

APPENDIX A
INTER-SERVICE SUPPORT AGREEMENT

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SUPPORT AGREEMENT

1. AGREEMENT NUMBER <i>(Provided by Supplier)</i> FB4809- -000	2. SUPERSEDED AGREEMENT NO. <i>(If this replaces another agreement)</i> FB4809-99048-011	3. EFFECTIVE DATE (YYYYMMDD)	4. EXPIRATION DATE <i>(May be "Indefinite")</i> Indefinite	
5. SUPPLYING ACTIVITY a. NAME AND ADDRESS 4th Fighter Wing 1280 Humphreys St. Seymour Johnson AFB Goldsboro NC. 27531 E-mail: 4lrs.lgrdx@seymourjohnson.af.mil POC: Mr. Fink Jay A. Voice: (919) 722-3127 Fax: (919) 722-4163		6. RECEIVING ACTIVITY a. NAME AND ADDRESS FACSFAC VACAPES(Dare County Range)POC:CDR Jeff Blake Commanding Officer 601 Oceana Blvd. Virginia Beach, VA 23460 E-mail: jeffrey.d.blake@navy.mil VOICE: 757-433-1200 Fax: 757-433-1266		
b. MAJOR COMMAND Air Combat Command (ACC)		b. MAJOR COMMAND United States Fleet Forces Command (USFF)		
7. SUPPORT PROVIDED BY SUPPLIER				
a. SUPPORT <i>(Specify what, when, where, and how much)</i> AIRFLD OPS CIV PERS COMM COMMON INFA ENVIR CLEAN ENVIR COMPLY EOD FACIL CONSTR FACIL REPAIR FIRE FUNDING GEODETIC SPT LEGAL MORTUARY PUBL AFFAIRS SECURITY SUPPLY WEATHER		b. BASIS FOR REIMBURSEMENT Total Est Reimbursement Total Est Non-Reimbursement	c. ESTIMATED REIMBURSEMENT \$550,000.00 \$0.00	
ADDITIONAL SUPPORT REQUIREMENTS ATTACHED: <input checked="" type="checkbox"/> YES		<input type="checkbox"/> NO		
8. SUPPLYING COMPONENT a. COMPTROLLER SIGNATURE SWAZAY.JENNIFE R.LYN.1093123871 <small>Digitally signed by SWAZAY.JENNIFER.LYN.1093123871 DN: cn=US, o=U.S. Government, ou=DoD, ou=PCL, ou=USAF, email=SWAZAY.JENNIFER.LYN.1093123871 Date: 2013.04.15 10:09:09 -0400</small>		b. DATE SIGNED 21030415	9. RECEIVING COMPONENT a. COMPTROLLER SIGNATURE b. DATE SIGNED	
c. APPROVING AUTHORITY (1) TYPED NAME BRENT P. MORAN, Col, USAF		c. APPROVING AUTHORITY (1) TYPED NAME		
(2) ORGANIZATION 4 MSG/CC	(3) TELEPHONE NUMBER (919) 722-0101	(2) ORGANIZATION	(3) TELEPHONE NUMBER	
(4) SIGNATURE	(5) DATE SIGNED	(4) SIGNATURE	(5) DATE SIGNED	
10. TERMINATION <i>(Complete only when agreement is terminated prior to scheduled expiration date.)</i>				
a. APPROVING AUTHORITY SIGNATURE	b. DATE SIGNED	c. APPROVING AUTHORITY SIGNATURE	d. DATE SIGNED	

11. GENERAL PROVISIONS *(Complete blank spaces and add additional general provisions as appropriate: e.g., exceptions to printed provisions, additional parties to this agreement, billing and reimbursement instructions.)*

- a. The receiving components will provide the supplying component projections of requested support. *(Significant changes in the receiving component's support requirements should be submitted to the supplying component in a manner that will permit timely modification of resource requirements.)*
- b. It is the responsibility of the supplying component to bring any required or requested change in support to the attention of Commanding Officer, PACSFAC VACAPES prior to changing or cancelling support.
- c. The component providing reimbursable support in this agreement will submit statements of costs to: 4 CPTS/FMA 1600 Wright Brothers Ave. Bldg 3010, SJAFB AFB, NC 27531.
- d. All rates expressing the unit cost of services provided in this agreement are based on current rates which may be subject to change for uncontrollable reasons, such as legislation, DoD directives, and commercial utility rate increases. The receiver will be notified immediately of such rate changes that must be passed through to the support receivers.
- e. This agreement may be cancelled at any time by mutual consent of the parties concerned. This agreement may also be cancelled by either party upon giving at least 180 days written notice to the other party.

- f. In case of mobilization or other emergency, this agreement will remain in force only within supplier's capabilities.
- g. A manpower annex is/is not required.

//SIGNED/JLH/3-26-13//
JAMES L. HORNAGE, GS-12
Chief, Manpower & Organization Flight

- h. This support agreement has been reviewed for environmental compliance impact.

//Signed/dra/4/29/13//
DONALD R. ABRAMS, GS-13
Chief, Asset Mgt Flight

- i. A legal review of this support agreement was accomplished and is legally sufficient.

//SIGNED//jbl 13 May 13
JAMES B. LEIGHTON, Capt
Chief, Legal Assistance

ADDITIONAL GENERAL PROVISIONS ATTACHED: YES NO

12. SPECIFIC PROVISIONS *(As appropriate: e.g., location and size of occupied facilities, unique supplier and receiver responsibilities, conditions, requirements, quality standards, and criteria for measurement/reimbursement of unique requirements.)*

- a. MISSION STATEMENT: Bombing support for NAS Oceana attack aircraft, reserve aircraft, Air Force and Air National Guard aircraft.
- b. A security review of this agreement was accomplished and meets security requirements.

//SIGNED//jtm//17 May 13
JUSTIN T. MENDYGRAL, TSgt
4 SFS/S5P

ADDITIONAL SPECIFIC PROVISIONS ATTACHED: YES NO

APPENDIX B
WETLANDS CHARACTERIZATION REPORT

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**WETLAND HABITAT CHARACTERIZATION
NAVY DARE COUNTY BOMBING RANGE
IMPACT AREA**

PREPARED FOR:

**PARSONS, INC.
NORFOLK, VA**

PREPARED BY:

**GEO-MARINE, INC.
HAMPTON, VA**

FINAL
APRIL 2007

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1.0 INTRODUCTION

Dare County Bombing Range (DCBR) is a 46,000-acre joint Air Force/Navy weapons range located on the Albemarle-Pamlico peninsula on the eastern coast of North Carolina. The range is surrounded by the Alligator River National Wildlife Refuge (NWR). Through an Inter-Service Support Agreement, the Navy uses and maintains approximately 23,000 acres at DCBR, a 2,500-acre portion of which comprises the Navy Dare county Bombing Range (NDCBR) impact area. The impact area currently supports a variety of air-to-ground training exercises including electronic combat operations, bombing, and strafing. Authorized ordnance includes inert bombs up to 2,000 lbs, lasers, and ball ammunition. No explosive ordnance is authorized to be dropped on NDCBR.

With the exception of the roads, buildings and parking areas, DCBR is comprised of wetland and open water habitats. The wetland communities within the DCBR region have historically included pond pine (*Pinus serotina*) woodlands, evergreen shrub pocosins, Atlantic white cedar (*Chamaecyparis thyoides*) swamps, and bald cypress-swamp tupelo (*Taxodium distichum-Nyssa biflora*) forests (Schafale and Weakley 1990). Vegetation in the impact area however, is maintained through periodic mowing and prescribed fire to improve visibility and safety and now includes vast areas of freshwater marsh and low pocosin habitats. Road construction and vegetation clearing for the NDCBR was originally conducted in the mid 1960s.

Under Section 404 of the Clean Water Act (CWA), 33 USC §1251-1387, discharge of dredge and fill material into waters of the United States, including wetlands, is prohibited unless a permit is issued by the U.S. Army Corps of Engineers (USACE). Activities requiring a permit include dredging, filling, or discharging pollutants or otherwise altering the physical, chemical, or biological properties of surface waters; and any disturbance to the soil or substrate (bottom material) of a wetland or waterbody, including a stream bed, is an impact and may adversely affect the hydrology of an area. A permit is required whether the work is permanent or temporary. A pre-application consultation or informal meeting with the USACE during the early planning phase of a project may be used to determine if a permit will be required.

In addition, Section 401 of the CWA requires federal agencies to obtain a water quality certificate from the state for any action requiring a federal license or permit. A state General Certification must be issued by the North Carolina Division of Water Quality (NCDWQ) in order for USACE permits to be valid. In North Carolina, a joint pre-construction notification application is used for the 404 and 401 permit process.

The federal Coastal Zone Management Act (CZMA), 16 USC §1451 et seq., encourages states to preserve, protect, and, where possible, restore or enhance valuable coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as fish and wildlife. In North Carolina, the Division of Coastal Management (NCDCM) carries out the state's Coastal Area Management Act (CAMA). The coastal zone in North Carolina encompasses 20 coastal counties including Dare County (North Carolina Department of Environment and Natural Resources [NCDENR] 2007). *CAMA regulations require that federal agencies*

coordinate with the DCM on activities with the potential to impact the coastal zone as established by the North Carolina Coastal Resources Commission (NCCRC). Under CAMA, federal agencies must submit consistency determinations to the DCM for review prior to engaging in any activities that can reasonably affect a coastal resource including: actions that require USACE wetland permits and expansion of military operations and facilities (NCDCM 2007).

Additional protection is provided under CAMA to designated Areas of Environmental Concern (AECs), which include important coastal resources that are sensitive to development. AECs have set rules for managing development and require special CAMA permits. DCBR does not meet AEC criteria and would not require a CAMA permit for planned or future actions.

2.0 PURPOSE OF REPORT

The purpose of this report is to characterize and evaluate the wetland habitats that occur within the NDCBR impact area. This study was conducted for Parsons, Inc. by Geo-Marine, Inc. (GMI) under Subcontract No. 743586-60049. In this habitat characterization, GMI has assessed wetland functions using the North Carolina Coastal Region Evaluation of Wetland Significance (NC-CREWS) evaluation system. GMI has also provided a characterization of wetland cover types within the Navy Dare County Bombing Range impact area, where existing GIS data were lacking. Products of both the NC-CREWS evaluation and the wetland characterization were incorporated into GIS data coverages provided by Seymour Johnson AFB.

NC-CREWS was created by North Carolina Department of Environment and Natural Resources to provide a more thorough accounting of wetland functions than previous methods that simply used spatial calculations to determine replacement ratios. The NC-CREWS system assesses a variety of wetland functions. These functions include terrestrial wildlife habitat, nonpoint source pollution reduction, and floodwater storage capability. A series of parameters for each function are combined to give each wetland unit an overall rating for each function. Wetlands are rated as High, Medium, or Low for each function under consideration. This model also looks at sites that could be converted to wetlands, thus aiding in both assessment and mitigation processes. To satisfy mitigation requirements, the functional ratings must be calculated for the impacted area as well as the proposed mitigation site. This would ensure the mitigation wetlands satisfy all functional requirements of the impacted wetland.

3.0 EXISTING CONDITIONS

3.1 Geology and Soils

The DCBR is located on the Albemarle-Pamlico peninsula in the Atlantic Coastal Plain of North Carolina. The Albemarle-Pamlico peninsula is bounded by the Alligator River to the west, Albemarle Sound to the north, and Croatan and Pamlico sounds to the east (Figure 3-1). The Albemarle-Pamlico peninsula is on the Pamlico Terrace, which is characterized by low, flat terrain that varies in elevation from a few inches to a few feet above sea level. Elevations within the impact area vary only slightly and are between 0 and 5 feet above mean sea level. The lowest portion of the NDCBR occurs in the northwest block and highest areas are in south and southeast blocks.

The Pamlico Terrace was formed during the Quaternary Period when a thin layer of marine sands, sandy loams, and shell marl beds was deposited by retreating seas (North Carolina Geological Survey 1998). During the past 10,000 years, peat has been forming under swamp forests, pocosins, and marshes, in blocked drainages, Carolina bays, and river floodplains (Moore and Laderman n.d.). Soils of the Pamlico Terrace are primarily comprised of undivided surficial deposits of sand, clay, and gravel. Deposits of peat occur in marine, fluvial, and lacustrine environments (North Carolina Geological Survey 1998).

Soils in the impact area are Pungo muck, Belhaven muck, Ponzer muck, and Roper muck; all of which are listed as hydric soils on the National List of Hydric soils (Natural Resources Conservation Service 2007) (Table 3-1; Figure 3-2). The depth of organic soil layers over mineral soil layers has a tremendous influence on the potential uses of the land. In general, the greater the muck depth the less suited the soil is for crop production or development activity.

3.2 Hydrology

The water table level is within one foot of the surface year-round and flooding is considered rare in Pungo, Belhaven, Ponzer, and Roper muck soils (Tant 1992). Hydrology within the impact area is influenced by a series of trenches and canals that transport water northwestward from the impact area to Milltail Creek and eventually to the Alligator River. Perimeter Road creates a barrier to surface water flow into and out of the impact area, however culverts that pass under the road at the extreme south end and along the north end allow for some water movement into and out of the impact area. Water flow can be manually blocked, either totally or partially, at these culverts, which serves to regulate flash surface flow into the impact area. As a whole the ditch-canal system serves to regulate surface flow in the impact area and can be manipulated to create somewhat drier conditions than are present in surrounding areas, as required.

3.3 Water Quality

There are no National Pollution Discharge Elimination System (NPDES) permits for discharge into waters on DCBR. In addition, no waters are listed as impaired by the state of North Carolina that drain from the north side of DCBR and the impact area (NC Division of Water Quality 2006).

WETLAND HABITAT CHARACTERIZATION
NAVY DARE COUNTY BOMBING RANGE IMPACT AREA

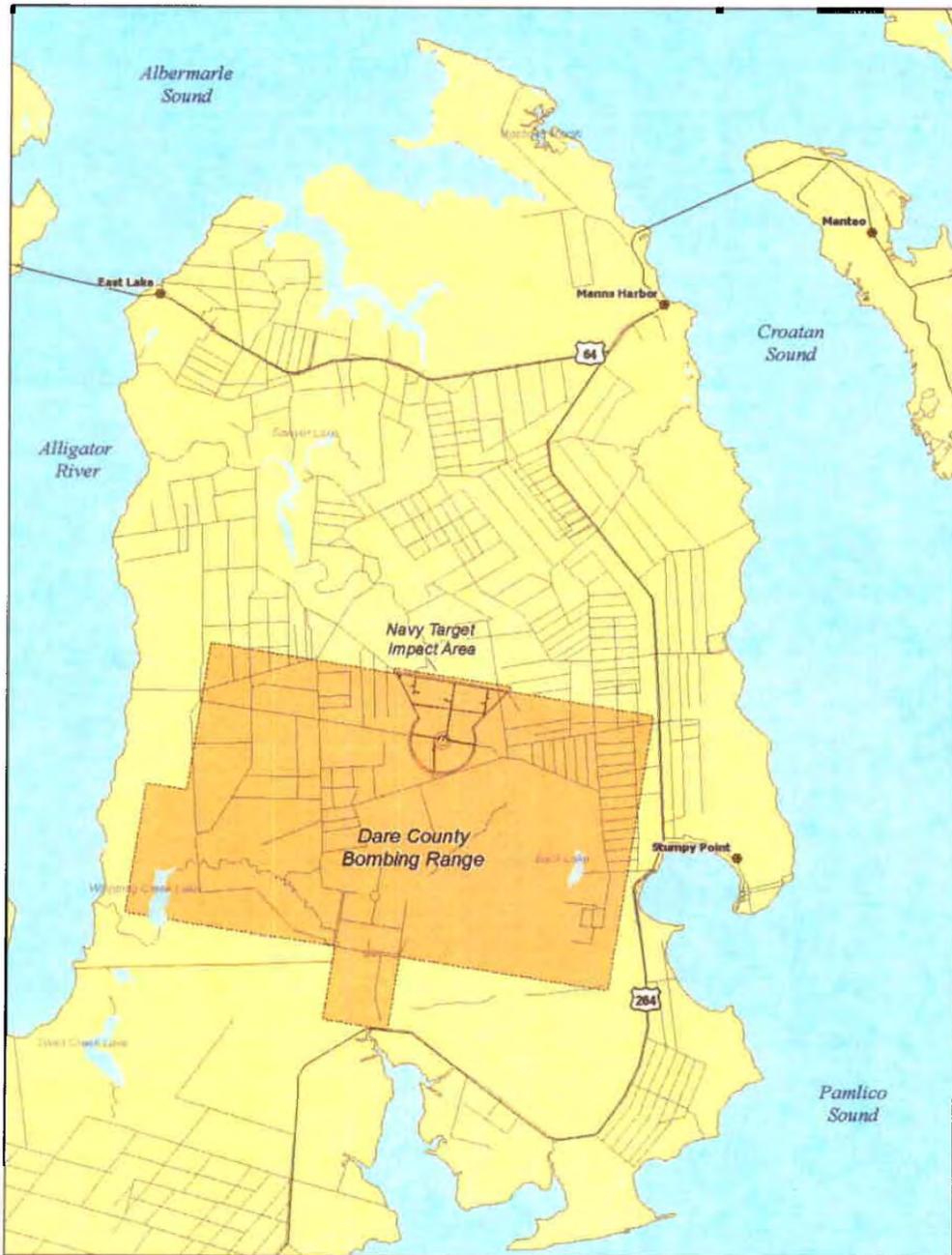


Figure 3-1. Dare County Bombing Range General Location

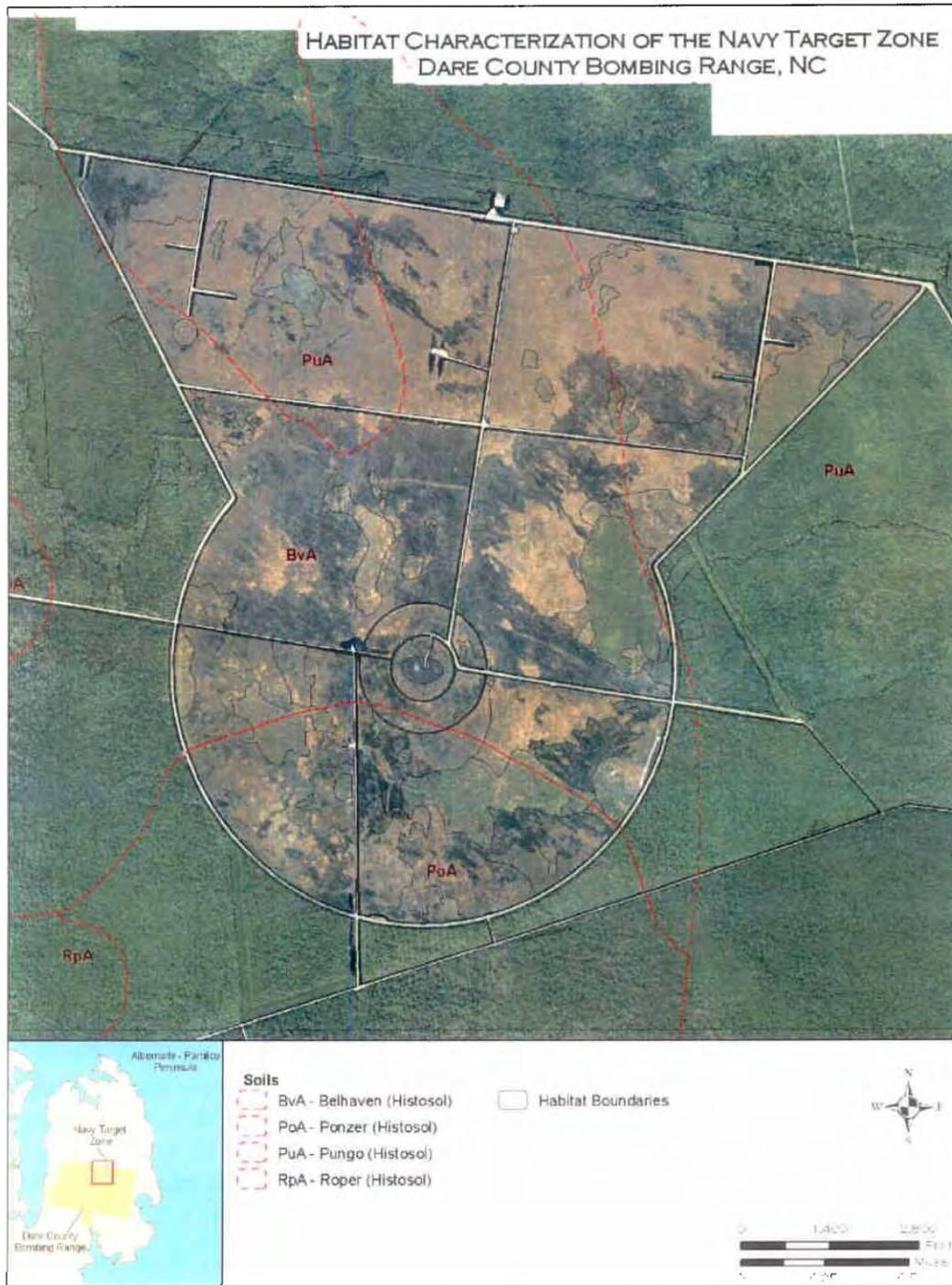


Figure 3-2. Navy Dare County Bombing Range Impact Area Soils

Table 3-1. Characteristics of Soils and Hydrology within the Impact area, at Navy Dare County Bombing Range

Series	Surface Texture	Muck Depth	Water Table Depth	Flooding Frequency	Hydrologic Group
Pungo	Muck	65"	0-1'	Rare	D
Belhaven	Muck	45"	0-1'	Rare	C or D
Ponzer	Muck	30"	0-1'	Rare	D
Roper	Muck	10"	0-1'	Rare	D

3.4 Vegetation Types within and Adjacent to the NDCBR Impact Area

The land area immediately adjacent to the impact area is forested and in various stages of timber management. Tracts recently harvested have been allowed to re-grow from existing stump-sprout and seed sources. Forest types that occur are generally referred to as bottomland hardwood forest, Atlantic white cedar, and bay forests. The impact area is maintained as early successional, herbaceous-shrub growth by prescribed fire and mechanical methods. Occasional accidental fires also start from ignitions caused by bombing activity. Continued maintenance of the area over the past 40 to 50 years has converted the impact area from evergreen pocosin communities to freshwater marsh or saturated herbaceous communities. Currently, much of the herbaceous areas are intermixed with evergreen and deciduous shrub and sapling growth in various sized clumps and densities, effectively creating a diversity of savanna-like plant communities across the interior impact area landscape.

3.4.1 National Vegetation Classification Standard Plant Community Alliances

The National Vegetation Classification Standard (NVCS) was approved by the Federal Geographic Data Committee (FGDC 2007) as the standard method of classifying vegetation for all federal agencies. The standard has been implemented by the National Park Service, National Biological Information Infrastructure, the Nature Conservancy, and other federal agencies to map vegetative communities at national parks and on other federal properties. A habitat classification based on the NVCS was conducted at DCBR in 2004. The habitat classification identified plant communities outside the impact area to the "Alliance" level of the NVCS. The NDCBR impact area, however, was designated as "Administrative", and not given a community classification. In order to assess the functional value of the wetland communities within the impact area, GMI assigned NVCS classification through aerial photo interpretation and field verification of the unclassified areas.

Vegetative community types found at DCBR are described here by common name. Habitat descriptions are adapted from *Classification of the Natural Communities of North Carolina*

(Shafale and Weakly 1990). The community alliances of the NVCS are also given. Alliance name are taken from NatureServe (2007). The NVCS alliances are spatially depicted in Figure 3-3.

3.4.2 Nonriverine Wet Hardwood Forest

[NVCS Alliance: *Nyssa biflora* - *Acer rubrum* - (*Liriodendron tulipifera*) Saturated Forest Alliance]

These are forests in poorly drained interstream flats with fine-textured mineral soils and are not associated with rivers or estuaries. They typically occur on the margins of large peatland areas. The hydrology is Palustrine, seasonally saturated or flooded by high water tables, poor drainage, and/or by sheet flow from adjacent pocosins. Vegetation typical includes an overstory composed of laurel oak (*Quercus laurifolia*), sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), and swamp tupelo. The understory includes species such as American hornbeam (*Carpinus caroliniana*), red maple, American holly (*Ilex opaca*), and pawpaw (*Asimina triloba*). The shrub layer is generally sparse to moderate but may be dense. Species include spicebush (*Lindera benzoin*), redbay (*Persea palustris*), coastal doghobble (*Leucothoe axillaries*), sweet pepperbush (*Clethra alnifolia*), highbush blueberry (*Vaccinium corymbosum*), wax myrtle (*Myrica cerifera*), giant cane (*Arundinaria gigantea*), and American beautyberry (*Callicarpa americana*). Vines such as crossvine (*Bignonia capreolata*), poison ivy (*Toxicodendron radicans*), trumpet creeper (*Campsis radicans*), Alabama supplejack (*Berchemia scandens*), and grape (*Vitis* spp.) may be common. The herb layer may include sedge (*Carex* spp.), lizard's tail (*Saururus cernuus*), false nettle (*Boehmeria cylindrical*), netted chainfern (*Woodwardia areolata*), common ladyfern (*Athyrium filix-femina*), and partridgeberry (*Mitchella repens*).

3.4.3 Nonriverine Swamp Forest

[NVCS Alliance: *Pinus taeda* - *Chamaecyparis thyoides* - *Acer rubrum* - *Nyssa biflora* Saturated Forest Alliance]

These are wet, very poorly drained upland flats and peat deposits with rare mineral influx from overland or tidal flooding. The hydrology is Palustrine, seasonally or frequently saturated or shallowly flooded by high water table. The canopy may have varying mixtures of bald cypress (*Taxodium distichum*), pondcypress (*Taxodium ascendens*), swamp tupelo, loblolly pine (*Pinus taeda*), pond pine, Atlantic white cedar, and red maple. The understory is open to dense and includes sweetbay (*Magnolia virginiana*), swampbay (*Persea palustris*), titi (*Cyrilla racemiflora*), fetterbush (*Lyonia lucida*), sweet pepperbush, blueberry (*Vaccinium* spp.), and laurel greenbrier (*Smilax laurifolia*). Typical herbs include Virginia chainfern (*Woodwardia virginica*), netted chainfern, sedge species, and sphagnum moss (*Sphagnum* spp.).

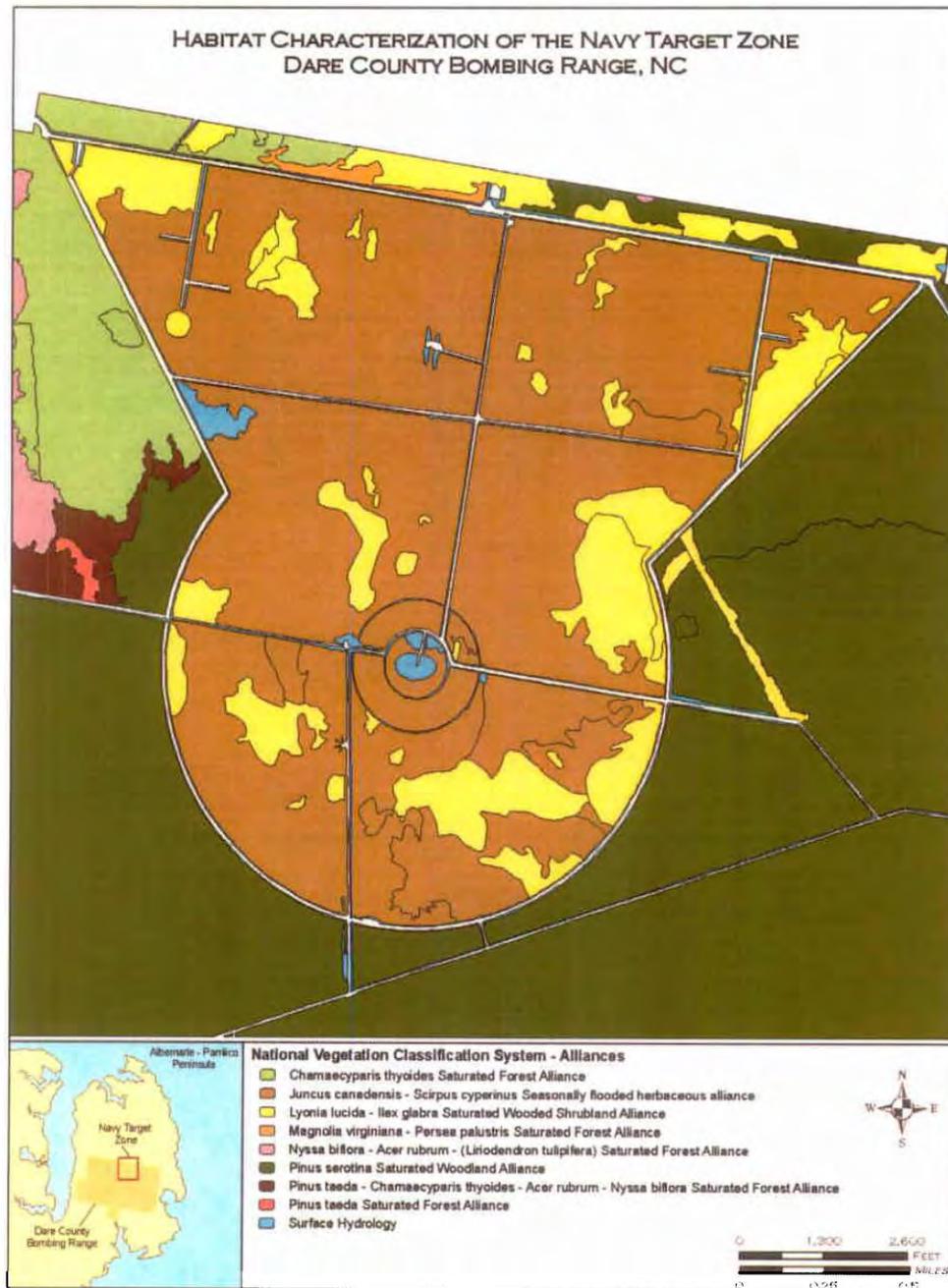


Figure 3-3. Navy Dare County Bombing Range Impact Area Alliances

3.4.4 Low Pocosin

[NVCS Alliance: *Lyonia lucida* - *Ilex glabra* Saturated Wooded Shrubland Alliance]

This community type occurs on the deepest parts of domed peatlands on poorly drained interstream flats, and peat-filled Carolina bays and swales. They occur on peat deposits greater than 1 meter deep or shallower and over very oligotrophic (nutrient-poor) wet sands. The hydrology is Palustrine, seasonally flooded or saturated. They occur in Carolina bays and swales in low areas that lack mineral input, or in the interior of peat-filled depressions. Small permanently flooded depressions may occur. Vegetation is composed of a dense shrub layer, generally less than 1.5 meters tall, with fetterbush, titi, or honeycup (*Zenobia pulverulenta*) as dominants, with frequent laurel greenbrier. Widely scattered, stunted pond pine, swampbay, loblolly bay (*Gordonia lasianthus*) and sweetbay usually occur. Pools or openings may be dominated by leatherleaf (*Chamaedaphne calyculata*), Walter's sedge (*Carex striata*), Virginia chainfern, yellow pitcherplant (*Sarracenia flava*), bushy bluestem (*Andropogon glomeratus*), and sphagnum moss.

3.4.5 High Pocosin

[NVCS Alliance: *Shining Fetterbush* - *Little Gallberry* Saturated Wooded Shrubland Alliance]

This community occurs on central to intermediate parts of domed peatlands on poorly drained interstream flats, and peat-filled Carolina bays and swales. They occur on peat deposits 1.5 meters deep or shallower and over very oligotrophic wet sands. The hydrology is Palustrine, seasonally flooded or saturated. High pocosins occur in Carolina bays and swales occupying low areas that lack mineral input, or occur in the interior of peat-filled depressions. Vegetation persists in a dense shrub layer, between 1.5 and 3 meters tall, and can consist of fetterbush, titi, or honeycup as dominants, with frequent laurel greenbrier. Widely scattered, stunted pond pine, swampbay, loblolly bay, and sweetbay usually occur. Pools or openings may be dominated by leatherleaf, Walter's sedge, Virginia chainfern, yellow pitcherplant, bushy bluestem, sphagnum moss.

3.4.6 Pond Pine Woodland

[NVCS Alliance: *Pinus serotina* Saturated Woodland Alliance]

These occur on outer parts of domed peatlands on poorly drained interstream flats, and peat-filled Carolina bays and shallow swales. The soils are shallow organic deposits or deeper peats with some input of mineral sediment. The hydrology is Palustrine, temporarily flooded or saturated. Water table levels may drop to underlying mineral sediment during the dry season, allowing plants to root there. These areas may also receive some influx of water with nutrients from adjacent areas. The vegetation is open to nearly closed canopy of pond pine, sometimes codominant with loblolly bay, and with lesser amounts of sweetbay, red maple, loblolly pine, swampbay, and Atlantic white cedar. Shrub layer tall and very dense, greater than 5 meters tall except when recently burned. Common shrubs are titi, fetterbush, maleberry, large gallberry (*Ilex*

and common reed (*Phragmites australis*) may occur in roadside ditches and on the margins of ponds and open water areas.

The *Arundinaria gigantea* Shrubland Alliance consists of wetlands, including Coastal Plain peat domes, and stream flats and saturated slopes, dominated by giant plumegrass (*Arundinaria gigantea*), either without an overstory, or with widely scattered trees such as swamp tupelo and pond pine (*Pinus serotina*). Herbs and other shrubs may be found in openings in stands, particularly after episodes of fire.

3.5 Wildlife Use

The DCBR is located in the eastern portion of the Albemarle-Pamlico Peninsula. This portion of the peninsula is covered predominantly in natural forest vegetation, with a portion in timber management and a portion maintained as a wildlife refuge, managed by U.S. Fish and Wildlife Service (USFWS) (2006). Therefore, the area mostly harbors species adapted to living in forested habitat as opposed to open or disturbed areas such as cropland. The large expanses of bottomland and swamp forest on the eastern peninsula create suitable conditions for an abundance of wildlife, including large mammals such as black bears (*Ursus americanus*) and the reintroduced red wolf (*Canis rufus*), and legally protected species such as the red-cockaded woodpecker (*Picoides borealis*), and the bald eagle (*Haliaeetus leucocephalus*). Approximately 281 vertebrate species, composed of 40 mammals, 145 birds, 48 reptiles and amphibians, and 48 fish, are permanent or seasonal residents to the peninsula (USFWS 2006).

3.5.1 Mammals

Of the 47 species of mammals commonly occurring in the lower coastal plain of North Carolina, 42 are known to occur on the peninsula. The most common land mammals are the black bear, opossum (*Didelphis virginiana*), and rodents such as the hispid cotton rat (*Sigmodon hispidus*). Semiaquatic furbearers such as the muskrat (*Ondatra zibethica*), nutria (*Myocastor coypus*), and river otter (*Lontra canadensis*) are common. Numbers of beaver (*Castor canadensis*) are increasing. The white-tailed deer population (*Odocoileus virginianus*) has remained relatively constant at low numbers in recent years. The black bear population is among the highest density populations in the southeast. Numerous sightings of eastern cougar (*Puma concolor cougar*) have been reported, but none have been confirmed. Many species of forest bats, such as the eastern red bat (*Lasiurus borealis*) and hoary bat (*Lasiurus cinereus*), will seek open areas (as are present in the impact area) next to forest lines to forage.

3.5.2 Birds

The avian species composition changes throughout the year since most are migratory. Although 145 species of birds are known to be year-round or seasonal residents, the total number of birds easily swells to 250 or more when considering species that regularly visit the peninsula as a migratory stop-over site (USFWS 2006). The area is centrally positioned along the Atlantic

Flyway, the principal eastern migration route for birds in North America, and is a much-used and valuable feeding and resting area.

Breed birds on the eastern Albemarle-Pamlico Peninsula are characteristic of species that inhabit other coastal plain communities in the region. Due to the predominance of forest or brackish marsh habitats, dwellers of those habitats are commonly the most abundant species. The peninsula is rich in warblers, especially Prothonotary and Black-throated Green Warblers, and woodpeckers, such as the Pileated Woodpecker and the endangered Red-cockaded Woodpecker. Wading birds such as the Great Blue Heron are common and breeding has been documented in at least two rookeries on and adjacent to the refuge. Bald Eagles have nested on the peninsula, and, although not used every year, viable nests remain.

Winter residents of greatest abundance in the area include the American Robin, Yellow-rumped Warbler, Red-winged Blackbird, various sparrows, and Northern Bobwhite. Mourning Doves, American and Fish Crows, Red-winged Blackbirds, Northern Bobwhite, Song Sparrows, Fox Sparrows, Swamp Sparrows, White-throated Sparrows, and Savannah Sparrows all use grasslands and freshwater marshes, low pocosins, canal banks, and forest edges (as are present in the impact area). American Kestrels, Red-tailed Hawks and Northern Harriers can also be seen hunting in these open areas.

Many waterfowl winter in the area including Tundra Swans, Coots, and more than 25 species of ducks. Waterfowl numbers have increased in interior portions of the eastern peninsula due to management actions on moist soil management units (wetlands) involving the creation of ditches, canals, freshwater marshes (as are present in the impact area) and swamps. The most prevalent wintering species in freshwater wetlands and marshes include Pintail, Green-winged Teal, Gadwall, Widgeon, Mallard, and Black Duck. Wintering waterfowl numbers peak during the months of November through February.

3.5.3 Reptiles and Amphibians

Sixty-one species of reptiles and amphibians are reported for the peninsula (USFWS 2006). Reptiles and amphibians are most numerous and diverse around permanent and semi-permanent open water, marshes, creeks, lakes, and canals. They also thrive in disturbed or modified/transitional areas. Some of the species that inhabit the area are the brown and plain-bellied water snakes (*Nerodia taxispilota* and *Nerodia erythrogaster*); common snapping (*Chelydra serpentina*), red-bellied and eastern painted turtles (*Pseudemys rubriventris* and *Chrysemys picta*); the southern leopard frog (*Rana sphenoccephala*); and a wide variety of snakes. Three species of venomous snakes have been documented on the peninsula. They are the eastern cottonmouth (*Agkistrodon piscivorus*), canebrake (timber) rattlesnake (*Crotalus horridus atricaudatus*) and copperhead (*Agkistrodon contortrix*).

4.0 WETLANDS EVALUATION

4.1 Wetland Functions Ratings and Analysis

The NC-CREWS rating method assigns values of Low, Medium, and High as indices of value of the wetland for each functional parameter. Table 4-1 indicates step-wise ratings system with results from each step. Wetland Functions used in Rating Wetlands are:

- **Terrestrial Wildlife Habitat**
This function is rated on the quality of habitat provided for terrestrial wildlife. The parameters considered are interior size, percent surrounding habitat that is natural vegetation, and the length of a wildlife corridor that links to other natural vegetation.
- **Nonpoint Source Pollution Reduction**
Three parameters of the nonpoint source rating system were considered: 1) The proximity to agriculture, developed land, pine plantation, and natural vegetation are considered using the percent of surrounding habitat as the criteria; 2) The distance from a water source is used, and 3) The position of the wetland relative to stream orders is used.
- **Floodwater Storage**
The position of the wetland in the landscape, the duration of flooding, and the width of the wetland perpendicular to the stream are the parameters considered for rating the floodwater storage capacity of a wetland.

An overall rating is then assigned, which incorporates ratings for the three major wetland functions. Overriding considerations can also trigger an automatic rating for any function. A fourth rating factor, *Potential Risk of Wetland Loss*, is used in the mitigation process. Once the rating is determined the wetland is given a value designation of “Exceptional Functional Significance” for above normal wetland functionality, “Substantial Functional Significance” for normal functionality, and “Beneficial Functional Significance” for sub-normal functionality. Acreage of the wetland is multiplied by the rating for each parameter in each function and combined to produce a cumulative, numerical ranking that represents functional units supplied by the wetland.

WETLAND HABITAT CHARACTERIZATION
NAVY DARE COUNTY BOMBING RANGE IMPACT AREA

Table 4-1. NC-CREWS Evaluation of Parameters

Principal Wetland Functions	Parameters of Function	Sub-Parameters	Principal Wetland Function Rating	Parameter Value Rating	Sub-Parameter Rating	Explanation
Water Quality	Nonpoint Source Function		Medium			Nonpoint Source rating is used
		Proximity to (Pollution) Sources		Medium	Medium	Mode rating of sub-functions
		Proximity to Water Body			Low	Keyhole is surrounded by forested lands in varying levels of timber management
		Watershed Position			Medium	Natural permanent water bodies (streams and ponds) are greater than 300 feet from the Keyhole. The Keyhole is nearest to a second order stream
Hydrology	Floodwater Cleansing	Site Conditions			Medium	Wetland types in the Keyhole are Freshwater Marsh and Pocosin. Soils are high organic Histosols.
				Low		All Depressional Wetlands are rated Low for this function
Hydrology	Surface Runoff Storage		High-freshwater marsh, Medium-pocosin			Surface Runoff Storage rating is used
			High-freshwater marsh, Medium-pocosin			Mode rating of sub-functions

WETLAND HABITAT CHARACTERIZATION
NAVY DARE COUNTY BOMBING RANGE IMPACT AREA

Principal Wetland Functions	Parameters of Function	Sub-Parameters	Principal Wetland Function Rating	Parameter Value Rating	Sub-Parameter Rating	Explanation
		Watershed Position			Medium	The Keyhole is nearest to a second order stream
		Wetland Size			High	The Keyhole covers approximately 2.0% of the HU area
		Site Conditions			High-fresh marsh Medium-pocosin	Wetland types in the Keyhole are Freshwater Marsh and Pocosin. Soil hydrologic groups present are C or D.
	Floodwater Storage			Low		All Depressional Wetlands are rated Low for this function
	Shoreline Stabilization			Low		All Depressional Wetlands are rated Low for this function
Habitat			High			Mode rating from Aquatic Life and Terrestrial Wildlife ratings
	Endangered Species/Significant Natural Area			Low		No significant natural areas designations are given to the keyhole area, and no Federally protected species listed for Dare and Hyde Counties are known to require freshwater marsh or low pocosin habitat
	Terrestrial (Internal Wildlife Habitat)			High		Mode rating of sub-functions
	Interior Size of Habitat				High	The Keyhole is greater than 74 acres.
	Association with Surface Water				High	Constructed ditches and canals within the Keyhole are permanent surface water features.

WETLAND HABITAT CHARACTERIZATION
 NAVY DARE COUNTY BOMBING RANGE IMPACT AREA

Principal Wetland Functions	Parameters of Function	Sub-Parameters	Principal Wetland Function Rating	Parameter Value Rating	Sub-Parameter Rating	Explanation
		Heterogeneity of Habitats			Low	Less than 5 vegetation types occur in the Keyhole.
		Wetland Type			High-freshwater marsh Medium-pocosin	Primary wetland type in the Keyhole is Freshwater Marsh. Pocosin is secondary type.
Terrestrial (Landscape Habitat)			High			Mode rating of sub-functions
		Wetland Juxtaposition			High	Greater than 50% of Keyhole is bordered by other wetlands
		Surrounding Habitat			High	Greater than 50% of land cover within 0.5 miles of Keyhole composed of natural vegetation
Terrestrial (Movement System Value)			High			Land cover surrounding Keyhole composed predominantly of natural vegetation and connected to other wetlands
Aquatic			High			Amphibians and Invertebrates rating is used
		Anadromous Fish			Low	All Depressional Wetlands are rated Low for this function
		Other Fish Species			Low	All Depressional Wetlands are rated Low for this function
		Amphibians and Invertebrates			High	The primary cover type in the Keyhole is Freshwater Marsh and greater than 50% of land cover within 0.5 miles of Keyhole composed of natural vegetation

Principal Wetland Functions	Parameters of Function	Sub-Parameters	Principal Wetland Function Rating	Parameter Value Rating	Sub-Parameter Rating	Explanation
Potential Risk of Wetland Loss			High			<p>Mode rating from Landscape Character, Water Quality Characteristics and Replacement Difficulty ratings</p> <p>Wetlands cover greater than 50% of the Hydrologic Unit. Freshwater marsh makes up < 10% and pocosin makes up > 25% of wetlands in HU.</p>
Wetland Extent and Rarity				High-freshwater marsh, Low-pocosin		
Land use in Hydrologic Unit				Low		<p>Mode rating of sub-functions</p> <p>Less than 10% of landscape agricultural use</p> <p>10 to 30% of landscape in pine plantation</p> <p>Less than 0.1% of landscape developed</p>
Watershed Water Quality Characteristics		Land in Agricultural Use Land in Pine Plantation Land in urban/developed uss		High		<p>Classification of Major Water Body rating is used</p> <p>Miltail Creek is classified as an Outstanding Resource Water</p> <p>Less than 10% of waters landscape less than fully supporting</p>
		Classification of Major Water Body in Watershed Use Support of Water Bodies in Watershed				

WETLAND HABITAT CHARACTERIZATION
NAVY DARE COUNTY BOMBING RANGE IMPACT AREA

Principal Wetland Functions	Parameters of Function	Sub-Parameters	Principal Wetland Function Rating	Parameter Value Rating	Sub-Parameter Rating	Explanation
		Classification of Water Body Receiving Watershed Output			Low	Alligator River is classified as SC
Replacement Difficulty for Wetland Functions			High			Primary wetland type in the Keyhole is Freshwater Marsh, Pocosin is secondary. There is no replacement site identified in watershed

4.2 Results

Wetland conditions exist throughout the interior of the NDCBR impact area. A cross reference between the common name and NVCS community alliances used in this report and the NC-CREWS communities is provided in Table 4-2. General plant community types within the impact area consisted of freshwater marsh (1,590 acres) dominated by rushes and other herbaceous species and low pocosin (356 acres) with fetterbush, inkberry, honeycup and other common pocosin shrub species, and occasional pond pine, swamp tupelo, and bald cypress trees. Common reed, an extremely invasive species that can colonize an area to the exclusion of other species, was limited to relatively few roadsides and ditches in the impact area. Surface water (67 acres) primarily occurred in ditches and areas heavily impacted by ordnance. The major community types adjacent to the impact area included high and low pocosins, Atlantic white cedar forest, pond pine woodland, nonriverine wet hardwood forest, and nonriverine swamp forest.

Table 4-2. Types of Vegetation Cover in the Impact Area at Navy Dare County Bombing Range

Common Name for Habitat	NVCS Vegetation Alliance	NC-CREWS cover type	Acres within Impact Area
Peatland Atlantic White Cedar Forest	<i>Chamaecyparis thyoides</i> Saturated Forest Alliance	Swamp Forest	0
Freshwater Marsh	<i>Juncus canadensis</i> - <i>Scirpus cyperinus</i> Seasonally flooded herbaceous alliance	Freshwater Marsh	1,590
Low Pocosin	<i>Lyonia lucida</i> - <i>Ilex glabra</i> Saturated Wooded Shrubland Alliance	Pocosin	356
Bay Forest	<i>Magnolia virginiana</i> - <i>Persea palustris</i> Saturated Forest Alliance	Pocosin	0
Nonriverine Wet Hardwood Forest	<i>Nyssa biflora</i> - <i>Acer rubrum</i> - (<i>Liriodendron tulipifera</i>) Saturated Forest Alliance	Swamp Forest	0
Pond Pine Woodland	<i>Pinus serotina</i> Saturated Woodland Alliance	Swamp Forest	0
Nonriverine Swamp Forest	<i>Pinus taeda</i> - <i>Chamaecyparis thyoides</i> - <i>Acer rubrum</i> - <i>Nyssa biflora</i> Saturated Forest Alliance	Swamp Forest	0
High Pocosin	<i>Shining Fetterbush</i> - <i>Little Gallberry</i> Saturated Wooded Shrubland Alliance	Pocosin	0
Surface Hydrology	Surface Hydrology	N/A	67
Total Acres			2,014

Wetlands within the impact area received NC-CREWS Overall Wetland Value designations of Exceptional Functional Significance and Substantial Functional Significance. These results are The NC-CREWS methodology uses a simplified vegetative community classification system.

The Overall Wetland Value of the wetlands within the impact area received NC-CREWS designations of *Exceptional Functional Significance* and *Substantial Functional Significance* (Figure 4-1). The impact area received a *Medium* rating for water quality because non-point sources of pollution are not a significant issue in the area, and received *Medium* or *High* ratings for hydrology, which corresponds to the different values for wetland types. The impact area received a *High* rating habitat because of its connectivity to other natural vegetative communities (the Alligator NWR) and other wetlands. Cumulatively, the overall ratings for Principal Functions are *High* for areas with freshwater marsh and a *Medium* for areas with pocosin. This is due to the relative difference in rarity of the two cover types in the watershed.

5.0 REFERENCES

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APPENDIX C

**THE COASTAL ZONE MANAGEMENT ACT AGENCY
COORESPONDANCE WITH THE NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL
RESOURCES, DIVISION OF COASTAL MANAGEMENT**

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DEPARTMENT OF THE NAVY
COMMANDER
NAVY REGION MID-ATLANTIC
1510 GILBERT ST.
NORFOLK, VA 23511-2737

IN REPLY REFER TO:
5090
EV21/24/RE142
NOV 11 2014

Mr. Doug Huggett
Federal Consistency Coordinator
North Carolina Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421

Dear Mr. Huggett:

The Department of the Navy (Navy) is submitting this negative determination for the proposed improvements to targets at the Dare County Bombing and Electronic Combat Range (DCBR). The Navy proposes to improve target areas of the DCBR. The proposed action would encompass the establishment of target areas and maintenance roads for three locations on the DCBR to allow for more realistic training scenarios, allow for maintenance operations to be completed, enhance range personnel safety, and increase Operational Range Clearance capabilities.

The DCBR is a U.S. Air Force (USAF) operated weapons range located on the Dare County peninsula in the coastal plain of northeastern North Carolina. The DCBR encompasses 46,619 acres. The Navy utilizes the northern half of the DCBR and the Air Force utilizes the southern half of the DCBR. All of the Navy bombing targets are contained in the impact area which comprises 2,109 acres of emergent, grassy wetlands. The Air Force impact area also consists of emergent, grassy wetlands totaling 2,279 acres. The remaining acreage is forested wetlands that serve as a safety buffer for military operations. Within the Navy impact area, approximately 88 acres are currently utilized or will be utilized for target pads, roads and storage.

The Proposed Action seeks to improve specific target areas on the Navy's portion of the DCBR. The Proposed Action would encompass the establishment of a City Target with hardened roadways, a maintenance road and three target areas for the existing Runway Target, and turnarounds at the end of 3500 Foot Road for utilization by the Moving Land Target. A total of 4.29 acres of wetlands would be permanently filled as a result of the Proposed Action and an additional 0.15 acres of wetlands would be secondarily impacted by habitat fragmentation. The proposed fill equates to approximately 0.009 percent of wetlands for the entire DCBR and approximately 0.21 percent of wetlands for the Navy impact area.

Dare County is currently in attainment for all criteria pollutants under the National Ambient Air Quality Standards. The Proposed Action

would not produce emissions above the Clean Air Act General Conformity Rule de minimus thresholds thus allowing Dare County to remain in attainment.

The Proposed Action would not significantly impact wildlife and vegetation on the DCBR. The Proposed Action would not adversely modify critical habitat and would have no effect on the bald eagle (*Haliaeetus leucocephalus*) or the red-cockaded woodpecker (*Picoides borealis*). The Proposed Action would not adversely modify critical habitat and may affect but is not likely to adversely affect the American alligator (*Alligator mississippiensis*).

The Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. § 1451 et seq., as amended, 15 CFR § 921-930) provides assistance to states, in cooperation with federal and local agencies, for developing land- and water-use programs in coastal zones. State coastal zone management programs are used to implement CZMA. As defined in Section 304 of the Coastal Zone Management Act, the term "coastal zone" does not include "lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government." The Proposed Action would occur entirely on federal property. The Proposed Action would occur only on the DCBR and no impacts are anticipated off-site of the DCBR; therefore, there will be no effects on North Carolina's coastal uses or resources. Additionally, the Navy would obtain all necessary permits and consult with all necessary agencies prior to starting any construction activities. Consequently, the Navy is making a negative determination under CZMA.

Please contact Mr. Joseph Vlcek at (757) 836-8475 or by email (joseph.vlcek@navy.mil), if you have questions about this project.

Sincerely,



MICHAEL H. JONES
Director, Environmental Planning
By direction of the Commander

APPENDIX D

**AGENCY CORRESPONDENCE WITH THE NORTH CAROLINA
DEPARTMENT OF CULTURAL RESOURCES**

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DEPARTMENT OF THE NAVY

COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/008
April 1, 2014

Kevin Cherry, Ph.D.
Deputy Secretary, North Carolina Office of Archives and History
State Historic Preservation Officer
4619 Mail Service Center
Raleigh, NC 27699-4619

Dear Dr. Cherry:

The United States Navy (Navy) is preparing an Environmental Assessment (EA) to analyze the proposal to improve target areas of the Navy Dare County Bombing Range (DCBR). The improvements would include the establishment of target areas and maintenance roads for three locations on the Navy DCBR to allow for more realistic training scenarios, allow for maintenance operations to be completed, enhance range personnel safety, and increase Operational Range Clearance capabilities.

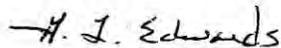
The DCBR, a c.1964 facility jointly used by the Navy and United States Air Force, encompasses 46,000 acres of marshland, forest and open space, and contains targets for inert weapons delivery practice. A cultural resources survey of the DCBR was conducted by Pan American Consultants, Inc., in 1996. The survey, which included field investigations, did not identify any significant archaeological resources. The level of disturbance documented on the property led the researchers to conclude that it is highly unlikely that any intact archaeological sites are present. No historic buildings or structures are known to be located anywhere on the DCBR, including the Navy impact area. The North Carolina State Historic Preservation Office (SHPO) concurred with Pan American Consultants' recommendation that no further cultural resource investigations were necessary and that no National Register eligible archaeological resources are likely present in a letter dated August 6, 1996 (enclosure 1). These findings were presented in the Cultural Resources Management Plan for Seymour Johnson Air Force Base, DCBR, Fort Fisher Air Force Recreation Area (1998, 2008). The current management plan also states that there are no traditional cultural properties or related Native American issues known for the DCBR. On November 9, 2010, the North Carolina SHPO also concurred with the Navy's determination that no historic properties would be affected by an action similar to the proposed undertaking (enclosure 2).

Based on the information stated above, the Navy believes that no historic properties are present within the DCBR, and the proposed undertaking will have no effect upon National Register of Historic

5090
Ser N46/008
April 1, 2014

Places eligible resources. In accordance with Section 106 of the National Historic Preservation Act, the Navy seeks your concurrence with these findings by letter, with any additional comments or questions within 30 days of receipt. Enclosures (3) and (4) show the location of the proposed undertaking. Please contact Mr. Joseph Vlcek at (757) 836-8475 or by email (joseph.vlcek@navy.mil), if you have questions about this project.

Sincerely,



G. L. EDWARDS
Director
Environmental Readiness Branch
By direction

Enclosures:

1. North Carolina Department of Cultural Resources
August 6, 1996 letter to the U.S. Navy.
2. North Carolina Department of Cultural Resources
November 6, 2010 letter to the U.S. Navy
3. Location of the Dare County Bombing Range
4. Navy Dare County Bombing Range Target Improvement
Locations

NORTH CAROLINA DEPARTMENT OF CULTURAL RESOURCES AUGUST 6, 1996 LETTER
TO THE U.S. NAVY

Apr-27-98 14:51

P. 09

ATTACHMENT E



North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

August 6, 1996

Dr. Mike Russo
Air Force Project Coordinator
National Park Service
Southeast Regional Office
75 Spring Street
Atlanta, Georgia 30303

Re: Draft Report, US Air Force Cultural Resources
Servicewide Overview Project, Seymour Johnson AFB,
Goldboro, Wayne County, North Carolina, ER 97-7086

Dear Dr. Russo:

Thank you for your letter of July 8, 1996, concerning the above project.

We have reviewed the draft report concerning Seymour Johnson Air Force Base. For the most part, Seymour Johnson has done an excellent job under Sections 106 and 110 of the National Historic Preservation Act and is to be congratulated for their efforts.

In terms of archaeological resources, the following is the current status of investigations at the various facilities included in the report.

1. **Seymour Johnson Main Base.** Archaeological site 31WY9, the only recorded site on the base proper, was revisited by a member of our staff in 1978. The site had been destroyed by erosion and is not eligible for the National Register of Historic Places. We do not recommend any archaeological investigations on the main base due to the high level of ground disturbing activities that have taken place in the past.
2. **Dare County Ordnance Range.** A member of our staff conducted an aerial reconnaissance of this facility in 1978 to assess the potential for archaeological resources. Given the swampy nature of the terrain and the continued use of the facility as an ordnance range, it is our opinion that no National Register eligible archaeological resources are likely to be present. The recent survey of 21,330 acres of the facility supports this opinion since no archaeological resources were located. We were not consulted prior to the survey nor were we given a copy of the letter by David Anderson of the National Park Service concerning his opinion that the survey by Panamerican Consultants was inadequate. We request that a copy of his letter be forwarded to us as soon as possible so that we may respond to Dr. Anderson's concerns. We do not believe that any

109 East Jones Street • Raleigh, North Carolina 27601-2807



Enclosure (1)

Dr. Mike Russo
August 6, 1996, Page 2

additional archaeological survey is necessary at the Dare County Ordnance Range.

- 3. **Fort Fisher Recreation Area.** We have received the archaeological survey report by Panamerican Consultants concerning the 101-acre tract controlled by the U.S. Air Force at the Fort Fisher Recreation Area. Three archaeological sites were either revisited or located during the investigation. As stated in our letter of July 10, 1996, to Paul Wetz of the Savannah Corps, we concur that site 31NH697** is eligible for listing in the National Register of Historic Places. No recommendations or evaluations were included in the report for sites 31NH642** or 31NH680, and in the same letter we requested clarification of their eligibility status, which we have yet to receive.
- 4. **Minor Tracts.** The minor tracts include the Jasper and Oatland Communication Sites and the Summerall, Saulston and Neuse Middle Markers Annexes. We need locations for these facilities as well as pertinent information concerning the extant buildings and land use before we can evaluate their potential for containing significant archaeological resources.

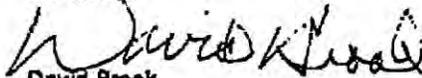
We trust that the above information clarifies the status of Section 106 and Section 110 compliance for archaeological resources at Seymour Johnson Air Force Base.

By our July 22, 1996, letter we responded to the draft historic structures survey report by Panamerican Consultants for Seymour Johnson Air Force Base. A copy of our letter is enclosed. We have raised the issue of whether the eight World War II buildings constitute a historic district, and are awaiting a response.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gladhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,



David Brook
Deputy State Historic Preservation Officer

DB:rlw

Enclosure

cc: David Anderson
National Park Service
Southeastern Archaeological Center
P.O. Box 2416
Tallahassee, Florida 32312

bc: File
Brown/David Turco
Claggett/Hall
County
RF

NORTH CAROLINA DEPARTMENT OF CULTURAL RESOURCES
NOVEMBER 6, 2010 LETTER TO THE U.S. NAVY



North Carolina Department of Cultural Resources
State Historic Preservation Office
Peter B. Sandbeck, Administrator

Beverly Faires Perdue, Governor
Linda A. Cantale, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

November 9, 2010

R. D. Curfman
Department of the Navy
Naval Facilities Engineering Command, Atlantic
6506 Hampton Boulevard
Norfolk, VA 23508-1278

Re: Increase the Surface Area of Target Pads, Roads, and Storage and Maintenance Areas,
Dare County Bombing and Electronic Combat Range, Dare County, ER 10-1981

Dear Mr. Curfman:

Thank you for your letter of October 20, 2010, concerning the above project.

We have reviewed the information and determined that the project will not adversely affect any historic resources.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above-referenced tracking number.

Sincerely,

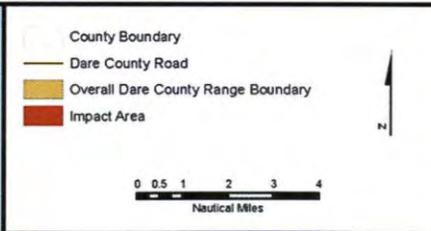
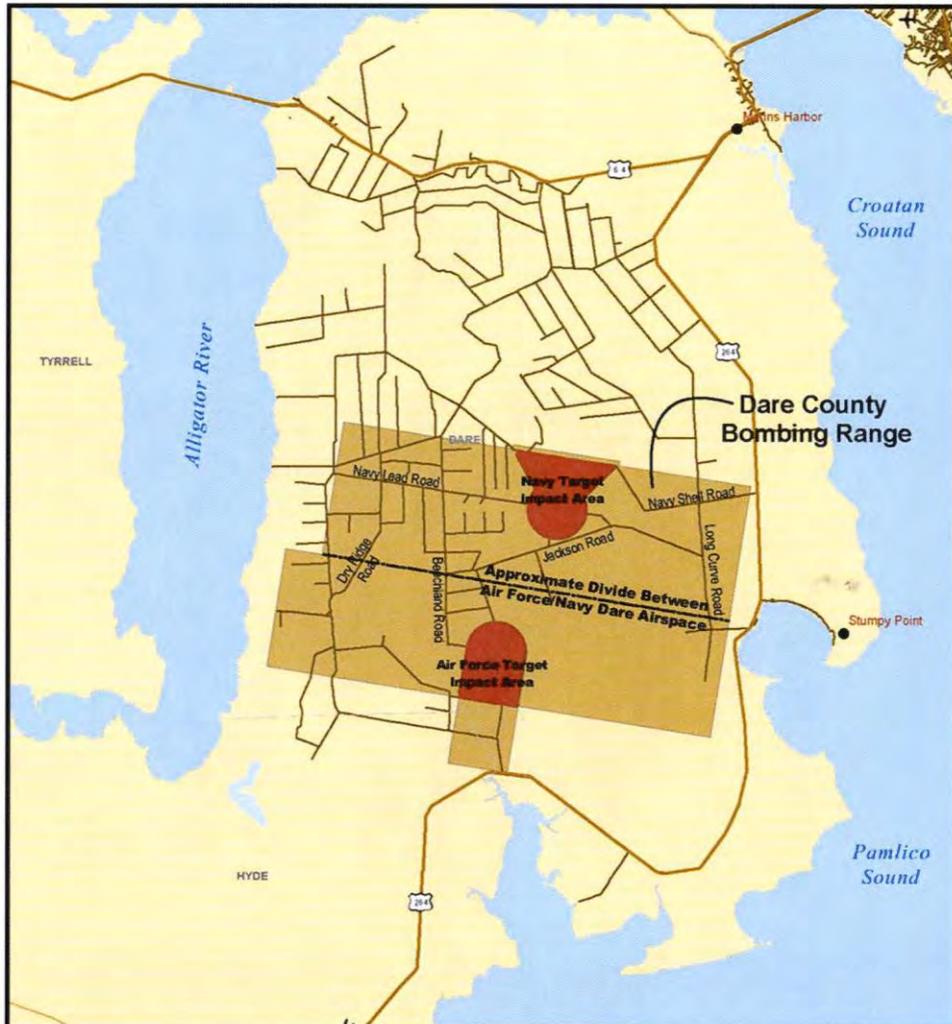
Renee Gledhill-Earley
for Peter Sandbeck

Location: 108 East Jones Street, Raleigh, NC 27601 Mailing Address: 4617 Mail Service Center, Raleigh, NC 27699-4817 Telephone/Fax: (919) 807-6570/807-6599

Enclosure 3: Location of the Dare County Bombing Range

Enclosure (2)

NAVY DARE COUNTY BOMBING RANGE TARGET IMPROVEMENT
LOCATIONS



**Location of
Dare County
Bombing Range**



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Legend

- Targets
- Expansion footprints

0 350 700 Yards



**Navy Dare County
 Bombing Range
 Infrastructure Expansion**





**North Carolina Department of Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

May 13, 2014

G. L. Edwards, Director
Environmental Readiness Branch
Department of the Navy
US Fleet Forces Command
1562 Mitscher Ave, Suite 250
Norfolk, VA 23551-2487

via email to: joseph.vlcek@navy.mil

RE: Improve Target Areas of Navy Dare County Bombing Range, Dare County, ER 10-1981

Dear Mr. Edwards:

Thank you for your April 1, 2014, letter concerning the above-referenced undertaking. We have reviewed the materials presented and concur with your finding that no historic properties will be affected.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or renee.gledhill-earley@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,


for Ramona M. Bartos

APPENDIX E

**NAVY DARE COUNTY BOMBING AND ELECTRONIC COMBAT
RANGE AIR EMISSIONS CALCULATIONS**

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**Environmental Assessment for Improvements to Targets at the Navy Dare County Bombing
and Electronic Combat Range, North Carolina**

Emissions Calculations

Preferred Alternative

Assumptions:

- Road and non-road engine construction vehicles assume a 100-day construction period, and each piece of equipment operated 6 hours per day each (max) in a 8-hr day.
- Equipment to be used at Navy Dare County Bombing and Electronic Combat Range: excavator, truck, grader, backhoe, compactor, scraper, and POVs.
- Emissions Factors were obtained from AP-42, Sections 3.3, 11.9 and 13.2 and South Coast Air Quality Management District (SCAQMD) data, and American Petroleum Institute (API) Data.
- Particulate Matter (PM) calculations include PM10 and PM2.5.
- Estimates are based on current available information at the time of calculation.
- General Approach: Emissions = Horsepower*Load Factor*Operating Time*Emission Factor.

Summary of Estimated Emissions				
Criteria Pollutants				
NO _x =	17,472	lbs/yr =	7.94	tons/yr
CO =	6,879	lbs/yr =	3.13	tons/yr
VOC =	867	lbs/yr =	0.39	tons/yr
PM =	867	lbs/yr =	3.16	tons/yr
SO ₂ =	1,320	lbs/yr =	0.60	tons/yr
Greenhouse Gasses				
CO ₂ =	1369338	lbs/yr =	622.43	Mtons/yr
CH ₄ =	409	lbs/yr =	0.19	Mtons/yr
N ₂ O =	31	lbs/yr =	0.01	Mtons/yr
Total CO₂ Equivalent =	1387537	lbs/yr =	630.70	Mtons/yr

General Conformity Rule Thresholds for Maintenance Area ⁽¹⁾		
Ozone (NO _x , SO ₂ , or NO ₂) =	100	tons/yr
Ozone (VOCs) =	50	tons/yr
Carbon Monoxide (CO) =	100	tons/yr
PM _{2.5} / PM ₁₀ =	100	tons/yr

(1) 40 CFR Ch. I (17-1-11 Edition) Section 93.153

The estimated emissions are well below the allowable thresholds.

Calculation Factors

Load Factors					
Excavator	Truck	Grader	Backhoe	Compactor	Scraper
59	100	58	21	57.5	66

Operating Time (hr/yr)					
Excavator	Truck	Grader	Backhoe	Compactor	Scraper
500	500	500	500	500	500

Typical Horsepower					
Excavator	Truck	Grader	Backhoe	Compactor	Scraper
300	350	150	100	99	266

* Reference: AP42, Sec 3.3; SCADMD Data (2007-2026)

	Criteria Pollutant Emissions Factors (lbs/hp-hr)						POV ⁽¹⁾	Delivery Truck ⁽¹⁾
	Excavator	Truck	Grader	Backhoe	Compactor	Scraper		
NO_x =	0.031	0.031	0.031	0.031	0.031	0.031	0.32	7.26
CO =	0.007	0.007	0.007	0.007	0.007	0.007	3.22	6.35
VOC =	0.002	0.002	0.002	0.002	0.002	0.002		
PM =	0.002	0.002	0.002	0.002	0.002	0.002		
SO₂ =	0.003	0.003	0.003	0.003	0.003	0.003		

(1) POV and Delivery Truck Emissions Factors are in g/mi (South Coast Air Quality Management District (SCAQMD) Data (2007-2026))

* Reference: AP42, Sec 3.3; 2004 American Petroleum Institute (API) Data

GHG Emission Factor					
	Construction lb/hp-hr	POV		Delivery Truck	
CO₂ =	1.15	360	g/mi	1500	g/mi
CH₄ =	0.001	0.42	g/L	0.07	g/L
N₂O =	0.0001	0.2	g/L	0.02	g/L

Direct Emissions Estimates

Construction Equipment/ Vehicle - Criteria Pollutant Emissions (lb/yr)						
	Excavator (1/day)	Truck (1/day)	Grader (1/day)	Backhoe (1/day)	Compactor (1/day)	Scraper (1/day)
NO _x =	2,744	5,425	1,349	326	882	2,721
CO =	620	1,225	305	74	199	614
VOC =	177	350	87	21	57	176
PM =	177	350	87	21	57	176
SO ₂ =	269	533	132	32	87	267

Construction Equipment/Vehicle - Green House Gas Emissions (lbs/yr)							
	Excavator	Truck	Grader	Backhoe	Compactor	Scraper	Total
CO ₂ =	101,775	201,250	50,025	12,075	32,732	100,947	498,804
CH ₄ =	81	160	40	10	26	80	397
N ₂ O =	5	11	3	1	2	5	26

*Reference: AP42, Tables 11.9-4, 11.9-1, 11.9-3, 13.2.3-1, 13.2.2-2, 13.2.2-3

Particulate Mater Emissions - Material Handling			
	Emission Factor		Emissions (tons)
Scraper	0.058	lb/Ton	0.3
Loading	0.002	lb/Ton	0.01
Grading	3.224	lb/VMT	0.1
Compacting	0.753	lb/hr	0.2
Vehicle Traffic	1.147	lb/VMT	2.2
Total =			2.8

Indirect Emissions Estimates

POV and Delivery Truck - Criteria Pollutant and Green House Gas Emissions			
VMT =	Vehicle Miles Traveled		
EF =	Emissions Factor		
Miles/Day =	40	No. Trucks =	1
Total Days =	100	No. of POV =	10
Criteria Pollutant Emissions			
CO =	348 lbs/yr	0.16 tons/yr	
NO _x =	31 lbs/yr	0.01 tons/yr	
Greenhouse Gas Emissions			
CO ₂ =	44982 lbs/yr	20.45 tons/yr	
CH ₄ =	6 lbs/yr	0.003 tons/yr	
N ₂ O =	3 lbs/yr	0.001 tons/yr	

Indirect Emissions Estimates Continued

Target Trucks - Criteria Pollutant and Green House Gas Emissions			
VMT =	Vehicle Miles Traveled		
EF =	Emissions Factor		
Miles/Day =	320	No. Trucks =	3
Total Days=	260		
Criteria Pollutant Emissions			
CO =	3495 lbs/yr	1.59 tons/yr	
NO _x =	3994 lbs/yr	1.82 tons/yr	
Greenhouse Gas Emissions			
CO ₂ =	825552 lbs/yr	375.25 tons/yr	
CH ₄ =	6 lbs/yr	0.003 tons/yr	
N ₂ O =	2 lbs/yr	0.001 tons/yr	

APPENDIX F

**AGENCY CORRESPONDENCE WITH THE UNITED STATES FISH
AND WILDLIFE SERVICE**

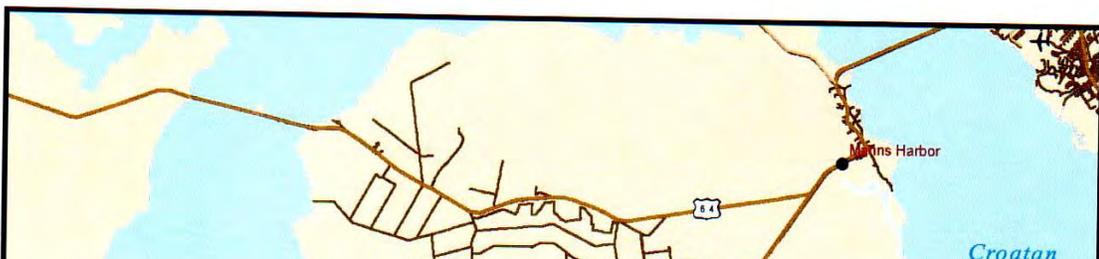
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DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

5090
Ser N46/292
December 3, 2013

Location of the Dare County Bombing Range



Navy Dare County Bombing Range Target Improvement Locations



List of Protected and Rare Species Occurring or Potentially Occurring at
the Dare County Bombing Range

Common Name	Scientific Name	Federal Status
American Alligator	<i>Alligator mississippiensis</i>	Threatened due to similarity of appearance
Northern diamondback terrapin	<i>Malaclemys terrapin terrapin</i>	Federal Species of Concern



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

January 8, 2014

Mr. G. L. Edwards
Director, Environmental Readiness Branch
U.S. Fleet Forces Command
1562 Mitscher Avenue, Suite 250
Norfolk, Virginia 23551-2487

Dear Mr. Edwards:

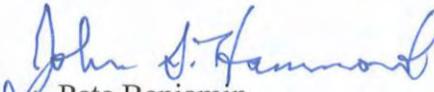
The Fish and Wildlife Service (Service) has reviewed your December 3, 2013, letter and enclosures regarding the United States Navy's (Navy) preparation of an environmental assessment (EA) to analyze the proposal to improve specific target areas of the Navy Dare County Bombing and Electronic Combat Range. Enclosure 3 of your correspondence contains the "List of Protected and Rare Species occurring or potentially occurring at the Dare County Bombing Range." You have provided the list in accordance with 50 CFR 402.12 (c) and (d). Based on the information contained in your December 3, 2013 correspondence, we concur with the species list you have provided.

The accepted species list includes the endangered red-cockaded woodpecker. Please note that there are cavity tree clusters and foraging habitat supporting red-cockaded woodpecker groups on the Dare County Bombing Range and the surrounding Alligator River National Wildlife Refuge. Review of projects requiring timber removal should include an assessment of the potential for these activities to have impacts on red-cockaded woodpecker foraging and nesting habitat. Survey methodology and habitat assessment guidelines are contained in the Service's Recovery Plan for the Red-cockaded Woodpecker (Service 2003). An electronic version of the Plan can be downloaded from this link: http://www.fws.gov/rcwrecovery/recovery_plan.html.

Consideration of what constitutes potential habitat occupied by the red-cockaded woodpecker applies. Based on aerial surveys and foraging habitat assessments on other projects in the Albemarle Pamlico peninsula, the Service is aware that habitat being used by red-cockaded woodpeckers in northeast North Carolina varies dramatically from typical habitat described in the recovery plan. Fundamentally, none of the habitat supporting red-cockaded woodpeckers in Dare County meets the "Standard for Managed Stability" guidelines—which are used to assess project impacts that involve occupied habitat. We know that they use very wet habitats with a wide range of pine density (from very sparse to dense). These stands may have tall, dense hardwood midstories and a significant amount of hardwoods in the overstory and may even be dominated by hardwoods or bald cypress. Should the proposed action require significant timber removal, we recommend that you contact this office for additional information.

In addition to the federally-protected species list, information on the species' life histories and habitats and information on completing a biological assessment or evaluation and can be found on our web page at <http://www.fws.gov/raleigh>. If you have any questions regarding this matter, please contact Mr. John Hammond at 919-856-4520 (Ext. 28). Thank you for your continued cooperation with our agency.

Sincerely,


for Pete Benjamin
Field Supervisor

Cc: Will McDearman, USFWS
Mike Bryant, USFWS