Final

Biological Assessment for PAOC EE within UXO 17

Atlantic Fleet Weapons Training Area – Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

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Acronyms and Abbreviations

BA	biological assessment
CCP	Comprehensive Conservation Plan
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
ESA	Endangered Species Act
INRMP	Integrated Natural Resource Management Plan
MEC	munitions and explosives of concern
MRS	Munitions Response Site
Navy	Department of the Navy
PAOC	Potential Area of Concern
PI	Photo Identified
SAP	Sampling and Analysis Plan
TCRA	Time Critical Removal Action
TM	Technical Memorandum
USFWS	United States Fish and Wildlife Service
UXO	Unexploded Ordnance
VNWR	Vieques National Wildlife Refuge

SECTION 1

Summary of Determinations

As a result of this Biological Assessment (BA), determinations of "**No Effect**," "**May affect, unlikely to adversely affect**" or "**May affect, likely to adversely affect**" were made for each of the species considered in this BA. This resulted in "**No Effect**" determinations made for nine species, a "**May affect, unlikely to adversely affect**" determination made for one species, and "**May affect, likely to adversely affect**" determinations made for two species.

In response to these determinations conservation measures are presented as well as a request to the USFWS for incidental takes related to these affects.

SECTION 2

Introduction

A Time Critical Removal Action (TCRA) Work Plan (WP) will be executed at Potential Area of Concern (PAOC) EE located within Munitions Response Site (MRS) UXO 17 at the former Atlantic Fleet Weapons Training Area in Vieques, Puerto Rico, which is intended to address explosive hazards associated with Munitions and Explosives of Concern (MEC) potentially present on or near the ground surface of the TCRA area (Figure 1). Activities will include the clearance of vegetation followed by a handheld instrument-aided clearance of the surface and near surface items found at the site. These activities will necessitate an exposed ground surface and, as a result, will require the removal of vegetation down to a height of 6 inches above the ground so that MEC clearance teams can effectively survey for and clear the area of MEC, if present.

Based on the TCRA approach, the objectives of this BA are as follows:

- To document and map the extent of any federally listed species and species proposed for federal listing within the TCRA area in accordance with the Endangered Species Act (ESA).
- To evaluate whether federally listed species may or may not be affected by the vegetation removal activities required to effectively complete the proposed action.
- To identify conservation measures and needed "takes" required to accomplish the TCRA.

It is the goal of both the Department of the Navy (Navy) and United States Fish and Wildlife Service (USFWS) to achieve the TCRA objectives with minimal disturbance to federally listed species.

2.1 Project Description

The planned TCRA is documented in the *Draft Time Critical Removal Action Work Plan for Munitions Response Site UXO 17, Potential Area of Concern (PAOC) EE, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico* (CH2M HILL, 2013a). The TCRA Work Plan calls for the clearance of vegetation in accordance with the *Vegetation Removal Standard Operating Procedure (SOP MR-1)* in the *Master Sampling and Analysis Plan, East Vieques Terrestrial UXO Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico (CH2MHILL, 2013b)*.

Existing documentation, including the *Vieques National Wildlife Refuge Comprehensive Conservation Plan and Environmental Impact Statement* (CCP/EIS) (USFWS, 2007) and the *Integrated Natural Resources Management Plan* (Geo-Marine, 2003), suggests that threatened and endangered species may occur at UXO 17. As a result, the focus of this BA is to identify the occurrence and location of federally protected species within UXO 17 and to consider the potential effects of vegetation removal on these species.

SECTION 3

Biological Assessment Methods

The BA methods are based on the Technical Memorandum (TM), *Biological Assessment Methods and Approach for Time Critical Removal Action at Munitions Response Site UXO-17, Potential Area of Concern (PAOC) EE*, submitted to the USFWS on December 3, 2013 (Attachment A).

3.1 Species Considered

The Vieques National Wildlife Refuge (VNWR) supports a variety of protected species. According to the CCP/EIS (USFWS, 2007), several federally listed plant and animal species are expected to occur on VNWR and in surrounding waters, including five (5) plant species, (5) animal species, and (2) candidate for federal listing plant species that may occur in the UXO 17 TCRA area. No federally designated critical habitat is present on the VNWR.

Exhibit 3-1 lists the protected plant and animal species considered most likely to occur at UXO 17. Descriptions of these species are based on key characteristics identified in the CCP/EIS. The list was expanded beyond the species listed in the BA Methods and Approach TM (Attachment A) to include additional federally listed and candidates for federal listing species that although not anticipated to be in the TCRA area, may occur due to the potential for the species habitat to occur.

EXHIBIT 3-1
Federally Endangered, Threatened, and Candidate Species Potentially Occurring at UXO 17, Vieques, Puerto Rico

Scientific Name	Common Name	Federal Status
Plants		
Calyptranthes thomasiana	Thomas' Lidflower	Endangered
Chamaecrista glandulosa var. mirabilis	Jamaican Broom	Endangered
Goetzea elegans	Beautiful goetzea	Endangered
Stahlia monosperma	Cóbana negra	Threatened
Eugenia woodburyana	Woodbury's Stopper	Endangered
Animals		
Agelaius xanthomus	Yellow-shouldered blackbird	Endangered
Sterna dougallii	Roseate tern	Endangered *
Charadrium melodus	Piping Plover	Endangered
Eretmochelys imbricata	Hawksbill Sea Turtle	Endangered
Epicrates inornatus	Puerto Rican Boa	Endangered
Candidate Plants for Federal Listing		
Psychilis macconnelliae	Island Peacock Orchid	Candidate
Varronia rupicola	Puerto Rican Manjack	Candidate

* The status for the piping plover varies for each regional population, as all populations utilize the Caribbean as wintering grounds. The status is conservatively listed as being that of the Great Lakes population which is endangered.

Legend:

Source: Vieques National Wildlife Refuge Comprehensive Conservation Plan and Environmental Impact Statement, 2007 (USFWS, 2007)

3.1.1 Listed Plants

During development of this BA, a site-specific survey was conducted that included observations for candidate species to provide data in the event these species are listed as threatened or endangered prior to initiation of the planned activities; these species include the following.

Five federally listed plant species may occur within the habitats associated with UXO 17.

- **Thomas' Lidflower** (*Calyptranthes thomasiana*) is a federally listed endangered shrub or small tree that may reach 30 feet in height and 5 inches in diameter. It is only known from three locations: Monte Pirata in Vieques; Bordeaux Mountain in St. John; and Gorda Peak in Virgin Gorda. Approximately 10 to 12 individuals are known to occur on Vieques, near the summit of Monte Pirata. On Monte Pirata, *Calyptranthes thomasiana* is found in the moist deciduous formation of the inner hills and slopes, a forest type that also includes semi-evergreen forests (USFWS, 1997).

- **Jamaican Broom (***Chamaecrista glandulosa* var. *mirabilis)* is a federally listed endangered shrub that may reach up to 3 feet in height. This species is known from only scattered locations along the southern shore of Tortuguero Lagoon and one area in Dorado in Puerto Rico (USFWS, 1994). This species utilizes silica sands associated with limestone formations. A historical record indicated that the species had been collected near Red Beach or Bahía Corcho in Vieques. Surveys were conducted in 1996 and 2000 but no individuals were found (Geo-Marine, 2003).

- **Beautiful Gotz*ea/Matabuey*** *(Goetzea elegans)* is a federally listed endangered shrub or small tree reaching 30 feet in height with a stem diameter of 5 inches. This species generally flowers and sets fruit between April and August, bearing funnel-shaped flowers that are yellow-orange in color. The fruit is an orange, one-seeded berry that is reputed to be poisonous (USFWS 1987). The species habitat consists of semi-evergreen forests of the subtropical moist forest zone (Ewel and Whitmore, 1973) and has been found in mainland Puerto Rico only below 660 feet (200 meters) elevation in the foothills and mogotes (karst limestone hills) in the north (USFWS, 1987). In 2000, the species was found at four locations along forested drainages in western Vieques.

- **Cobana negra** *(Stahlia monosperma)* is a federally listed threatened evergreen tree that reaches 25 to 50 feet in height and 1 to 1.5 feet in diameter. It produces yellow flowers between March and May, depending on rainfall. Scattered populations survive in Puerto Rico, Vieques, and the eastern portion of the Dominican Republic (USFWS, 1996). This species grows in brackish, seasonally flooded wetlands in association with mangrove communities and in upland areas, although cultivated plants have been reported from inland areas as well as on the Vieques Refuge. The species is known to occur in the Laguna Kiani and Laguna Yanuel areas.

- **Woodbury's st*opper*** *(Eugenia woodburyana)* is a small evergreen tree that grows up to 19.7 feet in height (USFWS, 1998). Woodbury's Stopper is found within the subtropical dry forest, commonly with succulent or coriaceous species and species with thorns and spines. Fire is common on many soils, and occurs frequently on lands where plants are located (USFWS, 1998).Woodbury's Stopper grows in the hills of the oldest geologic formation in Puerto Rico, the Sierra Bermeja, located on private and public land within the Laguna Cartagena National Wildlife Refuge. The soils in the Sierra Bermeja are described as Guayama cherty clay loam that covers the steep slopes of the Sierra Bermeja. This species is also found in the Guánica State Forest of Puerto Rico, located in semi-evergreen forests at the bottoms of mesic canyons (USFWS, 1998). Surveys conducted in 1996 and 2000 reported the presence of this species on the steep southwestern slope of Monte Pirata located on the western end of Vieques. Two individuals were reported during a survey in 2000 on the north side of Monte Pirata in Vieques (Geo-Marine, 2001).

Two candidate species for federal listing may occur within the habitats associated with UXO 17:

- **Island Peacock Orchid** (*Psychilis macconnelliae*) is an orchid species occurring in Vieques that is a candidate for federal listing.
- **Puerto Rican Manjack** (*Varronia rupicola)* is a small, woody shrub with leaves that are roughly oval in shape, with a rounded base and a rounded or slightly pointed tip, and measures up to 3.5 inches long and 1.5 inches wide that occurs in Vieques and is a candidate for federal listing.

3.1.2 Listed Animals

Three federally listed birds potentially occur at UXO-17:

- **Yellow-shouldered blackbird** *(Agelaius xanthomus)* is a federally listed endangered bird that is found in areas on the main island of Puerto Rico including the nearby Former Naval Activity Puerto Rico Roosevelt Roads. Historic records of the yellow-shouldered blackbird in Vieques are available in the literature (USFWS, 1996b); however, no recent sightings of the species in Vieques have been documented.
- **Caribbean roseate tern** *(Sterna dougallii*) is a federally listed endangered bird that is known to utilize coastal areas in Vieques for nesting. The species is distributed throughout the region, with the largest populations occurring in the Lesser Antilles (USFWS, 1993). The species utilizes different habitats for nesting, including small offshore islands, marine rocks, cays, islets, areas near vegetation or jagged limestone rock, open sandy beaches, and among coral rubble (USFWS, 1993). The species was reported nesting on the eastern tip of the island in 2001.
- **Piping plovers** (*Charadrium melodus*) is a federally listed endangered bird that utilizes Caribbean islands as wintering grounds. They are small shorebirds approximately seven inches long with sand-colored plumage on their backs and crown and white underparts. Breeding birds have a single black breastband, a black bar across the forehead, bright orange legs and bill, and a black tip on the bill. During winter, the birds lose the black bands, the legs fade to pale yellow, and the bill becomes mostly black.

Two federally listed endangered reptile species potentially occur at UXO-17:

- **Hawksbill sea turtle** (*Eretmochelys imbricata*) is a federally listed sea turtle which is known to utilize vegetated areas along the beach for nesting. The hawksbill is a small to medium-sized marine turtle having an elongated oval shell with overlapping scutes on the carapace, a relatively small head with a distinctive hawk-like beak, and flippers with two claws. General coloration is brown with numerous splashes of yellow, orange, or reddish-brown on the carapace. The plastron is yellowish with black spots on the intergular and postanal scutes. Juveniles are black or very dark brown with light brown or yellow coloration on the edge of the shell, limbs, and raised ridges of the carapace. As an adult, the hawksbill may reach up to 3 feet in length and weigh up to 300 pounds, although adults more commonly average about 2½ feet in length and typically weigh around 176 pounds or less. It is the only sea turtle with a combination of two pairs of prefrontal scales on the head and four pairs of costal scutes on the carapace. The hawksbill feeds primarily on sponges and is most often associated with the coral reef community (USFWS 2013).
- **Puerto Rican boa** (*Epicrates inornatus)* is a federally listed snake that inhabits areas in Puerto Rico and has had unconfirmed sighting in Vieques. The color is somewhat variable but usually ranges from pale to dark brown, sometimes grayish, with darker colored blotches along the back from neck to vent. These dorsal blotches are generally dark-bordered with the centers of a lighter hue. Maximum size is approximately 6 .5 feet. Observations of captive specimens suggest that under natural conditions the diet of sub-adults and adults consists of birds, small mammals, and lizards (USFWS 2014). There are also multiple reports of the Puerto Rican boa preying on bats by hanging at the entrance to caves.

The non-vegetated sandy beach habitat associated with Playa de la Chiva (also referred to as Blue Beach) is not included within the UXO 17 TCRA area; therefore, the green sea turtle and leatherback sea turtle, which may nest on this beach, are not included in this BA. Leatherback and green sea turtles utilize only the open sandy areas of the beach for nesting which will not be impacted by this TCRA. As most nesting occurs during the evening and nighttime hours it is not anticipated that the TCRA work will directly impact any adult turtles while they are nesting, since TCRA work will only take place during daytime hours.

3.2 TCRA Area Survey Methodology

The TCRA area ground survey, conducted in December 2013, consisted of two main components:

- A preliminary literature review of published sources regarding potentially occurring federally listed species, species occurrence records, habitat associations, maps, and site specific information available from the USFWS and the Navy regarding local knowledge of species
- A ground survey of the TCRA by CH2M HILL biologists for these listed biological species

3.2.1 Literature Review

The following literature resources were consulted:

- Vieques INRMP (Geo-Marine, 2003)
- *Vieques National Wildlife Refuge Comprehensive Conservation Plan and Environmental Impact Statement* (CCP/EIS) (USFWS, 2007)
- *Biological Assessment, Select Portions of the Surface Impact Area and Eastern Maneuver Area, Former Vieques Naval Training Range* (Geo-Marine, 2010)
- *Biological Assessment for Continuing Training Activities on the Inner Range, Vieques, Puerto Rico* (Geo-Marine, 2001)
- Field taxonomic keys for identification of plant species

Aerial imagery was also used to determine the limits of the vegetation survey, evaluate vegetative signatures, and determine appropriate survey transects through the habitat types. Transects were planned to ensure sufficient coverage of the habitat types with more thorough coverage in areas where listed or candidate species may be present.

3.2.2 Ground Survey Methods

During a previous site investigation of the TCRA area in 2013, transects were cut to allow for a subsurface MEC investigation. These parallel transects, which were cut at 50-foot intervals, were used to support the current TCRA area survey. The area known as Punta Conejo had been completely cleared of vegetation during an investigation in 2011; therefore, this area was observed from the road and beaches only.

The ground survey was conducted during the week of December 10, 2013. A team of two biologists and one UXO avoidance technician walked each transect, surveying 25 to 50 feet on either side of the centerline depending on visibility and terrain. The intent of the survey was to determine the presence of federally listed species within the TCRA area and make general observations of habitat types. Photographs were taken to document various habitat types and biological resources. A photo log is provided in Attachment B.

3.2.3 Agency Consultation and Coordination to Date

A meeting was conducted on December 12, 2013, with Mike Barandiaran/USFWS VNWR Manager to discuss the ground survey and the BA methods and approach.

SECTION 4

Biological Assessment Effects Analysis

The results of the literature review and ground survey were used to assess what potential effects the proposed TCRA activities, including vegetation removal and MEC/debris removal, may or may not have on the listed plant and animal species. These effects are described as having one of the following three impacts;

- "**No Effect**": The TCRA activities will have no impact, positive or negative, on the listed species.
- "**May affect, unlikely to adversely affect**": The TCRA activities will be beneficial, insignificant, or discountable on the listed species.
- "**May affect, likely to adversely affect**": The TCRA activities will likely expose the listed resource to the action or its environmental consequences and the resource will respond in a negative manner.

4.1 Listed Plants

The affects analysis for listed plants potentially occurring in the UXO 17 TCRA area are listed below:

- **Thomas' Lidflower** (*Calyptranthes thomasiana*): This species was not observed during the ground survey and no suitable habitat was located for this species. A "**No Effect"** determination was made for this species.
- **Jamaican Broom** *(Chamaecrista glandulosa* var. *mirabilis)*: No observations of Jamaican broom were made during the survey; however, the results of the ground survey indicated suitable habitat exists along the beach edge. A determination of "**May affect, unlikely to adversely affect**" has been made for this species. This determination is a result of no species being found in suitable habitat during the ground survey. The removal of invasive vegetation along the beach edge may allow for this species to colonize this area leading to a beneficial influence.
- **Beautiful Gotzea/Matabuey** (*Goetzea elegans)*: This species was not observed during the survey and no suitable habitat was located for this species. A "**No Effect"** determination was made for this species.
- **Cobana negra** (*Stahlia monosperma)*: The results of the ground survey identified suitable habitat for the cobana negra along the mangrove forest edge and in the adjacent upland areas. One possible occurrence of the species was recorded (Figure 2). Considering that one specimen may be present within the UXO 17 TCRA area and there is suitable habitat for this species, a "**May affect, likely to adversely affect**" determination has been made for this species. Conservation measures during vegetation clearance (see Section 4.4) will be instituted to minimize the impact to this species and its habitat during the TCRA.
- **Woodbury's stopper** *(Eugenia woodburyana):* This species was not observed during the survey and no suitable habitat was located for this species. A "**No Effect**" determination was made for this species.

4.2 Listed Animals

The findings for the listed animals that may occur in the TCRA area are discussed below.

- **Yellow-shouldered blackbird** *(Agelaius xanthomus)*: This species inhabits the mangrove zone of southwestern Puerto Rico, xeric scrub on Mona Island, and other areas of the Puerto Rico mainland (Cornell, 2011a), but is not known to currently occur on Vieques. This species was not observed in suitable habitat during the ground survey. Because of the limited distribution of this species, it is unlikely to occur within the UXO 17 TCRA area. The implementation of the UXO 17 action will result in a "**No Effect**" determination for this species.

- **Caribbean roseate tern** *(Sterna dougallii)*: This species is a marine waterbird known to inhabit the shoreline, including rocky offshore islands, barrier beaches, and salt marshes. The roseate tern nests in a variety of small offshore islands, marine rocks, cays, and islets, often near vegetation or jagged limestone rock, open sandy beaches, and among coral rubble (USFWS, 1993). As no suitable habitat for the roseate tern will be impacted by the TCRA, the determination for this species is "**No Effect**." No TCRA work will be done on the open beach, there is no salt marsh within the TCRA area, and areas containing exposed rock will not be investigated as no subsurface MEC would be found there and the surface can be easily investigated because of the absence of vegetation on the exposed rock.
- **Piping plover** (*Charadrium melodus)*: Piping plovers from all three breeding populations winter along South Atlantic, Gulf Coast, and Caribbean beaches and barrier islands, primarily on intertidal beaches with sand and/or mud flats with no or very sparse vegetation. As no suitable habitat for the piping plover will be impacted by the TCRA, the determination for this species is "**No Effect**." No TCRA work will be done on the open beach.
- **Hawksbill sea turtle** (*Eretmochelys imbricata*): Nesting of the hawksbill sea turtle may occur on almost any undisturbed deep-sand beach in the tropics. Adult females are able to climb over reefs and rocks to nest in beach vegetation. Although the hawksbill sea turtle was not observed during the December 2013 survey, records show the animal has utilized the vegetated area adjacent to the beach in the past for nesting and the area was confirmed as good habitat for this species. As this action will impact the vegetation found along the beach edge, it is anticipated that there will be a temporary negative impact on nesting in this area. As a result, a "**May affect, likely to adversely affect**" determination has been made for this species. Conservation measures (see Section 4.4) will be instituted during the vegetation clearance to minimize the impact to this species and its habitat.
- **Puerto Rican Boa** *(Epicrates inornatus)*: The Puerto Rican boa can inhabit altered habitats such as plantations and urban areas, but is typically found in undisturbed karst environments and caves. No observations were made of this species during the ground survey and no prior documented sighting of this species have been made in or around the UXO 17 TCRA area, resulting in a "**No Effect"** determination for this species.

4.3 Candidate Species

The findings for the species that are currently candidates for federal listing that may occur in the action area are discussed below.

- **Island Peacock Orchid** (*Psychilis macconneliae*): This species was not observed during the survey although there is suitable habitat within the action area. The fact that it can be easily identified during surveys and was not seen has lead to a "**No Effect**" determination for this species.
- **Puerto Rican Manjack** (*Varronia rupicola)*: This species was not observed during the ground survey, and areas of potentially viable habitat have been cleared of all vegetation within the past 3 years. Therefore, a "**No Effect**" determination was made for this species.

4.4 Cumulative Effects

Cumulative effects are effects resulting from future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation. The cumulative effects of future State and private activities are not deemed as significant as the assumption is that this area will remain under the control of the USFWS for the foreseeable future. Cumulative effects resulting from future activities related to the ongoing operation of the VNWR would also not be significant as the TCRA is being completed to support the current land-use which is for public access to the beach areas and supporting infrastructure such as the parking areas, gazebos, and access pathways. For the species listed in this BA, the assumption is that no cumulative effects will impact these species.

4.5 Conservation Measures

As discussed above, the proposed action could result in adverse impacts to cobana negra and the hawksbill sea turtle. The following conservation measures will be implemented to prevent, minimize, or otherwise mitigate adverse effects:

- To provide protection of the hawksbill nesting habitat within the TCRA area, the vegetated area between Playa de la Chiva and the roadway (Figure 2) will have the minimum amount of vegetation cut while still achieving the necessary objective of the TCRA. In order to make certain this occurs, a biologist/environmental scientist will oversee the vegetation removal in this area and actively coordinate with the VNWR staff during the vegetation clearance. This oversight will ensure that only invasive vegetation is completely removed and that all native and naturalized vegetation is trimmed just enough to allow for the objectives of the TCRA to be met. As vegetation crews cannot be effectively trained to clear only invasive vegetation, the biologist/environmental scientist will provide onsite guidance during the duration of vegetation removal. This will include the following:
  - The main stems/trunks of species such as sea grape, portia tree, and noni tree will not be cut to the extent it would cause plant death unless the MEC clearance teams cannot access the area without cutting the main stem/trunk. In this case, the cutting will be documented prior to removal.
  - As the hawksbill sea turtle prefers to nest under a low canopy, steps will be taken to ensure that the canopy within a 2-foot radius or the main stem/trunk is not cut any higher than 2 feet from the ground surface unless the MEC clearance teams cannot access the area without cutting the canopy beyond these specifications. In this case, the cutting will be documented prior to removal.
  - Sea turtle monitoring will begin on Playa de la Chiva 75 days prior to the implementation of this TCRA action if the action will occur during the hawksbill nesting season from June through December. As the possibility of nesting year round is present, if the action begins from January through May, monitoring will begin 30 days prior to the implementation of the action. Avoidance of nest sites will be practiced by implementing a 20-foot buffer around confirmed nests where no heavy equipment may be used. Nest locations will be indentified by placing “Do not cut” flagging tape on vegetation around a 20-foot perimeter of the nest location and vegetation teams will be advised to not work in these areas. The exact nest location will be marked with GPS/triangulation to known points only and will not be conspicuously marked to prevent possible poaching. Munitions demolition will not take place within 100 feet of the nest site unless necessary to insure public safety. Hand clearance of an area within 4 feet of the nest will not be permitted until after the nest has hatched.
  - Vegetation piles will not be placed in turtle nesting habitat as the piles may impede turtles attempting to nest. All cut vegetation will be moved to an area outside of the turtle nesting zone which will either be on the south side of the road adjacent to the roadway or north of the roadway.
- To provide protection of the cobana negra habitat, the areas within mangrove swamps and adjacent to mangrove swamps will be cleared only after a biologist/environmental scientist who has been trained to be familiar with this species surveys the area. These areas will have only the amount of vegetation cut needed to effectively achieve the goals of the TCRA. To achieve the best possible conservation of this habitat, the following conservation measures will be conducted.
  - A biologist will view all areas prior to the beginning of vegetation clearance to determine if cobana negra habitat exists. Potential cobana negra habitat is any habitat containing any of the following species; white mangrove, red mangrove, black mangrove, portia tree, buttonwood, or land crabs. Areas that contain land crab burrows will be assumed to have land crab colonies regardless of whether the species is observed in the area or not. Land crabs are possible seed dispersal mechanisms for the cobana negra.

  - Where possible, only invasive vegetation will be removed and all naturalized and native vegetation will be left in place regardless of diameter.

- In the event that any other federally threatened or endangered species is encountered during the TCRA action, the following conservation measures will be taken:
  - Work will immediately cease if a suspected T&E species is encountered and the onsite Title II Representative will be advised. The Title II Representative for this TCRA will be either the onsite biologist/environmental scientist or the Range Coordinator if the biologist/environmental scientist is not available. Teams working in this area will be provided with field guides which give brief descriptions of T&E species, and the onsite biologist/environmental scientist will provide guidance to teams on the T&E that may be encountered in this area.
  - If a T&E plant species is encountered during this activity, the area where the specimen is found will be avoided by placing a suitable buffer around the specimen. The size of the buffer will be dependent on the type and size of the specimen. The USFWS Service Refuge Manager, Caribbean Field Office and Clean-up Project Manager will be advised of the finding.
  - In the event a T&E animal species is encountered during this activity, work will stop in the area where the specimen is encountered and the area will be avoided by placing a suitable buffer around the specimen. The size of the buffer will be dependent on the type and size of the specimen. The onsite biologist/environmental scientist will make a determination as to how the specimen is utilizing the area and determine the area to be avoided and the length of time the area will need to be avoided. The USFWS Service Refuge Manager, Caribbean Field Office and Clean-up Project Manager will be advised of the finding.

It is anticipated that these BA recommendations and findings, along with information from formal consultation with USFWS and the USFWS Biological Opinion for this BA will be used to develop a site specific SOP in coordination with the USFWS for the areas containing the species discussed in this section.

4.6 Incidental Takes

As the possibility of adversely impacting any of the listed species having either a “May affect, unlikely to adversely affect” or a “May affect, likely to adversely affect” cannot be completely discounted without avoiding these habitats completely, a request for incidental takes for each of these species is requested.

As impacting an adult hawksbill sea turtle is unlikely during this action, no takes are requested for adult sea turtles. Sea turtle nesting occurs predominately at night and only rarely occurs during the day. As no work is to take place during nighttime hours it is not anticipated that adult sea turtles will be in the work area when the TCRA is being completed. However, the possibility of impacting a sea turtle nest cannot be ruled out completely; therefore, it is requested that a “take” in the form of one nest disturbance be permitted for this action. As mortality within a nest may not be conclusively attributed to a disturbance of the nest by this activity, multiple hatchling mortality will not be considered as multiple takes.

Cobana negra may occur in several places within the action area and small specimens may not be seen even with the most diligent oversight. A request of five incidental takes is made for this species for specimens less than 6 feet in height and one take for a specimen over 6 feet in height.

Jamaican broom is also a species where the possibility of impacting specimens not observed during the survey is possible where dense stands of vegetation currently occupy the site. A request for five takes of this species during this action is made.

All takes will be immediately reported to the VNWR Refuge Manager, the USFWS Caribbean Field Office, and the USFWS Vieques Clean-up Project Manager.

4.7 References

CH2M HILL. 2013a. *Draft Time Critical Removal Action Work Plan for Munitions Response Site UXO 17, Potential Area of Concern (PAOC) EE, Atlantic Fleet Weapons Training Area-Vieques, Former Vieques Naval Training Range, Vieques, Puerto Rico*.

CH2M HILL. 2013b. *Vegetation Removal Standard Operating Procedure (SOP MR-1)* in the *Master Sampling and Analysis Plan, East Vieques Terrestrial UXO Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico*.

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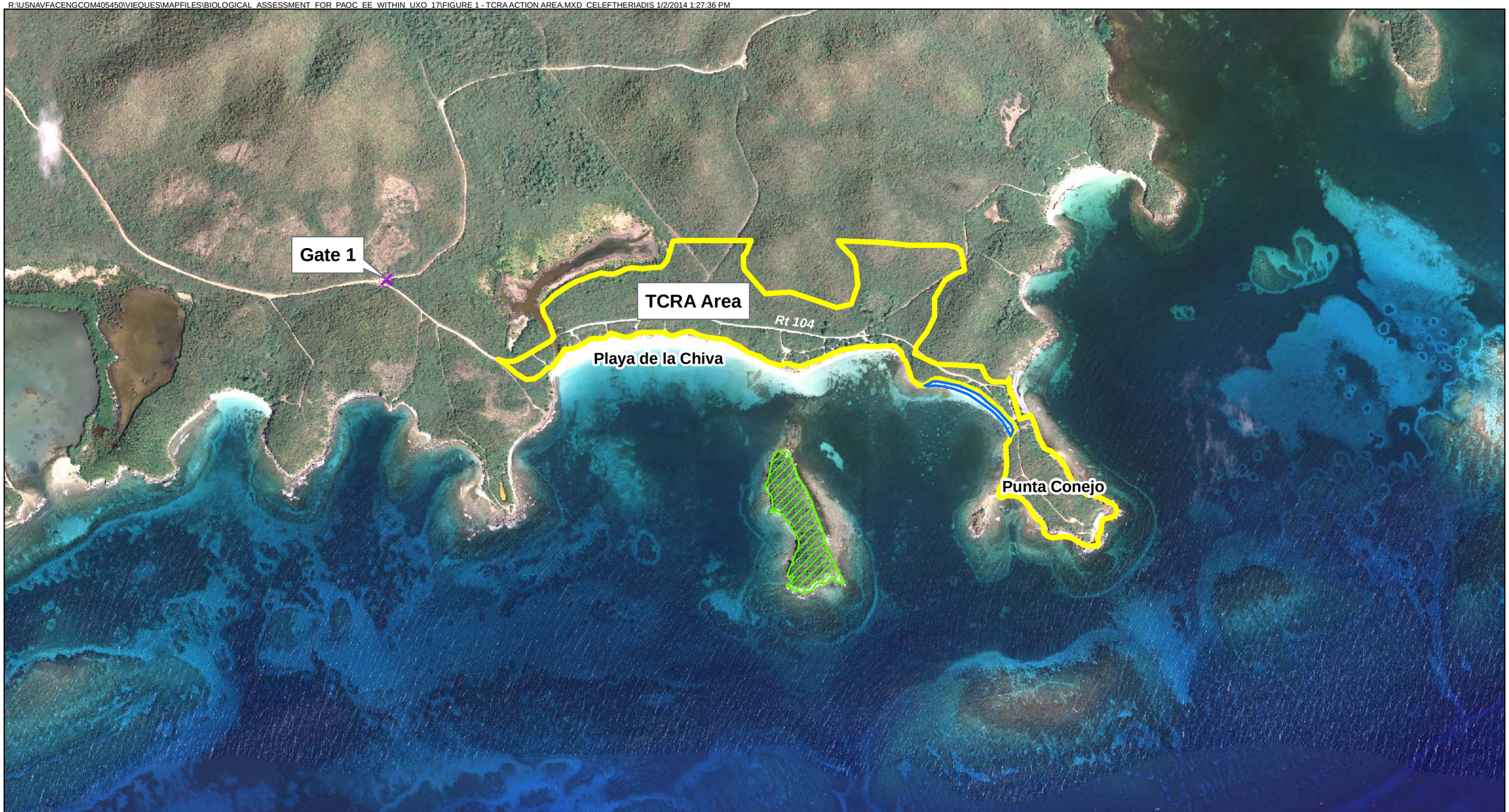
Attachment A
Figures

R:\USNAVFACENGCOM405450\VIEQUES\MAPFILES\BIOLOGICAL_ASSESSMENT_FOR_PAOC_EE_WITHIN_UXO_17\FIGURE 1 - TCRA ACTION AREA.MXD CELEFTHERIADIS 1/2/2014 1:27:36 PM



Legend

- Gate
- Cayo de la Chiva
- Restricted Area of Blue Beach
- PAOC EE TCRA Area

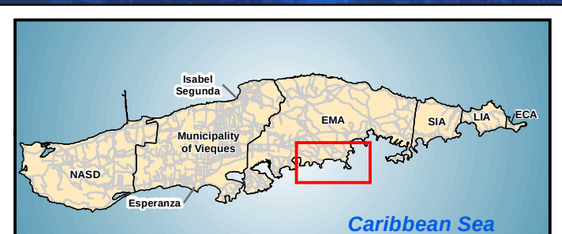


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Figure 1
TCRA Area
Biological Assessment for PAOC EE within UXO 17
Atlantic Fleet Weapons Training Area - Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

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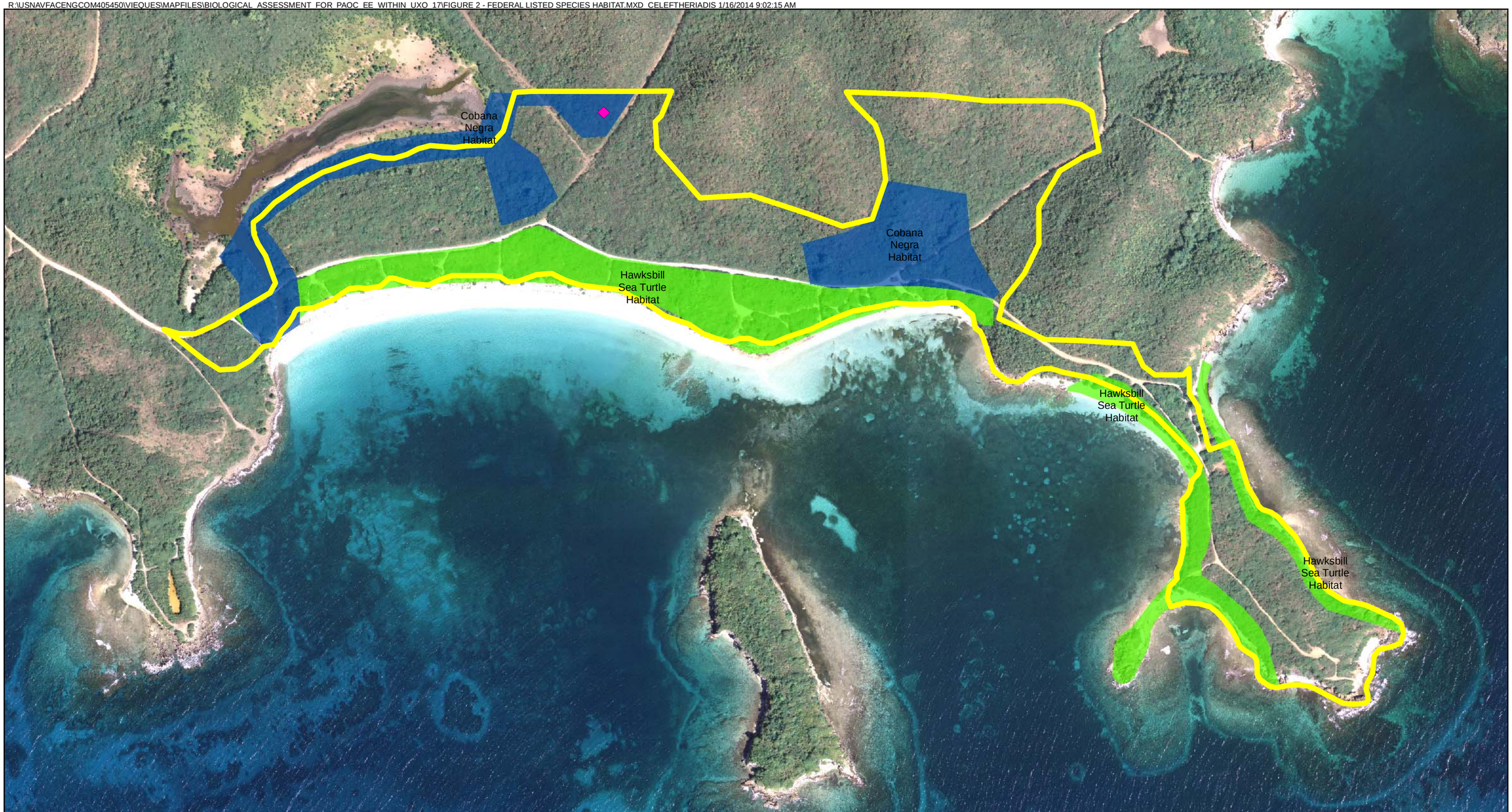
R:\USNAVFACENGCOM405450\VIEQUES\MAPFILES\BIOLOGICAL_ASSESSMENT_FOR_PAOC_EE_WITHIN_UXO_17\FIGURE 2 - FEDERAL LISTED SPECIES HABITAT.MXD CELEFTHERIADIS 1/16/2014 9:02:15 AM



Legend

- Possible Cobana Negra
- Cobana Negra Habitat
- Hawksbill Sea Turtle Habitat
- PAOC EE TCRA Area

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Figure 2
Federal Listed Species Habitat
Biological Assessment for PAOC EE within UXO 17
Atlantic Fleet Weapons Training Area - Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

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Attachment B
Biological Assessment Methods and Approach for Time Critical Removal Action at Munitions Response Site UXO-17, Potential Area of Concern (PAOC) EE, dated December 3, 2013

Biological Assessment Methods and Approach for Time Critical Removal Action at Munitions Response Site UXO-17, Potential Area of Concern (PAOC) EE

PREPARED FOR: USFWS Vieques National Wildlife Refuge

PREPARED BY: CH2M HILL on behalf of NAVFAC Atlantic

DATE: December 3, 2013

Introduction

The Naval Facilities Engineering Command (NAVFAC) Atlantic is developing a Time-Critical Removal Action (TCRA) work plan for the removal of surface and shallow subsurface (up to 1 foot below ground surface) munitions and explosives of concern (MEC) from Potential Area of Concern (PAOC) EE located within Munitions Response Site (MRS) UXO 17 at the former Atlantic Fleet Weapons Training Area in Vieques, Puerto Rico (Figure 1). The MEC removal action includes areas immediately adjacent to Playa de la Chiva (also referred to as Blue Beach), a public beach. The overall objective of the TCRA is to reduce the potential for United States Fish and Wildlife Service (USFWS) personnel and the public to come in contact with MEC.

In order to mitigate the potential explosive hazard, the TCRA is being designed to locate and visually inspect surface items and intrusively investigate shallow subsurface metallic anomalies across the entire area. The major work elements of the action will include (1) restricting access of the TCRA area to munitions response (MR) contractor personnel, (2) manual removal of vegetation to allow the MR contractor to safely access and accurately survey the TCRA area, (3) ground surface inspection and removal of any surface material potentially presenting an explosive hazard (MPPEH) /MEC, (4) survey using a hand-held all-metals detector to identify subsurface anomalies with removal of metallic anomalies up to a depth of 1 foot, and (5) disposal of any MPPEH/MEC found.

A formal biological assessment (BA) will be developed to assess the effects of this TCRA on potentially occurring federally protected species within the TCRA area. The BA will be submitted to the USFWS to document NAVFAC's conclusions and supporting rationale, with a request for concurrence from USFWS.

Proposed Action

The proposed action involves several investigative elements, but the primary action that could disturb federally protected resources (if present) is the initial vegetation removal from the TCRA area. Vegetation will be removed in accordance with the Vegetation Removal Standard Operating Procedure (SOP MR-1) in the *Master Sampling and Analysis Plan East Vieques Terrestrial UXO Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico* (CH2MHILL, 2013a), with the following modifications:

- The BA will obviate the need for the Work Area Determination (WAD) process.
- A Whites all-metals detector (or comparable) will be used for anomaly identification instead of digital geophysical mapping (DGM)

The approach for the vegetation removal is consistent with previous and ongoing removals being conducted within the former VNTR under a TCRA and two Non-Time Critical Removal Actions (NTCRAs) that have been approved by USEPA, PREQB, and USFWS.

Federally Protected Species to be Considered

As described in the *Biological Avoidance Plan for Terrestrial MEC and MC Investigations and Interim Removal Actions* (CH2M HILL, 2013b), federally listed species potentially occurring on Vieques include 3 species of birds, 6 species of reptiles, and 12 species of plants. Specific locations of federally protected species within the TCRA area (Figure 1) have not been identified, though the various habitat types present could be supportive of some of these protected species. In addition, it is possible that USFWS refuge staff have planted some protected plant species in a habitat restoration area along the north side of Playa de la Chiva. However, their condition, if present, is unknown.

The predominant habitat type within the TCRA area is thick thorn scrub dominated by species such as acacia (*Acacia* sp.), mesquite (*Prosopis juliflora*), and white leadtree (*Leucaena glauca*). These areas are unlikely to contain protected species. Other habitat types within the TCRA area that could support protected species include: 1) two forested habitats at the eastern end which consist of low lying areas that have been continuously forested (since at least the late 1930s) and contain large tree canopies, 2) the mangrove habitat associated with Laguna La Chiva along the northwestern portion, 3) the USFWS planted habitat restoration area, and 4) the beach vegetation habitat, which may be used by nesting sea turtles.

Punta Conejo is a predominantly limestone peninsula that lies within the southeastern end of the TCRA area (Figure 1) that was reported to support subtropical dry forest habitat. Prior to completion of the Preliminary Assessment/Site Inspection (PA/SI) Work Plan for PAOC EE on Punta Conejo (CH2M HILL, 2010), which included vegetation removal to support digital geophysical mapping (DGM), Mike Barandiaran/USFWS conducted a site visit to evaluate the vegetative habitat. Mr. Barandiaran determined that the vegetation consisted primarily of invasive species (acacia and mesquite). USFWS concluded that no biological assessment of PAOC EE was necessary prior to vegetation clearing, and announced and discussed this at the August 25, 2010 Restoration Advisory Board (RAB) meeting in Vieques, Puerto Rico. Based on this site specific assessment by USFWS, a BA for the Punta Conejo portion of the TCRA area is not required and will therefore not be conducted for this TCRA.

Prior to submittal of the BA, biologists will conduct a ground survey of the various habitat types within the TCRA area to determine if and where protected species occur. The biologists will also meet with Vieques National Wildlife Refuge (VNWR) staff to visit the location of the habitat restoration area plantings, determine the species planted, and evaluate success of the plantings. Refuge staff are also welcome to support the ground survey elsewhere in the TCRA area if desired. Ultimately a site map will be produced for the BA that illustrates the habitat types within the TCRA area, and the locations of federally protected species, if observed.

The federally protected species that will be included in the ground survey and considered in the BA are the following:

Yellow-shouldered blackbird (*Agelaius xanthomus*) – this species is not known to currently occur on Vieques; the last reported sightings were in 1974 and 1978. However, mangrove habitat suitable for foraging and nesting does occur along the south side of Laguna La Chiva, and will therefore be inspected for this species.

Sea turtles - Hawksbill sea turtle (*Eretmochelys imbricata*), green sea turtle (*Chelonia mydas*), and leatherback sea turtle (*Dermochelys coriacea*) can nest on Playa de la Chiva, and in the case of the hawksbill sea turtle will typically nest high up on the beach underneath or in the beach and dune vegetation. A ground survey for nests is not necessary since Playa de la Chiva is a confirmed sea turtle nesting beach for which monitoring data exist.

Puerto Rican Senna (*Chamaecrista glandulosa* var. *mirabilis*) – suitable habitat for this shrub, which includes white silica sands that are deep, excessively well drained, and fine grained, is found along the coastal beach habitat of the TCRA area.

Beautiful Goetzea (*Goetzea elegans*) – this plant is known to occur on Vieques, and can occur in alluvial soils along forested ravines. The older growth, low lying forested habitats at the eastern end of the TCRA area will be inspected for this species.

Cobana negra (*Stahlia monosperma*) – This tree species can occur along the forested wetland margin of lagoons. The southern lagoon fringe of Laguna La Chiva will be inspected for the presence of this species.

Agency Consultation and Coordination

Meetings will be held with USFWS at the VNWR in Vieques, Puerto Rico, or by conference call as necessary. An initial meeting will be conducted to discuss the methods and approach presented in this TM. Other meetings will be arranged as needed to discuss the results or other findings.

The TCRA field work is scheduled to begin in April, 2014. The BA will be submitted late December, 2013, to allow sufficient time for USFWS review and issuance of a Biological Opinion prior to TCRA implementation.

Biological Assessment Outline

The BA report for the TCRA will include the following information:

Summary of Determinations – brief summary of the proposed action, species considered, site survey results, and determination of findings for which USFWS concurrence is requested.

Introduction – purpose of the document and brief description of the proposed action.

Project Description – description of the TCRA proposed action, the action area (with map[s]), project timeline, and how the action will be accomplished.

Biological Assessment Methods – description of the species considered, site survey methodology, and agency consultation and coordination.

Biological Assessment Survey Results – description of habitats and federally protected species located within the TCRA area during the ground survey.

Effects Analysis – description of how protected species will be exposed to the action and how such species will likely respond to this exposure.

Conclusion – presentation of Section 7 determinations for each species and supporting rationale. One of the following three determinations will be applied: (1) no effect, (2) may affect, but not likely to adversely affect, and (3) may affect, and is likely to adversely affect.

Works Cited

CH2MHILL, 2013a. *Final Master Sampling and Analysis Plan East Vieques Terrestrial UXO Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico.* January. .

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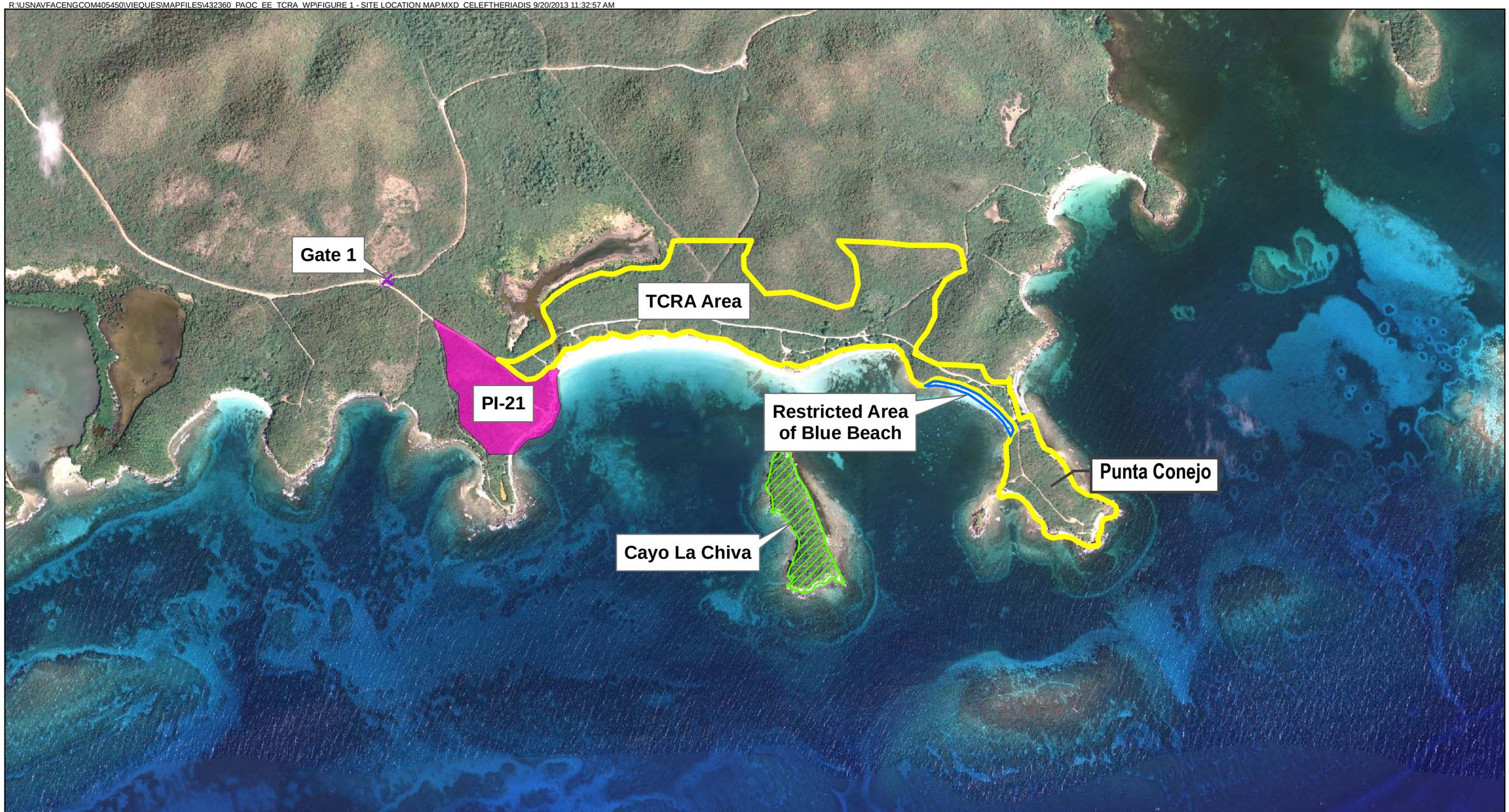
CH2M HILL. 2010. *Final Preliminary Assessment/Site Inspection Work Plan for PAOC EE, Former Vieques Naval Training Range, Vieques, Puerto Rico.* December.

R:\USNAVFACENGCOM405450\VIEQUES\MAPFILES\432360_PAOC_EE_TCRA_WP\FIGURE 1 - SITE LOCATION MAP.MXD CELEFTHERIADIS 9/20/2013 11:32:57 AM



Legend

- Gate
- PI Site 21
- Cayo de la Chiva
- Restricted Area of Blue Beach
- PAOC EE TCRA Area

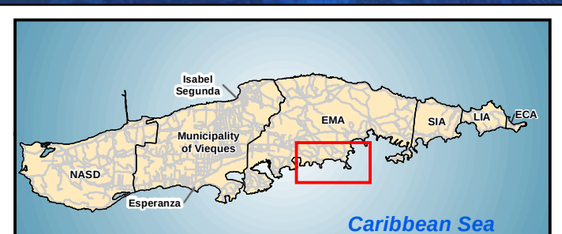


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Figure 1
Site Location Map
PAOC EE TCRA Work Plan
Atlantic Fleet Weapons Training Area - Vieques
Former Vieques Naval Training Range
Vieques, Puerto Rico

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Attachment C
Photo Log

APPENDIX C

Photo Log

PHOTO 1
West Side Vegetation

PHOTO 2
Mangrove at Chiva Lagoon

PHOTO 3
Vegetation Center PAOC EE

PHOTO 4
Dense vegetation

PHOTO 5
West Side UXO 17

PHOTO 6
West Side UXO 17

PHOTO 7
West Side UXO 17 palms

PHOTO 8
West Side Gumbo Limbo

PHOTO 9
West Side Horizontal Stem cut during Site Inspection

PHOTO 10
West Side UXO 17 Land Crab Burrows

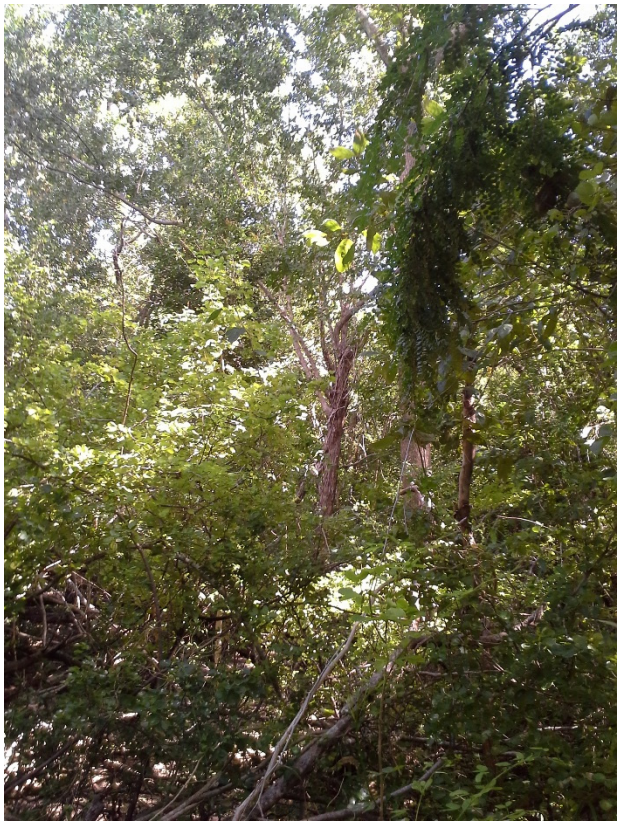

PHOTO 11
West Side UXO 17 Invasives

PHOTO 12
Large Tree West Side UXO 17

PHOTO 13
West Side UXO 17

PHOTO 14
Horizontal Stems West Side UXO 17

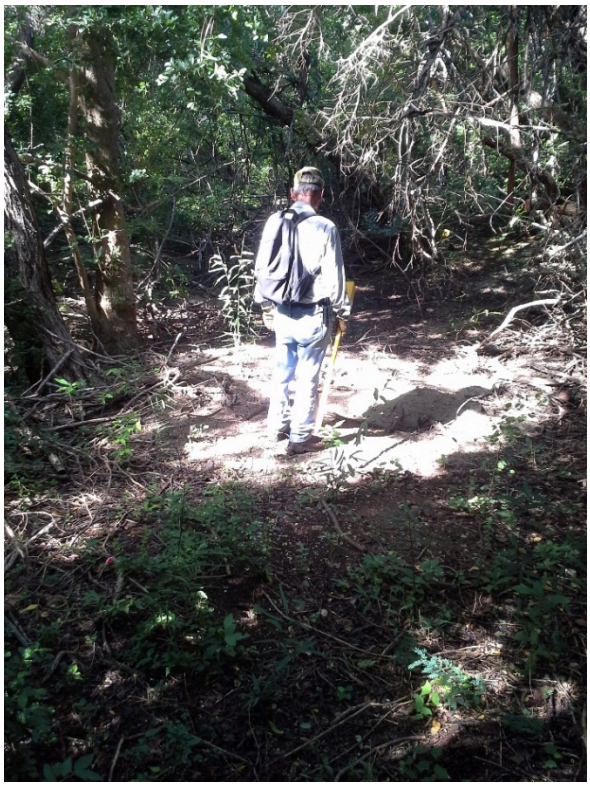

PHOTO 15
Open Area Gallery West Side UXO 17

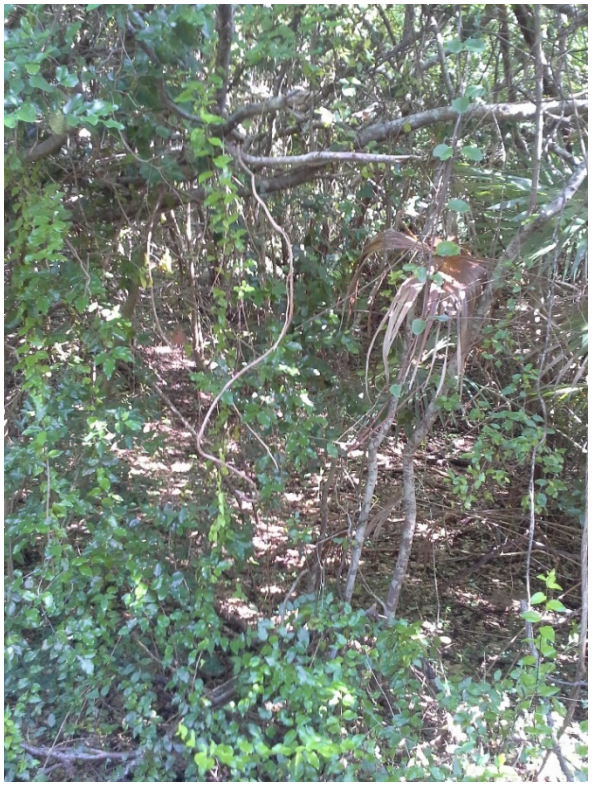

PHOTO 16
West Side UXO 17 Vines Small Trees

PHOTO 17
Thick Vegetation UXO 17

PHOTO 18
Fiberglass Matting UXO 17

PHOTO 19
Edge of Mangroves

PHOTO 20
Edge of Mangroves

PHOTO 21
Mangrove

PHOTO 22
Dense Vegetation

PHOTO 23
Flooded Ditch UXO 17

PHOTO 24
Dense Vegetation

PHOTO 25
Horizontal Vegetation

PHOTO 26
Transect through Gallery

PHOTO 27
Dense Acacia Tan Tan and Cactus

PHOTO 28
Possible Cobana (unlikely)

PHOTO 29
PossCobana

PHOTO 30
Dense Acacia/Tan Tan Vines

PHOTO 31
Large stem non-native

PHOTO 32
Spondias mombin

PHOTO 33
Dense Vegetation Vines

PHOTO 34
Vines and Cactus

PHOTO 35
Thick Canopy

PHOTO 36
Compound Leaf Spondias m.

PHOTO 37
Edge of Wetland

PHOTO 38
Edge of Wetland Facing East

PHOTO 39
Marked Vegetation on Beach, Dead

PHOTO 40
Marked Vegetation on Beach, Dead

PHOTO 41
Noni on Beach

PHOTO 42
Beach Vegetation