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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 (CONF) 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 unmanaged, dispersed target practice on National Forest System lands in Union County and the surrounding area.

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 practice). 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 federal 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

Lead Agency:

USDA Forest Service

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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 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.

Additional documentation, including more detailed analyses of project-area resources, are available on the Chattahoochee- Oconee National Forests website at:

<https://www.fs.usda.gov/project/?project=54559>. Also, it is available for review at the Forest Supervisor Office at 1755 Cleveland Hwy, Gainesville, Ga. 30501.

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 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 Land lot 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, construction of a pole barn type structure, restroom facilities (vaulted toilets), 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). If merchantable timber is to be removed, trees will be identified and designated for removal by Forest Service personnel.

1.3 Purpose and Need for Action

No public or private target ranges currently exist in Union County. There are public target range facilities in neighboring counties, including the Panthertop Shooting Range in Cherokee County, NC, the Dirty John Shooting Range in Macon County, NC, 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-Oconee National Forests (CONF) through a special use authorization. The Chatuge Gun Club range 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-mile drive; the Dirty John Shooting Range approximately a 58-mile drive; Darnell Shooting Range is approximately a 53-mile drive 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 national forest. Because no area in Union County has been specifically designed for this use, unsafe conditions may exist from dispersed target shooting. 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 CONF 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 federal 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 the construction of a new access road from Hwy 180, a parking lot, construction of a pole barn type structure, restroom facilities (vaulted toilets), 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). 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 CONF (USDA-Forest Service, 2004a) sets forth management direction for managing the land and resources of the CONF, 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 CONF Quarterly Schedule of Proposed Actions (SOPA) each quarter of the calendar year since August 22, 2018. The SOPA was emailed to a forest-wide list of interested stakeholders of more than 3,375 email addresses and is posted on the Forest's web site.

Public scoping began on October 12, 2018, when District Ranger Andrew L. Baker emailed a letter to the forest-wide list (3,375 email addresses) and mailed a letter to 540 individuals with residences within three miles of the site of the proposed project. The letter requested comments from the public regarding 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. In addition, as part of the public involvement process, an open-house public meeting was convened by the proponent (Union County Government) with the Blue Ridge Ranger District presenting on Wednesday October 24, 2018, at 6:00 pm at the Union County Fine Arts Center located at 926 Panther Overlook, Blairsville, Ga. A total of 226 letters were submitted to the USDA-Forest Service by the members of the public and by representatives of state and federal agencies and non-governmental organizations during the scoping period. A Content Analysis and Response Application (CARA) Report was prepared, identifying commenters, comments received, and the disposition of those comments (CARA Report, 2019). The scoping letter, comments, and CARA report are included in the project record. 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 comment period. The legal notices formally initiating the comment period were published in North Georgia News (Blairsville, Georgia) and The News Observer (Blue Ridge, Georgia) on May 15, 2019. In addition, as part of the public involvement process, an open-house public meeting was convened by the proponent with the Blue Ridge Ranger District presenting on May 30, 2019, at 6:00 pm at the Pat Haralson Memorial Civic Center located at 165 Wellborn Street, Blairsville, Ga. Approximately 65 letters were received from interested parties during the 30-day comment period. Responses to comments received were analyzed, categorized, and summarized in a report (USDA-Forest Service, 2019). This summary report can be found on the project website at: <https://www.fs.usda.gov/project/?project=54559>.

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 other 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 Wilderness Areas (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 Wilderness Areas (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 off 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 that 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 (BMPs) 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 (J. Remakel, Winter 2008, Hamline L. Rev. Vol 31 No 1). 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 (Ken Cordell, personal communication, 2010, cited by Moffat, S in the Clay County EA, 2013).

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 the construction of a new access road from Hwy 180, a parking lot, construction of a pole barn type structure, restroom facilities (vaulted toilets), 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). 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 covered shooting positions, overhead baffles above the shooting position, and barriers placed behind shooting stations can mitigate sound effects.

- 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 the 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: Tract of USDA-Forest Service Property west of Nottley Dam

This site was eliminated from detailed study because of surrounding private property/residences (approximately 100 private structures located within one-half mile of the site); a riparian area (creek) running through the center of the property; and steep terrain with an average slope of 16% across the site.

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

This site was eliminated from detailed study because of surrounding private property/residences (approximately 32 private structures located within one-half mile of the site); and steep terrain with an average slope of 18% across the site.

2.2.3 Alternative 3: Tract of land off Smyrna Road

This site was eliminated from detailed study because accessibility issues related to travel distance from town and a very long, single-lane access road that would have been dangerous for travel and a turnaround would be necessary; surrounding private property/residences (approximately 46 private structures located within one-half mile of the site); and very steep terrain with an average slope of 42% across the site.

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

This alternative site is quite accessible (just off Hwy. 180) but it was eliminated from detailed study because of proximity to Vogel State Park (approximately 12 structures located within one-half mile of the site); and steep terrain with an average slope of 13% across the site.

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.

Attributes	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 distance from Blairsville to Target Range Facilities	30-55 minutes	15 minutes
Land clearing	0 Acres	3-5 Acres
Average Slope	N/A	6.5%
Structures within ½ mile of site (approximate)	N/A	0

Chapter 3: Affected Environment and Environmental Consequences

3.1 Introduction

This section summarizes the natural, biological, social and human 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 and fire suppression activities have occurred in the vicinity of the project area.

Dispersed Recreation Use: Hunting, camping and hiking use near or within the project area.

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

Reasonably Foreseeable Future Action

Roads and Trails: road and trail construction and maintenance will 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. It is bordered to the west by Gillam Branch, a secondary trout stream, which would be buffered 125-feet from impacts of the proposed project (Appendix A in the Soil and Water Resources Report (Nutter & Associates, 2019a)). The stream is in the Hydrologic Unit (HUC) 060200020802 for the Town Creek sub watershed. No other “waters of the United States”, as defined in the Clean Water Act are located within the proposed site. A segment of Town Creek, downstream of Gillam Branch is listed on the 2018 Georgia Environmental Protection Division (GEPD) 305(b)/303(d) integrated report for not supporting the designated use of fishing due to nonpoint source (NPS) pollution.

The USGS StreamStats database (available at: <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 D of Soil and Water Resources Report (Nutter and Associates, 2019a). 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 and therefore, groundwater does not move through pore spaces within the un-weathered 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 un-weathered rock.

Significant groundwater recharge areas within Georgia have been mapped by Davis et al. (1989). Similarly, the relative susceptibility of the shallow unconfined aquifers in Georgia to pollution from man-made sources has been mapped by 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 (USDA-NRCS, 1996), the soils mapped on and near 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 Appendix D of the Soil and Water Resources Report (Nutter and Associates, 2019a) as obtained from the NRCS Web Soil Survey (available at: <https://websoilsurvey.nrcs.usda.gov/>). Descriptions of each of the series listed above are included in Appendix E of the Soil and Water Resources Report (Nutter and Associates, 2019a) per the soil survey. 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 is provided in Appendix C of the Soil and Water Resources Report (Nutter and Associates, 2019a). 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) 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, although it was indicated that the site was historically subject to regular lime amendments for pH adjustment.

Environmental Consequences

Alternative 1: No Action. Summary of Effects

Soil Loss

Soil loss and projected sediment yield were estimated using the RUSLE model (Appendix B in the Soil and Water Resource Report (Nutter and Associates, 2019a)). Soil loss 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 would not be impacted.

Soil Chemistry

Current soil chemistry is discussed above, and laboratory analysis is from composite samples is provided in Appendix C in the Soil and Water Resource Report (Nutter and

Associates, 2019a). Without further soil amendments, the site would 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 would continue to function in its role in nutrient cycling and supporting plant productivity.

Sedimentation and Water Quality

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

Lead Management

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

Alternative 2: Proposed Action. Summary of 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 and sediment yield were estimated using the RUSLE model (Nutter and Associates, 2019a, Appendix B). In reviewing RUSLE results, it should be noted again that soil loss is an estimate of that which erodes within 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. Sediment that reaches the bottom of the hillslope would be subject to BMPs for sediment and erosion control implemented as part of the stormwater and drainage management plan for the site.

Based on the RUSLE modelling results (Nutter and Associates, 2019a, Appendix B), soil loss 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 loss rate is projected to increase considerably over existing conditions, the rate is below that T factor where soil productivity is expected to be degraded. These model results apply only to period of time where the target range is in operation, following completed construction and prior to decommissioning the site.

Soil Chemistry

Current soil chemistry is discussed above, and laboratory analysis of composite samples is provided in Appendix C of the Soil and Water Resources Report (Nutter and Associates, 2019a). Soil pH currently is greater than 7 in the surface horizon(s) on the project site. One of the selected BMPs that would 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 would continue unchanged during operation of the target range.

Sedimentation and Water Quality

The proposed target range would constitute a disturbance area greater than one acre, and thus would 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 Government would 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 ESPC (Erosion, Sedimentation, Pollution and Control) Plan that would be approved by the county as the LIA for a Land Disturbance Permit (see Union County Code, Chapter 30, Article II). The Erosion, Sedimentation Control (ESC) Plan must be consistent with the *Manual for Sediment and Erosion Control in Georgia* (2016) (GSWCC, 2016) and may include engineered controls such as the construction of containment traps or detention ponds, dams or dikes.

As stated in the assumptions above and included in the project description (Nutter and Associates, 2019a, Appendix A), all engineered controls would direct water away from the surface water, and there would be no direct connection to Gilliam Creek downgradient of the site. Any points of stormwater discharge would 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 Erosion and Sediment control (ESC) plans and other site information. Per the general permit, BMPs must be properly designed, installed and maintained. The permittee would be required to monitor turbidity and follow designated limitations in accordance with the permit. 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.

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, which would lead to a short-lived increase in surface water turbidity. These potential impacts would be temporary and subjected to compliance with regulatory permit conditions as outlined above. During operation of the range, there would be continued increased inputs of stormwater and sediment as non-point sources to the downgradient stream system, but these are thought to be minimal as the site would be stabilized and vegetated fully ((Nutter and Associates, 2019a, Appendix A), and there would be no direct connection to the adjacent surface water. Additionally, buffers would remain intact.

The forest access road was located away from the tributary to Gilliam Branch and would 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. As is the case with other site features (i.e., ranges, parking lot, etc.), soil loss does not necessarily indicate sedimentation in the stream as discussed above. Potential impacts in the construction and decommissioning periods would be short-lived, and subject to regulatory compliance. During operations, the access road would be stabilized ((Nutter and Associates, 2019a, Appendix A) and there would no direct connection to surface waters.

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

Overall, there would likely be some 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. Temporary and permanent drainage and water control structure(s) that are installed during construction, and those that would remain or be constructed as part of the ongoing maintenance and operation of the facility would function to minimize potential non-point source sediment pollution via sedimentation, while maintaining no direct connection to surface water near the project.

Lead Contamination

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 would 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 would 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 would 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 would be highlighted in the ESP.
- **Bullet and Lead Containment:** Union County would utilize the earthen backstops within the site for its bullet containment. Earthen backstops would 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 would be maintained free of debris to ease reclamation activities and ensure proper safety. The addition of lime would 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 would be conducted twice per year, once during the cooler and wetter winter months and once during the warmer and drier summer months. Samples would be tested by local extension laboratories which can make lime application recommendations based on site specific conditions. Agricultural lime would 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 would be maintained on the ranges and backstops to control dust, slow runoff and stormflow velocities, thus aiding to prevent lead migration. Other engineered controls would be implemented as part of the drainage plan for the site. Examples include the construction of containment traps or detention ponds, a roof over the backstop at the back of each range, dams or dikes, or ground contouring. These engineering controls would 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).

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 regarding 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 CONF 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 site.

Environmental Consequences

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.

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

A Phase I archaeological survey of the proposed project site was conducted, 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 (New South Associates, 2019).

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 for both alternatives.

Not applicable

3.4 Biological Resources

The proposed site is comprised of mixed hardwood forest and open grassland. The approximate ten-acre forested area is a mature forest dominated by large oaks and hickories. Evergreen species, including white pines and immature hemlocks, are integrated throughout the overstory and midstory. A history of disturbance has resulted in an approximate 5-acre open grassland within the 15-acre project site. The open grassland vegetation includes grasses, sedges, and vine species that are maintained to create a “wildlife opening” by USFS personnel. Based on the layout of the proposed project, the footprint of the range utilizes the open grassland as much as possible and therefore the removal and disturbance of mature forest trees are minimized (Biological Resource Evaluation Report, Appendix A (Nutter and Associates, 2019b)). Interspersed throughout the site are boulders and boulder piles either naturally occurring or from anthropogenic sources.

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

Bounds of Analysis

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

- Terrestrial Wildlife Resources: The bounds for terrestrial wildlife analysis are based primarily on available habitat within the proposed Union County Target site. Adjacent habitat may also be considered when evaluating the potential of wildlife use in the project vicinity.
- Aquatic Resources: As proposed, Alternative 2 does not include a direct connection to surface waters, including Gillam Branch (Biological Resources Evaluation Report, Appendix A, 2019). A 125-foot buffer from the stream would be maintained and would be outside of the construction footprint of the project. During the construction and decommissioning periods, the project is subject to Georgia Water Quality Control Act and appropriate Union County codes and ordinances. This includes an approved Erosion and Sediment Control (ESC) Plan and Land Disturbance Permit by Union County, a local issuing authority (LIA). Further, permanent site drainage features would not directly connect to surface waters. Given that there are no direct connections to surface waters as proposed, aquatic resources are not considered further as part of this evaluation.
- Timing: This evaluation includes timing of construction, operation and decommissioning of the proposed Union County Target Range as described in Appendix A in the Biological Resources Evaluation Report (Nutter and Associates, 2019).

3.4.1 Threatened, endangered and Sensitive Species (TES)

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

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

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

Indiana Bat

Existing Condition: Indiana bat (*Myotis sodalis*) was federally listed as endangered in 1967. Its population at that time was estimated at 880,000 bats with designated critical habitat of 11 caves and 2 mines located in Missouri, Indiana, and Kentucky. The latest estimate is a population size of 537,297 (USFWS, 2019). Since 2010, white-nose syndrome (WNS) (*Pseudogymnoascus destructans*), has caused the mortality of

thousands of Indiana bats, and the “degree of threat” category for the species’ has been elevated from “moderate” to “high” in the Indiana Bat Recovery Plan. The “high” category means extinction is almost certain in the immediate future. Along with impacts from WNS, disturbance within hibernacula, and forest fragmentation (including conversion to urban land uses) are the most significant rangewide threats (USFWS, 2009).

This migratory species is restricted to caves (with specific requirements) in the winter. There are currently 223 hibernacula known in 16 states (USFWS, 2019), although no substantial hibernacula are known for Georgia; however, in 2016, one Indiana bat was observed hibernating in a cave on National Park Service land in Walker County, GA. In mid to late March, Indiana bats emerge from their winter caves and migrate northward or southward to wooded areas and roost in snags or live trees during the day. Males roost alone, and females roost in groups of 100 or more (USFWS, 2009).

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

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

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

Northern Long-Eared Bat

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

Incidental take resulting from activities including timber harvest are exempt from the take prohibitions provided that the activities (such as timber harvest):

- occur more than 0.25 mile (0.4 kilometer) from a known hibernacula;
- avoid cutting or destroying known, occupied maternity roost trees during the pup season (April 1-July 31); and
- avoid clearcutting and similar harvest methods within 0.25 mile of known, occupied maternity roost trees during the pup season (April 1- July 31).

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

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

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

Bog Turtle

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

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

Small Whorled Pogonia

Existing Condition: Small-whorled pogonia is an orchid federally listed as Threatened under the Endangered Species Act of 1973. Although widely distributed, this species is rare. 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 and coniferous forests that are generally second-growth or younger successional stages, often with old logging roads and streams nearby. There are approximately ten known extant populations of small whorled pogonia on the CONF, all in the Blue Ridge Mountains ecozone. None of these populations are known to occur on the project site.

Determination of Effect: Alternative 2 plus cumulative effects are *unlikely to affect* small whorled pogonia because land disturbing activities have continuously occurred on the site and further activity would not occur within any of the existing or historic colony sites.

Green Pitcher-Plant

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

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

Swamp Pink

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

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

Sensitive Species

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

American Barberry

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

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

Large Witch-Alder

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

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

Butternut

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

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

Stone Mountain Mint

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

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

Mountain Catchfly

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

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

Ash-leaf Bush-pea

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

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

Carolina Golden Banner

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

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

Sweet White Trillium

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

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

Rafinesque's Big-eared Bat

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

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

Tri-colored Bat

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

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

Environmental Consequences

Alternative 1: No Action

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

Alternative 2: Proposed Action

Based on consultation with the USFWS (USFWS Concurrence letter dated April 10, 2019 located in the project record), there is no Critical Habitat listed in the project area.

There are potential impacts to the Indiana bat, Northern Long-eared bat, and other bat species which can be addressed through mitigation. The best mitigation effort to decrease the risk of impacts to Indiana bats is by avoiding removal of trees from April 1 – July 31. Other mitigation efforts include no cutting of snags greater than 6 inches at diameter breast height (DBH). These mitigation efforts would be beneficial to tree-roosting bats of all species.

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

3.4.2 Management Indicator Species (MIS)

Management indicator species (MIS) are utilized in forest management because their population changes are believed to be indicative of management activities. Species are selected to represent categories, such as commonly hunted or fished species, non-game species, and threatened and endangered species (addressed in section 3.4.1).

The Forest plan identifies MIS to:

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

The following MIS were compiled from the Final Environmental Impact Statement for the Forest Plan. The Plan include species on the entire CONF. MIS species that are known to only occur in the Oconee NF (ex. red cockaded wood-pecker) were eliminated from the list below. Indicators on the lists presented in Table 3.4.2.1 and 3.4.2.2 may or may not be found on the site due to specific habitat requirements as indicated under habitat occurrence level. Species indicated as having a habitat occurrence level of ‘none’ do not have habitat within the project site.

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

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

Environmental Consequences

Alternative 1: No Action

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

Alternative 2: Proposed Action

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

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

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. However, construction and decommissioning of the site are considered.

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

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

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

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

Environmental Consequences

Alternative 1: No Action

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

Alternative 2: Proposed Action

Noise from the operation of the target range could adversely impact wildlife. Any impacts from noise to wildlife would be local and occur when shooting range patrons are present which is only during daylight hours (Biological Resources Evaluation Report, 2019, Appendix A). Based on an analysis of 2018 usage data for eight GA-DNR ranges, range visits are highest at opening time, weekends, and seasonally such as the fall deer hunting season. Migrating birds that hear the gun fire may alter migratory paths around the area. Bear, deer, wild turkey, and other resident 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.

Noise associated with construction and decommissioning of the site are thought to be negligible as these impacts would be temporary. However, it is expected that wildlife would generally avoid the area during active construction and decommissioning.

Some wildlife species would acclimate to the new conditions and others would adjust by avoiding the area when users are present in favor of ample forest habitats that surround

the proposed target range. Therefore, the range is unlikely to have an appreciably negative impact on wildlife populations forest wide.

Mitigation measures to further decrease the impacts are the same for wildlife as they are for humans. This includes an increase in the amount of vegetative species in the open areas on site that would not be used for the project. Noise reducing berms surrounding the site and the site orientation have also been designed to mitigate target range operational noise.

3.5 Human Environment

3.5.1 Noise

Affected Environment

The spatial boundaries of the analysis extend from the proposed range site outwards to an approximately two-mile radius – the distance at which gunfire can be differentiated and has an impact. This includes the proposed project site, rural and National Forest properties within the vicinity of the site, and portions of the Russell-Brasstown Scenic Byway, the Appalachian National Scenic Trail Corridor (A.T.), and the Mark Trail and Brasstown Wilderness Areas. Temporally, this analysis is limited to operation of the proposed target range. Sound wave travel is three-dimensional and can be very complex due to attenuation factors and meteorological conditions.

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 Areas (e.g., insects, wildlife, weather related noises, etc.); recreational users along the A.T., other hiking trails, and within the wilderness areas and campsites; annual mowing of the wildlife opening within the proposed site; 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 a decibel Sound Pressure Level (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 a few residences and has a modeled SPL in the mid-30s (dBA).

Between Cold Springs Gap and Chattahoochee Gap within the Mark Trail Wilderness Area, the A.T. comes within proximity to the project site. This section of the A.T. is a 14.5-mile section starting at the southern end at the Hogpen Gap parking area on the Richard B. Russell Scenic Highway and moving north to the Unicoi Gap parking area on Highway 17 near Helen Georgia. Hogpen Gap to Unicoi Gap is a popular section with thru-hikers, most of whom begin their hikes at the southern terminus of the trail on Springer Mountain, Georgia. This section is also near Atlanta and north Georgia tourist towns such as Helen and Blairsville and is therefore a popular destination for overnight backpackers. Because of the length of this section between access points and a general lack of points of interests such as vistas and waterfalls, day hiker usage is less than other popular sections of the A.T. (Querterman and Lautzenheiser, 2016).

Although there is an expectation of quiet and solitude along the A.T., the number of backpackers that use this section of trail as well as its proximity of the Russell-Brasstown Scenic Highway (approximately 0.8 miles from where the trail comes closest to the

proposed project site) means that there is some amount of noise experienced. When many thru-hikers begin their journey at Springer Mountain, Georgia in early spring and when more overnight users are likely present on weekends throughout the warmer months, noise from encounters with other trail users is expected to peak.

The Russell-Brasstown Scenic byway is a popular destination for tourists (primarily drivers, motorcyclists, and cyclists) that visit the north Georgia Mountains and popular tourist destinations such as Helen, Georgia (JCMMAWSA, 2003). The byway forms a loop starting in Helen and passes by several points of interest including Brasstown Bald, High Shoals Creek Falls, Raven Cliffs, and Duke Creek Falls. Because the scenic byway passes through a large portion of the Chattahoochee-Oconee National Forests, visitors to the byway can enjoy their journey without the encumbrances of abundant commercial development. Currently, there are no particular points of interest near the proposed target range along the byway although there is a general expectation of some vehicle noise throughout the byway.

Noise Projection

Noise impacts to the human environment are inherent and were assessed in the following stepwise fashion for proposed Action Alternative 2:

1. Characterize projected facility usage

Projected usage data was not provided by the Union County Government. As noted in the project description (Nutter and Associates, 2019c, Appendix A), usage was characterized and estimated based on 2018 usage data for eight Georgia Department of Natural Resources (GDNR) ranges as summarized below:

- Range operating hours would be limited to daylight hours seven days a week throughout the year.
- Anticipated annual visitors would be approximately 5,000 per year.
- Peak daily usage would be on the weekend and early mornings.
- Seasonal peak usage would be in autumn.

2. Project noise generation from operation of the proposed range facility

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

- 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 SPL in decibels (noted as dBA), were compared to a designated “annoyance level” (> 55 dBA) and categorized accordingly. The Acoustic Analysis summary report as developed by Conway & Owen is provided in the Resources Report for the Human Environment in the Appendix B (Nutter and Associates, 2019c). This approach was limited in that it could not account for specific meteorological conditions (e.g., humidity).
- 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 A.T. (second test only). Listeners were asked to provide descriptions of ambient conditions and gunfire heard with a comparison to common sound sources. Draft live fire test reports are provided in the Resources Report for the Human Environment in the Appendix C (Nutter and Associates, 2019c). This approach was limited in that it could not account for the proposed sound mitigation measures and is subjective in interpretation of the results.

3. Utilize published documentation and literature to confirm the designated “annoyance level” and potential impacts.

Environmental Consequences

Alternative 1: No Action. Summary of Effects

In the no action alternative, the proposed site and vicinity would be affected by factors unrelated to this project and there would be no additional impacts.

Alternative 2: Proposed Action, Summary of Effects

Considering the projected usage of the pistol and rifle ranges along with the associated modeling and live fire tests, there would 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. Federal Highway Administration Standards (23 CFR 772), which have been adopted by GDOT, are used to set noise and abatement policy for highway projects. The proposed site would be designated as being in an Activity Category A, which is described as “lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose” (GDOT, 2016). Activity Category A has an equivalent steady state sound level of 57 dBA. This is generally consistent with the “annoyance level” presented in the acoustic analysis report.

Per the analysis report (Resources Report for the Human Environment in the Appendix B (Nutter and Associates, 2019c), 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 A.T. 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 depending on the individual ear and their proximity to the proposed range (Resources Report for the Human Environment in the Appendix C (Nutter and Associates, 2019c)).

Per the acoustic analysis (Nutter and Associates, 2019c, Appendix B), the residences in the vicinity of the proposed range would not experience SPL levels above that which was deemed an “annoyance level.” However, per the live fire testing, the gunfire would likely

be heard and distinguishable. The impacts discussed above do not consider perception of sound, and the physical and psychological effects of hearing gunfire would vary from person to person. As proposed, noise impacts are to be minimized for residential areas in part due to orientation of the range, the addition of a backstop and side berms, and recommended vegetative plantings (Nutter and Associates, 2019c, Appendix A).

At the point where the A.T. comes closest to the proposed gun range, noise from live gun fire tests were described as consistently louder than low conversational speech but never louder than normal conversational speech. The live fire tests were conducted without the benefit of the noise mitigation measures that are proposed in the design of the target range. Modeled noise levels from the target range at a similar location on the A.T. were projected to have an SPL of 61 dBA (Nutter and Associates, 2019c, Appendix B).

Noise can have audible and non-audible effects on humans (Basner et al., 2013), and noise from live fire tests described as never louder than normal conversational speech are unlikely to result in audible effects such as tinnitus or hearing loss. Although humans are known to habituate to certain noises, given the expectation of quiet and solitude on the A.T. and adjacent Mark Trail and Brasstown Wilderness Areas, the most likely non-audible direct effect of the proposed target range would be annoyance when recreational users are within ear shot of the range. Annoyance experienced by wilderness and trail users would likely result in people moving away from the noise. Backpackers may decide to camp further away and out of ear shot of the target range. Indirectly, this may result in the abandonment of campsites in earshot of the target range and potentially, the temporary overcrowding of campsites where gun noise cannot be heard during peak wilderness and trail usage periods. There is a campsite at Chattahoochee Gap due to a spring water source over the ridge and campers at this site are likely to hear gun fire during the daytime operations of the range. However, descriptions of the 14.5 mile A.T. section from Hogpen Gap to Unicoi Gap note many remote and undeveloped campsites that provide opportunity to avoid noise impacts from the proposed range (Atlanta Trails, 2019). This is addressed further in Section 3.3.2 below.

The highest noise levels were modeled for the entrance to the proposed gun range and on top of Turkey Pen Mountain that sits at 2,891 ft directly above and down range of the proposed project (Nutter and Associates, 2019c, Appendix B). Noise levels modeled on the Turkey Pen summit and the range entrance along the scenic byway were 76 dBA and 77 dBA, respectively. Noise levels between 75-85 dBA over a prolonged period can result in audible impacts such as tinnitus or hearing loss (Basner et al., 2013). The most probable outcome of the noise at these locations is temporary annoyance. Extensive recreational use of Turkey Pen Mountain is unlikely as there are no known established trails to the summit.

When the range is in use, drivers along Richard B. Russell Scenic Byway would be subject to noise above the designated “annoyance level” when passing by the range entrance, but audible impacts are unlikely due to the temporary nature of the noise when driving by the range. Cyclists and motorcyclists without the benefit of a car enclosure would be most impacted by gun noise while driving by the range. However, because there are no particular points of interest on the portion of the scenic by-way near the proposed target range, people are unlikely to stop and be subjected to gun fire noise. Cyclists and motorcyclists may avoid this section of the byway in favor of other sections

where gun noise can be avoided. Signage may be utilized to alert scenic byway users of the proposed range, but signage is subject to conditions in the GDOT SUP as discussed above.

Effects of noise impacts to humans would include direct annoyance from gun fire during the day-time hours, avoidance behaviors on the roads and trails, and potential changes in campsite visitation along the Hogpen Gap to Unicoi Gap section of the A.T.

The following summarizes impacts from the proposed target range noise:

- Although the closest residences would be able to hear and distinguish gun noise emanating from the range, the modeled noises and live fire tests suggest that noise levels would not exceed those considered to result in annoyance (> 55 dBA).
- Temporary annoyance to gun range noise along the A.T. and within the Mark Trail and Brasstown Wilderness Areas is projected but no audible impacts to human hearing or impacts to human health are anticipated.
- Noise generated from the target range may result in avoidance of the area where noise can be heard along the A.T., including campsites in earshot of the range.
- Overnight backpackers, including thru-hikers along the A.T., are the population most likely to experience noises from the proposed target range. The area of the trail impacted by noise is 6-7 miles from parking access points and the section of trail from Hogpen Gap to Unicoi Gap provides few points of interest such as vistas and waterfalls, making substantial impacts to day hikers less likely.
- Temporary annoyance may be experienced by those traveling along the Richard B. Russell Scenic Byway in close proximity to the site. Cyclists and motorcyclists may avoid this area of the byway.

As proposed, noise impacts would be minimized through the installation of backstop and berm barriers, an overhead baffle at the shooting stalls, and prescribed vegetative plantings (Nutter and Associates, 2019c, Appendix A).

3.5.2 Recreational Resources Affected Environment

Given that the natural setting of the adjacent forests would be altered via impacts from noise, areas in the vicinity of the proposed site are included in the overall footprint of the proposed project as well. Thus spatially, the boundaries of analysis extend from the proposed range site outwards to the distance with which the gunfire can be differentiated such that there are noise impacts. This includes the proposed project site, rural and National Forest properties within the vicinity of the site, and portions of the Russell-Brasstown Scenic Byway, the A.T., and the Mark Trail and Brasstown Wilderness Areas. Temporally, this analysis is limited to primarily to the operation of the proposed target range.

The recreation experience is a function of a given activity and the setting in which it takes place. Per the Forest Plan (2004a), management prescriptions for recreational resources are dictated by the Recreation Opportunity Spectrum (ROS) class for a designated area. The ROS is a classification system used to define recreational settings. There are six ROS classes characterized based on a number of physical, social and managerial attributes. The ROS includes primitive, semi-primitive (non-motorized), semi-primitive

(motorized), roaded-natural, rural, and urban. Two ROS classes are targeted within the spatial bounds of analysis for the proposed project. Specific management prescriptions set forth by the Forest Service are intended to provide for the setting in which designated areas are established.

The proposed target range site is located within the Land Resource Management Plan Prescription 7A Scenic Byway Corridor, which includes an ROS standard of Rural. Areas designated as Rural are expected to be dominated by man-made features. 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.

The designated wilderness areas and the A.T. that runs through them (discussed further below) are within the 1A Management Prescription, which includes an 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 untrammeled (free from human action), natural, and undeveloped, with opportunities of solitude or primitive and unconfined recreation. Typical recreational activities in primitive areas include hiking, fishing, hunting, and camping.

The A.T. is divided into 22 sections and characterized into four regions. The 79 miles of the A.T. in Georgia are Section 22 within the Deep South Region (Manning et al., 2001). A survey of A.T. usage in the Deep South region conducted in 1999 suggested that visitors to the A.T. included 42.3 percent day users, 41.4 percent overnight backpackers, and 16.3 percent section or thru-hikers (Manning et al., 2001). Throughout the 1990s, and total of 3,343 people thru-hiked the A.T. (ATC, 2019). In 2019 alone, an estimated 3,300 individuals registered with the Appalachian Trails Conservancy to begin their thru-hike at the southern terminus of the trail at Springer Mountain, Georgia (ATC, 2019). Most northbound hikers begin their journey in late April or early May, and due to the number of individuals attempting to thru-hike the trail, very crowded trail conditions now exist throughout the Deep South region. The section of trail that comes in close proximity to the proposed target range site is a 13.6 mile section from Hogpen Gap parking area on the Richard B. Russell Scenic Highway moving north to the Unicoi Gap parking area on Highway 17 near Helen, Georgia. This section begins at northbound mile 38.3. Therefore, it is safe to assume that the vast majority of those thru-hikers that start their northbound journey at Springer Mountain would hike the Hogpen Gap to Unicoi Gap section in early spring. Late fall southbound hikers are generally far fewer and more dispersed than northbound hikers (ATC, 2019).

The A.T. comes within close proximity to the project site between Cold Springs Gap and Chattahoochee Gap within the Mark Trail Wilderness Area. This portion of the A.T. is 4.5 to 7.5 miles from the nearest parking access either at Hogpen Gap, Unicoi Gap, or the Jack's Knob trailhead. Although it is estimated that 2-3 million people visit and hike a portion of the A.T. each year and approximately 42 percent of them in the Deep South are day hikers, the distance of the Hogpen Gap to Unicoi Gap section and a general lack of

popular points of interest such as vistas and waterfalls means this section does not likely attract as many day hikers (Quaterman and Lautzenheiser, 2016). However, this section is popular with weekend overnight campers given its proximity to north Georgia tourist towns and large population centers such as Atlanta and Athens, Georgia. For analysis of potential impacts of the project on recreational resources, areas in the Mark Trail Wilderness and along the A.T. have been narrowed to the small section of the A.T. between Cold Springs Gap and Chattahoochee Gap where mostly overnight users including thru-hikers and weekend backpackers are most likely to hear gun noise during range operations.

Although there is an expectation of quiet and solitude along the A.T., the number of backpackers that use this section of trail and its close proximity to the Richard B. Russell Scenic Highway approximately 0.8 miles from where the trail comes closest to the proposed project site mean that some amount of noise is experienced. Noise from encounters with other trail users would be expected to peak in early spring when many thru-hikers begin their journey at Springer Mountain and on the weekends throughout the warmer months of the year when overnight users are more likely to be present. However, noise from other users is generally unlikely to cause annoyance. Overcrowding of thru-hikers along the trail and in campsites in the early spring is likely the most apparent annoyance on the trail. Therefore, any change in the current noise levels along this section of the A.T. would have an impact on the current noise levels and may be considered an annoyance.

It is noted that the Mark Trail and Brasstown Wilderness Areas have few designated trails and are considered among those with lower usage compared to other wilderness areas in the state (Quaterman and Lautzenheiser, 2016). This suggests a higher solitude quality in these areas.

The Russell-Brasstown Scenic Byway is a popular destination for tourist who visit the north Georgia Mountains and popular tourist destinations such as Helen, Georgia (JCMMAWSA, 2003). The byway forms a loop starting in Helen and passes by several points of interest including Brasstown Bald, High Shoals Creek Falls, Raven Cliffs, and Duke Creek Falls. The scenic byway passes through a large portion of the Chattahoochee National Forests. Thus, visitors to the byway can enjoy their journey without the encumbrances of abundant commercial development. There are no particular points of interest near the proposed target range along the byway. The byway is visited by cars, motorcyclists, and cyclists. Generally, there is an expectation of some vehicle noise and encounters with tourists throughout the byway.

Additionally, the proposed range site, which is currently managed as a wildlife clearing is known to have scattered visitations, typically for day trip opportunities and wildlife viewing.

Approach

To assess impacts on recreational use within the bounds of analysis for the proposed action Alternative 2, potential users were categorized as follows.

- Drivers and Cyclists (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 A.T. 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 – Dispersed users consisting primarily of locals may utilize areas in the vicinity of the proposed project for recreational shooting. Usage likely peaks during the fall when preparing for the upcoming hunting season.

Issues resulting from implementation of the proposed project that might impact usage were outlined and compared to the likely expectations of the user based on the Land Resource Plan Management Prescriptions. Conclusions regarding usage were summarized based on likely response to identified issues.

Environmental Consequences

Alternative 1: No Action. Summary of Effects

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. Summary of Effects

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 are expected to be short term in nature and effect and were not considered further in this analysis.

As discussed in Section 2.3.2, noise originating from operation of the range would be detectible and at a volume in some cases above what is deemed an “annoyance level” (Nutter and Associates, 2019c, Appendix B). The noise generated would not be constant but would be limited to the operation times of the range and vary seasonally, daily, and hourly as summarized previously. The ability to detect gunfire would 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 would extend into the adjacent wilderness areas, within a portion of the

A.T., and along the Scenic Byway Corridor (Appendices A and B). Perception of the noise would vary by potential user of the resource as would each user's response to avoid or acclimate.

The production of noise in the designated Mark Trail and Brasstown Wilderness Areas and along the A.T. is contrary to the quality of solitude 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 areas in the vicinity of the site would not be capable of differentiating gunfire from ambient noises due to distance and other attenuation factors. Given the proximity to the Scenic Byway Corridor, a recreational user may not have expectations of complete solitude. The potential annoyance experienced by wilderness and trail users may result in people moving away from the noise. Backpackers may decide to camp further away and out of ear shot of the target range. Indirectly, this may result in the abandonment of campsites in earshot of the target range and the potential of temporary overcrowding of campsites where gun noise cannot be heard during peak wilderness and trail usage periods. However, descriptions of the 14.5 mile A.T. section from Hogpen Gap to Unicoi Gap, describe many remote and undeveloped campsites throughout the section that provide opportunities to avoid noise impacts from the proposed range (Atlanta Trails, 2019).

As proposed, noise impacts would be minimized through installation of backstop and berm barriers, an overhead baffle at the shooting stalls, and prescribed vegetative plantings (Nutter and Associates, 2019c, Appendix A).

Safety conditions would change as a result of the proposed project. There are concerns from stray bullets in the direction of the proposed range towards the A.T.. A similar concern exists for visitors that might unintentionally traverse the proposed site. This hazard would be reduced via implementation of the site-specific operations and safety plan for users of the range and the presence of a dedicated Range Safety Officer onsite during operating hours (Nutter and Associates, 2019c, Appendix A). Further, structural measures are proposed that include backstop barriers, an overhead baffle, a secured access gate and signage indicating the location of the proposed range.

Overall, the dynamic of recreation users are likely to shift with implementation of the proposed action as summarized below:

- Drivers would continue to persist on the scenic byway regardless of the proposed action. A mild increase in average per day use of vehicle traffic and short viewing time as they pass has a low likelihood of impacting the amount of users to the byway.
- Cyclist and motorcyclist may choose to avoid the area along the scenic by-way in favor of other areas where gunfire cannot be heard.
- Day hikers may choose other trails to visit over ones closest to the range. 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. However, the Hogpen Gap to Unicoi Gap section of the A.T. is 14.5 miles long between parking access points. The area of the trail closest to the proposed range is approximately 4.5 to 7.5 miles from access points which limits

day hiker use to areas along the A.T. that would be impacted by gun range noise. This section of the A.T. also lacks many of the common attractions day hikers typically visit such as grand vistas and waterfalls.

- A.T. 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. Through-hikers do not expect high quality solitude during the entire journey as they pass by roads, towns, and other human disturbance along the trail, but do expect Primitive ROS conditions as they pass through the designated wilderness areas.
- Backpackers may choose other wilderness areas to visit and remain wary of areas on the Mark Trail and Brasstown Wilderness Areas closest to the range. This would potentially cause an increase in density of user per acre in other wilderness areas. However, only a small portion of the A.T. in the Mark Trail Wilderness within the national forest would be impacted by the gun range noise. The more likely outcome is that backpackers may decide to camp further away and out of ear shot of the target range. Indirectly, this may result in the abandonment of campsites along the A.T. that are in earshot of the target range and the potential for temporary overcrowding of campsites where gun noise cannot be heard during peak wilderness and trail usage periods. However, descriptions of the 14.5 mile A.T. section from Hogpen Gap to Unicoi Gap note many remote and undeveloped campsites throughout the section that provide opportunity to avoid noise impacts from the proposed range (Atlanta Trails, 2019).
- Similar to day hikers and backpackers, fisherman/hunter usage would likely decrease in the area. With an increase disturbance to terrestrial game species and potential disbursement from the area, hunters would likely choose other wildlife management areas or places in the forest where animals are less affected.

Recreation shooter usage on the proposed project site would dramatically increase due to operation of the proposed range.

3.5.3 Scenery Effects

Affected Environment

The spatial boundaries of analysis are limited to the viewshed associated with the proposed facility. Viewshed mapping, as completed by the USDA-Forest Service, is presented in Appendix D (Nutter and Associates, 2019c). Effects are considered for three time periods: 1) construction, 2) operation, and 3) decommissioning. These activities would vary in the intensity of both the temporal and spatial impacts. Yet, the primary focus of this evaluation is on scenic resources during the operation time period.

The viewshed associated with the proposed action includes the proposed project site, the Russell-Brasstown Scenic Byway, portions of the adjacent National Forest and rural areas, the designated Mark Trail and Brasstown Wilderness Areas, and the A.T. (Nutter and Associates, 2019c, Appendix D). The proposed project site is within the Prescription 7A Scenic Byway Corridor as designated in the Forest Plan (2004a), which 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 Byway 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. The Mark Trail and the Brasstown Wilderness area are within the Prescription 1.A Designated Wilderness Areas, which are managed with little to no human influence or intervention and minimal evidence of human impacts such that these impacts are typically disregarded by the viewer.

The Forest Plan (2004a) provides direction for managing scenic resources using Scenic Integrity Objectives (SIO). The Prescription 7A Scenic Byway Corridor is designated as having a Scenic Integrity Objective (SIO) of High. The scenic corridor with a High SIO implies that the landscape would appear to the user as unaltered with existing deviations that tend to mimic the natural surrounding landscape.

The proposed site is located on a northwest sloping hill covered in mixed grasses with scattered boulder piles and is buffered by mature forest along the adjacent stream and Highway 180 (Nutter and Associates, 2019c, Appendix A). The site is currently managed as a wildlife opening; the patterns, lines, and colors generally blend with the surrounding area. The proposed project vicinity is heavily wooded with natural vegetation and includes few access roads that are not clearly evident.

Approach

Impacts to scenic resources are inherent and were assessed in a stepwise fashion as follows for the proposed Action Alternative 2:

1. Assess the Bare Earth Model that was utilized to perform a viewshed analysis (Nutter and Associates, 2019c, Appendix D) to identify specific areas where the proposed site would be visible.
2. Provide a narrative description of what a viewer would observe compared to what would be expected in the designated SIO of High for the proposed site.
3. Provide an overview of impact minimization measures that would be implemented for the proposed project.

Environmental Consequences

Alternative 1: No Action. Summary of Effects

The no action alternative would produce no additional effects to scenic resources outside of designated management prescriptions that exist for the proposed project site.

Alternative 2: Proposed Action. Summary of Effects

Viewshed mapping presented in Appendix D (Nutter and Associates, 2019c) highlights areas from which the target range would be visible if a person was standing at that location. 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 during leaf-off season (late fall and winter). The

seasonal variations in vegetation 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. The proposed site would be visible to drivers along the Russell-Brasstown Scenic Byway along an approximately 0.6 mile stretch in the immediate vicinity of the proposed project site.

Overall, recreational users, such as day hikers, backpackers and A.T. through hikers, would have limited viewing opportunities for the range as there are numerous trees, ridges and other natural obstruction between the users and the proposed site. Further, drivers and cyclist traveling along the Russell-Brasstown Scenic Byway tend to focus in the West-Northwest to North (approx. 290° to 350°) direction as they cross the stretch near the proposed site (JCMMAWSA, 2003).

The period of construction would 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. However, buffers along Highway 180 and the adjacent stream would remain intact and obscure much of the site.

As noted in the project description (Nutter and Associates, 2019c, Appendix A), the Built Environment Image Guide (BEIG) for the Southeastern Mountain Area would be used in designing the proposed facility (USDA Forest Service, 2001). Design would employ use of natural materials for structures, screening, feathering, and other vegetation management techniques to mimic the natural landscape. Additionally, the design would include an access road that does not parallel the existing highway and would allow for quick entrance and exit. Additional landscaping and maintenance of the existing vegetative buffers would be used to maintain continuity with the natural landscape. With implementation of BEIG designs, the objectives outlined in Prescription 7A and the SIO of High would be maintained; viewers may be subject to the linear grassed ranges, baffle structures, and other components of the proposed project (Nutter and Associates, 2019c, Appendix A) that would be required for functionality.

3.5.4 Traffic Affected Environment

The spatial bounds of analysis are limited to the representative section of the Russell-Brasstown Scenic Byway as described below. Effects are considered for three time periods: 1) construction, 2) operation and maintenance, and 3) decommissioning of the range. These activities will vary in the intensity of temporal and spatial impacts.

The proposed site is located along the Russell-Brasstown Scenic Byway (JCMMAWSA, 2003), which is a 41.5-mile loop that travels through forest and wilderness areas connecting towns to recreation opportunities with most traffic concentrated on the eastern side of the byway, which runs north and south within Towns and White Counties. The

byway is split into sections with Section 7 containing the proposed site. Section 7 encompasses Highway 180 Spur to Highway 348 by Highway 180. It is a 6.3-mile segment in Union County categorized as a rural area. The segment has 2 lanes that are each 11-feet wide, and it is classified as a major collector with a speed limit of 45mph. The section is comprised of a 40 percent passing zone. The proposed site is currently accessed via a small entryway in the northwest corner of the site (Nutter and Associates, 2019c, Appendix A). The current entryway to the site has a line-of-sight of less than 200 feet on a 6 percent downgrade.

Per the Russell-Brasstown Scenic Byway Corridor Management Plan (JCMMAWSA, 2003), Section 7 has historically seen an average of 943 vehicles per day and operates at a Level of Service (LOS), B designation. The LOS designations along the byway range from A to C. The LOS designations range from A to F with A representing best operating conditions, C representing acceptable operating conditions, and F representing unacceptable operating conditions.

Approach

The Russell-Brasstown Corridor Management Plan (JCMMAWSA, 2003) utilized monitoring data from the nearest GDOT traffic counter to assess annual average daily vehicular use (AADT). The AADT is assumed to a 50/50 directional distribution with two percent of trucks and the peak-to-daily ratio of 0.10. For the purpose of this evaluation, AADT data was obtained and summarized for every station along the Russell-Brasstown Scenic Byway (available:

<https://gdottrafficdata.drakewell.com/publicmultinodemap.asp>) for the period of 2014 through 2018. A representative monitoring site was selected from the available stations that would most likely include travelers to and from the proposed project site. The selected monitoring station (291-165) lies within Section 7 of the Russell-Brasstown Scenic Byway, which also encompasses traffic from the Blairsville area to the proposed project site. This was compared to GDOT projected AADT for each of the previous five years for that site. Further, to address the safety of turning vehicles, federal and state regulations were reviewed regarding the appropriate line of sight for new roads and considered the speed limit and road grade.

Environmental Consequences

Alternative 1: No Action, Summary of Effects

Under the No Action alternative, vehicular use along the Russell-Brasstown National Scenic Byway would be subject to implementation of the Corridor Plan as described (JCMMAWSA, 2003).

Alternative 2 – Proposed Action, Summary of Effects

The AADT for the past five years (2014-2018) for the site closest to the proposed project site was 440 cars (GDOT Station 291-165). It should be noted that the AADT in four of the five respective years was estimated using a growth factor. Each year's individual AADT was, on average, 350 cars less than projected by the future AADT for the selected station per the GDOT dataset. With the conservative annual estimate of range use being 5,000 vehicles per year (Nutter and Associates, 2019c, Appendix A), 14 additional vehicles per day on average (< 3 percent increase) could be expected by the addition of

the range to the area. This additional traffic would raise the AADT to approximately 453 cars, still under the projected AADT for the area.

However, for a short duration during construction, it is expected that large vehicles will be entering and exiting the proposed site. These will include, but are not limited to, logging trucks, bulldozers, skidders, tractors, and dump trucks. These vehicles would cause traffic to slow in the vicinity of the range and encountering these larger vehicles could be an unexpected occurrence for recreational users of the byway.

During high use periods of range operation and maintenance, including seasonally during the fall, on weekends and earlier operation hours (Nutter and Associates, 2019c, Appendix A), the increase in traffic would be more apparent. The daylight operational hours of the proposed range are concurrent with the hours recreational users are most likely to use the Russell-Brasstown Scenic Byway. Users of this stretch may experience an increase in traffic volume. To minimize the potential safety hazard regarding turning traffic into and out of the range, the proposed new access road entryway would maintain a 400-foot line-of-sight, which is consistent with the stopping site distance for a car traveling at 45mph on a 6 percent downgrade (AASHTO, 2001).

Additional impact mitigation and minimization measures, specifically during construction, which would include signage, speed limit decrease, construction of additional turn lanes, and other safety measures, would be subject to evaluation through a modification of the SUP maintained by the GDOT.

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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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Appendices

Figure 1: Vicinity Map

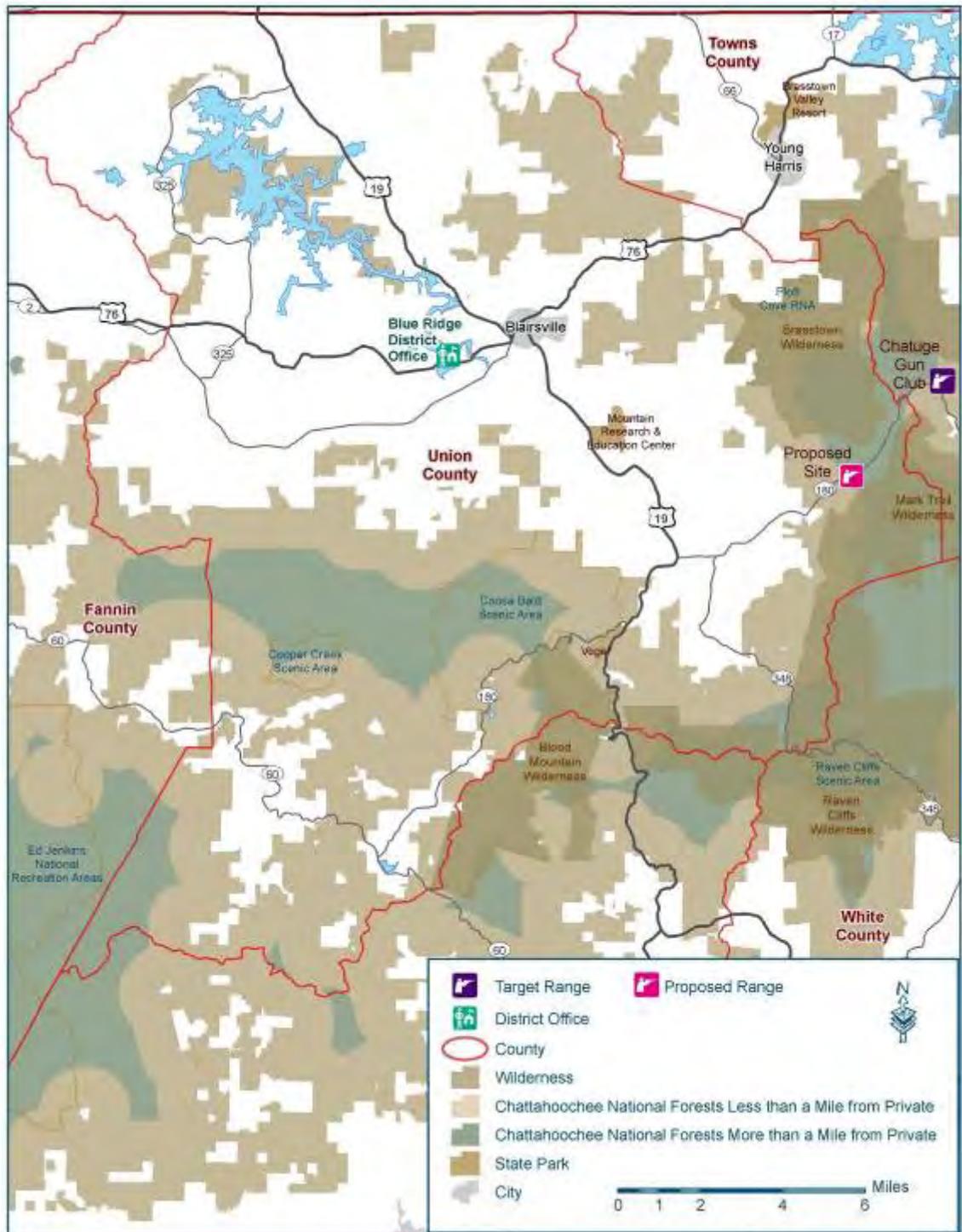


Figure 2: Proposed Target Range with contours. Source: Union County Government GIS

