

**DRAFT Environmental Assessment
Proposed Shooting Range
Clark State Forest
Henryville, Indiana**

SUBMITTED TO:

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PROPOSED SHOOTING RANGE
CLARK STATE FOREST
HENRYVILLE, INDIANA**

PREFACE

The Indiana Department of Natural Resources (IN DNR), Division of Forestry (DoF) is pleased to provide this Draft Environmental Assessment (DEA) to the U.S. Fish & Wildlife Service (USFWS) in support of a shooting range proposed to be built at Clark State Forest (CSF) near Henryville, Indiana. This DEA was prepared in accordance with Section 1508.9 of the Council of Environmental Quality's (CEQ) National Environmental Policy Act (NEPA) regulations for compliance review. Pittman-Robertson Act Federal Aid resources and State funds will be utilized to support this project. The USFWS administers these federal funds and will ultimately decide if the project complies with NEPA and other applicable federal regulations. This report evaluates environmental effects of construction of the shooting range and will be used by the USFWS to evaluate the applicability of a "Finding of No Significant Impact" (FONSI) decision for the proposed construction or whether an Environmental Impact Statement will be required. A description of the affected environment and alternative options for the project are provided for review.

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1. PROJECT OVERVIEW

1.1. Project Background

The DoF has prepared this DEA to support the construction of a shooting range at Clark State Forest near Henryville, Indiana. This DEA was prepared in accordance with Section 1508.9 of the CEQ NEPA regulations to allow the USFWS to approve the proposed improvement when the conditions in this document are fully met. Pittman-Robertson Act Federal Aid resources along with State funds will be utilized on this project. The USFWS administers these federal funds and will ultimately decide if the project complies with NEPA and other applicable federal regulations.

Clark State Forest is Indiana's oldest State Forest, with the earliest land acquisition for the property occurring in 1903. Today, CSF includes approximately 25,000 acres of forestland spanning much of the northwestern border of Clark County, the southwestern border of Scott County, and the eastern border of Washington County (Attachment A, Figure 1). The portion of CSF where the proposed shooting range would be located is within Monroe Township, in Clark County. CSF is a popular destination for forest based recreational activities, such as hunting, horseback riding, camping, and hiking. Aquatic recreational opportunities are provided by numerous impounded lakes and ponds that are scattered across the property, the largest being Deam Lake, located in the Deam Lake State Recreation Area, which is under the administration of CSF (Attachment A, Figure 1).

1.2. Project Summary

DoF is proposing to construct a new shooting range on State Forest property, situated west of CSF's main office and northwest of the property's main Henryville entrance (Attachment A, Figure 2). The constructed facility will be accessible via a paved road intersecting with a State Forest property road that presently approaches the proposed site from the main office and entrance area. The facility will be a relatively short drive from the Henryville exit off Interstate 65, located between Indianapolis, Indiana and Louisville, Kentucky. The facility will include a public pistol range featuring 10-, 25-, and 50-yard lanes, 50- and 100-yard rifle ranges, as well as an adjacent designated shotgun range. Other on-site improvements will include an access road from the existing paved property road to the proposed facility, a parking lot, pathways to and across all target lines and/or shooting stations, and a building constructed to house restrooms, a retail area, and an office. The proposed shooting range will have accessible facilities in compliance with the Americans with Disabilities Act (ADA). Additionally, two on-site stormwater detention basins, a wastewater treatment and disposal system, and water well system will be developed.

1.3. Purpose and Need

The purpose of the project is to develop a safe and publicly available shooting range facility within the limits of CSF to help promote hunter safety and skills training. CSF is located within a 30-minute drive from Louisville, Kentucky, and a 90-minute drive from Indianapolis, Indiana. This new state-of-the-art facility allowing the general public to practice firearm proficiency is considered to be in the public interest.

In recent years, the rise in firearm sales and shooting range traffic has increased demand for shooting range facilities throughout Indiana. Construction and operation of a new shooting range facility at CSF will

allow the IN DNR to address rising regional demands and expand their ability to offer more hunter and firearm safety training courses in a centralized location. There has been a tremendous decline in hunting-related incidents across the country since the implementation of formal hunter education efforts in the late 1940s.

In order to purchase a hunting license in Indiana, the IN DNR requires that anyone born after December 31, 1986, must complete a hunter education course offered by the IN DNR and successfully pass a written test in order to obtain certification. Public shooting range facilities are the ideal place to learn how to handle firearms or improve on existing skills. Constructing and operating a public range at CSF will promote hunter safety in this region of the state.

1.4. Determination

The USFWS Region 3 Regional Director will determine, based on the facts and recommendations contained in this document, whether this site-specific EA is adequate to support a FONSI. If the Regional Director determines that the proposed shooting range may have or will have a significant impact on the environment, the USFWS will require the preparation of a site-specific Environmental Impact Statement.

2. PROJECT ALTERNATIVES

2.1. Alternatives Considered and Dismissed

DoF initially considered the location of the current gun range at CSF for the proposed shooting range facility (Attachment A, Figure 2). The current range at CSF includes only 3 rifle/pistol lanes (two 25-yard lanes and one 50-yard lane), with no archery or shotgun range. It was soon apparent the site of the current range was not suitable for the expanded proposed facility and its larger parking area and facilities to accommodate more visitors. Primarily, the topography of the current site prohibited facility expansion to accommodate additional ranges; additionally, the current site was deemed too remote and distant from major highways. Based on this early assessment, it was determined that a new location was needed at CSF to accommodate the expanded proposed facility, one that could be readily accessed from nearby highways. Therefore, the current gun range site at CSF was dismissed from consideration for this proposed facility.

2.2. Alternatives Carried Forward for Analysis

2.2.1. Construct Range Adjacent to Winding Road (Alternative A)

Under this alternative, the new shooting range facility would be constructed immediately to the west of Winding Road, a paved property road that would have allowed easy access to the site from other nearby recreation areas (e.g., picnic areas and fishing lakes), as well as CSF's main office and main Henryville entrance, an area generally regarded as the most developed portion of the State Forest property (Attachment A, Figure 2). Driving distance from the property's main office is approximately 2.4 miles and the distance to CSF's main Henryville entrance at U.S. Route 31 is 2.6 miles. This site is primarily mature forest which had received a selection timber harvest in 2013 (Attachment A, Figure 3A). Patches of regenerating young forest occur in small group selection openings (i.e. <0.5 acre), though most of the area had been harvested using single-tree selection. Preliminary evaluations of this site revealed this area included many meandering ephemeral streams and one unmapped intermittent stream, as well a mapped intermittent, Calf Run, bordering the site's south end (Attachment A, Figure 3B). Additionally, an earlier archeological review associated with the previous timber harvest had identified a historic cultural site at the north end of this area. Based on these issues alone, this alternative was dismissed from further analysis and no detailed design was completed at this site.

2.2.2. Proposed Action – Construct Range at Upland Site West of Winding Rd. (Alternative B)

This proposed action involves construction of a public and handicap accessible shooting range facility in an upland site to the west of Winding Road, a main property road at CSF (Attachment, Figure 2). Proposed facilities will be situated within approximately 28 acres of cleared forest (with an additional 20 acres of undisturbed area designated as safety zone within perimeter fencing) and include the following:

- 10-yard, 25-yard and 50-yard pistol ranges with concrete planks and covered with baffles for the standing position and fixed benches and baffles are periodically spaced down range to retain rounds;

- 50-yard and 100-yard rifle ranges with concrete planks and covered with baffles for the standing position with fixed bench and baffles are periodically spaced down range to retain rounds;
- Five-stand sporting clays range;
- Seven position target archery range;
- An approximately 3,600 square foot multi-purpose facility (ADA accessible) including indoor multi-purpose/classroom space, ammunition sales, equipment storage areas, Range Master office and restrooms;
- New 24-foot wide entry drive off of existing property road;
- Parking facilities including paved spaces for those with disabilities in compliance with ADA requirements;
- Security measures including perimeter fencing, security cameras, and building intrusion alarms;
- On-site stormwater detention basins, wastewater treatment/disposal system, and water well system for domestic water supply.

The proposed layout of the shooting range is shown in Attachment A, Figure 4. Photographs depicting the proposed site in its pre-construction condition are included in the photographs section of Attachment B (Appendix B).

2.2.3. No Action (Alternative C)

Under this alternative, the new shooting range facility would not be constructed. This alternative was not selected because it does not meet the purpose and need of the project and is not in the best interest of the public.

2.2.4. Summary of Alternatives Carried Forward for Analysis

Table 1. Alternative Characteristics

Characteristic	Alternative A (Adjacent to Winding Rd.)	Alternative B (Proposed Upland Site)	Alternative C (No Action)
Site Development Required?	Yes	Yes	No
Near Existing CSF Developed Area?	Yes	Yes	No
Addresses Hunter Education Needs?	Yes	Yes	No
Addresses Purpose and Need?	Yes	Yes	No
Significant environmental/cultural impact likely?	Yes	No	No

3. AFFECTED ENVIRONMENT

3.1. Physical Characteristics

Clark State Forest is an approximately 25,500-acre property located in Washington, Scott, and Clark counties, Indiana. Forestland covers approximately 25,000 acres of the property; much of the non-forested acreage includes impounded lakes and ponds. The property includes the Deam Lake State Recreation Area, located at the southern end of the property in Clark County. CSF is situated within the Knobstone Escarpment Section of the Highland Rim Natural Region. This region is characterized by deeply dissected uplands with strata composed of siltstone, shale, and sandstone. Soils are well-drained acid silt loams and bedrock is near the surface but is rarely visible as outcrops.

CSF is largely comprised of upland forests, dominated by oak-hickory and mixed upland hardwood forest types. Dry south-facing slopes include native stands of Virginia pine, often associated with chestnut and black oak. A 2008 tree inventory of the area where the shooting facility has been proposed revealed the site is dominated by chestnut and black oak along the steeper slopes forming the northern portion of the area, while mixed upland hardwoods dominate lower elevations with less topographic relief. Red and sugar maple dominates the understory and regeneration strata throughout the proposed area. During the 2008 inventory, Virginia pine was found scattered throughout the area and small stands of planted Eastern white pine were also present in the southern portion of the area. A planned selection harvest occurred during 2013 throughout the site; with most of the area receiving single tree selection to thin the mature hardwood stands. Pine was harvested in group selection openings to encourage native hardwood regeneration. As a result of these harvests, mixed upland hardwoods and oak-hickory still dominate the site's mature forest canopy, while regenerating patches of young hardwood forest occurs in the relatively small openings created from the pine removal.

Water features identified within the proposed shooting range site are limited to one unmapped intermittent and many ephemeral streams. These drains converge in the eastern portion of the site, in the vicinity of the proposed road that will provide access to the range facility (Attachment A, Figure 5). No wetlands were identified in the project area. The closest perennial stream (Guernsey Creek) identified on a local USGS topographic map is located approximately 0.5 mile southeast of the project area.

3.2. Aquatic Resources

IN DNR conducted a water and wetland delineation of the proposed site in July 2020. The wetland delineation was accomplished through documentation of the presence/absence of hydric soils, wetland hydrology, and hydrophytic vegetation using was assessed according to the Routine On-Site Determination Method as defined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont (Version 2.0)* (U.S. Army Corps of Engineers 2012).

3.2.1. Wetlands

No wetlands were identified in or around the proposed (or alternate) project area. See Attachment B, pages 1-2, for more information on methodology and findings related to the wetlands surveys.

3.2.2. Streams

The presence of open waters, such as streams and ponds, within the project area was determined based on evaluations of ordinary high-water mark, defined bed and bank features, and flow regime. The Indiana Department of Environmental Management (IDEM) Biological Studies Qualitative Habitat Evaluation Index (QHEI) was utilized to determine the habitat quality at the one intermittent drain identified on the proposed site (“Intermittent 1”; Attachment A, Figure 5). This stream measured 20 feet wide and had a QHEI assessment score of 66, or “good” (Attachment C). During the assessment of this stream, a defined cobble/gravel bed and defined banks were observed. Water was present in pools and in small amounts within the run area during the July survey period; although, no flow was observed at that time. Aquatic life observed included water striders, frogs, and small fish in the pools, with leeches and caddisfly larvae observed in the small amounts of water that remained in the run. The other 13 drains in the proposed facility area are ephemeral streams that do not hold water and have no aquatic habitat (Attachment A, Figure 5). These drains convey water immediately during and after a precipitation event and then are dry the remainder of the time.

3.3. Terrestrial Environment and Vegetative Communities

3.3.1. Soils

The Soil Survey Geographic Database of Clark County (Indiana) describes the project site as being underlain by the 10 soil units shown in Table 2; two additional soil units (Pekin silt loam, 6 to 12 percent slopes, eroded [PcrC2]; Stendal silt loam, 0 to 2 percent slopes, rarely flooded [StdAQ]) are present near the site (Attachment B, Figure 3). Although none of these soil units are considered hydric, the hydric soil indicator Depleted Matrix (F3) was observed at Data Points 2, 7, and 8 (Attachment B, Figure 5). Hydrophytic vegetation and wetland hydrology indicators were not observed at these data points.

Table 2. Soil Units

Code	Soil Unit Name	Hydric?
BfbC2	Blocher, soft bedrock substratum-Weddel silt loams, 6 to 12 percent slopes, eroded	No
BcrAW	Beanblossom silt loam, 1 to 3 percent slopes, occasionally flooded	No
BvoG	Brownstown-Gilwood silt loams, 25 to 75 percent slopes	No
ComC	Coolville silt loam, 6 to 12 percent slopes	No
ConD	Coolville-Rarden complex, 12 to 18 percent slopes	No
DbrG	Deam silty clay loam, 20 to 55 percent slopes	No
GmaG	Gnawbone-Kurtz silt loams, 20 to 60 percent slopes	No
PcrB2	Pekin silt loam, 2 to 6 percent slopes, eroded	No
StaAQ	Steff silt loam, 0 to 2 percent slopes, rarely flooded	No
WedB2	Weddel silt loam, 2 to 6 percent slopes, eroded	No

3.3.2. Hydrology

The main sources of hydrology to the site are direct precipitation and surface runoff. The site generally drains from west to east and eventually into Calf Run, a mapped intermittent tributary of Guernsey Creek (perennial). The site is located outside of the 100-year floodplain (Attachment B, Figure 4). Although soil was moist in places and distinct ephemeral drainages were present on the site, no primary or secondary wetland hydrology indicators were observed.

3.3.3. Vegetation

The proposed project site is forested throughout, with distinctly different vegetation in dry (usually rocky areas on slopes or terraces) versus mesic areas (usually in or along drainages or at the base of slopes). In drier areas, vegetation is evenly distributed to the point that clear dominant plant species are difficult to define. Plant species commonly observed in the tree stratum in the driest areas include pignut hickory (*Carya glabra*, FACU), black tupelo (*Nyssa sylvatica*, FAC), northern white oak (*Quercus alba*, FACU), and chestnut oak (*Quercus montana*, UPL), with red maple (*Acer rubrum*, FAC), sugar maple (*Acer saccharum*, FACU), and American beech (*Fagus grandifolia*, FACU) being most common in dry-mesic areas. The shrub/sapling stratum is generally dominated by American beech (FACU), eastern hop-hornbeam (*Ostrya virginiana*, FACU), and chestnut oak (UPL). The herbaceous stratum is varied, but the most common plant species in the herbaceous stratum are seedlings of the trees red maple (FAC) and northern white oak (FACU). Other species that are dominant in portions of the herbaceous stratum include white-tinge sedge (*Carex albicans*, UPL), eastern woodland sedge (*Carex blanda*, FAC), white ash (*Fraxinus americana*, FACU), licorice bedstraw (*Galium circaezans*, UPL), eastern red-cedar (*Juniperus virginiana*, FACU), eastern hop-hornbeam (FACU), American lopseed (*Phryma leptostachya*, FACU), King Solomon's-seal (*Polygonatum biflorum*, FACU), oldfield cinquefoil (*Potentilla simplex*, FACU), black cherry (*Prunus serotina*, FACU), chestnut oak (UPL), northern red oak (*Quercus rubra*, FACU), horsebrier (*Smilax rotundifolia*, FAC), eastern poison ivy (*Toxicodendron radicans*, FAC), elm (*Ulmus* sp., FACW-UPL), and early low bush blueberry (*Vaccinium pallidum*, UPL).

In more mesic areas vegetation is evenly distributed, except along drainages where lower herbaceous species richness is present. Plant species most commonly observed in the tree stratum include American beech (*Fagus grandifolia*, FACU) and sweet-gum (*Liquidambar styraciflua*, FAC), with red maple (*Acer rubrum*, FAC), sugar maple (*Acer saccharum*, FACU), tuliptree (*Liriodendron tulipifera*, FACU), and black tupelo (*Nyssa sylvatica*, FAC) dominant in some places. The shrub/sapling stratum is mostly dominated by American beech (FACU) and tuliptree (FACU), but red maple (FAC), devil's-walkingstick (*Aralia spinosa*, FAC), northern spicebush (*Lindera benzoin*, FAC), eastern hop-hornbeam (*Ostrya virginiana*, FACU), rambler rose (*Rosa multiflora*, FACU), and blackberry/dewberry (*Rubus* sp., FACW-UPL) are dominant in at least one data point. The herbaceous stratum is varied, with the most dominant species including American hog-peanut (*Amphicarpaea bracteata*, FAC), tuliptree (FACU), Japanese stilt grass (*Microstegium vimineum*, FAC), Virginia-creeper (*Parthenocissus quinquefolia*, FACU), eastern poison ivy (*Toxicodendron radicans*, FAC), hooded blue violet (*Viola sororia*, FAC), and frost grape (*Vitis vulpina*, FAC). Other species dominant in portions of the herbaceous stratum include red maple (FAC), white snakeroot (*Ageratina altissima*, FACU), slender woodland sedge (*Carex digitalis*, UPL), spreading sedge (*Carex laxiculmis*, UPL), broad loose-flower sedge (*Carex laxiflora*, FACU), sedge (*Carex* sp., OBL-UPL), American beech (FACU), white ash (*Fraxinus americana*, FACU), licorice bedstraw (*Galium circaezans*, UPL), fragrant

bedstraw (*Galium triflorum*, FACU), eastern hop-hornbeam (FACU), black cherry (*Prunus serotina*, FACU), horsebrier (*Smilax rotundifolia*, FAC), and wreath goldenrod (*Solidago caesia*, FACU).

Overall at the site (irrespective of soil moisture), based on the sampled data points, the tree stratum is dominated by red maple (*Acer rubrum*, FAC), sugar maple (*Acer saccharum*, FACU), American beech (*Fagus grandifolia*, FACU), sweet-gum (*Liquidambar styraciflua*, FAC), black tupelo (*Nyssa sylvatica*, FAC), and chestnut oak (*Quercus montana*, UPL). The shrub/sapling stratum overall at the site is dominated by red maple (FAC), American beech (FACU), northern spicebush (*Lindera benzoin*, FAC), tuliptree (*Liriodendron tulipifera*, FACU), eastern hop-hornbeam (*Ostrya virginiana*, FACU), and chestnut oak (UPL). The herbaceous stratum is dominated by red maple (FAC), white ash (*Fraxinus americana*, FACU), licorice bedstraw (*Galium circaezans*, UPL), eastern hop-hornbeam (FACU), black cherry (*Prunus serotina*, FACU), northern white oak (*Quercus alba*, FACU), horsebrier (*Smilax rotundifolia*, FAC), and eastern poison ivy (*Toxicodendron radicans*, FAC). Woody vines are scattered but do not comprise a stratum at any of the data points.

Hydrophytic vegetation indicators were observed at Data Point 1 and Data Point 10 (each with the dominance test met), but hydric soil indicators and wetland hydrology indicators were not found at these data points.

Overall at the site, 204 vascular plant taxa were observed on the day of the survey, 186 (91.2%) of which are native to Indiana and 18 (8.8%) of which are non-native (Attachment B, Appendix D). The mean C value that was calculated for the inventory of plants at the site was 4.1 (4.5 native mean C), and the FQI that was calculated was 58.6 (61.4 native FQI) (Attachment B, Appendix D). Species present that are said to occur in high-quality remnant plant communities but appear to endure, from time to time, some disturbance (i.e. C = 7 or 8) and those that are said to be restricted to remnant landscapes that appear to have suffered very little post-settlement trauma (i.e. C = 9 or 10) make up 20.1% of the vascular plant taxa identified at the site (Attachment B, Appendix D).

Plant species listed as endangered, threatened, or watch list by the Indiana Natural Heritage Data Center were mapped when observed during field surveys. Two species on this list were observed in areas that would be disturbed by proposed project, cucumber magnolia (*Magnolia acuminata*, State Endangered) and Virginia pine (*Pinus virginiana*, State Watch List). Additionally, 4 plant species were observed only in survey plots located in the nearby alternate (A) area: Northern adder's-tongue (*Ophioglossum pusillum*, State Threatened), Eastern white pine (*Pinus strobus*, State Threatened; planted, see section 3.1), American ginseng (*Panax quinquefolius*, State Watch List), and black bugbane (*Actaea racemosa*, State Watch List). No federally listed plant species were observed or are expected to be present on the site.

3.4. Wildlife, Including Threatened, Endangered, and Candidate Species

A review of the proposed project area for the potential presence of federally listed wildlife species was conducted by the Division of Fish and Wildlife, Indiana Department of Natural Resources. This review identified three federally listed species that may be affected by the proposed project. Two species, Indiana bat and northern long-eared bat, had been captured during netting surveys done during the summer of 2004 throughout CSF. According to the Indiana Natural Heritage Database, the closest known occurrence

of the third species, gray bat, was from a summer net capture located south of CSF, approximately 7.5 miles from the proposed project area.

3.4.1. Habitats Used by Threatened, Endangered, and Candidate Wildlife Species

The following sections describe the habitats used by each species potentially found near the proposed project site. Section 3.4.2. will evaluate the presence of suitable habitat for each species at the proposed project site.

Indiana Bat. This federally endangered species requires distinct habitat types during the summer and winter months. Indiana bats typically hibernate in well-developed limestone caves, although mines and – less frequently – abandoned tunnels and a hydroelectric dam have also been used (Kurta and Teramino 1994, USFWS 2007). Indiana bat populations are particularly vulnerable during the hibernation period. Historically, disturbance of winter habitat and hibernating Indiana bats heavily impacted the species and was a major contributing factor for its listing; today, hibernacula disturbance remains one the major threats to the species (USFWS 2007). Air temperature, humidity and airflow are all characteristics of the subterranean environment that affect the Indiana bat’s ability to successfully hibernate (USFWS 2007). The Indiana Bat Recovery Plan (USFWS 2007) identifies as a significant threat any modifications to caves and mines and surrounding areas that change airflow and alter microclimate in hibernacula. It is assumed management activities close to entrances may put hibernating bats at risk; therefore, management buffers are typically recommended as a precautionary measure (USFWS et al. 2009, p.10).

During the portion of the year Indiana bats are not hibernating, they are associated with forests, woodlands, or woodlots – generally areas with sufficient tree canopy to satisfy their requirements for roosting and foraging. Reproductive adult females form maternity colonies and typically roost in solar-exposed trees during the day. Maternity roosts are often located under exfoliating bark in dead trees (i.e. snags) or live trees that characteristically have platy, exfoliating bark suitable for roosting bats (e.g., shagbark hickory, *Carya ovata*). Roosting Indiana bats will also use cracks, crevices, or cavities in live or dead trees, and occasionally use artificial roosting structures (Carter et al. 2001, Ritzi et al. 2005) and building interiors (Butchkoski and Hassinger 2002). As long as suitable habitat remains available, maternity colonies will continue to revisit the same area year after year to give birth to and raise their pups. Males and non-reproductive female adults also use forests and wooded areas during the non-hibernation period, roosting in locations similar to those described for females.

Indiana bats primarily forage in partially open-canopy and closed-canopy forests and woodlands, as well as along forested edges (USFWS 2007, Pauli et al. 2017). While upland forest is readily used for foraging, some researchers have indicated riparian forests, floodplains, and bottomlands provide preferred habitat for the species (Carter 2006, Owen et al. 2004, Kniowski and Gehrt 2014, Silvis et al. 2016). At two Indiana State Forests, preliminary telemetry data collected in 2015-2016 indicate radio-tagged Indiana bats used a wide variety of upland forested habitats (and to a minor extent, agricultural and developed areas) at and near Morgan-Monroe and Yellowwood State Forests, but they appear to have selected recent patch cuts (<5 acres, <10 years old) and older, larger regeneration openings (>10 acres, >10 years old) more than other habitat categories. Additionally, intact, historically thinned hardwood stands were also selected and consistently used heavily by all radio-tagged individuals (Tim Divoll, Indiana State University, pers. comm.).

Several Indiana bat maternity colonies are known to occur on State Forest property, though summer netting surveys done at Clark State Forest have resulted in the capture of only three adult males. These three Indiana bats were captured at two sites on Clark State Forest, each approximately 0.9 and 2.2 miles from the proposed project area. Both net sites were located in mature forest at the intersection of a mapped intermittent stream and an unpaved property road also serving as a horse trail.

Northern Long-eared Bat: This federally threatened species requires distinct habitat types during the winter and summer months. The northern long-eared bat typically hibernates in caves or mines during the winter (Whitaker and Mumford 2009); however, in Indiana, individuals have also been observed in an abandoned tunnel during winter surveys (Andrew King, USFWS Indiana Field Office, pers. comm.).

Although males are occasionally found using subterranean roosts during the non-hibernation period, male and female summer roosting typically occurs in trees and occasionally artificial structures such as bat houses or buildings (Whitaker and Mumford 2009). Diurnal roosting occurs in both live and dead trees, typically underneath exfoliating bark or within cracks, crevices, and cavities. Northern long-eared bats roost in tree cavities to a greater extent than the congener Indiana bat; at two Indiana State Forests, the majority (72%) of northern long-eared bat maternity roosts found during 2012-2015 radio-tracking studies were located within cracks or crevices of live trees and snags (Bergeson et al., *In Review*). Of the 175 northern long-eared bat maternity roost trees identified over four years of study on these State Forest properties, the proportion of live trees and snags used were equal (50% each; Bergeson et al., *In Review*). Additionally, none of these radio-tracked northern long-eared bats were found roosting in artificial structures available near (<0.5 miles) their capture locations, although other species, including Indiana bats, were found using these same boxes.

Northern long-eared bat nocturnal activity (i.e. foraging and commuting) is typically associated with forest cover, although activity levels may be greater in more open forest conditions (Silvis et al. 2016). Research conducted at two Indiana State Forests found that northern long-eared bats continue to forage in managed forest after timber harvest. Nolder (2016) used acoustic detection to survey nocturnal bat activity at Morgan-Monroe and Yellowwood State Forests and found no difference in northern long-eared bat activity between areas of untreated forest (i.e. unharvested) and areas harvested three years earlier using single-tree selection, the silvicultural method most employed on State Forests. Among regeneration openings varying in size between 1 and 10 acres (also harvested three years earlier), no difference was found in northern long-eared bat activity; however, the highest level of activity was found in the preparatory cuts of three-stage shelterwoods where only understory removal had occurred (Nolder 2016). Caldwell (2019) also examined northern long-eared bat nocturnal activity at these same study areas; she found no difference in activity among even-age, uneven-age, and no harvest treatments 4-5 years after timber harvests had occurred.

Several northern long-eared bats have been captured at Clark State Forest, including reproductively active adult females, indicating maternity colonies are likely present at this property. No northern long-eared bat maternity roosts have been identified at Clark State Forest. In 2004, 64 northern long-eared bats were captured at Clark State Forest during 56 net-nights at 18 sites. Net sites were typically located within forested corridors, such those associated with trails, unpaved gated property roads, and streams.

Gray Bat: This federally endangered species uses caves or mines for both winter hibernation and summer roosting. In Indiana, gray bats are presumed to use hibernacula and summer habitat along the Ohio River and its tributaries south and west of a known maternity roost near Sellersburg, Indiana. This maternity roost - the first discovered in Indiana - was located in an abandoned limestone quarry near Muddy Fork Creek (Brack et al. 1984). During the summer, the gray bat is closely associated with streams, rivers, reservoirs, and wetlands (USFWS 1982). Summer roosting caves are almost always located within a kilometer of perennial water sources (especially among caves used by maternity colonies) and foraging occurs almost exclusively over water (LaVal et al. 1977, USFWS 1982). Depending upon colony size and available habitat, individuals may travel up to 30 miles from cave roosts to forage (LaVal and LaVal 1980, Decher and Choate 1995). While open water appears important for gray bat foraging, the presence of forest may be another important habitat feature in riparian areas. Gray bats in Missouri foraged over waterways adjacent to forested areas more often than waterways adjacent to pastures (LaVal et al. 1977).

3.4.2. Habitat Suitability and Likelihood of Occurrence for Endangered and Threatened Species

All three species use caves or similar subterranean features for at least a part of their annual life cycle. The proposed project site was assessed for caves, sinkholes, abandoned mine portals, and other underground features that could represent suitable habitat for these species. No such subterranean habitat was found in the project area or is known from the surrounding areas on Clark State Forest.

The project area and surrounding landscape is heavily forested and likely suitable summer roosting and foraging habitat for Indiana bat and northern long-eared bat. Snags and live trees suitable for roosting (e.g., shagbark hickory) occur throughout these areas, providing diurnal roosting opportunities for both species. Forest edges, small openings, stream corridors, and open mature forest are also found throughout these areas and appear to provide ample habitat for both species that would be suitable for foraging. Both Indiana bats and northern long-eared bats have been observed at Clark State Forest, so it is possible both species have used summer habitat within or near the proposed project site.

Considering that gray bat summer habitat for roosting and foraging is closely associated with the presence of open water, it seems unlikely that the project area serves as summer habitat for the species. The closest known occurrence of the species to the project area was at a net site established over a perennial stream, where it was likely foraging, approximately 7.5 miles south of the proposed project site. No perennial streams or large water bodies occur in or around the proposed project area. Therefore, it seems unlikely gray bats occur in the project area.

3.5. Cultural Resources

Between July 2019 and November 2020, DoF's archaeologists conducted three phase Ia archaeological field reconnaissance surveys of the proposed project area. Methodology and findings related to the surveys are provided as Attachment D. Prior to fieldwork, a records review of the proposed project site and surrounding areas was conducted by the Forest Archaeologist. The records review indicated previous surveys had recorded archaeological sites in environmental conditions similar to the project area; therefore, one could presume that archaeological sites from any time period could be present within the proposed project area. Consequently, field surveys were conducted within the proposed project area; field methods included systematic shovel probing supplemented by a pedestrian survey on steeply sloped

landforms. Phase 1a field reconnaissance surveys did not locate any significant archaeological resources; therefore, it was recommended that the project be allowed to proceed as planned.

3.6. Local Socio-economic Conditions

The proposed project is located in a rural area of Monroe Township, Clark County, Indiana. As of the 2010 census, its population was 5,402 and it contained 2,125 housing units within its 56.06 square miles (Clark County Indiana Community Portal 2020). Henryville is the largest population center in the township, with 1,905 residents as of the 2010 census, and is located approximately 2.5 miles from the proposed project site. Henryville is served by an exit off Interstate 65; driving distance from this exit to the proposed project site is approximately 4.5 miles. U.S. route 31 runs through Henryville and provides access to Clark State Forest's main entrance on the north side of the town.

Most of the area surrounding the proposed project area is contiguous forestland within the boundaries of Clark State Forest, which extends >1 mile to the west, north, and east of the proposed site. The closest private residence is 0.3 miles south from the southern extent of the proposed project area. A 0.5 mile buffer extending from the boundaries of the proposed project area included a total of 5 private residential homes, all located south of the project site near county-maintained Forestry Road.

3.7. Cumulative Effects from Other Actions

The proposed project is not expected to conflict with any local, state, or federal plans for the area. Due to the adjacent land under the management of DoF, there are no other known plans for the immediate project area that would result in cumulative impacts when combined with the selected alternative. No other future land use for the proposed shooting range area had been planned.

3.8. Permitting Regulations

Jurisdictional "waters of the U.S.," including wetlands, are defined in 33 CFR Part 328.3. In this assessment, all streams identified in the proposed project area are considered jurisdictional due to their connection to waters of the U.S. These regulatory features are protected by Section 404 of the Clean Water Act (33 USC 1344), which is administered by the USACE. Impacts to wetlands, ponds, and streams can require permits ranging from activities that are preauthorized, to those requiring a Nationwide Permit (NWP) or Regional General Permit (RGP), to those requiring an Individual Permit, with the latter being the most rigorous and time-consuming. Certain activities in wetlands and streams also require Water Quality Certification (WQC) from the Indiana Department of Environmental Management (IDEM). Impacts to greater than 0.1 acre of wetlands or 300 feet of stream generally require compensatory mitigation.

Under current regulations in Indiana, impacts to greater than one acre of jurisdictional "waters of the U.S." or 1,500 feet of stream require an Individual Permit from the USACE, as well as WQC from IDEM. Impacts to "waters of the U.S." between 0.1 acre and 1.0 acre or between 300 and 1,500 feet of stream can be authorized under a RGP from the USACE; this also requires WQC from IDEM. Impacts to less than 0.1 acre of "waters of the U.S." or 300 feet of stream are pre-approved under the RGP but require formal notification to IDEM. Wetlands or streams that are not jurisdictional are still subject to IDEM regulation as "waters of the State."

Under the permit review process, the USACE is required to consult with the USFWS regarding potential impacts to threatened and endangered species under the federal Endangered Species Act and with the State Historic Preservation Office (SHPO) regarding potential impacts to cultural/historic sites eligible for listing on the National Register of Historic Places (NRHP) under the National Historic Preservation Act. There is no formal protection for state endangered or threatened plant species, but their presence is sometimes factored in during the permitting process.

4. ENVIRONMENTAL CONSEQUENCES

This section addresses the various impacts associated with the alternatives considered for project completion, including the Proposed/Preferred Alternative, one additional alternative to the proposed action, and a No Action Alternative.

4.1. Construct Range Adjacent to Winding Road (Alternative A)

One possible alternative to the proposed action would be to construct the shooting range immediately adjacent to Winding Road. This was the initial siting for the proposed facility, which would take advantage of the immediate access from an established paved road and require little, if any, additional construction for access. Environmental consequences associated with this alternative are summarized below in Table 3.

Table 3. Summary of Environmental Consequences for Alternative A

Characteristic	Impacts Anticipated?	Comments
Land Use	Yes	Some wildlife habitat at site will be disturbed due to the construction of facility and associated access roads.
Terrestrial Habitats/vegetation	Yes	To offset the loss of some terrestrial habitats (primarily forested areas), disturbed areas not involved in the constructed facility (e.g., shotgun range) will be seeded to encourage vegetative growth. Cleared forest area is 0.11% of total forestland at CSF.
Wildlife, Including Threatened and Endangered Species	Yes	Seasonal tree felling restrictions will be used to minimize direct impacts to T&E species (e.g., Indiana bat and northern long-eared bat). Minimal forest habitat conversion, relative to habitat available at CSF. Maintained vegetative areas will be seeded to encourage use by small mammals, reptiles, and pollinators.
Wetlands	No	No wetlands present.
Streams	Yes	Major impacts predicted to an unmapped intermittent and a mapped intermittent that borders the south end of this site. Preliminary estimates indicated impacts to streams at this site would be significantly greater than under other alternatives.
Cultural Resources	Yes	Record review indicates archaeological resource located at site.
Socio-economic Conditions	Yes	Facility construction would increase the availability of hunter safety training opportunities.

Characteristic	Impacts Anticipated?	Comments
Noise	No	During construction, there will temporarily be increased truck and equipment noise; however, periodic use of heavy trucks and machinery is not uncommon at CSF (e.g., during forest management activities). During operation, noise-reducing baffle orientation is designed to focus noise back towards the shooting line, which will mitigate noise on private property (see Attachment E).
Lead impacts	No	An Environmental Stewardship Plan will be developed which will include a long-term, site-specific lead management plan.
Cumulative Impacts	No	There are no known plans for the proposed area that would result in cumulative impacts when combined with this alternative.

4.2. Proposed Action (Alternative B)

This proposed action involves construction of a public and handicap accessible shooting range facility on a 48-acre upland site to the west of Winding Road, a main property road at Clark State Forest. This location would necessitate the construction of a 0.3 mile paved access road, designed to minimize impacts to streams (mostly ephemeral) east of the proposed facility. Environmental consequences associated with this alternative are summarized below in Table 4.

Table 4. Summary of Environmental Consequences for Proposed Action

Characteristic	Impacts Anticipated?	Comments
Land Use	Yes	Some wildlife habitat at site will be disturbed due to the construction of facility and associated access roads. It is expected that impacts under the proposed alternative would be less than under alternative A, particularly to aquatic and streamside habitats.
Terrestrial Habitats/vegetation	Yes	To offset the loss of some terrestrial habitats (primarily forested areas), disturbed areas not involved in the constructed facility (e.g., shotgun range) will be seeded to encourage vegetative growth. Cleared forest area is 0.11% of total forestland at CSF.
Wildlife, Including Threatened and Endangered Species	Yes	Seasonal tree felling restrictions will be used to minimize direct impacts to T&E species (e.g., Indiana bat and northern long-eared bat). Minimal forest habitat conversion, relative to habitat

Characteristic	Impacts Anticipated?	Comments
		available at CSF. Maintained vegetative areas will be seeded to encourage use by small mammals, reptiles, and pollinators.
Wetlands	No	No wetlands present.
Streams	Yes	Limited impacts of less than 0.1 acre require formal RGP Notification process to IDEM.
Cultural Resources	No	Phase 1a reconnaissance located no archaeological resources in proposed project area.
Socio-economic Conditions	Yes	Facility construction would increase the availability of hunter safety training opportunities.
Noise	No	During construction, there will temporarily be increased truck and equipment noise; however, periodic use of heavy trucks and machinery is not uncommon at CSF (e.g., during forest management activities). During operation, noise-reducing baffle orientation is designed to focus noise back towards the shooting line, which will mitigate noise on private property (see Attachment E).
Lead Impacts	No	An Environmental Stewardship Plan will be developed which will include a long-term, site-specific lead management plan.
Cumulative Impacts	No	There are no known plans for the proposed area that would result in cumulative impacts when combined with this alternative.

4.3. No Action (Alternative C)

With the No Action Alternative, existing shooting ranges throughout the State would continue to operate at their current locations and capacities and there would be no changes in land use or loss of terrestrial habitats/vegetation, impacts to wildlife, wetlands, streams, or cultural resources. The existing ranges would continue to be subject to crowding, which affects the availability of hunter safety training opportunities. The increased travel distances to existing shooting ranges for the general public from major metropolitan areas and other population centers near Clark State Forest is considered a negative environmental consequence of this alternative. Environmental consequences associated with this alternative are summarized below in Table 5.

Table 5. Summary of Environmental Consequences for No Action Alternative

Characteristic	Impacts Anticipated?	Comments
Land Use	No	No change in land use.
Terrestrial Habitats/vegetation	No	No change; terrestrial habitats/vegetation remains same.
Wildlife, Including Threatened and Endangered Species	No	No change; wildlife, including T&E species remains same.
Wetlands	No	No wetlands present.
Streams	No	No change; streams remain same.
Cultural Resources	No	No potential for disturbance of any cultural resource sites.
Socio-economic Conditions	No	No change; hunter safety training opportunities remain limited for general public in region.
Noise	No	No change in noise impacts.
Lead Impacts	No	No change in lead impacts.
Cumulative Impacts	No	No change in cumulative impacts.

4.4. Summary of Environmental Consequences under Proposed Alternative

4.4.1. Impacts from Change in Land Use, Including Vegetative Communities

Facility areas that are to be maintained in vegetation will be seeded appropriately. The 28 acres of forest harvested under the proposed alternative represents only 0.11% of the total forest acreage at Clark State Forest. This low proportion of forest conversion will likely result in an insignificant impact to the mature

forest community at this property. State endangered cucumber magnolia occurring in the project area, but not in cleared areas, will be monitored and maintained. DoF personnel have identified seedlings in areas due for clearing and facility construction and, wherever possible, will transplant these individuals to suitable sites. As with other cucumber magnolia in the project area, the growth and development of transplanted individuals will be monitored. Sites at which this species presently occurs or will be transplanted to will be managed to encourage regeneration, where possible.

4.4.2. Impacts to Threatened and Endangered Wildlife Species

For all three species of federally listed bats considered by the Section 7 review, based on 1) the absence of winter roost habitat; 2) DoF's commitment to only felling trees October 1 through March 31, when bats are not present; and 3) the very low proportion of available summer habitat affected by the project (i.e. <0.11% of forestland at CSF), possibility the proposed project adversely affect these species is so unlikely as to be discountable. The rationale for this conclusion is discussed in detail in the following sections.

Direct Effects to Federally Listed Bats (felling occupied tree roosts)

DoF intends to complete all tree (>5" dbh) felling in preparation for construction prior to March 31, 2021, assuming that these activities have been authorized by USFWS in advance of that date. If trees >5" dbh need to be felled on or between April 1 and September 30, DoF will consult with USFWS Indiana Field Office to minimize impacts to and/or provide additional conservation measures for Indiana bats and northern long-eared bats, if needed.

Indirect Effects to Federally Listed Bats (habitat loss)

Observing seasonal tree felling restrictions will eliminate direct impacts to Indiana bats and northern long-eared bats roosting in trees; however, it is possible that clearing forest could indirectly harm bats through the loss of habitat. Under the proposed project, a small portion of the forest habitat at this State Forest property would be converted for facility use. The proposed project will require approximately 28 acres of forest to be cleared, while Clark State Forest contains approximately 25,000 acres of forestland; therefore, <0.11% of potential summer habitat at CSF would be altered for this project. Additionally, the clearing activity likely does not represent a complete loss of habitat; forest edge created from the felling will likely create foraging habitat for both Indiana bats and northern long-eared bats, though more likely for the Indiana bat. Furthermore, soil and water impacts will be minimized during tree clearing activities by following "Indiana Logging and Forestry Best Management Practices" (DoF 2005).

4.4.3. Impacts to Streams and Wetlands

The water/wetland delineation identified no wetlands on the site. Under the proposed alternative, disturbance to the unmapped intermittent stream would be limited to 40 linear feet since it is entirely out of the proposed clearing limits and only disturbed at the access road crossing ("Intermittent 1", crossing 2; Attachment A, Figure 6). This 40-foot distance includes 24 feet for the width of the access road and 8 additional feet both upstream and downstream of the road to account for crossing structures, such as culverts. This limited disturbance would allow the project to be authorized under the Regional General Permit (RGP) Notification process with IDEM. However, if additional impacts to jurisdictional waters/wetlands are identified during the permitting process, the project may require a RGP or Individual

Section 404 Permit from the USACE, an Individual Water Quality Certification from IDEM, and compensatory mitigation.

Additionally, under the proposed alternative, there will be a total of 329 linear feet of disturbance to ephemerals due to access road crossings and another 4,778 linear feet of disturbance to ephemeral drains in the area proposed for clearing, most of which will be directed to the eastern stormwater treatment and detention basin (Attachment A, Figures 5 and 6). The estimated extent of disturbance to each ephemeral stream identified at the proposed site is detailed below.

- Ephemeral 1 is outside the proposed clearing limits except where it will be crossed by the access road that will be constructed. An estimated 40 linear feet of streambed will be disturbed by the crossing and ephemeral 1 will be diverted to ephemeral 2 at the point it meets the north side of the road (Attachment A, Figure 6). This 40-foot disturbance includes the width of the access road and approximately 8 additional feet of graded fill on either side of the road to stabilize the roadbed in the former streambed.
- Ephemeral 2 is also outside the proposed clearing limits except where it will be crossed by the access road (crossing "1"; Attachment A, Figure 6). An estimated 40 linear feet of stream will be disturbed by the crossing; this 40-foot distance includes 24 feet for the width of the access road and 8 additional feet both upstream and downstream of the road to account for crossing structures.
- Ephemeral 3 will be diverted to the northeast at the access road, emptying into the proposed stormwater detention basin from where it will cross under the road through culvert(s) (crossing "3"; Attachment A, Figure 6). The streambed will receive approximately 40 linear feet of disturbance by the crossing of the access road. This 40-foot disturbance includes the width of the access road and approximately 8 additional feet of graded fill on either side of the road to stabilize the roadbed in the former streambed.
- Ephemeral 4, a tributary to an intermittent stream that is south-east of the project area (i.e. Calf Run), will enter the stormwater detention basin on the north side of the access road before crossing underneath it through culvert(s) (crossing "3"; Attachment A, Figure 6). In total, this stream will receive 209 linear feet of disturbance due to the stormwater treatment basin and road crossing. Additionally, 450 linear feet of this ephemeral are within the proposed clearing limits. This disturbance distance does not include ephemerals 5, 6, 7, 8, 12 and 13, which are considered separately below and are tributaries of this stream.
- Ephemeral 5 is entirely within the proposed clearing limits and will have 478 linear feet of disturbance. Ephemerals 6, 7 and 8 are tributaries for this drain.
- Ephemeral 6 has 375 linear feet within the proposed clearing limits. There are additional drainages north of the clearing limits that feed into it, though it is expected these will not be affected by the proposed project. Ephemeral 7 joins ephemeral 6 within the clearing limits.
- Ephemeral 7 extends outside the proposed clearing limits, draining into ephemeral 6 within the area proposed for clearing. It will have 165 linear feet within the proposed clearing limits.
- Ephemeral 8 is a tributary to ephemeral 5, which drains into ephemeral 6. The entire 531 feet of this drain are within the proposed clearing limits.
- Ephemeral 9 starts outside the proposed clearing limits as a tributary to ephemeral 3. 903 linear feet of this stream are within the proposed clearing limits.

- Ephemeral 10 starts within the proposed clearing limits and is a tributary to ephemeral 3. The entire 791 feet of this stream will receive disturbance.
- Ephemeral 11 is within the clearing limits for the western side of the shotgun range, the pistol and rifle range, and a stormwater detention basin, for a total of 445 linear feet of disturbance.
- Ephemeral 12 starts outside of the proposed clearing limits and joins ephemeral 4 within the clearing area. 74 linear feet of this stream will be within the proposed clearing limits.
- Ephemeral 13 and its many tributaries start outside the proposed clearing limits, eventually joining ephemeral 4 within the clearing area. 237 linear feet of ephemeral 13 are within the proposed clearing limits. Most of this stream's tributaries are completely outside the proposed clearing limits; however, a 329 linear foot section of one small tributary occurs within the area to be cleared.

4.4.4. Impacts to Cultural Resources, Noise, and Socio-Economic Condition

The proposed action alternative would have no negative environmental impacts in terms of cultural resources or noise created during the construction or operational phases of the facility. Based on the recently completed Cultural/Historic Resources Survey (which included a Phase Ia Archaeological Field Reconnaissance), no impacts to significant cultural resources are anticipated. Noise related to construction activity will be temporary and similar to that produced during forest management activities that occur routinely at Clark State Forest. During range operation, the baffles are designed to focus noise back towards the shooting line, which will mitigate the noise on private property (see Attachment E).

The addition of improvements to the land is considered a positive socio-economic consequence since it would increase the availability of hunter safety training and firearm proficiency. The safety features of the range will be state of the art, and all protocols from previous IN DNR ranges, including a range officer, will be integrated into this range.

4.4.5. Impacts Due to Lead

The potential for lead impacts at the range will be mitigated through the Environmental Stewardship Plan (ESP), which will contain a site-specific lead management plan. This plan will include best management practices to prevent any "future" lead impacts.

4.4.6. Cumulative Impacts

The proposed project is not expected to conflict with any local, state, or federal plans for the area. Due to the adjacent land under the management of DoF, there are no other known plans for the immediate project area that would result in cumulative impacts when combined with the selected alternative. No other future land use for the proposed shooting range area had been planned.

Table 6. Summary of Environmental Consequences for All Alternatives

Characteristic	Alternative A (Adjacent to Winding Rd.)	Alternative B (Proposed Upland Site)	Alternative C (No Action)
Land Use	Some wildlife habitat at site will be disturbed due to the construction of facility and associated access roads.	Some wildlife habitat at site will be disturbed due to the construction of facility and associated access roads. It is expected that impacts under the proposed alternative would be less than under alternative A, particularly to aquatic and streamside habitats.	No change in land use.
Terrestrial Habitats/vegetation	To offset the loss of some terrestrial habitats (primarily forest), disturbed areas not involved in the constructed facility (e.g., shotgun range) will be seeded to encourage vegetative growth. Cleared forest area is 0.11% of total forestland at CSF.	To offset the loss of some terrestrial habitats (primarily forest), disturbed areas not involved in the constructed facility (e.g., shotgun range) will be seeded to encourage vegetative growth. Cleared forest area is 0.11% of total forestland at CSF.	No change; terrestrial habitats/vegetation remain the same.
Wildlife, Including Threatened and Endangered Species	Seasonal tree felling restrictions will be used to minimize direct impacts to T&E species (e.g., Indiana bat and northern long-eared bat). Minimal forest habitat conversion, relative to habitat available at CSF. Maintained vegetative areas will be seeded to encourage use by small mammals, reptiles, and pollinators.	Seasonal tree felling restrictions will be used to minimize direct impacts to T&E species (e.g., Indiana bat and northern long-eared bat). Minimal forest habitat conversion, relative to habitat available at CSF. Maintained vegetative areas will be seeded to encourage use by small mammals, reptiles, and pollinators.	No change; wildlife, including T&E species remain the same.
Wetlands	No wetlands present.	No wetlands present.	No wetlands present.

Characteristic	Alternative A (Adjacent to Winding Rd.)	Alternative B (Proposed Upland Site)	Alternative C (No Action)
Streams	Major impacts predicted to an unmapped intermittent and a mapped intermittent that borders the south end of this site. Preliminary estimates indicated impacts to streams at this site would be significantly greater than under other alternatives.	Limited impacts of less than 0.1 acre require formal RGP Notification process to IDEM.	No change; streams remain the same.
Cultural Resources	Impacts likely to known archaeological resource.	No archaeological resources located.	No change to archaeological resources in region.
Socio-economic Conditions	Facility construction would increase the availability of hunter safety training opportunities.	Facility construction would increase the availability of hunter safety training opportunities.	No change; hunter safety training opportunities remain limited for general public in region.
Noise	During construction, there will temporarily be increased truck and equipment noise; however, periodic use of heavy trucks and machinery is not uncommon at CSF (e.g., during forest management activities). During operation, noise-reducing baffle orientation is designed to focus noise back towards the shooting line, which will mitigate noise on private property.	During construction, there will temporarily be increased truck and equipment noise; however, periodic use of heavy trucks and machinery is not uncommon at CSF (e.g., during forest management activities). During operation, noise-reducing baffle orientation is designed to focus noise back towards the shooting line, which will mitigate noise on private property.	No change in noise impacts.
Lead Impacts	An Environmental Stewardship Plan will be developed which will include a long-term, site-	An Environmental Stewardship Plan will be developed which will include a long-term, site-	No change in lead impacts.

Characteristic	Alternative A (Adjacent to Winding Rd.)	Alternative B (Proposed Upland Site)	Alternative C (No Action)
	specific lead management plan.	specific lead management plan.	
Cumulative Impacts	There are no known plans for the proposed area that would result in cumulative impacts when combined with this alternative.	There are no known plans for the proposed area that would result in cumulative impacts when combined with this alternative.	No change in cumulative impacts.

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ATTACHMENT A

Figures

ATTACHMENT B

Ecological Assessment Report

ATTACHMENT C

Completed Qualitative Habitat Evaluation Index Stream Assessment

ATTACHMENT D

Cultural Resources Reports

- C-104
- C-104A
- C-104A2

ATTACHMENT E

Acoustic Design Considerations Memorandum