaluating a proposal to provide a safe and environmentally sound and secure public target range facility to serve the local community in Union County, Georgia. The proposed action addresses the need for a facility that is designated to minimize the impacts to physical, biological and social resources from dispersed target range on National Forest System lands in Union County.

Target ranges are consistent with Forest Service policy (USDA-Forest Service, 2018) which allows for the authorization of target ranges on the National Forest when the use is consistent with Forest Plan standards and guidelines and when the authorization would enhance forest management (by improving public safety, providing recreational opportunities or consolidating dispersed target range). Policy also directs the forest to enter into agreements with state governments, local governments or private organizations to provide for cost-sharing for target range design, construction, operation and maintenance, with title to the target range improvements remaining with the government.

Location of Proposed Action:

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.

Blue Ridge Ranger District, Union County, GA

Type of Statement:

Environmental Assessment

Responsible Official:

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Chapter 1 – Purpose and Need

1.1 Introduction and Document Structure

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. This document is based upon the best available science, including peer-reviewed scientific literature, state and federal agency reports and management input, discussions with scientists and other professionals, and ground-based observations. This EA is organized into six parts:

- **Chapter 1 – Purpose and Need:** The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency’s proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- **Chapter 2: Comparison of Alternatives, including the Proposed Action:** This section provides a more detailed description of the agency’s proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- **Chapter 3: Affected Environment and Environmental Consequences:** This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource. Within each section, the affected environment is described first, followed by the effects of the No Action Alternative and proposed action alternatives. The No-Action alternative provides a baseline for evaluation and comparison of the other alternative(s) that follow.
- **Chapter 4: References Cited:** This section lists all of the references consulted in the writing of this report.
- **Chapter 5: Agencies and Persons Consulted:** This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- **Appendices:** The appendices provide more detailed information to support the analyses presented in the environmental assessment.

1.1.1 Planning Record

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Blue Ridge Ranger District Office in Blairsville, GA. It contains planning records, field notes, and maps.

1.2 Background

On April 24, 2018 the USDA-Forest Service received a special use application from the Union County Government requesting an authorization to construct a target range on National Forest Land, specifically the proposed site on the Blue Ridge Ranger District in Union County Georgia. The special use application passed the initial screening process on July 20, 2018. Union County Government would be the primary permit holder and would assume the responsibility of funding, maintenance and operation with the Union

County Gun Club in charge of the day to day operation of the target range. The proposed site for this project is located off Highway 180 between mile markers 18 and 19 on Landlot 212, District 16, Section 1 south of FS Road 292 and consists of approximately 15 acres of NFS land. The proposal consists of the construction of a new access road from Hwy 180, a parking lot, restroom facilities, storage facilities, a 50 by 50 foot clubhouse, a 100 by 600 foot rifle range and a 60 by 150 foot pistol range with shooting booths and earthen berms for back and side safety barriers (as depicted in the conceptual design, Figure 2 in the Appendix).

1.3 Purpose and Need for Action

There is no public or private target range in Union County. While there are other public target range facilities in neighboring counties, including the Panthertop Shooting Range in Cherokee County, NC, the Dirty John Shooting Range in Macon County, Darnell Shooting Range in Rabun County, GA and the Chatuge Gun Club in Towns County, GA. The Chatuge Gun Club operates a range on the Chattahoochee National Forest through a special use authorization. The Chatuge Gun Club range, however, is only open to public use for two hours on the second Sunday of each month (Chatuge Gun Club, 2018).

From Blairsville, GA, the Panthertop Shooting Range is approximately a 21 miles drive; the Dirty John Shooting Range approximately a 58 miles drive; Darnell Shooting Range is 53 miles and the Chatuge Gun Club is approximately a 16 mile drive. Driving times to these neighboring facilities vary, obviously, with distance and speed. From Blairsville, the nearest public facility, Darnell Shooting Range is approximately 1 hour and 15 minutes.

For these reasons, local residents frequently use privately owned lands in Union County for target practice or dispersed areas across the forest. Because no area in Union County has been specifically designed for this use, unsafe conditions may exist from dispersed target shooting on the forest. Union County reported a population of 17,289 people in the 2000 Census. In the 2010 Census, the population had grown to 21,356, a 23.5% increase. Given the population growth and corresponding residential development, a safe, convenient public range could reduce dispersed shooting activity in the county.

The purpose and need of the proposal is to provide a safe, environmentally sound and secure public target shooting facility to serve the community of Union County, Georgia, and the surrounding area. The need for the proposal is to address the lack of a public facility in the local area that is designed to minimize the impacts to physical, biological and social resources. An environmental analysis responds to this need by developing and evaluating alternatives related to the proposed action and analyzing and disclosing the effects to the environment associated with each alternative.

The Forest Plan includes direction to provide a variety of recreation opportunities, including target ranges. Goal 31 of the Forest Plan of Chattahoochee-Oconee National Forests directs us to *“Provide a spectrum of high quality, nature-based recreation settings and opportunities that reflect the unique or exceptional resources of the Forest and the interests of the recreating public on an environmentally sustainable, financially sound, and operationally effective basis. Adapt management of recreation facilities and opportunities as needed to shift limited resources to those opportunities.”* The Forest Plan provides direction to recognize and respond to emerging recreation trends and uses

within the Forest recreation niche by periodic assessments (Objective 31.1). Demand for a target range in Union County is gauged to be high, based upon grassroots interest in the Union County Gun Club, use at similar sites, and the numerous and diverse contacts requesting information on the locations of target ranges on the Forest.

Authorization of target range facilities is consistent with Forest Service policy (USDA-Forest Service, 2018) when the use is consistent with Forest Plan standards and guidelines and when the authorization would enhance Forest management (by improving public safety, providing recreational opportunities or consolidating dispersed target shooting). Policy also directs the Forest to enter into agreements with state governments, local governments or private organizations to provide for cost-sharing for target range design, construction, operation and maintenance, with title to the target range improvements remaining with the government.

1.4 Proposed Action

To meet the purpose and need for action, the USDA-Forest Service proposes to authorize Union County Government to construct a target range on National Forest lands. Union County Government would be the primary permit holder and would assume the responsibility of funding, maintenance and operation with the Union County Gun Club in charge of the day to day operation of the target range.

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 (Figure 1 in the Appendix). The proposal consists of construction of a pole barn type structure, vaulted toilets, earthen backstops, road construction and a parking lot (Figure 2 in the Appendix). If merchantable timber is to be removed, trees will be identified and designated for removal by Forest Service personnel.

1.5 Forest Plan Direction

The Land and Resource Management Plan (LRMP) for the Chattahoochee-Oconee (USDA Forest Service, 2004a) sets forth management direction for managing the land and resources of the Chattahoochee-Oconee National Forests, and among other things, describes management goals and objectives, resource protection methods, and desired resource conditions. The LRMP is the result of programmatic analysis, which is addressed in the Forest Plan FEIS (USDA Forest Service, 2004b).

The Union County Target Range Project Environmental Assessment is a project-level analysis; its scope is confined to addressing the relevant issues and possible environmental consequences of the project. Where appropriate, the Union County Target Range Project environmental analysis will tier to the Forest Plan FEIS, as encouraged by 40 CFR 1502.20.

Management Area and Management Prescriptions

The proposed activity will occur in management Prescription 7.A-Scenic Byway Corridor. The project will address the following Forest Plan Goals and Objectives:

GOAL 31: Provide a spectrum of high quality, nature-based recreation settings and opportunities, that reflect the unique or exceptional resources of the Forest and the

interests of the recreating public on an environmentally sustainable, financially sound, and operationally effective basis. Adapt management of recreation facilities and opportunities as needed to shift limited resources to those opportunities.

OBJECTIVE 31.1: Recognize and respond to emerging recreation trends and uses within the Forest recreation niche by periodic assessments.

1.6 Incorporation by Reference and Use of Science

Some material in this document tiers to or incorporates by reference related information in order to reduce the size and degree of redundancy in this document. Documents tiered to and materials incorporated by reference include the following:

- Material specifically cited or otherwise used in preparation of this document is hereby incorporated by reference.
- Information in this document tiers to the Forest Plan and FEIS.

The techniques and methodologies used in this analysis consider current and accurate science. The analysis includes a summary of the credible scientific evidence which is relevant to evaluating reasonably foreseeable impacts. The analysis also identifies methods used and references scientific sources relied on. Literature reviewed and considered by specialists in the analyses is listed in References Section.

1.7 Decision Framework

Based on the environmental analysis, the Blue Ridge District Ranger will decide whether to allow the development and management of a target range and under what conditions. The responsible official will decide whether to implement an action alternative, a modified action alternative, or the no action alternative. If an action alternative is selected, it will include:

- Which action best meets the purpose and need?
- How well does it maintain and protect physical, biological and social resources?
- What design criteria and monitoring requirements are needed?

1.8 Public Involvement

The proposal was listed in the Chattahoochee-Oconee National Forests Quarterly Schedule of Proposed Actions (SOPA) each quarter of the calendar year since August 22, 2018. The SOPA was mailed to a forest-wide list of more than 3,375 addresses, and is posted on the Forest's web site.

Public scoping began in October 12, 2018, when District Ranger Andrew L. Baker mailed a letter to the forest-wide list and to 540 individuals known to be near the proximity of the proposed project. Also, the proposal was provided to the public and other agencies during scoping. The letter requested comments from the public in regards to a proposed target range site on Hwy 180 between mile markers 18 and 19 on Land lot 212, District 16, Section 1 south of FS Road 292. Notice of this proposal and request for comments was published in the North Georgia News on October 10, 2018. In addition, as part of the public involvement process, an open-house public meeting was held by Proponent (Union County Government) and the Blue Ridge Ranger District on Wednesday October 24, 2018 at 6:00 pm at the Union County Fine Arts Center located at 926 Panther Overlook, Blairsville, GA.

Using the comments from the public, other agencies, and internal review (see *Key Issues* section), the interdisciplinary team developed a list of issues to address.

On May 13, 2018 the Forest Service released an Environmental Assessment for the Union County Target Range Project and invited the public to review the document and to provide substantive comments on the proposed action during a 30-day period. The legal notices formally initiating the comment period were published in the North Georgia News (Blairsville, Georgia) and News Observer (Blue Ridge, Georgia). In addition, as part of the public involvement process, an open-house public meeting is planning to be held by the Proponent and the Blue Ridge Ranger District on May 30, 2019 at 6:00 pm at the Par Haralson Memorial Civic Center located at 165 Wellborn Street, Blairsville, GA.

1.9 Key Issues Considered

The Interdisciplinary Team carefully reviewed the comments received during the public comment periods and separated the issues into two groups: those key to the decision to be made and those considered to be concerns. Key issues are those directly or indirectly caused by implementing the proposed action. Other concerns which were removed from further discussion were those identified as:

1. Outside the scope of the proposed action,
2. Already decided by law, regulation, the Forest Plan, or other higher level decision,
3. Not relevant to the decision to be made,
4. Conjectural and not supported by scientific fact or factual evidence,
5. General comment.

1.9.1 Key Issues

Key issues associated with this project, as identified through the public comment process are:

Issue #1: Impacts of noise created by shooting from a single concentrated point.

The concern is that the proposed target range would produce a constant or continuous sound of gunshot in the immediate area thereby impacting local residents, recreational users of the national forest and potentially wildlife. This issue is addressed through the conduct of a predictive sound assessment and live firing demonstrations. To further address the issue, measures to mitigate noise (e.g., earthen berms) will be implemented, as needed, if the action alternative is selected.

Issue #2: Impacts to recreational users on the Appalachian Trail and the Wilderness Area (Mark Trail and Brasstown).

The concern is that if the action alternative is selected, the target range facility and its use will impact recreational users of the Appalachian Trail and the Wilderness Area (Mark Trail and Brasstown). The first concern is noise impacts on user solitude, which is addressed in Issue #1. The second concern is visual impacts to Forest users and scenic integrity of the site, which is evaluated through a scenery assessment. This concern is also addressed by project design criteria such as using vegetated berms/buffer areas and specific construction specifications that maintain the natural character of the landscape to the greatest extent practicable. The third concern is the safety of users that may deviate of

designated trails. This issue is addressed by the use of signage and other project design criteria. Overall, however, the Forest Service believes that target ranges provide for user safety by providing shooters a controlled recreation setting.

Issue #3: Traffic and safety on Russell-Brasstown National Scenic Byway.

The concern is that if the action alternative is selected, traffic entering and leaving the target range will become a safety hazard to regular drivers on the Russell-Brasstown National Scenic Byway. This issue is being addressed by installing a new entry road further from the sharp curve west of the current entry road. Additionally, estimated daily vehicle usage of the range and available Georgia Department of Transportation data collected on the byway, 2.1 miles SW of the proposed target range, is used to further assess impacts to traffic and usage of the Russell-Brasstown Scenic Byway in accordance with the 2002 Scenic Byway Plan. Further traffic control measures such as additional highway signage and/or other design criteria to minimize traffic impacts would be implemented if the action alternative is selected.

Issue #4: Concerns regarding lead contamination.

The concern is lead from ammunition discharged at the proposed target range would leach from the proposed berms and shooting lane areas and contaminate soil and water resources. If the proposed action is selected, an Environmental Stewardship Plan will be developed that contains an action plan and best management practices for managing lead accumulation, abatement and removal. Based on similar action plans implemented at Forest Service Target Ranges within the region and others located within the state, lead management procedures have worked as intended.

1.9.2 Other Concerns

Comments identified as other concerns through the public comment process are:

- Concerns regarding wildlife. This is not a key issue because it is not supported by scientific research (Larkin, 1996, Doresky, et al., 2001). Most research on sound impacts to wildlife has addressed issues in aquatic environments, especially as they affect wildlife behavior and communication. Doresky, et al. (2001), however, report that federally-endangered red-cockaded woodpeckers exhibit no response to training activities, including gunfire, on a military base. Based on these studies and experience with other public shooting facilities, the Forest Service concludes that some wildlife species would acclimate to the new conditions and others would adjust by avoiding the area when users are present and that the range would not have an appreciably negative impact on wildlife.
- Concerns regarding the values of private property near the target range. This is not a key issue because it is not supported by scientific research. The Forest Service searched the literature and consulted with social scientists and legal experts and could not find scholarly research proving a direct and statistically significant link that shooting ranges devalue surrounding property.

Chapter 2: Alternatives, including the Proposed Action

This chapter describes and compares the alternatives considered for the Union County Target Range project. It includes a description and map of the alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative and some of the information is based upon the environmental, social and economic effects of implementing each alternative.

2.1 Alternatives Considered in Detail

2.1.1 Alternative 1: No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. No action would be taken to establish a target range in Union County.

2.1.2 Alternative 2: The Proposed Action

To meet the purpose and need for action, the USDA-Forest Service proposes to authorize Union County Government to construct a target range on National Forest lands. Union County Government would be the primary permit holder and would assume the responsibility of funding, maintenance and operation with the Union County Gun Club in charge of the day to day operation of the target range.

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 (Figure 1 in the Appendix). The proposal consists of construction of a pole barn type structure, vaulted toilets, earthen backstops, road construction and a parking lot (Figure 2 in the Appendix). If merchantable timber is to be removed, trees will be identified and designated for removal by Forest Service personnel.

2.1.4 Further Design Measures to Manage Potential Impacts from Noise and Lead.

Sound management is an important consideration for the proposed sites. These techniques can be used alone or in combination, depending on the needs and issues of specific ranges. Some or all of these approaches could be used to reduce noise.

- Operational approaches: restrictions on the number of users as well as the type, size, and caliber of firearms can be used to limit the amount of sound generated at the target range.
- Engineering approaches: sound control can result from structures that reflect, absorb, contain or isolate the sound. Berms and non-porous walls can serve to deflect and absorb sound, while vegetated berms also provide a visual screen. Characteristics such as berm size, shape, and width all contribute to the effectiveness of the berm. Design elements, such as a solid wall placed behind shooting stations can direct sound away from sensitive areas.

- Vegetation approaches: vegetation can be a simple and effective way to reduce sound. This can be achieved by preserving existing vegetation or by planting selected species. Evergreens are often used because they retain sound-absorbing foliage year-round. Hedges of various species may also increase sound-buffering while serving as a windbreak for the range.

The following design criteria for lead management at proposed site would be implemented:

- Control and containment of lead bullets and bullet fragments. An earthen berm and backstop 15-20 feet high with a slope as steep as possible would be used to contain bullets and bullet fragments. The upper most 1 to 2 feet of the berm would be free of large rocks and other debris and the entire berm would be vegetated to prevent erosion of the berm/backstop. This option was selected because it effectively and safely contains the lead in the berm/backstop at minimal cost.
- Prevention of Lead Migration through the following actions:
 - Lime Addition: the pH of the soil over the entire range area would be monitored annually with the goal to keep the general soil pH between 6.5 and 8.5. Lime would be applied as needed at rates necessary to maintain the optimum pH level.
 - Reducing capillarity action within the backstop. Because most porosity in soil material is of capillary size, breaking this capillary action within the backstop would reduce the exposure of lead to water. This would be done by adding a layer of limestone or gravel to the base of the backstop during construction. This would reduce the rate of deterioration of spent bullets, erosion of the backstop, and the amount of lead going into solution.
 - Controlling runoff: controlling the velocity of the runoff is critical, and can be adequately addressed during construction and maintenance by insuring that vegetation cover is maintained on the site, preferably with fast growing turf grasses as well as proper grading and leveling of the site. Water diversion devices would be constructed where needed to keep any off-site runoff water from flowing onto the lead impact areas.
 - Engineered runoff controls: a filter bed with containment trap would be constructed at the backstop/berm area. Filter beds would be established at the front base of the backstop. The filter would consist of two layers; a sand bed underlain by limestone gravel or other neutralization materials. After the water runoff passes through the filter bed it would drain into a perforated drainage pipe located within the limestone gravel. The perforated pipe would then drain into a containment trap which would cause any lead still contained in the runoff water to settle. Operation and maintenance would be minimal, involving mostly periodic removal of debris and occasional replacement of the limestone.
- Lead Removal and Recycling: to ensure that lead is not “discarded” or “abandoned” within the meaning of the Resource Conservation and Recovery Act (RCRA) statute (i.e., a hazardous waste); periodic lead removal activities would be planned for and conducted. The simplest and most cost effective is simple hand

raking and sifting. Once collected the lead would be taken to a recycler or reused. Those conducting hand raking and sifting would use standard precautions to protect themselves from exposure to lead. These activities would be done as a minimum once every 5 years.

- Documenting Activities and Record Keeping: records would be kept on the type of BMP(s) implemented, the date of service and who did the service and these records would be retained by the Forest Service.
- *Phosphate Addition.* The addition of phosphate could be considered to bind the lead particles on any section of the range that is not easily accessible when reclaiming spent lead. Phosphate does not adjust soil pH, but it binds the lead particles preventing them from moving in solution. This BMP would be optional based on the identified need at a later date.

2.2 Alternatives Not Considered in Detail

2.2.1 Alternative 1: Property west of Nottley Dam

This site was eliminated from detailed study because it was too wet and there was not enough flat ground to even consider beginning the project. There was also a waterway, which was a barrier.

2.2.2 Alternative 2: 4 miles east of Highway 19/129 on private property.

This site was eliminated from detail study because it was cost prohibitive and there were houses too close for the property to be used as a target range. A shooting test performed at this site demonstrated that nuisance noise from gunfire could be heard from most of the residences in the vicinity.

2.2.1 Alternative 3: Tract of land off of Smyrna Road

This site was eliminated from detail study because it would have required too much grading and tree removal. The location was too far from town and it is felt that this site would not have received enough use due to the distance travel. This location also had a very long single lane access road that would have been dangerous for travel and a turnaround would be necessary.

2.1.1 Alternative 4: A tract of land next to Vogel State Park

In a continuing effort to be responsive to public comments and finalize alternatives for the Union County Target Range Project EA, the USFS considered an alternative site for the target range in Union County (Figure 3 in the appendices). This alternative site came from a conversation that District Ranger Andrew L. Baker had with GA DNR local managers about a potential alternatives. This alternative site is quite accessible (just off Hwy. 180) but it was eliminated from detail study because the terrain in the Lance Creek drainage is challenging from a construction standpoint, potential noise effects and proximity to Vogel State Park and Cindy Cove.

2.3 Comparison of Alternatives

Table 2.3.1 is the comparison for the Proposed Action and No Action Alternative for the Union County Target Range Project.

Table 2.3.1. Comparison for the Proposed Action and No Action Alternative, Union County Target Range.		
Attibutes	Alternative 1: No Action	Alternative 2: The Proposed Action
Driving Distance from Blairsville to Target Range Facilities	Between 21 miles and 58 miles	12 miles
Driving time from Balirville to Target Range Facilities	30-55 minutes	20 minutes
Land clearing	0 Acres	Three to Five Acres

Chapter 3: Affected Environment and Environmental Consequences

3.1 Introduction

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

3.2 Past, Present, and Reasonably Foreseeable Future Actions

Each resource section includes a discussion of cumulative effects focused on evaluating the effects of the proposed action in context with relevant effects from past, present, and reasonably foreseeable actions. Past, present, and foreseeable future actions considered in the cumulative effects analyses will vary for each resource. Relevant actions are those expected to generate effects on a specific resource which will occur at the same time and in the same place as effects from the proposed action. Past and present activities are considered part of the existing condition and are discussed in the “Affected Environment (Existing Conditions)” and “Environmental Consequences” section under each resource.

The analysis of cumulative effects is consistent with the direction provided in the 36 CFR 220.4(f). There is a summary in the next paragraph about the recently past, present (or ongoing), and reasonably foreseeable activities within or near the general area of the *Union County Target Range Project* that could contribute relevant effects (i.e., effects that overlap in space and time with effects of the proposed action). The analysis for each resource may not consider all actions listed below or it may consider additional actions not listed.

Past and Present Actions

Wildfires: Wildfires could occur at any time in the future and the effects of these events are unpredictable.

National Forest System roads and motorized trails: road maintenance have occurred and continue to occur near of within the project area.

Dispersed Recreation Use: Hunting, camping and hiking use primarily along Forest Roads.

Roads and Trails: road and trail construction and maintenance have occurred and continue to occur near or within the project area.

Fire Suppression: Active fire suppression in human-caused fires.

Reasonably Foreseeable Future Action

Roads and Trails: road and trail construction and maintenance have occurred and continue to occur near or within the project area.

Wildfire: wildfire could occur at any time in the future and the effects of these events are unpredictable.

3.3 Natural Resources

3.3.1 Soils and Water Quality

Affected Environment

The project site is located within the Blue Ridge physiographic region within the Tennessee River Basin. Drainage is provided by a perennial tributary to Gillam Branch, a secondary trout stream, which is in the Hydrologic Unit HUC 060200020502 for Town Creek. The designated use of Town Creek and its tributaries is Recreation (Georgia Rules and Regulations for Water Quality, Chapter 391-3-6). There are no known water quality impairments within the Hydrologic Unit.

The USGS StreamStats database (available: <https://streamstats.usgs.gov/ss/>) was used to delineate the upper watershed boundary for the tributary to Gillam Branch at the lower end of the site, just north of Highway 180. Note that the tributary forms the western border of the project site. A generated watershed boundary map and associated streamflow statistics are provided in Appendix C. Based on the USGS delineation, the watershed area is approximately 0.82 square-miles and the mean annual flow is estimated to be 2 cubic-feet per second. Peak flow response to storms can be characterized as very responsive to precipitation (flashy), and quickly returning to baseflow.

The site consists of rolling topography with slopes ranging from 2 to 10 percent. Geologic mapping for the State of Georgia (Lawton et al., 1976) indicates that the site is underlain by crystalline, metamorphic rocks including gneiss and mica schists. The crystalline rocks of the Blue Ridge province have little or no inherent porosity or permeability, therefore groundwater does not move through pore spaces within the unweathered rock. Instead, water occurs within pore spaces in soils and saprolite (weathered rock) developed on the rock or within voids (fractures or other discontinuities) in the unweathered rock.

Significant groundwater recharge areas within Georgia have been mapped (Davis et al., 1989). Similarly, the relative susceptibility of the shallow unconfined aquifers in Georgia to pollution from man-made sources has been mapped (Trent, 1992). The project site is not located within any area mapped by Davis et al. (1989) as a significant groundwater recharge area. Pollution susceptibility for the entire site is considered low (Trent, 1992).

Based on the Soil Survey for Fannin and Union Counties (1996), the soils mapped on and in the vicinity of the site are the Thurmont, Cowee-Evard Complex and Bradson series. The published soil survey for the site and associated watershed are included in the project record (as Appendix D) and can be obtained from the NRCS Web Soil Survey at: <https://websoilsurvey.nrcs.usda.gov/>. Descriptions of each of the series listed above are included in the project record (Appendix D). As part of a site reconnaissance and collection of soil samples, several hand auger borings were advanced within the project site soils. Observed soil characteristics were generally consistent in color, structure and texture to those associated with the Thurmont soil series; however, the depth to bedrock (or potentially larger rocks) was generally between 2 and 3 feet below the soil surface. The surface horizon(s) were generally shallow and brown, with granular structure. The subsurface horizon(s) were sandy clay loam or clay loam in texture, yellowish red in

color, with sub-angular blocky or massive structure. The noted erosion T factor for Thurmont soils is 4 tons/acre/year.

Based on soil characteristics and experience with similar landscapes within the region, soil water movement is characterized as follows. Precipitation enters the soil through infiltration, and percolates vertically and laterally through the surface horizon(s). In the case of the project site, the surface horizon(s) are generally sandy loam or sandy clay loam in texture, and have a high permeability. This higher permeability is due to the presence of multiple root channels, macropores, and spacing between sand grains. The subsurface horizon(s) on the site are clay enriched, and water moves more slowly through them, primarily along soil structural units. When precipitation encounters the limiting subsurface horizon with reduced permeability, the water may perch briefly before percolating further towards the water table, or move laterally in the soil and eventually exfiltrate as return flow. Water movement in this manner occurs naturally on a hillslope (Dunne and Leopold 1978).

Two composite soil samples were collected for both surface (indicated as A samples) and subsurface (indicated as B samples) soil horizons within the proposed range site. Laboratory analysis results are located in the project record as Appendix B. The average pH in the surface and subsurface horizons was 7.2 and 6.8, respectively. The soil pH in all samples was much greater than would be expected in this area, which would generally be less than or equal to 5. The cation exchange capacity (CEC) averages were higher in the surface (24 meq/100g) and subsurface (6 meq/100g) horizons than would be expected. This also holds true for available plant nutrients concentrations in the soil, which suggests the site historically has been subject to fertilizer and/or other soil amendments as part of the management of the site. It should be noted that at the higher pH, some nutrients (e.g., phosphorus, lead) may form insoluble compounds that are not plant available.

The project site is currently managed as a wildlife opening, and mowed annually. No other management practices are employed.

Environmental Consequences

Alternative 1 – No Action

Direct Effects and Indirect Effects

Soil Loss

Soil loss or erosion was estimated using the RUSLE model (Appendix A document in the project record). Erosion rate T is estimated to be less than 0.2 tons/acre/year in both the “dense grass” and “forested” coverage. This is well below the erosion T factor of 4 tons/acre/year for the Thurmont soils. This condition is expected to continue with no impacts under the current management prescription (annual mowing). Thus, soil productivity as a function of soil loss will not be impacted.

Soil Chemistry

Current soil chemistry is discussed above and laboratory analysis from composite samples is provided in the project record in the document named Appendix B. Without further soil amendments, the site will be subject to ordinary soil processes of nutrient cycling and immobilization. Over time, the soil pH is expected to decrease gradually,

thus increasing availability of specific plant nutrients. The soil will continue to function in its role in nutrient cycling and supporting plant productivity.

Soil Hydrology/Water Quality

With no further expected changes to the site, the soil will continue to function in storage and transmission of water within the watershed such that water quality in the adjacent stream will be maintained.

Lead Management

Under the no action Alternative 1, there would be no inputs of lead, and therefore no impacts.

Cumulative Effects for Alternative 1

No cumulative effects on soil and water resources are anticipated under Alternative 1.

Alternative 2

Direct and Indirect Effects

Soil Loss

Soil loss is expected to increase under Alternative 2, due to the change in landscape features such as the addition of a gravel parking lot, change in vegetation to a cool season grass and the addition of impervious surfaces. Soil loss or erosion was estimated using the RUSLE model (Appendix A). In reviewing RUSLE results, it should be noted again that soil loss is an estimate of that which erodes on site, and sediment yield is that which reaches the bottom of the hillslope. In no case is this intended as a calculation of soil that reaches surface waters. Additionally these model results apply only to the period of time where the target range is in operations, following completed construction and prior to decommissioning the site.

Based on the RUSLE modelling results (Appendix A), the erosion rate T is estimated to be 3.9 tons/acre/year in both the pistol and rifle firing range hillslopes during operation of the range, and less than 0.2 tons/acre/year under the adjacent “forested” coverage. The estimated soil loss rates are below the erosion T factor of 4 tons/acre/year for the Thurmont soils. While the erosion rate is projected to increase considerably over existing conditions, the rate is below that T factor where soil productivity is expected to be degraded.

Soil Chemistry

Current soil chemistry is discussed above and laboratory analysis is from composite samples is provided in Appendix B. Soil pH currently is greater than 7 in the surface horizon(s) on the project site. One of the selected Best Management Practices (BMPs) that will be implemented as described in the Environmental Stewardship Plan (ESP) is soil pH adjustment through use of agricultural lime to a pH range between 6.5 and 8.5. Given that the site is currently maintained with a soil pH within the range specified in the ESP for the proposed action, the soil resource role in nutrient cycling and immobilization will continue unchanged during operation of the target range.

Soil Hydrology/Water Quality

The target range will constitute a disturbance area greater than one acre, and thus will be subject to requirements of the Georgia Water Quality Control Act, O.C.G.A. § 12-5-20 and the Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6. Under these regulations, Union County will obtain a state general National Pollution Discharge Elimination System (NPDES) permit (No. GAR100001) for stormwater runoff resulting from activities during construction and decommissioning of the site. This includes development of an ESC Plan that will be approved by the county as the LIA for a Land Disturbance Permit (see Union County Code, Chapter 30, Article II). The ESC Plan must be consistent with the *Manual for Sediment and Erosion Control in Georgia* (2016), and may include engineered controls such as the construction of containment traps or detention ponds, dams or dikes, or ground contouring.

Proper design employed through the ESC Plan includes measures to ensure peak flows in the stream are not impacted. Engineered controls are typically designed to manage stormwater originating from a 25-year storm event. Other controls, such as vegetated buffers are discussed in the following section on lead management.

As stated in the assumptions above, all engineered controls will direct water away from the surface water, and there will be no direct connection to the unnamed tributary to Gilliam Creek downgradient of the site. Any points of stormwater discharge will be allowed to dissipate and infiltrate within the upland portions of the site and/or within vegetated buffers, and function as non-point contributions to the stream. These contributions cannot be quantified without site specific ESC plans and other site information. However, using conditions of the permit, inferences on the quality of runoff can be made. Per the general permit, discharges from any engineered control structure must not have a turbidity that exceeds 25 nephelometric turbidity units (NTUs). Turbidity measures the intensity of light scattered as it passes through a water sample. It is closely correlated with suspended sediment and is often used to assess cloudiness of water. In general, under baseflow conditions, natural headwater streams such as Gillam Branch and its tributaries would maintain turbidity less than 10 NTUs.

With engineered controls established it is unlikely that there would be impacts to the site soil's ability to function in storage and transmission of water within the watershed.

Depending on timing, magnitude and duration of a given storm, stormwater runoff and sediment that is detached and transported may, as a non-point source, reach the downgradient stream during construction and decommissioning of the site. During operation of the range, there will be continued increased inputs of stormwater and sediment as non-point sources to the downgradient stream system.

The forest access road was located away from the tributary to Gillam Branch and will not cross any water feature. Runoff from road surfaces can transport sediment during storm events as non-point source pollution. Soil losses have been estimated from forest roads topped with aggregate under similar conditions in Coweeta (Swank and Crossley, 1988). Based on this study, soil loss is approximately 0.1 tons/acre/inch of rain with 6 inches of aggregate crushed rock.

Overall, there will be an increase in non-point source sediment pollution to the stream system due to construction activities, additions of impervious or near impervious surfaces

on the site, and changes in land use and cover. This may indirectly impact water quality within the watershed.

Lead Management

Lead is the primary component in bullets used in rifle and pistol shooting. The physical and chemical characteristics of lead play an important role in determining the potential for negative environmental consequences at outdoor shooting ranges. According to the US Department of Health and Human Services (HHS, 2007), important characteristics include:

- Lead is a known toxicant that does not degrade leading to higher concentrations in the environment overtime;
- Lead has little effect on plants or herbaceous consumers. It is not biomagnified in the food chain;
- Lead releases to water constitute a much higher exposure risk than releases in soil;
- Lead solubility in water is a function of pH, hardness, salinity, and the presence of organic matter;
- Lead does not leach appreciably into the subsoil and groundwater. It is strongly adsorbed to the soil and is generally retained in upper layers of soil; and,
- The mobility of lead in soils is dependent upon organic matter content, pH, and CEC.

Lead mobility will increase in environments having low pH due to the enhanced solubility of lead under acidic conditions. A majority of lead is retained strongly in soil, and very little is transported through surface water runoff or leaching to groundwater except under acidic conditions. However, it may enter surface waters as a result of erosion of lead-containing soil particulates or airborne soil dust particles. Lead becomes soluble at a pH of 4 to 6 and may leach from backstops, thus being transported by runoff into groundwater or the surrounding surface water. Additionally, in soil types with low organic matter and CEC, lead is more mobile, especially at a pH of less than 6.5 or greater than 8.5 (EPA, 2001).

As stated previously, an approved ESP will be implemented for the target range to contain, control and remove lead. A summary of prescribed BMPs included in the plan follow.

- **Lead Reclamation:** The most important BMP to minimize lead migration is implementation of a lead reclamation program (EPA, 2001). Periodic lead removal activities are regularly planned and conducted to ensure no hazardous waste will be present on the site. This is accomplished by Union County through hand raking and sifting, a rental vacuum system, or professionally through contract vendors. Specific methodologies will be highlighted in the ESP.
- **Bullet and Lead Containment:** Union County will utilize the earthen backstops within the site for its bullet containment. Earthen backstops will be installed up to 20 feet high in the back of each range and up to 8 feet high along the sides of each range. Backstops will be maintained free of debris to ease reclamation activities and ensure proper safety. The addition of lime will be required to adjust soil pH

on the backstops (see below). The operations plan includes good shooting practices and rules against shooting anything other than targets properly mounted on the target holders.

- **Soil pH Adjustment and Monitoring Program:** As previously discussed, lead is insoluble and not mobile at a pH range of 6.5 to 8.5. Therefore, proper management of soil pH is extremely important to reduce the risk of lead contamination of groundwater or surface water resources. Soil sampling will be conducted twice per year, once during the cooler and wetter winter months and once during the warmer and drier summer months. Samples will be tested by local extension laboratories which can make lime application recommendations based on site specific conditions. Agricultural lime will be applied at the specified rate to the ranges, backstops, and general vicinity of the facility.
- **Runoff and Dust Control:** BMPs that reduce soil erosion and loss by controlling onsite dust and surface water runoff are important in reducing lead migration. One of the most effective management measures for reducing soil erosion is using vegetative BMPs. Forest service approved grasses will be maintained on the ranges and backstops to control dust, slow runoff and stormflow velocities, thus aiding to prevent lead migration. Additionally a covered target area will be utilized by installing a roof over the backstop at the back of each range. By covering the target areas and earthen backstops, the effects of precipitation and runoff will be minimized. Other engineered controls will be implemented as part of the ESC Plan for the site. Examples include the construction of containment traps or detention ponds, dams or dikes, or ground contouring. These engineering controls will be professionally designed and constructed to allow lead particles from runoff to settle and be contained prior to runoff leaving the site.

With effective implementation of the BMPs listed during operation of the range and reclamation prior to decommissioning, the project site would not be degraded such that it would be prohibited from any future use (e.g., conversion back to wildlife opening).

Cumulative Effects for Alternative 2

Despite full and effective implementation of erosion and sediment control measures and BMPs to control and contain lead, the site would still be subject to precipitation events. These occurrences may lead to soil erosion and runoff that could reach surface waters. Specific impacts will vary depending on time, duration and magnitude of the event.

3.3.2 Air Quality

Affected Environment

Under the Federal Clean Air Act (CAA), as amended in 1977 and 1990 (40 CFR 50), the USEPA has established air quality standards in regard to the types of air pollutants emitted by internal combustion engines, such as those in aircraft, vehicles, and other sources. These National Ambient Air Quality Standards (NAAQS) are established for six contaminants, referred to as criteria pollutants, and apply to the ambient air (the air that the general public is exposed to every day). The criteria pollutants of most concern for the Chattahoochee National Forest are particulate matter and ozone. Data is collected from a series of monitoring stations around the forest and is reported on an annual basis. Information for the 2016 fiscal year is contained in the [FY 2013-2016 Monitoring and](#)

[Evaluation Annual Report for the Revised Land and Resource Management Plan, Chattahoochee-Oconee National Forests](#). The report indicates that the most recent three-year averages are below the NAAQS (Data Source: <https://www.epa.gov/outdoor-air-quality-data>).

Under the 1977 CAA Amendments, areas designated as Class 1 are provided the highest degree of regulatory protection from air pollution impacts. Areas Classified as Class II are protected under the CAA, but are identified for somewhat less stringent protection from air pollution damage relative to Class I areas. The Cohutta Wilderness area is currently the only area on the Chattahoochee-Oconee classified as Air Quality Class I. This area is not within close proximity to the project area and the remainder of the Forest is in attainment and designated Class II.

Alternative 1: No Action

Alternative 1, the no action alternative, would have no effect on air quality. Air quality would be affected by factors unrelated to this project.

Alternatives 2: Proposed Action

The proposed site would be exposed to coarse and fine airborne particulates during land clearing, grading, and construction activities. These effects would be of short duration and limited to the immediate vicinities of the proposed site. Some particulate matter would result from grass mowing, sweeping, leaf raking, and other maintenance activities. These events are expected to be of short duration and would not be a continuous impact to air quality at either of the proposed range sites.

Environmental Consequences

Direct and Indirect Effects. No direct or indirect impacts are anticipated under Alternative 1. Short term, temporary impacts to air quality would result under Alternative 2 during construction activities.

Cumulative Effects. No past, present, or reasonably foreseeable activities affecting air quality are known for the site or access roads, therefore there would be no cumulative effects beyond those resulting from the proposed activities.

3.3.3 Cultural/Historical Resources

Affected Environment

It was conducted a Phase I archaeological survey of the proposed project site, covering approximately 18 acres. The survey entailed systematic shovel testing, surface inspection, and metal detecting. One previously unrecorded archaeological site, was located as a result of the survey. It was recommended that the site is not eligible for the National Register of Historic Places. No additional archaeological investigation is recommended within the survey area.

Environmental Consequences

Alternative 1: No Action

There would be no effect on cultural resources.

Alternatives 2: Proposed Action

Direct and Indirect Effects.

Not applicable.

Cumulative Effects.

Not applicable

3.4 Biological Resources

The propose action site ranges between 2300 and 2400 feet in elevation and has a northwest facing orientation. It is comprised of a mixed hardwood forest and open grassland area. The approximate ten acres forested area is a mafic forest dominated by oaks and hickories. Evergreen species, including white pines and immature hemlocks, are integrated throughout the overstory and midstory. A history of disturbance has created an opening in the forested area that is now dominated by herbaceous vegetation. This includes grasses, sedges, and vine species that are maintained to create a “wildlife opening” by USFS personnel. Interspersed throughout the site are boulders and boulder piles either naturally occurring or from anthropogenic causes. Species of vegetation found at the site include:

Terrestrial species are assumed to utilize this site and surrounding as a corridor and/or included in their home range. This includes birds, mammals, reptiles, amphibians, and terrestrial invertebrates. Threatened, endangered, and sensitive (TES) species potentially affected are further analyzed in the section below. Non-TES species considered in this report include, but not limited to, white-tail deer, black bear, and migratory and resident bird species.

Bounds of Analysis

- Botanical Resources: the bounds for the botanical resources analysis include the approximate 15 acres of the proposed Union County Target 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.

3.4.1 Threatened, endangered and Sensitive Species (TES)

Affected Environment

Threatened, endangered, and sensitive (TES) species potentially affected are further analyzed in this section. The following threatened or endangered species in table 3.4.1.1 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 detailed above, species distribution, and habitat preferences.

Table 3.4.1.1: Threatened, endangered, and sensitive (TES) species addressed in the project area.

Group	Scientific name	Common name	Federal Status	State Status	Inventory Status*
Mammals	<i>Myotis sodalis</i>	Indiana Bat	Endangered	Endangered	1,2
	<i>Myotis septentrionalis</i>	Northern Long-eared Bat	Threatened	Threatened	1,2

Table 3.4.1.1: Threatened, endangered, and sensitive (TES) species addressed in the project area.

Group	Scientific name	Common name	Federal Status	State Status	Inventory Status*
Reptiles	<i>Clemmys muhlenbergii</i>	Bog Turtle	Similarity of Appearance (Threatened)	Similarity of Appearance (Threatened)	1
Flowering Plants	<i>Isotria medeoloides</i>	Small Whorled Pogonia	Threatened	n/a	1
	<i>Sarracenia oreophila</i>	Green Pitcher-plant	Endangered	Endangered	1
	<i>Helonias bullata</i>	Swamp Pink	Threatened	n/a	1

Remarks:
***Inventory Status:** 1. = presence of the sp. is presumed; surveys would have low likelihood of detecting the species; 2. = presence of the sp. is presumed; protection measures already in place and part of the proposed action

Indiana Bat

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 534,000 (USFWS, 2013). Since 2010, white-nose syndrome (WNS) (*Pseudogymnoascus destructans*), a has caused the mortality of thousands of Indiana bats, and the “degree of threat” category in the species’ Recovery Plan has been elevated from “moderate” to “high”. The “high” category means extinction is almost certain in the immediate future. Along with the impacts of 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 281 hibernacula known in 19 states (USFWS, 2009), although no substantial hibernacula are known for Georgia (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 summer range of Indiana bats, and population densities are likely to be extremely low. Summer roosting/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).

In the project area, there is a small area (75’ x 550’) of potential habitat for Indiana bat (USFWS GIS Information, 2014). Yellow pine dominated forests are essentially absent

from the analysis area. The project area is unlikely to be occupied by roosting or maternity colonies of Indiana bats.

Northern Long-Eared Bat

Northern long-eared bats (*Myotis septentrionalis*) were formerly widespread across its range, including the forests of north Georgia, but their numbers have been reduced range-wide due to heavy losses from WNS. Northern long-eared bats utilize cracks and crevices in live trees of all 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, it was 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 (June 1-July 31); and
- avoid clearcutting and similar harvest methods within 0.25 mile of known, occupied maternity roost trees during the pup season (June 1- July 31).

The Forest Service consulted with the US Fish and Wildlife Service (USFWS) if its actions may affect a federally listed species, regardless of a 4(d) rule. A concurrence letter from the USFWS was received on April 15, 2019 that determined that the proposed action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO)(letter in the project record). Correspondence with GA-DNR non-game biologists that there are northern long-eared bat records within Union County. However, the nearest location is a capture and associated 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.

Bog Turtle

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 site.

Small Whorled Pogonia

Small-whorled pogonia is an orchid federally listed as Threatened under the Endangered Species Act of 1973. Although widely distributed, this species is rare. It is found in 18 eastern states. Populations are typically small (between 1 and 50 plants). This species occurs on upland sites in mixed deciduous or mixed deciduous/coniferous forests that are

generally in 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. None of these populations occur on the project site.

Green Pitcher-plant

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 (U.S. Fish and Wildlife Service 1985). The soils in all of these habitats are sandy and highly acidic. 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 (U.S. Fish and Wildlife Service 1985). All of these habitats exhibit generally moist soil conditions, but this plant species does not grow in areas where flooding is regular and the soils are continually saturated. Within the bog habitat, the green pitcher plants grow away from the wet slough and along stream banks. Thirty-five populations are known in Georgia, northeast Alabama, and southwest North Carolina; historically, plants occurred in eastern Tennessee. Only one natural population is located in Georgia and is not on the project site.

Swamp Pink

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.

Environmental Consequences

Alternative 1: No Action

In the Alternative 1: No action, the wildlife opening would continue with current management and the forested area would not be altered. There would be no affects to the botanical resources or terrestrial wildlife resources.

Alternative 2: Proposed Action

Direct and indirect effects due to construction, change of land use, tree removal and operation of the proposed target range follow.

Indiana Bat and Northern Long-eared bat

Alternative 2 plus cumulative effects *may affect, but not likely to adversely affect* bat species including the Indiana bat and Northern Long-eared 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 cut down 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 small potential for harassment and harm does exist.

Bog Turtle

Alternative 2 plus cumulative effects will have “**no effect**” on bog turtles because the likelihood of their presence in the project is low due to the absence of suitable habitat.

Small Whorled Pogonia

Alternative 2 plus cumulative effects will have “**no effect**” on small whorled pogonia because land disturbing activities will not occur within any of the existing or historic colony sites.

Green Pitcher-plant

Alternative 2 plus cumulative effects will have “**no effect**” on green pitcher plants because the likelihood of their presence in the project is low due to the absence of suitable habitat and the location of the known population or occurrence in Georgia is not within the project area.

Swamp Pink

Alternative 2 plus cumulative effects will have “**no effect**” on swamp pinks because the likelihood of their presence in the project is low due to the absence of suitable habitat and the location of the known population or occurrence in the Chattahoochee-Oconee National Forest is not within the project area.

The only potential impacts are to the Indiana and Northern Long-eared bat, which can be addressed through mitigation. The best mitigation effort to decrease the risk of impacts to Indiana bats and Northern Long-eared bat are by avoiding removal of trees from April 1st – August 31st. Other mitigation efforts include no cutting of snags >6 inches DBH. These mitigation efforts would be beneficial to tree-roosting bats of all species.

There are no known cumulative effects to the threatened and endangered species as the project will not cause an affect on any of the species populations.

3.4.2 Biological communities, Special Habitats, and MIS Affected Environment

Management indicator species (MIS) are utilized in forest management because their population changes are believed to indicate the effects 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 are key terrestrial habitat attributes 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
- Monitor the status and trends of federally-listed species and species with viability concerns on the forest

The following Management Indicator Species were compiled from Final Environmental Impact Statement for the Forest Plan. Indicators on the lists presented in the tables below are likely or are not likely to be found on the site due to presence of specific habitat requirements as indicated. For black bear and white-tailed deer, the species are typically

monitored via hunter game check processes and can be monitored through camera traps or mark-recapture studies.

Type	Indicator	Habitat indicator selected for	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
	Red-cockaded Woodpecker (<i>Picoides borealis</i>)	mature pine forests in open conditions	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
	Wood Thrush (<i>Hylocichla mustelina</i>)	forest interior in the Piedmont	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</i>)	pine and pine-oak forests	None

Type	Indicator	Habitat indicator selected for	Habitat Occurrence Level
	<i>pinus)</i>		
Indicators of Key Terrestrial Habitat Attributes	Pileated Woodpecker (<i>Dryocopus Pileatus</i>)	forested habitats containing abundant snags, large dead trees, and fallen logs	None

Type	Indicator	Reason Selected	Habitat Occurrence Level
Monitoring for Threatened and Endangered Species	Red-cockaded Woodpecker (<i>Picoides borealis</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
	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, White-Tailed Deer	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

Environmental Consequences

Alternative 1. There will be no changes in MIS and their associated habitats.

Alternative 2. Due to construction, change in land use, and operation of 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, black bear, and white-tailed deer will avoid the area and utilize other available habitat in the area.

Direct and indirect effects

Considering the disturbance at the site and habitat types available, it is expected that this project would have minimal to no impact on MIS. For all MIS, any change in the quantity or quality of habitat would not be large enough to alter forest wide habitat or population

trends. Implementation of the Proposed Action would be consistent with Forest plan goals and objectives for MIS and their associated habitat types.

Cumulative

There are no projected cumulative effects for Management Indicator Species.

3.4.3 Impacts of 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.

The majority of the research related to noise effects on wildlife have mostly addressed to military-related noise or noise effects to aquatic based species. The literature was inadequate in helping to drawing conclusions that will cover all species in the affected area. For example, Doresky, et al. (2001), reports that federally-endangered red-cockaded woodpeckers exhibit no response to training activities, including gunfire, on a military base. However, Habib and Boutin (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 (citation).

The noise emitted from human caused activities will 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 are already acclimated to the noise or have completely disbursed from the area.

Many researchers agree that excess anthropogenic noise can have negative effects on wildlife behavior, physiology, and reproduction (Larkin, 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 will vary depending on species. Elevated sound levels impact wildlife and humans 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. Since terrestrial wildlife species are inherently mobile, and there are no TES species likely located in the proposed project area (see TES section above), 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 and therefore, the range would not have an appreciably negative impact on wildlife.

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

Environmental Consequences

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 will persist.

Action 2: Proposed Action

Direct and Indirect Effects. This noise from the human stimuli during the operation of the target range could adversely impact wildlife. Any impacts from noise to wildlife would be local, when shooting range patrons are present which is only during daylight hours (UC Gun Club SOP). Typical visitors to the range are mid-mornings, weekends, and seasonal use. Migrating birds that hear the gun fire may alter migratory paths around the area. Bears, deer, wild turkey, and other resident species are likely to disperse 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.

Effects from the caused from construction and decommissioning of the site are thought to be negligible as this will occur during a short time and animals will already disperse from human presence.

Cumulative Effects.

Some wildlife species would acclimate to the new conditions and others would adjust by avoiding the area when users are present and therefore, the range would not likely have an appreciably negative impact on wildlife populations.

Mitigation measures to further decrease the impacts are the same for wildlife as they are for humans. This would be to increase the amount of vegetative species in the open areas on site that will not be used for the project. This will be in addition to the berms that are part of the design plan.

3.5 Human Environment

3.5.1 Noise

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, Chickasawhattee, and Richmond Hill. Most of the ranges are closed on Mondays, and have varied seasonal operating hours. Three of the ranges are closed for a portion of the year for repairs or other reasons. An overview of usages follows:

- Average total visitors per range (based on 5 ranges that were opened all of 2018) was approximately 5,000 users per 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), and tapered off during the late afternoon. This held true for Sundays as well, in which the opening times were at 1 pm.
- Monthly Visitation: use of the ranges peaked in Autumn based on five ranges opened all of 2018.

Month	Average Percentage of Annual Visitation Occurring each Month (%)
Jan	7
Feb	7
Mar	9
Apr	7
May	7
Jun	7
Jul	7
Aug	8
Sep	9
Oct	12
Nov	11
Dec	8

Similar usage patterns are expected for the Union County Target Range. Impacts associated with noise will be subject to site specific times of operation (designated as daylight hours per the Special Use Application (SUP) application) and similar total, daily, hourly and seasonal trends as are described above.

Noise Projection

Two approaches were employed to assess noise generated from the proposed target range:

- 1) **Acoustic Analysis:** Pistol and rifle range specific projections were calculated based on typical firearm sound level data, and various attenuation factors such as sound spread distance, terrain barriers (designed berms and backstops) and direction. Predicted sound levels, presented as Sound Pressure Level (SPL) in decibels (noted as dBA), were compared to a designated “annoyance level” and categorized accordingly. The Acoustic Analysis summary report as developed by Conway & Owen is provided in Appendix E. This approach was limited in that it could not account for specific meteorological conditions nor necessarily characterize a type of sound such as wind.
- 2) **Live Fire Tests:** Two separate live fire tests were conducted by the Forest Service at the proposed project site on November 8 and December 11, 2018. Both tests included two firing periods and listeners stationed at specific locations including the proposed site, along Jonas Mountain Road, on Fain Branch Road, and at points on the Appalachian Trail (second test only). Listeners were asked to provide qualitative descriptions of ambient conditions and gunfire heard, with a comparison to common sound sources. Live fire test reports are provided in Appendix F and G. This approach was limited in that it could not account for sound mitigation measures as proposed, and is subjective in interpretation of the results.

Boundaries of Analysis

Spatially, the boundaries extend from the proposed range site outwards to the distance with which the gunfire can be differentiated from ambient noise such that there are impacts. Sound wave travel is three-dimensional, and can be very complex due to attenuation factors and meteorological conditions. For the purposes of this analysis, the focus is on an approximate two mile radius from the proposed site. Temporally, this analysis is limited to operation of the proposed target range.

Affected Environment

Users of the proposed site and vicinity are currently subject to traffic from the Russell-Brasstown Scenic Byway (Highway 180), natural sounds of the forest and designated wilderness area (e.g., insects, wildlife, weather related noises, etc.), recreational users along trails, mowing of the opening, and those sounds associated with a rural area such as occasional traffic and other human derived noises. Ambient noise levels in the forest, wilderness areas and trails are estimated to have an SPL of approximately 30 dBA according to natural sound mapping and modeling completed by the National Park Service (available: <https://www.nps.gov/subjects/sound/soundmap.htm>). The adjacent rural area consists of few residences, and has a modeled SPL in the mid 30s (dBA).

Alternative 1: No Action

The no action alternative and vicinity would be affected by factors unrelated to this project, and have no additional impacts.

Alternatives 2: Proposed Action

Considering the projected usage of both the pistol and rifle ranges, the associated modeling and live fire tests, there will be noise impacts within the project area and vicinity based on the assessment of SPL. As specified in the acoustic analysis report, an “annoyance level” of 55 dBA was applied to the results. This SPL is widely used in assessment of noise impacts. Per the analysis report, predictive sound levels were generally below 55 dBA with the exceptions of:

- The area of Highway 180, which is in close proximity of the range;
- Points of consideration along the Appalachian trail which are subject to the shooting direction and lack in natural barriers; and
- Points evaluated at Turkey Pen Mountain and Turkey Pen Gap due to shooting direction and lack of natural barriers.

The live fire tests confirm that gunfire can be differentiated from ambient noise.

Environmental Consequences

Direct and Indirect Effects.

Per the acoustic analysis, the residences in the vicinity of the proposed range will not experience SPL levels above that which was deemed an “annoyance level.” However, the gunfire will likely be heard and distinguishable per the live fire testing. The impacts discussed above do not consider perception of sound, and the physical and psychological effects of hearing gunfire will vary from person to person. Noise effects on recreational users (hikers, drivers, etc.) and wildlife will be addressed in subsequent sections. Noise

impacts are reduced in part due to direction of the range, the addition of a backstop and side berms, and recommended vegetative plants.

Cumulative Effects.

Cumulative effects are addressed in subsequent sections.

3.5.2 Recreational Resources

Affected Environment

The proposed target range site is located within the Management Prescription 7A Scenic Byway Corridor, which includes a Recreation Opportunity Spectrum (ROS) standard of Rural. Areas designated as Rural are expected to be dominated by man-made features and while the natural environment is present, human modifications are noticeable. The likelihood of encountering people is moderate to high. Motorized vehicle use is common on paved, graveled, and unsurfaced roads. Typical activities and/or facilities may include camping, fishing, information centers, and convenience stores. Two ROS classes are targeted within the spatial bounds of analysis for the proposed project.

The designated wilderness areas and the Appalachian National Scenic Trail Corridor that runs through them are within the Management Prescription 1A, which includes ROS standard of Primitive. In a Primitive ROS area, the recreation environment is characterized by absent or minimal human alteration/management. The natural environment is unmodified but with some evidence of trails. Motorized vehicles and equipment are prohibited and the likelihood of experiencing isolation from human sights and sounds is probable. Specifically, designated Wilderness Areas exhibit qualities of being Untrammled¹, Natural, and Undeveloped, with opportunities of Solitude or Primitive and Unconfined Recreation. Typical recreational activities in primitive areas include hiking, fishing, hunting, and camping.

Within the analysis area, existing recreational areas, activities, users, and expectations are categorized as follows:

Recreational Areas and Associated Activities

- The Appalachian National Scenic Trail Corridor: provides hiking, backpacking, and camping opportunities in primitive settings within wilderness areas.
- Mark Trail and Brasstown Wilderness Areas: provides hiking, backpacking, hunting, fishing, and camping opportunities in a predominantly primitive setting.
- Russell-Brasstown Scenic Byway: provides natural, scenic views along the corridor and access to other recreational opportunities in the area. The byway itself traverses a rural setting.
- Proposed Site: currently is managed as a wildlife opening. It is known to have scattered visitations, typically for day trip opportunities and wildlife viewing.

Recreational Users

¹ In the context of the Wilderness Act, an untrammled area is where human influence does not impede the free play of natural forces or interfere with natural processes in the ecosystem (USDA-Forest Service, 2007)Richard.

- Drivers (Russell-Brasstown Scenic Byway): travelers that expect to experience natural beauty, scenic views, and easy access to recreational opportunities such as hiking, camping, and hunting. Peak usage is anticipated to be during the fall, when leaves are changing color.
- Day-Hikers: individuals that expect a high level of interaction with the natural environment within primitive settings. Usage typically peaks in the spring.
- Thru-Hikers: individuals that typically experience unmodified, natural environments with limited human interaction in primitive settings within segments of the Appalachian Trail. The starting point on the AT determines when users might be affected by the target range. Northbound thru-hikers are typically starting the trail in the spring and would be affected at that time and southbound thru-hikers are typically finishing the trek in the fall passing by the proposed target range during peak times.
- Backpackers: these individuals rely on the wilderness areas for unconfined recreational experiences. They are typically multi-day users seeking remote areas for solitude.
- Fishermen/Hunters: while no designated fishing, hunting or camping locations are noted in the vicinity of the proposed site, individual users or user groups may frequent certain locations for recreation. Usage coincides with associated game and fishing seasons.
- Recreational Shooters: as discussed in Chapter 1, dispersed users consisting primarily of locals may utilize areas in the vicinity of the proposed project. Usage likely peaks during the fall for the upcoming hunting season.

Specifically, the analysis will address the effects of changes in noise and safety on usage.

Alternative 1. No Action

The no action alternative would produce no changes to the existing users and setting provided by the Forest Service for recreational opportunities.

Alternative 2. Proposed Action

Noise impacts are expected during construction, operation, maintenance and decommissioning of the site. Construction, maintenance and decommissioning may include noises from heavy equipment, various motorized vehicles and human activities. These impacts are expected to be short term in nature and effect.

As discussed in Section 3.5.1, noise originating from operation of the range will be detectable and at a volume in some cases above what is deemed an “annoyance level” (Appendix E). The noise generated will not be constant, but be limited to the operation times of the range, and vary seasonally, daily and hourly as summarized previously. The ability to detect gunfire will vary with distance, terrain, season and atmospheric conditions (e.g., wind speed and humidity). It is evident based on the Acoustic Analysis and Live Fire testing that noise above and different from ambient noise will extend into the adjacent wilderness areas, within a portion of the Appalachian National Scenic Trail Corridor and along the Scenic Byway Corridor (Appendix E, F and G). Perception of the noise will vary by potential user of the resource, along with the response to avoid or acclimate.

The production of noise in the designated wilderness areas and along the Appalachian Natural Scenic Trail Corridor is contrary to the solitude quality that is expected as part of the character of these areas. By definition, Primitive ROS areas are intended to be remote and away from human generated sounds. That being said, the vast majority of the Wilderness Area in the vicinity of the site will not be capable of differentiating gunfire from ambient noises due to distance and other attenuation factors. And given the proximity to the Russell-Brasstown Scenic Byway Corridor, a recreational user may not have expectations of complete solitude.

Safety concerns associated with users of the proposed range will be addressed in the site specific Human Health and Safety Plan that will be implemented by the Site Operator. Concerns of safety from stray bullets will be reduced to the extent possible through adherence to the Human and Health Safety Plan. Additional users of the range will be supervised by a dedicated during open hours of the range. Additionally, there is an expected reduction of dispersed shooting within the National Forest and the adjacent county land, which would reduce potential safety hazards associated with that activity. As discussed in the Purpose and Need section (Section 1.3 of this document), the consolidation of dispersed shooting practices will create a safer environment for recreational shooting.

Additional highway and site boundary signage may be added as a mitigation measure to enhance safety for drivers and those hikers utilizing areas in the immediate vicinity of the site.

Due to the effects of noise generated and changes in safety conditions, the following changes in use are expected by user:

- Drivers will continue to ride on the scenic byway regardless of the proposed action. There will be a mild increase in average per day use of vehicle traffic and a short viewing time for the driver as they pass would be unlikely to have a significant impact on the amount of users on the byway.
- Day hikers may choose other trails to visit over ones closest to the target range. Peak use of the target range is expected in the fall while peak day-hikes are expected in the spring. Usage trends of hikers that have previously used the trail may decrease at a higher rate than first-time hikers without prior knowledge of the area if the proposed action is implemented.
- Appalachian Trail thru-hikers would most likely still visit the sections of the trail affected by the proposed shooting range. With a set start and finish point and designated trail areas, the user has no choice but to pass along affected areas to complete the thru hike. Thus, the small inconvenience to the hiker would be outweighed by the overall hike experience. Through-hikers do not expect primitive conditions during the entire journey as they pass by roads, towns, and other human disturbance along the trail.
- Backpackers would likely choose other wilderness areas to visit and remain wary of areas on the Mark Trail Wilderness closest to the range. This would potentially cause an increase of density of user per acre to other wilderness areas.
- Similar to day hikers and backpackers, fisherman/hunter usage will likely decrease in the area. With an increase disturbance to terrestrial game species and

potential disbursal from the area, hunters will likely choose other wildlife management areas or places in the forest where animals are less affected.

- Recreation shooter usage would dramatically increase. These users would consolidate and utilize the range and be less dispersed throughout the forest and surrounding areas.

Environmental Consequences

Direct and Indirect Effects

Operation of the range will generate noise above and different from ambient noise. This noise will extend into the adjacent wilderness areas, within a portion of the Appalachian National Scenic Trail Corridor and along the Scenic Byway Corridor. Noise impacts are limited seasonally, daily and hourly based on range usage.

Safety conditions will change as a result of the proposed project. Most concerns will be addressed via implementation of a site specific Human Health and Safety Plan and oversight provided by a Site Operator. Other safety measures such as signage can be employed to alert drivers and other recreational users of the presence of the proposed target range.

Users that will likely avoid the area include day hikers and backpackers during target range usage. The proposed project will provide for an increased number of recreational shooters, where consolidated use will enhance safety of that activity.

Cumulative Effects

The dynamic of recreation users are likely to shift with implementation of the proposed action. This lead to more local use of the recreational resource opportunity in the form of the target range rather than outside users that may frequent the areas adjacent to the site.

3.5.3 Scenery Effects

Affected Environment

The viewshed associated with the proposed action includes not only the project site and Scenic Corridor, but also the adjacent National Forest, designated Wilderness Areas, and the Appalachian Trail (map in the project record). The forest plan provides direction for managing scenic resources using Scenic Integrity Objectives (SIO). As previously noted, the proposed project site is within the Management Prescription 7A: Scenic Byway Corridor. The byway corridor is defined by the area visible during the leaf-off season for up to one-half mile from either side of the road.

As prescribed the Scenic Corridor is managed to provide visitors enjoyment of outstanding scenery of natural and cultural landscapes along a well-maintained road, along with recreational and interpretive trails. Management is focused on protecting and showcasing the unique and scenic natural and cultural resources, which were the basis for the corridor being designated a scenic byway (USDA-Forest Service, 2004).

Near the project area are two designated wilderness areas, the Mark Trail and the Brasstown areas, which are 16,880 acres and 12,949 acres in size, respectively. They are both within the Management Prescription 1.A Designated Wilderness Areas, and are included within the viewshed (map in the project record). A designated wilderness area is

managed with little to no human influence or intervention, where evidence of human impacts are minimal and are typically disregarded by the viewer. More details of Wilderness Areas and their management are provided in the Recreation Resources section (Section 3.5.2 of this document).

The proposed site and Scenic Byway corridor are designated as having a SIO of “High”, while wilderness areas within the viewshed are designated as having a SIO of “Very High”. The SIO frame of reference includes a range scale from “Very Low” to “Very High,” where a “Very Low” designation implies that an area has appeared to have been heavily altered (maximum modification) as opposed to “Very High” that implies a landscape is unaltered (preserved). This indicates that visitors to the designated wilderness area expect to view landscape devoid of unnatural scenery. The scenic corridor with a “High” SIO implies that the landscape would appear to the user as unaltered but deviations that exist tend to mimic the natural landscape around it.

Potential visibility was assessed using a Bare Earth model for ground surface elevation through GIS viewshed analysis. The result shows areas from which the target range would be visible if a person was standing at that location (map in the project record). It is noted that the projected visibility is based on elevation alone and does not take into consideration the dense vegetation that occurs throughout the forest; thus, it provides a conservative estimate of visibility and line of sight. Visibility from the adjacent forest land, trails, and wilderness areas is contingent upon the type and consistency of the vegetation between the viewer and the proposed site. A dense, forested habitat is likely to obstruct visibility during the leaf-on season (spring through summer), while the proposed site is more visible in late fall and winter during leaf-off. This coupled with distance dictates the degree of discernable detail available to the user.

Based on the conservative estimate of projected visibility, the proposed site would be visible to users on the Appalachian Trail along a 0.07 mile section when hiking north bound (assuming forward facing) and a 0.31 mile section when hiking south bound. The area of the surrounding National Forest that has potential visibility to the site is 1,150 acres, which includes 662 acres within designated wilderness areas.

Effects are considered for three time periods: 1) construction 2) operation and maintenance, and 3) decommissioning. These activities will vary in the intensity of the impacts both temporally and spatially. The impacts on scenic quality and integrity will be muted with viewer distance from the site. The degree of impact will vary seasonally with vegetation changes and by user. For instance, peak usage for the Russell-Brasstown Scenic Byway Corridor is typically during the early fall where drivers observe natural color changes. This would coincide with a greater potential visibility of the sites as the leaves fall. Appalachian Trail use and adjacent forest is greater in the spring, when visibility is lessened.

The period of construction will have the shortest duration of impact, but would exhibit the most prominent contrast to the targeted natural environment. During this time, there would be active grading and land preparation, construction of the various structures, and vegetation removal and establishment. Similar effects would be realized during decommissioning of the site.

During the time period in which the proposed range is in use, viewers will see two grassed ranges consisting of tall backstops/berms and an access road that will not be consistent with the existing landscape SIO. These features must remain linear for functionality. Structures are to be designed and built in accordance with the Building Environmental Image Guide (BEIG) Southeast mountain area to the extent practicable. Additional landscaping and maintenance of vegetative buffers will be used to maintain continuity with the natural landscape, and generally consistent with the “High” SIO. While these measures will function to mimic the natural landscape, viewers of the site will be able to see target range users and associated vehicles, etc. during operating hours.

Environmental Consequences

Alternative 1. No Action

The no action alternative would produce no effects to scenic resources outside of the current management for the proposed project site.

Alternative 2. Proposed Action

Direct and Indirect Effects

Due to visibility and proximity, scenic effects will likely be observed by users of the Scenic Byway Corridor more than users of the Appalachian Trail. Stark visual contrasts will be noted during construction and decommissioning of the proposed project for a shorter duration. During the designated operation of the proposed range, landscape and buffers will be designed to maintain the SIO according to BEIG principles; however, the ranges and access road will remain linear. A vegetated buffer will be maintained between the ranges and Highway 180, which will decrease visibility of the ranges and facilities to drivers, but this would vary seasonally.

Cumulative Effects

Due to the small size of the proposed site, the absence of other clearing activities in the immediate area, and use of the BEIG as a mitigation measure, there are no cumulative effects beyond the effects of the proposed range. Effects from the range would persist as long as the facility is in operation.

3.6 Consistency with Laws

None of the alternatives threatens a violation of Federal, State, or local laws or requirements imposed for the protection of the environment. As documented in this EA or in the project file, alternatives would be consistent with the following applicable laws and Executive Orders:

- Archaeological and Historical Conservation Act of 1974 (16 USC 469)
- Archaeological Resources Protection Act of 1979 (16 USC 470) Cave Resource Protection Act of 1988
- Clean Air Act of 1977 (as amended) Clean Water Act of 1977 (as amended)
- Endangered Species Act (ESA) of 1973 (as amended)
- Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (as amended) Historic Sites Act of 1935 (16 USC 461467)
- Multiple Use Sustained Yield Act of 1960
- National Environmental Policy Act of 1969, (as amended) (42 USC 43214347)

- National Forest Management Act (NFMA) of 1976 (as amended)
- National Historic Preservation Act of 1966 (16 USC 470)
- Organic Act 1897
- Forest Service Manuals such as 2361, 2520, 2670, 2620, 2760 Executive Order 11593 (cultural resources)
- Executive Order 11988 (floodplains) Executive Order 11990 (wetlands)
- Executive Order 12962 (aquatic systems and recreational fisheries) Executive Order 13112 (NNIS)
- Resource Conservation and Recovery Act (RCRA)
- Clean Water Act (CWA)
- The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

Chapter 4: References Cited

- Chatuge Gun Club. (2018, April 11). Welcome to Chatuge Gun Club. Retrieve from: <http://chatugegunclub.com/index.html>
- Davis, K.R., J.C. Donahue, R.H. Hutcheson and D.L. Waldrop. 1989. Most significant ground water recharge areas in Georgia. Hydrologic Atlas 18, Georgia Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey.
- Doresky, J., K. Morgan, L. Ragsdale, H. Townsend. 2001. Effects of military activity on reproductive success of red-cockaded woodpeckers. *J. Field Ornithology* 72(2): 305–311.
- Dunne, T. and L.B. Leopold. 1978. *Water in Environmental Planning*. W.H. Freeman and Company, New York
- Georgia Soil and Water Conservation Commission (GSWCC). 2016. *Manual for Sediment and Erosion Control in Georgia*. 2016 Edition. 404 pg.
- Larkin, R.P. 1996. *Effects of Military Noise on Wildlife: a Literature Review*. Center for Wildlife Ecology, Illinois Natural History Survey, Champaign, Illinois, 87 pp.
- Lawton, D.E., F.J. Moye, J.B. Murray, B.J. O'Connor, H.M. Penley, G.S. Sandrock, C.W. Cressler, W.E. Marsalis, M.S. Fridell, J.H. Hetrick, P.F. Huddleston, R.E. Hunter, W.R. Mann, B.F. Martin, Jr., S.M. Pickering, Jr., F.J. Schneeberger, and J.D. Wilson. 1976. *Geologic Map of Georgia*. Georgia Geologic Survey. Scale =1:500,000.
- Swank, W.T., and D.A. Crossley, Jr. 1988. *Forest Hydrology and Ecology at Coweeta*. Ecological Studies No. 66. 469 pg.
- Trent, V.P. 1992. Ground-water pollution susceptibility map of Georgia. Hydrologic Atlas 20, Georgia Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey.
- USDA Forest Service. 2004a. Final Environmental Impact Statement for the Land and Resource Management Plan Revision. Chattahoochee-Oconee National Forests. Management Bulletin R8-MB 113 B. USDA Forest Service, Southern Region, Atlanta, GA.
- USDA Forest Service. 2004b. Chattahoochee-Oconee National Forests Land and Resource Management Plan. R8-MB 113 A. USDA Forest Service, Southern Region, Atlanta, GA.
- USDA-Forest Service. 2007. FSM 2300-Recreation, Wilderness, and related Resource Management: Chapter 2320-Wilderness Management. Forest Service Manual. National Headquarters (WO). 55 pages. Washington DC.
- USDA-Forest Service. 2013. Clay County Shooting Range Project Environmental Assessment. Nantahala National Forest, Tusquitee Ranger District, Clay County, North Carolina. 83 pages.
- USDA-Forest Service. 2018. Forest Service Manual 2300: Recreation, wilderness, and related resource management, chapter 2330. 32 pg. USDA forest Service, National Headquarters (WO), Washington, DC.
- USDA Natural Resources Conservation Service. 1996. Soil Survey of Fannin and Union Counties, Georgia. Athens, GA. U.S. Department of Agriculture.

US Department of Health and Human Services (HHS). 2007. Toxicological Profile for Lead. US Department of Health and Human Services, Public Health Service, Agency for Toxic Substance and Disease Registry. Atlanta, GA, August 2007.

US Environmental Protection Agency. 2001. Best Management Practices for Lead at Outdoor Shooting Ranges. EPA-902-B-01-001. Region 2, Revised June 2005.

Chapter 5: Consultation and Coordination

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

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David Vinson Chattahoochee-Oconee National Forests	Vegetation / PETS / NNIS / Fish / Wildlife
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FEDERAL, STATE, AND LOCAL AGENCIES:

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Appendices

Figure 1: Vicinity Map

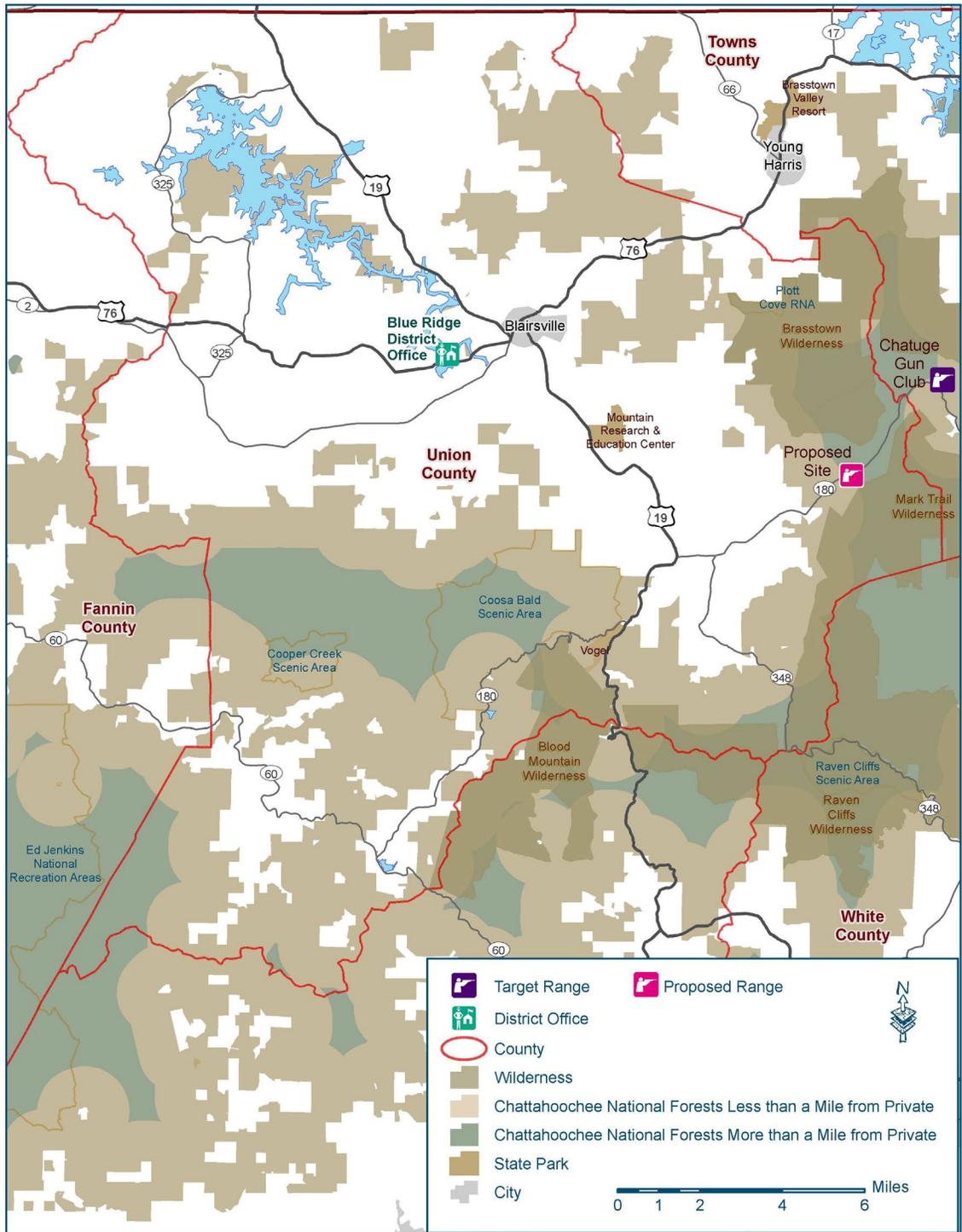


Figure 2:

