

**Wildlife impact assessment and management:
a case study of expanding the training use areas for the Florida Army National
Guard's Multiple Launch Rocket System (MLRS) at Avon Park Air Force Range,
Florida**

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Abstract

The Florida Army National Guard (FLARNG) completed an Environmental Assessment with a Finding of No Significant Impact (FONSI) for expanding maneuver areas for the main tactical vehicles of its Multiple Launch Rocket System (MLRS) at Avon Park Air Force Range (APAFR) in Avon Park, Florida. The maneuver expansion included six new maneuver areas that were carefully chosen to avoid sensitive resources including federally listed species, using field methods and Geographic Information Systems (GIS) analysis. The FLARNG sent a scoping letter to the U.S. Fish and Wildlife Service (USFWS). The wildlife protection agency responded that they were particularly concerned with three animal species – the red-cockaded woodpecker, Florida scrub jay and eastern indigo snake – and two plants – pigeon wing and wireweed. A face-to-face meeting between the FLARNG and the USFWS proved highly productive. Information sharing and analysis led to a mutual agreement between the two agencies that only the eastern indigo snake would likely be adversely affected by the MLRS maneuver area expansion. As a result, the USFWS issued a permit for six incidental takes for the eastern indigo snake. The EA, FONSI and other information regarding the proposed action and the USFWS consultation (as well as other resource analyses and correspondence) were shared with the public during the EA public review process and no public comments were received.

Introduction

The Florida Army National Guard (FLARNG) stations the main tactical vehicles for its 3rd Battalion of the 116th (3-116th) Field Artillery Regiment's Multiple Launch Rocket System (MLRS) at Avon Park Air Force Range (APAFR) in Avon Park, Florida. The MLRS has been used at APAFR since 1997, when National Guard Bureau (NGB) signed a Finding of No Significant Impact (FONSI) for the conversion of the eight-inch howitzer guns to the MLRS as part of an Army-wide equipment upgrade. The EA for this conversion was entitled "Conversion of the 8-inch Howitzer Weapon System to the Multiple Launch Rocket System in the Florida Army National Guard 3rd Battalion, 116th Field Artillery", hereafter referred to as the "Conversion EA". The FONSI applied to the conversion from the howitzers to the MLRS, as well as MLRS training consistent with the howitzer battery training.

Howitzer battery training, however, is suitable only for limited MLRS training. In order for the 3-116th to become certified as fully combat-ready, the maneuver areas needed to be expanded – a major federal action requiring analysis under the National Environmental Policy Act of 1969 (NEPA).

The role of the MLRS battalion in combat is to provide close support to maneuver units, protect the force with counter fire, attack operational targets for the division, corps, Marine air ground task force, or joint task force commander, and operate in support of theater missile defense. Expanded maneuver areas at APAFR would permit the 3-116th Battalion to accomplish all phases of training required for certification.

Selection criteria and methodology

In order to consider feasible locations for expanding the maneuver area for the MLRS, the FLARNG identified MLRS operational criteria and maneuver area environments that were most suitable. These criteria included:

- A minimum of four Maneuver Areas (MAs) that would accommodate a battery (consisting of a group of Army units) and provide required distance between firing points.
- The ability to use up to four MAs simultaneously.
- MA with enough vegetative cover for launcher hiding, but with tree density open enough to allow maneuvering.
- Dry land rather than wetlands
- Adequate capacity to support six training weekends per year and one 15-day training event.

Based on these criteria, four locations were considered: Camp Blanding, Florida; Fort Stewart, Georgia; Eglin AFB, Florida; and APAFR, Florida. However, Army doctrine also emphasized the need for the range to be located within 80 miles of “home stations” of units that would use the MLRS, in order to optimize travel time. Those units are based in Plant City, Arcadia, Avon Park and Wauchula, Florida. All locations except APAFR exceeded the 80-mile travel criteria; thus Avon Park was selected as the desired location.

Once the FLARNG had narrowed the location down to APAFR, APAFR’s Environmental Flight staff performed a screening analysis to identify the best locations for MLRS MAs on APAFR. The screening analysis was performed in two steps. The first was to give a weighted score to all parts of the Range for suitability for track vehicle training, based on soils, training environment and other factors. The second step was to remove those areas where elements of the landscape, both cultural and natural, might impede training because of human safety, environmental laws or other constraints.

In the first step of MA selection analysis, the training environment desired by the FLARNG was identified from the landscape through a series of techniques using a Geographic Information System (GIS). First, the soils were analyzed and a soils suitability map was produced. Next, vegetation edges and their suitability for MLRS training were analyzed. Based on the MLRS operational criteria, it is necessary to have a training area where a track vehicle could theoretically fire rockets out in the open, and then within a specified amount of time, be able to turn, run and hide in a wooded area. APAFR staff calculated the distance that a vehicle could maneuver during this time period to be about 400 meters from shoot to hide.

Using GIS, wooded areas with trails and roads nearby were delineated by polygons in order to define edges between trees and open areas. These edges were then buffered by 200 meters to either side to determine those areas most suited to the shoot-and-hide

scenario. The buffered areas were given a score from one to 10 and added to the soils analysis to generate a consolidated map. The combined criteria were weighted so that the final map had scores between one and 10, with soils comprising about 65 percent of the score and training environment 35 percent.

During the second step of the MA selection process, areas of the range were removed that were constrained by cultural and natural resource laws. Safety and current operations were also considered in the selection process. The areas removed included air-to-ground ranges and safety buffer areas, the cantonment area, Environmental Restoration Program sites, jurisdictional wetlands, soil units on which rare plants depend, and clusters of archaeological sites. APAFR has eight documented federally listed threatened and endangered species. Of these, three – the endangered Florida grasshopper sparrow (FGS) (*Ammodramus savannarum floridanus*), the endangered red-cockaded woodpecker (RCW) (*Picoides borealis*), and the threatened Florida scrub jay (FSJ) (*Aphelocoma coerulescens*) – are deemed imperiled. Therefore, existing Habitat Management Units (HMUs) that had been determined in prior consultation between APAFR and U.S. Fish and Wildlife Service, for these three bird species were avoided to the greatest extent possible during the MA selection process. This resulted in a composite map with a scale from one to 10; however, none of the areas had a score of more than seven.

From this map, clusters of areas that received a score of five, six or seven were examined for suitability. As a result, the FLARNG and APAFR determined that six locations were suitable, both operationally and environmentally, to use as MLRS MAs.

Biological consultation

The FLARNG sent a scoping letter to USFWS with the draft EA in March 2005. The EA identified 12 federally protected species that could be affected. Because the MAs were sited to avoid HMUs for the FGS, RCW and FSJ, and because the proposed action included management actions to protect other species, the FLARNG determined that the proposed action would have “no effect” on the RCW, FGS, FSJ, bald eagle (*Haliaeetus leucocephalus*), Florida panther (*Puma concolor coryi*), wood stork (*Mycteria americana*), Audubon’s crested caracara (*Polyborus plancus audubonii*), sand skink (*Neoseps reynoldsi*), bluetail mole skink (*Eumeces egregious lividus*), Highlands tiger beetle (*Cicindela highlandensis*), and Everglade snail kite (*Rostrhamus sociabilis plumbeus*). The FLARNG determined that the proposed action “may affect, but is not likely to adversely affect” the eastern indigo snake (*Drymarchon corais couperi*).

USFWS responded in April 2005 by expressing concern that the action had the potential to adversely impact the RCW, FSJ and eastern indigo snake. The USFWS response also stated that the proposed action might affect two federally protected plant species: the pigeon wing (*Clitoria fragrans*) and wireweed (*Polygonella basiramia*), and requested additional information to determine whether formal consultation would be required. During a follow-up teleconference, the USFWS recommended including the ordnance delivery and high explosive (HE) impact areas in the proposed action for the purposes of

consultation, in accordance with section 7 of the Endangered Species Act (ESA). The FLARNG responded that the action of firing rockets and the effects to the impact areas were assessed in the previous Conversion EA. The USFWS remained concerned that new information uncovered since the previous EA might show that listed species would be affected in a manner not considered before.

In order to discuss the proposed action, the USFWS response and methods to minimize effects on listed species, particularly the RCW, FSJ, eastern indigo snake, pigeon wing and wireweed, the FLARNG arranged a July 2005 meeting at the USFWS Vero Beach, Florida, field office. Attendees from the FLARNG included the environmental protection specialist (equivalent to environmental administrator), conservation manager and NEPA coordinator. The environmental protection specialist, who had the rank of Major in the Florida Army National Guard, had extensive knowledge of MLRS operation and training.

Species-specific maps were produced for the meeting. They depicted the MAs overlaid with data layers of HMUs for the RCW and FSJ, and soil units for pigeon wing and wireweed. Since the eastern indigo snake habitat could not be confined to discrete locations, an indigo snake specific map was not produced.

Each of the species that USFWS had expressed concern about, as well as rocket firing, was discussed at length during the meeting. During the discussion and information sharing, the USFWS and the FLARNG were able to reach a consensus on each topic. Following is a brief summary of the key topics in the order that they were discussed:

- Early in the meeting, USFWS reiterated their concern about the rocket firing. The FLARNG staff explained that firing would not change as a result of expanded maneuver. It would still be from the same three 100-meter circles into the same HE impact areas as was previously assessed in the Conversion EA. The frequency of firing would not change. The proposed action of expanding MLRS maneuver areas would not affect the firing in any way. No new firing would take place from the new MAs. Since practice rockets are used with tracers, the risk of fire was determined to be negligible during the Conversion EA. The USFWS issued a “no effect/unlikely to effect” letter during consultation on the Conversion EA in 1996. Upon hearing this information directly from the FLARNG environmental staff, USFWS determined that firing would not need to be reassessed after all.
- RCWs were a concern to USFWS because, even though the RCW HMUs encompassed all cavity trees and clusters on APAFR, and those were avoided when siting the MAs, there was foraging area in all of the proposed MAs except MA4. Foraging area encompasses much of APAFR. USFWS believed that MLRS maneuvers within RCW foraging area could adversely impact the foraging area for the bird. The FLARNG environmental representatives presented USFWS with a Department of Defense document entitled “1996 Management Guidelines for the Red-cockaded Woodpecker on Army Installations” that was closely coordinated with USFWS. The document limits military training within marked cavity tree buffer zones to military activities of a transient nature (less than 2

hours occupation), and prohibits military vehicles from occupying a position or traversing within 50 feet of a marked cavity tree, unless on an existing road, trail, or firebreak. In addition, the FLARNG's specific management guidelines in the EA for avoiding RCW clusters specified a 200-foot buffer around cavity trees, existing or developing in the future. The FLARNG also discussed the frequency of use of the MAs. As identified in the proposed action, the MLRS would maneuver in the field 25 days or less per year, including about one day out of each month during a weekend drill and about eight or nine days out of a two-week annual training event. With the Army's and the FLARNG's guidelines, USFWS's concerns about the RCW foraging habitat were also alleviated and the wildlife agency agreed to a "no effect" determination for the RCW.

- There was a portion of FSJ habitat just within the northwest corners of MA5 and MA6. USFWS expressed that, if this was occupied habitat, an incidental take permit for the jay would be required. The FLARNG agreed to exclude from the MAs the relatively small areas that included FSJ habitat. Signs would be placed designating the boundary of the MA, so the area will be off limits to the MLRS. Since the MAs no longer included the habitat, USFWS agreed to a "no effect" determination for the FSJ.
- The two plants, pigeon wing and wireweed, were discussed next. USFWS was concerned that the plants may be within some of the MAs. A plant survey had recently been completed by APAFR, during the EA process. The surveys revealed that a small area of pigeon wing was just within the boundary of MA2. No wireweed was found within any of the MAs. The FLARNG environmental protection specialist agreed to modify the MA2 boundary perimeter so that the pigeon wing patch was no longer within the MA. Signs would be placed to designate the pigeon wing patch. USFWS then agreed to a "no effect" determination for pigeon wing and wireweed.
- The eastern indigo snake was discussed last. USFWS stated that on APAFR, the indigo can be found just about anywhere there is not standing water. The agency recommended one incidental take permit per MA, for a total of six permits, in case an indigo is killed by MLRS maneuver. The FLARNG environmental staff explained that the awareness training that is given to the MLRS troops identifies that gopher tortoise burrows and the areas surrounding them are to be avoided. (Indigo snakes often inhabit gopher tortoise burrows.) USFWS restated that they recommended the incidental take permits because the snakes could be found almost anywhere in the area. The FLARNG agreed a permit for six incidental takes.

Following the Vero Beach meeting, the FLARNG sent USFWS an addendum to the previous scoping letter in the form of a biological assessment, stating that, as a result of discussion and negotiations, the FLARNG believed that the proposed action would have "no effect" for the FSJ, pigeon wing and wireweed, "may effect but is not likely to adversely effect" the RCW, and "is likely to adversely effect" the eastern indigo snake.

Thereafter, a biological opinion (BO) was issued to the FLARNG by USFWS stating that the agency agreed with the FLARNG's determinations.

The BO included the permit for six incidental takes for the eastern indigo snake, in accordance with Section 9 of the ESA. The BO stated that direct impacts include direct injury or mortality; and loss, degradation, or fragmentation of available habitat for foraging, breeding and dispersing. Based on the proposed level of use of the six MAs (no more than 25 days per year divided between all of the MAs), the USFWS estimated that the proposed action might result in the take of one indigo snake per year, per MA, for a total of six snakes annually. The USFWS determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Conditions and mitigation included in the incidental take permit included the following:

- Surveys and marking of gopher tortoise burrows will be conducted prior to annual training. Vehicle and equipment operators will be notified to avoid all snakes and marked burrows. Training units will be educated to recognize the eastern indigo snake. If any snake is encountered, it will be avoided or allowed to leave the area on its own before vehicle or equipment use is resumed.
- The FLARNG will monitor the effects of training activities and submit annual monitoring reports documenting the date(s) and duration of the activities, and the effects to the eastern indigo snake and its habitat. The report should include monitoring results and species sightings.
- Upon locating a dead, injured or sick indigo snake, initial notification must be made to the USFWS offices following protocol established in the incidental take permit.

Public Scoping

Pursuant to the NEPA Handbook, which is the Army National Guard procedures manual on how to perform NEPA analysis, two public comment periods are recommended for an EA and FONSI. As specified in the NEPA Handbook, when the draft EA was completed, the FLARNG made it available for a 30-day public comment period. The public was notified of the 30-day public comment process by a legal notice published in The News-Sun in Sebring, Florida, and on the Florida Department of Military Affairs website. The EA was also available to the public at the Avon Park Public Library, the Sebring Public Library, and the FLARNG headquarters in St. Augustine, Florida. Public notification for the Final EA and FONSI was conducted using the same procedures as for the draft EA. No action was taken for 30 days following publication of the FONSI. The FONSI was not contested within the review period. No comments or legal actions were received during either of the public comment periods.

Impact management

The FLARNG is implementing a multi-tiered approach to managing and preventing impacts that could potentially occur as a result of the proposed action. Currently, signs are being erected delineating the outer boundaries of the training areas where there is not an established road, stating “Stop – Training Area Boundary”. The signs are 10-inch square (yellow background with black lettering) mounted on the top of metal posts erected at 100-meter intervals, and are approximately eight feet above ground level. In addition to marking off the MA boundaries, other signs will delineate wetlands, the two Florida scrub jay Habitat Management Units (HMU's) that were excluded from MA5 and MA6 during consultation, and the area of pigeon wing that was excluded from MA2. These signs state: "No Vehicles – Environmentally Sensitive Area". The MLRS unit is currently deployed, but when they return, the FLARNG will accompany the unit around all the MA boundaries so the unit can enter Geographic Positioning System (GPS) coordinates into their system. The MLRS operators will have this information available electronically in their vehicles during training.

In addition, to support long-term management of the MAs, the FLARNG has planned a three-part strategy that includes implementation of an Integrated Training Area Management (ITAM) program, Range and Training Land Analysis (RTLA), and monitoring and avoidance steps for listed species, generally derived from the APAFR Endangered Species Management Plan. This strategy is part of the proposed action in the EA. ITAM and RTLA establish procedures to achieve optimum, sustainable use of training lands by implementing a uniform land management that includes inventorying and monitoring land conditions, integrating training goals while minimizing adverse impacts, and providing for training land rehabilitation and maintenance. While these management tools are an important part of maintaining and monitoring the MAs, they do not specifically address impacts to listed species or other wildlife; however, they are important in maintaining the viability of the land within the MAs for both training and wildlife.

Avoidance considerations related to federally listed species address management and monitoring guidelines to protect those plant and animal species. Since RCW foraging habitat is within the MAs and cavity trees may develop within the MAs over the years, the guidelines gave specific consideration to this species. Eagle nests may eventually be found within the MAs; therefore this possibility was also addressed. The guidelines also specifically address the eastern indigo snake, as well as gopher tortoise burrows, which are commonly used by the indigo snake, pursuant to the incidental take permit conditions set forth by the USFWS. The guidelines listed in the EA are as follows:

- APAFR staff marks RCW cavity trees. Because of the sensitivity of the bird, the USFWS requires certain restrictions within 200 feet of the outermost protected cavity trees within clusters. Vehicle maintenance would be limited to two hours or less during the training weekend; there would be no assembly area operations, combat support areas, or camouflage netting; and hand digging would be limited to two hours or less per day.

- There would be no MLRS maneuvering with a 750-foot radius of an active bald eagle nesting tree between 01 October and 15 May. Eagle nesting trees are located and mapped. Maps of eagle nesting trees would be made available to the MLRS unit.
- APAFR would train MLRS units on how to recognize indigo snakes and instructions to not harm this species. MLRS units will be required to view a training video and read a training pamphlet before using APAFR. These items instruct the units to not kill snakes. If a snake is encountered, the unit is to avoid it and call APAFR's Environmental Flight staff, which will notify the FLARNG. The FLARNG will contact USFWS immediately if a dead, sick or injured indigo snake is found.
- The MAs will be surveyed annually for gopher tortoise burrows, which will be marked.
- The FLARNG will submit to the USFWS an annual report of training activities and annual observations of effects to indigo snakes and their habitat.

Discussion

Generally, the consultation process with USFWS unfolded in the following way: (1) scoping letter with preliminary draft EA, (2) return letter from USFWS, (3) teleconference call, (4) face-to-face meeting, (5) addendum to scoping letter with biological assessment, (6) return BO from USFWS, and (7) final EA and draft FONSI. This process took about six months to complete and allowed, to a full extent, preparation of the EA concurrently and integrated with environmental analysis and related surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), and the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.). The draft-final EA and draft FONSI, when it was presented to the public during the final of the two public review periods, included full correspondence with USFWS, including a transcript of the face-to-face meeting, and the BO. These actions were taken to ensure full compliance with 40 C.F.R. 1502.25 of the CEQ regulations.

The consultation with USFWS was a very important part of the MLRS maneuver expansion environmental analysis and was highly productive. Because there were knowledgeable people sitting around a conference table, both parties were able to brainstorm together ways in which the MLRS maneuvers might impact each of the species within the designated maneuver areas, and were able to devise ways to avoid or minimize those impacts. While scoping letters, biological assessments and the biological opinion are the important formal tools for this process, the face-to-face meeting was the forum where the decisions were made and information was spontaneously and easily shared. But just getting together for a meeting with minimal preparation would not have been enough. The FLARNG/USFWS meeting was valuable as a result of preparation,

planning and tools. There were several specific actions that made the meeting particularly beneficial.

Perhaps the foremost factor that set the stage for a productive meeting was having experts and decision makers at the table on both sides. To get things accomplished, it is imperative to include people with the authority to make and implement decisions. For instance, the environmental protection specialist was also a Major in the Florida Army National Guard, and had the authority to adjust the maneuver area boundaries in order to avoid listed species. This fluidity enhanced protection of the imperiled species and led to USFWS determinations of “no effect” for the FSJ, pigeon wing and wireweed, and “may effect but is not likely to adversely effect” the RCW.

Second, expert and intimate knowledge of the proposed action is also necessary. The FLARNG Major had participated in MLRS maneuvers firsthand, and knew the details of MLRS training and maneuvers well. When the USFWS expressed concern about firing, the Major and his staff were able to explain exactly what was involved in firing, such as frequency, duration and the risk of fires from inert rockets with tracers. They were able to describe exactly when and where firing has occurred and to explain that the proposed action would not affect the previously assessed firing in any way. This shared knowledge provided USFWS with enough information to determine that firing would not need to be addressed since it was previously addressed in the Conversion EA.

Third, knowledge of each of the species the USFWS was concerned about, and how the Army has minimized impacts to these species in the past, was also important. A literature review of former studies, management plans, EAs, environmental impact statements and mitigation plans is highly recommended. Research into existing literature provided the FLARNG with the RCW Management Guidelines that set a precedent for management of RCWs on Army lands.

Last, pertinent documentation and visual aids, such as the GIS maps for each individual species, were important tools. With the maps on the table, the environmental protection specialist was able to carve sensitive wildlife areas out of the maneuver areas to the satisfaction of USFWS staff, enhancing protection of the flora and fauna.

Conclusions and Recommendations

As mentioned, the face-to-face meeting created the setting for productive and beneficial consultation. When experts and decision-makers meet in person, information is quickly and easily shared and decisions are made. Formal USFWS consultation historically includes written biological assessments and opinions, but the value of meeting in person appears to be often overlooked.

Because of the value derived from the FLARNG’s meeting with USFWS officials, I recommend that proponent agencies consider including face-to-face meetings in their

consultation budgets. In addition, the agency should bring experts in every discipline applicable to the proposed action (for instance, natural resources and military maneuvers) to the conference table. When skilled decision makers come together armed with timely data and materials, the stage is set for both sides to come to the best and most mutually beneficial decision.

References

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