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BIOLOGICAL ASSESSMENT FOR RESOURCE CONSERVATION AND RECOVERY ACT  
CORRECTIVE ACTION INTERIM MEASURES AT SITE UNEXPLODED ORDNANCE 1 SOLID  
WASTE MANAGEMENT UNIT 77 SMALL ARMS RANGE NAVAL ACTIVITY PUERTO RICO  
9/1/2013  
CH2M HILL

**Biological Assessment for RCRA Corrective Action Interim Measures  
Site UXO 1 (SWMU 77) - Small Arms Range**

**Naval Activity Puerto Rico  
Ceiba, Puerto Rico**

**Contract Task Order JM04**

**September 2013**

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September 2013

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# Contents

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	<b>Acronyms and Abbreviations</b> .....	<b>vii</b>
<b>1</b>	<b>Summary of Determinations</b> .....	<b>1</b>
<b>2</b>	<b>Introduction</b> .....	<b>2</b>
<b>3</b>	<b>Consultation History</b> .....	<b>2</b>
<b>4</b>	<b>Proposed Action</b> .....	<b>3</b>
<b>5</b>	<b>Location and Setting Description</b> .....	<b>4</b>
	5.1 Location .....	4
	5.2 Setting Description .....	4
<b>6</b>	<b>Species Descriptions</b> .....	<b>4</b>
	6.1 Yellow-shouldered Blackbird .....	5
	6.2 Puerto Rican Boa .....	6
	6.3 Virgin Islands Tree Boa .....	6
<b>7</b>	<b>Mangrove Habitat Assessment and Migratory Bird Treaty Act</b> .....	<b>6</b>
<b>8</b>	<b>Effects of Proposed Action Implementation</b> .....	<b>7</b>
	8.1 Boundary Marking and Training .....	7
	8.2 Vegetation Clearing .....	8
	8.3 Soil Removal .....	8
	8.4 MEC Demolition.....	8
<b>9</b>	<b>Conclusion</b> .....	<b>9</b>
<b>10</b>	<b>Review of Literature and Other Information</b> .....	<b>11</b>

## Figures

<b>1</b>	<b>Project Location Map</b>
<b>2</b>	<b>Site Layout Map</b>
<b>3</b>	<b>Subarea Soil Removal Boundaries</b>



# Acronyms and Abbreviations

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BA	Biological Assessment
DNER	Puerto Rico Department of Natural and Environmental Resources
MC	munitions constituents
MEC	munitions and explosives of concern
NAPR	Naval Activity Puerto Rico
Navy	Department of the Navy
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SWMU	Solid Waste Management Unit
USFWS	U.S. Fish and Wildlife Service
UXO	unexploded ordnance



# 1 Summary of Determinations

This Department of the Navy (Navy) biological assessment (BA) has formulated a determination regarding the potential effects on the federally endangered yellow-shouldered blackbird (*Agelaius xanthomus*), federally endangered Puerto Rican boa (*Epicrates inornatus*), and federally endangered Virgin Islands tree boa (*Epicrates monensis granti*) that could result from RCRA Corrective Action interim measures (soil removal) at Navy Munitions Response Program Site UXO 1, also known as Resource Conservation and Recovery Act (RCRA) Solid Waste Management Unit 77 (SWMU 77) – Small Arms Range, at Naval Activity Puerto Rico (NAPR). This BA also considers the potential for affecting designated critical habitat for the yellow-shouldered blackbird.

The proposed action includes the excavation and off-site disposal of contaminated soil (and co-occurring vegetation) from within four distinct subareas at Site UXO 1 (SWMU 77): Pistol Range Subarea, Former Pistol Range Subarea, Detonation Area near Concrete Pad Subarea, and Rifle Range Subarea. In addition, because munitions and explosives of concern (MEC) have been found at the site, explosive demolition may be required.

Before soil disturbance begins, the soil removal area boundaries and all sensitive areas to be avoided and protected during the work will be clearly marked in the field and recorded in field notes. All onsite personnel will receive training about the conservation of protected species, the types of species that may be encountered on the site, the locations of marked areas to be protected, and the proper communication protocol should protected species be encountered.

There is historical documentation of nesting by the yellow-shouldered blackbird on NAPR. The yellow-shouldered blackbird continues to occur on NAPR, but it has not been observed at or in the vicinity of Site UXO 1 (SWMU 77) in recent general surveys. The mangroves adjacent to the Pistol Range Subarea, in the southwestern portion of Site UXO 1 (SWMU 77), provide the only suitable nesting habitat for this species. No intrusive work is planned within the mangrove habitat, so no direct impacts to birds in this area will occur. Before soil removal activities begin, a nest survey will be conducted in the mangrove habitat adjacent to the Pistol Range Subarea. Should any active yellow-shouldered blackbird nests be identified less than 100 feet from the maximum extent of soil and vegetation disturbance, the location(s) will be mapped and provided to the U.S. Fish and Wildlife Service (USFWS). A 100-foot buffer will be established around each nest and will be marked clearly with fencing/barricade. Site activities will not occur within these designated buffer areas until after the yellow-shouldered blackbird young have fledged.

All of NAPR is considered critical habitat for the yellow-shouldered blackbird. Vegetation clearing at any of the subareas will therefore occur within an area designated as critical habitat for this species. Although vegetation clearing will result in alteration of this designated critical habitat, it will be limited to areas where the habitat is poorly suited for the species. Therefore, no adverse impacts to designated critical habitat for the yellow-shouldered blackbird are expected.

Surveys have documented the Puerto Rican boa on NAPR, and suitable habitat occurs within Site UXO 1 (SWMU 77), so it is possible that this boa could occur within the project area. Any wheeled or tracked equipment left onsite overnight will be inspected for the presence of resting Puerto Rican boas each morning before startup. If a boa is found resting on or in this equipment, it will be removed by a Puerto Rico Department of Environment and Natural Resources (DNER) authorized person and taken to a previously approved relocation site for release, or use of the equipment will be delayed until the snake has voluntarily moved away. Before soil removal activities begin each day, the area to be excavated will be surveyed by a qualified and trained person for the presence of the Puerto Rican boa or the Virgin Islands tree boa. If a boa is observed, either it will be removed by a DNER-authorized person and taken to a previously approved relocation site for release, or clearing activities in that area will be delayed until the snake had voluntarily moved away. Before any explosive demolition procedures are implemented, the area within 100 meters of the proposed detonation site will be inspected for resting boas by a qualified and trained person. Should a boa be found within the search radius, a DNER-authorized person will relocate the snake to a previously approved relocation site for release. If it is not possible to relocate the snake, the detonation will be delayed until the boa has voluntarily moved more than 100 meters from the detonation

site, or the MEC item will be relocated to an alternate explosive demolition site, if moving the item is determined to be safe.

The Virgin Islands tree boa has not been found on NAPR in recent surveys, and likely does not occur in the project area. The same site monitoring and relocation procedures (including explosive demolition procedures) described above for the Puerto Rican boa will be implemented for the Virgin Islands tree boa, so these actions will identify and protect the Virgin Islands tree boa as well.

The Navy requests USFWS concurrence with the determination of findings of this analysis that the RCRA Corrective Action interim measures at the four subareas identified above will have **no affect** on the cobana negra, is **not likely to affect** the yellow-shouldered blackbird, Puerto Rican boa, and Virgin Islands tree boa, and is **not likely to adversely affect** designated critical habitat for the yellow-shouldered blackbird. Additionally, the proposed actions will not threaten the continued existence of these species.

## 2 Introduction

This document is being submitted to fulfill requirements under Section 7 of the Endangered Species Act. This BA addresses potential impacts to protected species associated with soil removal activities being conducted as part of the RCRA Corrective Action process at Site UXO 1 (SWMU 77) at NAPR in Ceiba, Puerto Rico (Figure 1, Figure 2).

Site UXO 1 (SWMU 77) is located on the peninsula of Punta Medio Mundo at the northeastern boundary of the NAPR facility. Historical records indicate that Site UXO 1 (SWMU 77) was used as a small arms range, and potentially for munitions disposal or detonation. The site is divided into six subareas with different potentials for munitions constituents (MC) and/or munitions and explosives of concern (MEC) contamination.

Environmental sampling results from a RCRA Facility Investigation (RFI) currently being conducted by the Navy have identified areas where concentrations of MC in soil may pose an unacceptable risk to human health and the environment. As a result, RCRA Corrective Action interim measures are proposed at four of the subareas to reduce the potential risk: Pistol Range Subarea, Former Pistol Range Subarea, Detonation Area near Concrete Pad Subarea, and Rifle Range Subarea. The planned RCRA Corrective Action interim measures includes excavation of contaminated soil up to several feet deep from within each of these four subareas. Soil removal will be conducted using various heavy machinery for excavation, and dump trucks or roll-off containers for transport of the soil offsite. Temporary staging of equipment and stockpiles will be necessary in areas adjacent to the excavations. All vegetation within the soil removal areas and associated staging or stockpile areas will be removed. Figure 3 delineates the maximum potential extent of soil and vegetation disturbance associated with the action within each of the subareas, although soil and vegetation disturbance within the entirety of any subarea is not expected.

Although not anticipated, MEC may be located during the excavation and disposal of soils in the subareas. Explosive demolition may be required if MEC is discovered onsite.

Federally listed species potentially occurring at or in the vicinity of Site UXO 1 (SWMU 77) are the endangered yellow-shouldered blackbird (*Agelaius xanthomus*), endangered Puerto Rican boa (*Epicrates inornatus*), endangered Virgin Islands tree boa (*Epicrates monensis granti*), and threatened c6bana negra tree (*Stahlia monosperma*). The c6bana negra tree is restricted to the landward edge of mangrove habitats. A survey for this tree was conducted by an experienced botanist on June 20, 2013, in and adjacent to potentially suitable mangrove edge habitat along the southwestern perimeter of the Pistol Range Subarea. This species was confirmed as not occurring within or near the proposed soil removal area for the Pistol Range Subarea. Because the species does not occur along the margin of the Pistol Range Subarea and because suitable habitat for the species is not present at or adjacent to the remaining three subareas, there would be **no affect** to this species and it is not further evaluated in this BA.

## 3 Consultation History

No previous consultations have been conducted for the proposed work area, beyond the general inclusion in consultations to support previous National Environmental Policy Act analyses for the transfer of NAPR to the

Commonwealth of Puerto Rico and its subsequent redevelopment. In 2007, the Navy completed the *Environmental Assessment for the Disposal of Naval Activity Puerto Rico (formerly Naval Station Roosevelt Roads)* and in 2011 developed the *Supplemental Environmental Assessment for the Disposal of Naval Activity Puerto Rico (Formerly Naval Station Roosevelt Roads)*.

Because no work will occur in mangrove swamps or off-shore waters, the Navy will have no potential to adversely affect species under the jurisdiction of the National Oceanic and Atmospheric Administration's Marine Fisheries Service Office of Protected Resources, either under the Endangered Species Act or under the Marine Mammal Protection Act, and will have no potential to adversely affect essential fish habitat under the jurisdiction of the National Oceanic and Atmospheric Administration Marine Fisheries Service Habitat Conservation Division. Therefore, the Navy will not be consulting with these agency offices regarding the proposed work.

## 4 Proposed Action

The proposed action at Site UXO 1 (SWMU 77) is the removal of soil containing elevated concentrations of MC from the Pistol Range Subarea, Former Pistol Range Subarea, Detonation Area near Concrete Pad Subarea, and Rifle Range Subarea. Figure 3 delineates the maximum potential extent of soil and vegetation disturbance within each of these subareas.

The soil removal action will involve the following activities:

- Vegetation clearing within and surrounding the soil removal areas where required to allow excavation and transportation equipment to operate effectively, but not exceeding the boundaries identified in Figure 3.
- Excavation of contaminated soil within each of the four subareas, to an estimated maximum depth of 3 feet, within the boundaries identified on Figure 3.

All cleared vegetation will either be mulched and placed onsite within areas of subarea soil disturbance, or hauled off site. Vegetative debris will not be placed outside of the areas shown on Figure 3. Soil excavation and removal will be conducted using various types of heavy machinery, potentially including bulldozers, excavators, front end loaders, backhoes, and dump trucks, depending on site conditions. All excavations will be backfilled and brought to grade, followed by seeding of the disturbed areas to support erosion control.

Vegetation clearing will be conducted using hand tools, handheld power tools (such as chainsaws), and mechanical equipment. Vegetation may be cleared from up to 100 percent of the areas shown on Figure 3. A lesser amount may be removed at the discretion of the field engineer, considering the extent to which vegetation left in place could interfere with soil excavation machinery or efficiency. The maximum total area of possible vegetation removal is approximately 12.1 acres (Pistol Range Subarea = 2.3 acres; Former Pistol Range Subarea = 2.0 acres; Detonation Area near Concrete Pad Subarea = 1.3 acres; and Rifle Range Subarea = 6.5 acres) (Figure 3).

No vegetation clearing or soil removal will occur within 20 feet of the landward edge of mangroves. These limits will prevent encroachment into and impacts to wetland areas, and will be clearly marked before vegetation clearing or soil disturbance begins. All site disturbance will be confined landward of these established setbacks.

Before vegetation clearing or soil disturbance begins, removal areas and areas of additional vegetation removal will be surveyed for the presence of active bird nests. To avoid impacts to bird species protected under the Migratory Bird Treaty Act and the endangered yellow-shouldered blackbird, any active bird nests that are identified will be avoided using the methods described in Section 8. In addition, soil removal areas and areas of vegetation removal will be surveyed for the presences of boas, and if found, avoidance and removal procedures will be followed as described in Section 8.

Temporary staging of cut vegetation or excavated soil, if necessary, will be within the individual subarea from which the material was obtained, and within the proposed subarea boundaries shown in Figure 3. Staging of large excavation equipment will either be within the subarea boundaries (Figure 3) or on the main roadways throughout Site UXO 1 (SWMU 77). The purpose of these limitations is to prevent damage to potential habitats or protected species in offsite areas.

## 5 Location and Setting Description

### 5.1 Location

NAPR is located on the northeastern coast of Puerto Rico and includes small islands in nearshore waters of the Caribbean Sea (Figure 1). NAPR abuts the town of Ceiba. Site UXO 1 (SWMU 77) is located on the peninsula of Punta Medio Mundo at the northeastern boundary of the NAPR facility (Figure 2). Site UXO 1 (SWMU 77) was used historically as a small arms range and possibly for munitions disposal or detonation.

### 5.2 Setting Description

Site UXO 1 (SWMU 77) covers approximately 66 acres on a peninsula bordered by water on all sides except the west. The underlying geology is predominantly volcanic, composed of lava and tuff, with overlying shallow, well-drained, moderately permeable soils. The topography ranges from 0 to 131 feet above mean sea level and is overall hilly, with steep slopes ranging from 5 to 60 percent. Most of Site UXO 1 (SWMU 77) is densely vegetated with coastal scrub forest communities dominated in most areas by species such as leadtree (*Leucaena* spp.), box briar (*Randia aculeata*), and sweet acacia (*Acacia farnesiana*). The southwestern end of the site contains mangrove habitat associated with the Los Machos Forest, an approximately 1,000-acre mangrove complex that historically has been adversely affected by hurricanes and construction activities. The most dominant mangrove species is black mangrove (*Avicennia germinans*) in the immediate vicinity of the Pistol Range Subarea; however, red (*Rhizophora mangle*) and white (*Laguncularia racemosa*) mangroves occur elsewhere in this lagoon system.

The four subareas where the soil removal will be conducted are briefly described below:

- The Pistol Range Subarea is in a level area north of the entrance road to Site UXO 1 (SWMU 77). The Pistol Range was closed January 1, 2010, and until that time was maintained via grass cutting. An earthen berm serves as the bullet backstop just beyond the target area, and numerous bullets are visible on the surface. There are six firing lines (1.5-yard, 3-yard, 7-yard, 10-yard, 15-yard, and 25-yard) across two 50-foot-wide side-by-side ranges. The southern half of the range had been used exclusively from 2004 to 2010.
- The Former Pistol Range Subarea is now overgrown with trees, and no visible evidence remains of the former pistol range. Historical aerial photographs show the area cleared in 1964 and overgrown by 1976.
- Clearing of the Detonation Area near Concrete Pad Subarea occurred sometime between 1977 and 1985, and construction of the concrete pad used for target assembly occurred by 1995. The area around the pad is level, grassy, and not maintained. A small open depression at the northern corner of the pad was observed during the August 2009 site visit, and is reported to be a detonation pit used for a one-time detonation event.
- The Rifle Range Subarea is a 500-yard narrow range centrally located in Site UXO 1 (SWMU 77) and orientated such that shots were fired northeast toward the outer point of the peninsula. Construction of the range occurred sometime between 1940 and 1958. The range has 100-yard, 200-yard, 300-yard, and 500-yard elevated firing lines and a short-yardage range formerly used as a pistol range. The target berm consists of a constructed earthen berm that served the short-yardage range, a concrete wall at the rear of the earthen berm equipped with a target carrier mechanism, and a natural steep and wooded hillside beyond the earthen berm/concrete wall that serves as the backstop for these elevated targets. RCRA Corrective Action interim measures are planned only in the vicinity of the target (northeastern) end of the range.

## 6 Species Descriptions

This BA is limited to discussions of species that could occur in the terrestrial environments where RCRA Corrective Action interim measures are proposed. The USFWS Caribbean Ecological Services Office identifies 17 listed or monitored species that are known to occur in the Ceiba region. The project area is not within the range of occurrence for many of these species, and only three species have the potential to occur within or in the immediate vicinity of Site UXO 1 (SWMU 77).

Seven endangered species from this region of Puerto Rico (three birds and four plants) are restricted to the El Yunque National Forest, so their distribution does not extend onto the NAPR. There will be no potential to affect the Puerto Rican sharp-shinned hawk (*Accipiter striatus venator*), Puerto Rican parrot (*Amazona vittata vittata*), Puerto Rican broadwinged hawk (*Buteo platypterus brunnescens*), uvillo (*Eugenia haematocarpa*), Palo Colorado (*Ternstroemia luquillensis*), and two plants with no common name (*Ilex sintensisii* and *Lepanthes eltoensis*). Therefore, these species are not discussed in this BA.

Six listed or monitored species that occur in the Ceiba region are restricted to marine environments or specific terrestrial habitats closely associated with the marine environment. All soil removal work will be conducted landward of the mangrove lagoon southwest of Site UXO 1 (SWMU 77), and there are no beaches in the work area that may be used as nesting areas. Therefore, there will be no potential to affect the endangered hawksbill sea turtle (*Eretmochelys imbricata*), threatened green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), and endangered West Indian manatee (*Trichechus manatus*). Additionally, critical habitat has been designated in Puerto Rico for the green and hawksbill sea turtles. There is no designated critical habitat for these species within or adjacent to the project area and there will be no potential to adversely affect critical habitat for sea turtles. Additionally, the threatened piping plover (*Charadrius melodus*) and the now delisted but monitored brown pelican (*Pelicanus occidentalis*) will not use the habitats within or adjacent to the project area and there will be no potential to affect these two birds as a result of the soil removal action. Therefore, these species are not discussed in this BA.

As previously described, a recent site survey for the threatened c6bana negra tree, which is restricted to the landward edge of mangrove habitats, showed that this tree species does not occur within or adjacent to the project area. Therefore, this species is not discussed in this BA.

Species included in the analysis are the endangered yellow-shouldered blackbird (*Agelaius xanthomus*), endangered Puerto Rican boa (*Epicrates inornatus*), and endangered Virgin Islands tree boa (*Epicrates monensis granti*). Also, because all of the NAPR has been designated as critical habitat for the yellow-shouldered blackbird, the potential for affecting critical habitat for this species is discussed.

## 6.1 Yellow-shouldered Blackbird

There are two subspecies of this blackbird but only one, *Agelaius xanthomus xanthomus*, occurs in Puerto Rico. The other subspecies, *Agelaius xanthomus monensis*, occurs only on Mona and Monito Islands. The yellow-shouldered blackbird is a medium-sized (20 to 23 centimeters in length) glossy black bird with yellow epaulets. Male and female plumage is similar. Immature birds are duller than adults and have a brown abdomen. The yellow epaulets are usually edged with a narrow white margin.

The breeding season extends from April through August and appears to coincide with onset of spring rains. The yellow-shouldered blackbird is monogamous, with pairing beginning 6 to 10 weeks before breeding. Pairs display site fidelity and re-establish nests in areas used in previous years. Yellow-shouldered blackbirds nest in scattered mangroves and in the cavities of dead trees and stumps.

The yellow-shouldered blackbird was listed as endangered in 1976 and critical habitat was designated for the species. All of the NAPR has been designated as critical habitat for this species. The yellow-shouldered blackbird was widespread and abundant in Puerto Rico and on Mona Island until the 1940s. Loss of habitat, predation by exotic mammals (cats and rats), and brood parasitism by the shiny cowbird have since contributed to its drastic decline in numbers, estimated at more than 80 percent reduction in population.

Recent surveys have documented a slight population recovery on the NAPR following Hurricane Hugo, followed by a more recent decline in numbers. The mangrove swamp in adjacent Los Machos Forest will provide the suitable habitat for this species. If intrusive work is scheduled between March 15 and August 31, a nest survey will be conducted before beginning vegetation clearing. Should a yellow-shouldered blackbird nest be found, consultation with USFWS will be required before clearing any vegetation during this period. The silt fencing that would be placed around the edge of the proposed work area would protect the mangrove swamp and the habitat

it provides. Therefore, no adverse impacts to the mangrove lagoon at the edge of the Pistol Range Subarea will result.

As noted above, all of the NAPR has been designated as critical habitat for the yellow-shouldered blackbird, but not all areas within the boundaries of the installation provide suitable habitat for the species. The preferred habitat for the species is mangrove forests, which occur only at the southwestern end of Site UXO 1 (SWMU 77). No work is planned within these mangrove habitats.

## 6.2 Puerto Rican Boa

The Puerto Rican boa is the largest snake native to Puerto Rico, reaching lengths of 6 to 9 feet. The color of the boa is variable, usually ranging from tan to very dark brown (sometimes grayish), with 70 to 80 dorsal blotches (indistinct cross-bars) from neck to vent. The Puerto Rican boa is nocturnal and remains dormant throughout the day, retreating to caves, rocky areas along streams, or trees for concealment during the day. Adult prey include small mammals, birds, and bats. Juveniles feed on smaller prey, such as lizards and insects.

Large-scale habitat destruction and the introduction of exotic mammalian predators are considered the likely causes of population declines, although human predation to obtain their oil as a folk remedy has been a contributor. Introduced rats and feral cats predate on the eggs and young.

Recent surveys have documented that this species is beginning to re-establish in the regrowth forests on the NAPR. It is possible that the Puerto Rican boa would use habitats within the proposed work area for daytime resting areas. Consistent with established USFWS and DNER protocols for work in potential Puerto Rican boa habitat, wheeled or tracked equipment left onsite overnight will be inspected for the presence of resting Puerto Rican boas each morning before startup and before any soil or vegetation removal. The area to be cleared or dug also will be inspected for the presence of resting Puerto Rican boas. Any boas found will be removed by a DNER-authorized person (persons holding a valid DNER permit to capture and relocate boas) and taken to a previously approved relocation site for release, or work will be delayed until the snake has voluntarily moved away. Current DNER-authorized persons who are also familiar with environmental conditions at NAPR are identified in permit number DRNA:2013-EPE-017. The nearest approved boa relocation site is in the undeveloped southern portion of NAPR, approximately 4 miles southwest of Site UXO 1 (SWMU 77), in a mature forest along a waterway (in the vicinity of Latitude 18.214306°N, Longitude -65.65947°W).

## 6.3 Virgin Islands Tree Boa

The Virgin Islands tree boa is a blotched brown, semi-arboreal snake restricted to a number of islands from Puerto Rico eastward into the British Virgin Islands. The Virgin Islands tree boa lives in subtropical dry forests where it hunts at night and captures lizards while they sleep in trees. During the day it remains in termite nests or under rocks and debris. There are no current estimates of the number of Virgin Island boas, but they are rare and their extremely disjunct distribution indicates past extirpation from islands and overall population decline.

Large-scale habitat destruction and the introduction of exotic mammalian predators caused severe population declines. The Indian mongoose, feral and domestic cats, and two rat species predate on eggs and young and adult boas. The small, uninhabited cays and islets where the species has become concentrated are also vulnerable to inundation from oceanic storms.

Although this species was observed historically on NAPR, recent surveys have not been able to confirm that the Virgin Islands tree boa still occurs here. The species is arboreal and nocturnal, so it is unlikely to be observed during the proposed work. The conservation measures described for the Puerto Rican boa will also be applied for this species, and no additional conservation measures are proposed.

# 7 Mangrove Habitat Assessment and Migratory Bird Treaty Act

A qualitative survey of wetland habitat conditions along the southwestern perimeter of the Pistol Range Subarea was conducted in June 2013. Along this subarea perimeter, the steep back side of the earthen berm (bullet backstop) abruptly abuts a relatively flat mangrove lagoon that is part of the 1,000-acre Los Machos Forest. Black

mangroves dominate the nearshore edge of the lagoon, and red mangroves dominate at about 50 feet from shore. An extensive mudflat area mostly barren of mangroves occurs in the extreme northeastern lobe of this lagoon, close to the southern corner of the Pistol Range Subarea.

This mangrove system (Los Machos Forest as a whole) provides high-quality foraging and roosting habitat for many bird species protected under the Migratory Bird Treaty Act and may provide nesting habitat as well. In fact, during the June 2013 survey, a substantial aggregation of colonial wading birds was heard at approximately 200 to 300 feet southwest of the Pistol Range Subarea earthen berm. Although this ground survey did not extend into the inundated portion of the lagoon where direct observations could be made, this is likely a rookery which at the time would have been fledging young. This likely rookery is outside of the area of potential disturbance from soil removal activities. No avian nests were observed within the proposed soil removal area.

No soil removal work is proposed within the mangrove swamp adjacent to Site UXO 1 (SWMU 77). Silt fencing will be erected 20 feet landward of the edge of the mangrove swamp, and all intrusive work will be kept landward of that fencing. Before soil removal activities begin, a nest survey will be conducted in the mangrove habitat adjacent to the Pistol Range Subarea. Should any active yellow-shouldered blackbird nests be identified less than 100 feet from the maximum extent of soil and vegetation disturbance, the location(s) will be mapped and provided to the U.S. Fish and Wildlife Service (USFWS). A 100-foot buffer will be established around each nest and will be marked clearly with fencing/barricade. Site activities will not occur within these designated buffer areas until after the yellow-shouldered blackbird young have fledged. The proposed activity is not expected to adversely affect mangrove habitat or birds using mangrove habitat.

## 8 Effects of Proposed Action Implementation

Three federally protected species were identified as having potential to occur within Site UXO 1 (SWMU 77): yellow-shouldered blackbird, Puerto Rican boa, and Virgin Islands tree boa. Based on current environmental conditions and results of the most recent surveys and field investigations, it is unlikely that any of these species occur in the project area. The activities described under the Proposed Action will alter vegetation in designated critical habitat for the yellow-shouldered blackbird. However, while there will be short-term changes to vegetation in the soil removal areas, these areas are poorly suited to support the species, and no adverse affect to designated critical habitat for the yellow-shouldered blackbird will result.

The effects analysis in this BA focuses on the elements associated with each activity and the potential impacts to these species and their habitats. USFWS has developed conservation recommendations to avoid or minimize the potential for impacts on the boa during project implementation where the boa may occur, and the Navy has adopted an approach consistent with these conservation recommendations. The following discussion of potential impacts is divided by activities.

### 8.1 Boundary Marking and Training

Before any intrusive work (vegetation clearing or ground disturbance) begins, the project area boundary will be clearly marked in the project plan and in the field. In addition, all areas that will be avoided and protected during the work will be clearly marked in the project plan and in the field.

Before the start of field work, all onsite personnel (supervisors and employees) will receive training about the conservation of protected species, the types of species that may be encountered on the site, and the penalties for harassing or harming protected species. All personnel involved in site clearing will be informed of the potential presence of the snakes and the importance of protecting the snakes.

Before any machinery is used in areas where boas may occur, vegetation will be hand-cleared to provide time for any boa to be observed or to move away from the area. Any wheeled or tracked equipment left onsite overnight will be inspected for the presence of resting Puerto Rican boas each morning before startup. If a boa is found resting on or in this equipment, it will be removed by a DNER-authorized person and taken to a previously approved relocation site for release, or use of the equipment will be delayed until the snake has voluntarily moved away.

## 8.2 Vegetation Clearing

Vegetation clearing could affect listed species or their habitats. This could include removing trees used by nesting birds or resting boas, as well as ground cover vegetation that could conceal boas that are resting or moving. Vegetation clearing, where needed to enable effective soil removal, will consist of cutting and transporting offsite all vegetation in areas where soil removal will be conducted.

A survey for nests of the yellow-shouldered blackbird will be conducted in potentially suitable habitat within the vegetation clearing area, and within 100 feet beyond the excavation perimeter, before vegetation clearing. Should any nest be identified, a 100-foot buffer will be established and clearly marked around each nest and the vegetation clearing will be modified to avoid entering the buffer areas while the nest is active. By establishing and maintaining these buffers as appropriate, no nest abandonment is expected.

Any wheeled or tracked equipment left onsite overnight will be inspected for the presence of resting Puerto Rican boas each morning before startup. If a boa is found resting on or in this equipment, it will be removed by a DNER-authorized person and taken to a previously approved relocation site for release. Before vegetation clearing begins each day, the area to be cleared will be surveyed by a qualified and trained person for the presence of the Puerto Rican boa or the Virgin Islands tree boa. If a boa is observed, either it will be removed by a DNER-authorized person and taken to a previously approved relocation site for release, or vegetation clearing in that area will be delayed until the snake had voluntarily moved away.

Because daily surveys will be conducted and because animals will be expected to temporarily relocate away from the activity of workers and heavy machinery, there will be no potential to adversely affect the yellow-shouldered blackbird, Puerto Rican boa, or Virgin Islands tree boa from vegetation clearing activities.

## 8.3 Soil Removal

Soil will be removed at each of the four subareas and will not exceed the subarea boundaries, as illustrated in Figure 3. It is expected that vegetation clearance (and associated protected species surveys) will have been conducted before soil removal, but in some cases (such as areas of extensive grass), vegetation clearance may not be needed to support soil removal activities. Regardless of site vegetative conditions, protected species could be present at the time of soil removal activities and therefore be potentially affected.

A survey for nests of the yellow-shouldered blackbird will be conducted within any remaining appropriate habitat within the soil removal area and within 100 feet beyond the removal perimeter before soil removal activities begin. Should any nest be identified, a 100-foot buffer will be established and clearly marked around each nest, and the vegetation clearing will be modified to avoid entering the buffer areas while the nest is active. By establishing and maintaining these buffers as appropriate, no nest abandonment is expected.

Any wheeled or tracked equipment left onsite overnight will be inspected for the presence of resting Puerto Rican boas each morning before startup. If a boa is found resting on or in this equipment, it will be removed by a DNER-authorized person and taken to a previously approved relocation site for release. Before soil removal activities begin each day, the area to be excavated will be surveyed by a qualified and trained person for the presence of the Puerto Rican boa or the Virgin Islands tree boa. If a boa is observed, either, it will be removed by a DNER-authorized person and taken to a previously approved relocation site for release, or clearing in that area will be delayed until the snake had voluntarily moved away.

Because daily surveys will be conducted and because any animals will be expected to temporarily relocate away from the activity of workers and heavy machinery, there will be no potential to adversely affect the yellow-shouldered blackbird, Puerto Rican boa, or Virgin Islands tree boa from soil removal activities.

## 8.4 MEC Demolition

Although not anticipated, MEC may be located during the excavation and disposal of soils. MEC demolition will be needed if MEC is found during the removal action.

MEC demolition will be accomplished through explosive demolition procedures using donor explosives. MEC may be moved to an alternate explosive demolition location within Site UXO 1 (SWMU 77) for demolition, but this would only occur if moving the item is determined to be safe. Any alternate explosive demolition locations would be established in areas away from any protected species.

The yellow-shouldered blackbird could occur at or near locations where explosive demolitions would be performed, but only in the southern portion of Site UXO 1 (SWMU 77). Before explosive demolition procedures are implemented, a qualified and trained person will inspect the area to verify that no active nests of these species are within 100 meters of the proposed BIP site. If an active nest is found within 100 meters of the proposed explosive demolition, the MEC will be left until after young have fledged or, if it is safe to do so, the MEC will be relocated to an alternate explosive demolition location for detonation.

Immediately preceding detonation, a qualified biologist will scan the overhead sky for the presence of any birds. If birds are in flight within 100 meters of the explosive demolition location, the explosive demolition will be delayed until no birds are within 100 meters of the site.

Because these procedures will be fully implemented should explosive demolition be required, the activity is not likely to affect the yellow-shouldered blackbird.

The Puerto Rican boa and Virgin Islands tree boa could occur near proposed explosive demolition locations. Before explosive demolition procedures are implemented, a qualified and trained person will inspect the area to verify that no boas are within 100 meters of the proposed explosive demolition site. If a boa is found, one of the following procedures will be implemented prior to explosive demolition:

- A DNER-authorized person would relocate the snake to a previously approved relocation site for release,
- The explosive demolition will be delayed until after snake has voluntarily moved to more than 100 meters from the BIP site, or
- If it is safe to do so, the MEC will be relocated to an alternate explosive demolition location.

Because these procedures will be fully implemented should explosive demolition be required, the proposed activity is not likely to affect the Virgin Islands tree boa or the Puerto Rican boa.

## 9 Conclusion

The Navy proposes to remove soil containing elevated concentrations of MC from four subareas within Site UXO 1 (SWMU 77): Pistol Range Subarea, Former Pistol Range Subarea, Detonation Area near Concrete Pad Subarea, and Rifle Range Subarea.

The soil removal action will involve the following activities:

- Vegetation clearing within and surrounding the soil removal areas where required to allow excavation and transport equipment to operate effectively.
- Excavation of contaminated soil within each of the four subareas, to an estimated maximum depth of 3 feet, within the boundaries identified on Figure 3.

If MEC is found during the RCRA Corrective Action interim measures, it will be demolished onsite through explosive demolition using donor explosives.

The proposed work will result in vegetation removal from a maximum combined area of approximately 11.6 acres, followed by soil removal from the same areas and to a maximum depth of approximately 3 feet. No work will occur in mangrove wetlands or coastal marine habitats.

Before onsite work begins, the vegetation clearance and soil disturbance boundaries will be clearly marked in the field and recorded in field notes. In addition, all sensitive areas to be avoided and protected during the work will be clearly marked in the field and recorded in the field notes. All onsite personnel will receive training about the

conservation of protected species, the types of species that may be encountered on the site, the locations of marked areas to be protected, and the proper communication protocol should protected species be encountered.

The proposed work has the potential to affect the endangered yellow-shouldered blackbird, endangered Puerto Rican boa, and endangered Virgin Islands tree boa. In addition, the proposed work will occur in an area that is designated as critical habitat for the yellow-shouldered blackbird.

There is historical documentation of nesting by the yellow-shouldered blackbird at the former Roosevelt Roads Naval Station. The yellow-shouldered blackbird continues to occur on NAPR, but it has not been observed at or in the vicinity of Site UXO 1 (SWMU 77) in recent general surveys. The mangroves adjacent to the Pistol Range Subarea provide the only suitable nesting habitat for this species. No intrusive work is planned for the mangrove habitat, so no direct impacts to birds in this area are expected. Before soil removal activities begin, a nest survey will be conducted in the mangrove habitat adjacent to the Pistol Range Subarea. Should any active yellow-shouldered blackbird nests be identified less than 100 feet from the maximum extent of soil and vegetation disturbance, the location(s) will be mapped and provided to USFWS. A 100-foot buffer will be established around each nest and marked clearly with fencing/barricade. Site activities will not occur within these designated buffer areas until after the yellow-shouldered blackbird young had fledged. Before any explosive demolition procedures are implemented, the area within 100 meters of the proposed detonation site will be inspected for yellow-shouldered blackbirds or active nests of the species by a qualified and trained person. Should a yellow-shouldered blackbird be found within the search radius, the explosive demolition will be delayed until the bird had voluntarily moved more than 100 meters from the demolition site. Should an active nest be found within the search radius, the explosive demolition will be delayed until after the young had fledged or the MEC will be relocated to a dedicated MEC disposal site, if moving the item is determined to be safe.

All of NAPR is considered critical habitat for the yellow-shouldered blackbird. Vegetation clearing at any of the subareas will therefore occur within an area designated as critical habitat for the yellow-shouldered blackbird. Vegetation clearing will be limited to areas where the habitat is poorly suited for the yellow-shouldered blackbird, so no adverse impacts to designated critical habitat for the bird are expected. The Navy requests USFWS concurrence with the determination of findings of this analysis that the soil removal action in Site UXO 1 (SWMU 77) is **not likely to affect** the yellow-shouldered blackbird or its designated critical habitat, and will not threaten the continued existence of the species.

Surveys have documented the Puerto Rican boa on NAPR, and suitable habitat occurs within Site UXO 1 (SWMU 77), so it is possible that this boa could occur within the project area. Before soil removal or vegetation clearing begins each day, the area to be cleared will be surveyed by a qualified and trained person for the presence of the Puerto Rican boa or the Virgin Islands tree boa. Any wheeled or tracked equipment left onsite overnight will be inspected for the presence of resting Puerto Rican boas each morning before startup. If a boa is observed, it will either be relocated to nearby suitable habitat by a DNER-authorized person, or soil removal activities in that area will be delayed until the snake has voluntarily moved away. Before any explosive demolition procedures are implemented, the area within 100 meters of the proposed detonation site will be inspected for resting boas by a qualified and trained person. Should a boa be found within the search radius, a DNER-authorized person will relocate the snake to a previously approved relocation site for release. If it is not possible to relocate the snake, the demolition will be delayed until the boa had voluntarily moved more than 100 meters from the demolition site or the MEC will be relocated to an alternate explosive demolition location, if moving the item is determined to be safe. The Navy requests USFWS concurrence with the determination of findings of this analysis that the soil removal action in Site UXO 1 (SWMU 77) is **not likely to affect** the Puerto Rican boa and will not threaten the continued existence of the species.

The Virgin Islands tree boa has not been found on NAPR in recent surveys and likely does not occur in the project area. Before soil removal or vegetation clearing begins each day, the same monitoring and removal methods described for the Puerto Rican boa will be implemented for the Virgin Islands tree boa. Before any explosive demolition procedures are implemented, the inspection and removal procedures described for the Puerto Rican boa will be followed. The Navy requests USFWS concurrence with the determination of findings of this analysis

that the soil removal action in Site UXO 1 (SWMU 77) is **not likely to affect** the Virgin Islands tree boa and will not threaten the continued existence of the species.

## 10 Review of Literature and Other Information

All pertinent literature was reviewed. The following summary indicates the primary references utilized during preparation of this BA.

Center for Biological Diversity. 2007. *The Road to Recovery 100 Success Stories for Endangered Species Day 2007: Virgin Islands Tree Boa*. [http://www.esasuccess.org/reports/profile pages/ VirginIslandsBoa.html](http://www.esasuccess.org/reports/profile%20pages/VirginIslandsBoa.html). Website accessed February 22, 2008.

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*Federal Register*: Volume 74, Number 220. Pages 59444-59472. November 17, 2009. *Endangered and Threatened Wildlife and Plants; Removal of the Brown Pelican (Pelecanus occidentalis) From the Federal List of Endangered and Threatened Wildlife; Final Rule*.

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U.S. Fish and Wildlife Service. 2013. Species Profile. Yellow-Shouldered blackbird (*Agelaius xanthomus*). Online at: [http://ecos.fws.gov/speciesProfile/profile/speciesProfile. action?scode=B05T](http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?scode=B05T). Accessed February 15, 2013.

U.S. Fish and Wildlife Service. 2011. *Puerto Rican Boa (Epicrates inornatus) 5-Year Review: Summary and Evaluation*. Southeast Region Caribbean Ecological Services Field Office, Boquerón, Puerto Rico.

U.S. Fish and Wildlife Service. 2011. *Mariquita or yellow-shouldered blackbird (Agelaius xanthomus) 5-Year Review: Summary and Evaluation*. Southeast Region Caribbean Ecological Services Field Office, Boquerón, Puerto Rico.

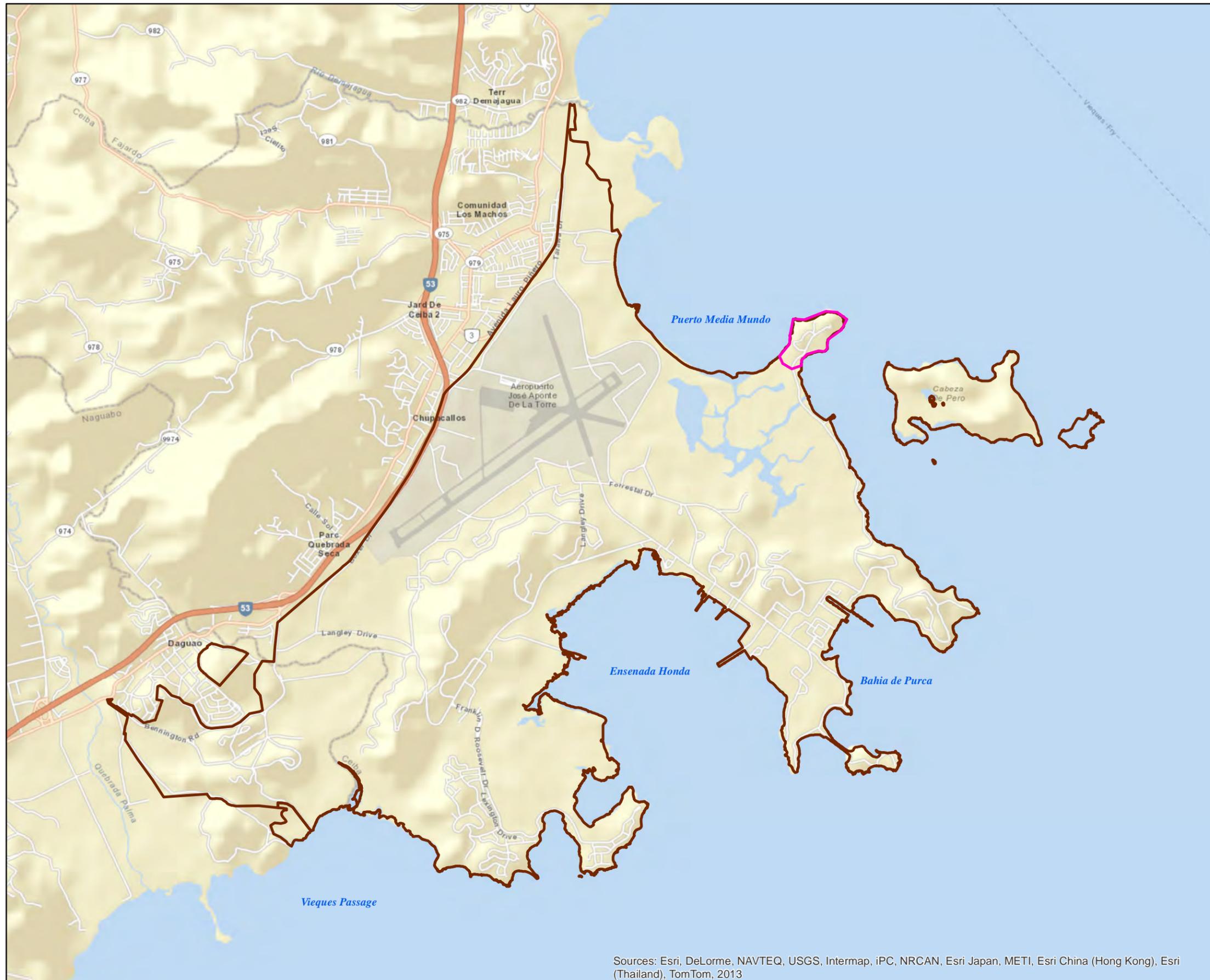
U.S. Fish and Wildlife Service. 1996. *Yellow-Shouldered Blackbird Revised Recovery Plan*. U.S. Fish and Wildlife Service, Atlanta, GA. Southeast Region. Southeast Region Caribbean Ecological Services Field Office, Boquerón, Puerto Rico.

U.S. Fish and Wildlife Service. 1986. *Puerto Rican Boa Recovery Plan*. U.S. Fish and Wildlife Service. 1986. *Virgin Islands Tree Boa Recovery Plan*.



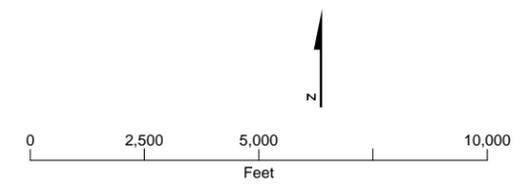
**Figures**

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- LEGEND
- Site UXO-01 Boundary (SWMU 77)
  - Former Facility Boundary

Notes:  
 1. Background - ArcMap Streaming Map Service



**FIGURE 1**  
**Project Location Map**  
**Site UXO 1 (SWMU 77)**  
 Naval Activity Puerto Rico  
 Ceiba, Puerto Rico

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

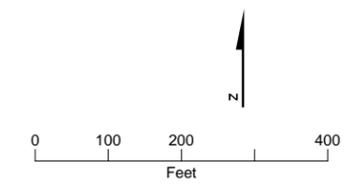


**LEGEND**

- Topographic Contour (elevation in meters)
- ▭ Subareas
- ▭ Site UXO-01 Boundary (SWMU 77)

**Notes:**

1. Imagery 2010 - ArcMap Streaming Map Service



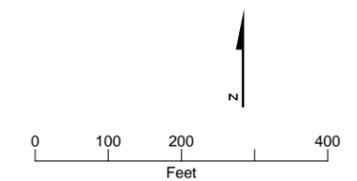
**FIGURE 2**  
**Site Layout Map**  
**Site UXO-01 (SWMU 77)**  
 Naval Activity Puerto Rico  
 Ceiba, Puerto Rico

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



- LEGEND**
- Approximate Mangrove Lagoon Boundary
  - Topographic Contour (elevation in meters)
  - Potential Soil Removal Area
  - Subareas
  - Site UXO-01 Boundary (SWMU 77)

Notes:  
 1. Imagery 2010 - ArcMap Streaming Map Service



**FIGURE 3**  
 Maximum Extent of Soil and Vegetation Disturbance  
 Site UXO-01 (SWMU 77)  
 Naval Activity Puerto Rico  
 Ceiba, Puerto Rico

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community