CHAPTER 5
SPECIES AT RISK AND NATURAL COMMUNITIES

5.1 Species at Risk

For the purposes of this document, species at risk will be defined as those species that are not federally listed, but are a conservation concern because of several factors including the species' rarity, proportion of the species population occurring on Camp Lejeune, and the potential of the species to impact the training mission if it were to become listed. Species at risk for Camp Lejeune include one Federal Candidate species, one Federal Species of Concern, and several state-listed species.

Camp Lejeune will protect populations of species at risk by designating Conservation Areas as defined in the Protected Species Base Order (BO 5090.11.) where such restrictions do not negatively impact training.

5.1.1 Coastal Goldenrod (*Solidago villosicarpa*)

The DOD, in cooperation with USFWS and North Carolina state agencies, has initiated a pilot program to address species at risk on military bases before those species become listed. The intent is to proactively manage for certain species at risk in order to reduce the need for listing the species. Marine Corps Base Camp Lejeune was chosen to be a pilot project for this program, and coastal goldenrod (*Solidago villosicarpa*) was chosen as the target species.

Coastal goldenrod, a Federal species of concern, is known to occur in only 5 populations in three counties in eastern North Carolina. Three of these populations occur on Camp Lejeune. The other sites occur in Pender and Brunswick Counties. Currently the North Carolina Natural Heritage Program is conducting a survey of likely habitat to look for coastal goldenrod. Surveys conducted in the fall of 2005 resulted in the rediscovery of the population on Oak Island in Brunswick County where the plant was first collected in 1949 and 1950. However, because of the small size and the threat of development, this population is not seen as viable. In addition, several new subpopulations of the Pender County population were discovered, greatly increasing the number of known plants in this area from 75 in 1998 to an estimated 1667 among 6 subpopulations in 2005. This survey will continue through December 31, 2006.

Fig 5-1. Coastal goldenrod on Camp Lejeune (courtesy of USFWS)

Because of the extreme rarity of this species and the fact that most of the known sites exist on Marine Corps-managed lands, coastal goldenrod was seen as a good candidate for this pilot project. Representatives from the North Carolina Natural Heritage Program

and USFWS were instrumental in helping develop management guidance for coastal goldenrod on Camp Lejeune. As a result of this pilot project, Camp Lejeune has been given a unique opportunity to reduce the likelihood of it being listed, and potentially precludes the need to list coastal goldenrod as threatened or endangered. By proactively managing for this species, and precluding the need to list it, Camp Lejeune will be able to maintain flexibility when it comes to its primary mission - training Marines.

Camp Lejeune will continue to monitor its coastal goldenrod population in cooperation with the North Carolina Natural Heritage Program and the North Carolina Plant Conservation Program. This collaborative partnership is discussed in greater detail in Appendix L, which contains recommendations that are still under review by Camp Lejeune at this time.

5.1.2 Hirst's Panic Grass (*Dichanthelium hirstii*)

Worldwide, Hirst's panic grass occurs in four extant populations. Historically, it was found in coastal plain habitats in the states of New Jersey, Delaware, North Carolina and Georgia. Currently Hirst's panic grass is known to exist in one site in Delaware and two known sites in North Carolina, both of which are on Marine Corps Base Camp Lejeune. The site in New Jersey contained just a few flowering stems in 2001 (Naturserve 2001).

Hirst's panic grass is currently a candidate for federal listing, which means that it is a plant for which "the Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposal to list. However, issuance of a proposed rule is currently precluded by higher priority listing actions. [61 FR 7596-76 13 (February 28, 1996)]."

Hirst's panic grass grows in areas that are periodically inundated with water. Hirst's panic grass exists within a fire-dependant landscape, and thrives under a sparse tree canopy. Consistent with the surrounding landscape, fire will be used to control midstory. When necessary the canopy over these sites will be thinned, but preferably by hand or, under dry conditions when using machinery. Camp Lejuene will continue to work with State agency and USFWS experts in developing a monitoring protocol for Hirst's panic grass.

5.1.3 Shorebirds and Colonial Nesting Waterbirds

- **Wilson's plover** (*Charadrius wilsonia*)
- **Least tern** (*Sterna antillarum*)
- **American oystercatcher** (*Haematopus palliates*)

Beginning April 1 through August 31, traditional nesting sites (i.e. those used from year to year by the species) and new nesting sites will be protected (including post/rope/signs) as conservation areas (prohibiting vehicles and bivouacs) only where such protection does not interfere with military training. As these areas will be closed to recreational vehicle traffic from April 1-August 31, impacts from human disturbance are not considered a likely threat. In addition, Camp Lejeune will post waterbird sites to discourage pedestrian impacts, and enforces

base order 10570.1c which requires pets to be leashed on Onslow Beach. Also, Camp Lejeune has actively removed predators from Onslow Beach, and will do so again as appropriate.

5.1.4 Other Species at Risk:

Thirty-seven state-protected species may occur or have been recorded in Onslow County. Federally-listed threatened and endangered species that are known to occur on Camp Lejeune are addressed in chapter 4, and are therefore not included in this chapter.

Legend:

E – endangered, T – threatened, SC – special concern, FSC – federal species of concern, SR – state rare, C – federal candidate species

	State	Federal
• golden crest (*Lophiola aurea*)	E	-
• golden sedge (*Carex lutea*)	E	E
• Tennessee bladder-fern (*Cystopteris tennesseenisis*)	E	-
• Hirsts' panic grass (*Dichanthelium hirstii*)	E	C
• Carolina grass-of-parnassus (*Parnassia caroliniana*)	E	-
• pineland plantain (*Plantago sparsiflora*)	E	FSC
• pinebarren smokegrass (*Muhlenbergia torreyana*)	E	-
• Carolina goldenrod (*Solidago pulchra*)	E	-
• eastern cougar (*Puma concolor couguar*)	E	E
• shortnose sturgeon (*Acipenser brevirostrum*)	E	E
• Carolina spleenwort (*Asplenium heteroresiliens*)	E	FSC
• many-flower grass pink (*Calopogon multiflorus*)	E	FSC
• Cooley's meadowrue (*Thalictrum cooleyi*)	E	E
• wood stork (*Mycteria Americana*)	E	E
• Eastern diamondback rattlesnake (*Crotalus adamanteus*)	E	-
• Spring-flowering goldenrod (*Solidago verna*)	SR	FSC
• loose watermilfoil (*Myriophyllum laxum*)	T	FSC
• yellow fringeless orchid (*Platanthera integra*)	T	-
• awned meadow-beauty (*Rhexia aristosa*)	T	FSC
• dwarf bladderwort (*Utricularia olivacea*)	T	-

• Eastern woodrat (*Neotoma floridana floridana*)	T	-
• gull-billed tern (*Sterna nilotica*)	T	-
• Carolina gopher frog (*Rana capito capito*)	T	FSC
• Rafinesque's big-eared bat (*Corynorhinus rafinesquii*)	SC	-
• painted bunting (*Passerina ciris*)	-	FSC
• black skimmer (*Rynchops niger*)	SC	-
• Bachman's sparrow (*Aimophila aestivalis*)	SC	FSC
• mimic glass lizard (*Ophisaurus mimicus*)	SC	FSC
• Carolina diamondback terrapin (*Malaclemys terrapin centrata*)	SC	-
• Eastern coral snake (*Micrurus fulvius*)	E	-
• timber rattlesnake (*Crotalus horridus*)	SC	-
• Southern hognose snake (*Heterodon simus*)	SC	FSC
• Pigmy rattlesnake (*Sistrurus miliarius*)	SC	-
• Common tern (*Sterna hirundo*)	SC	-

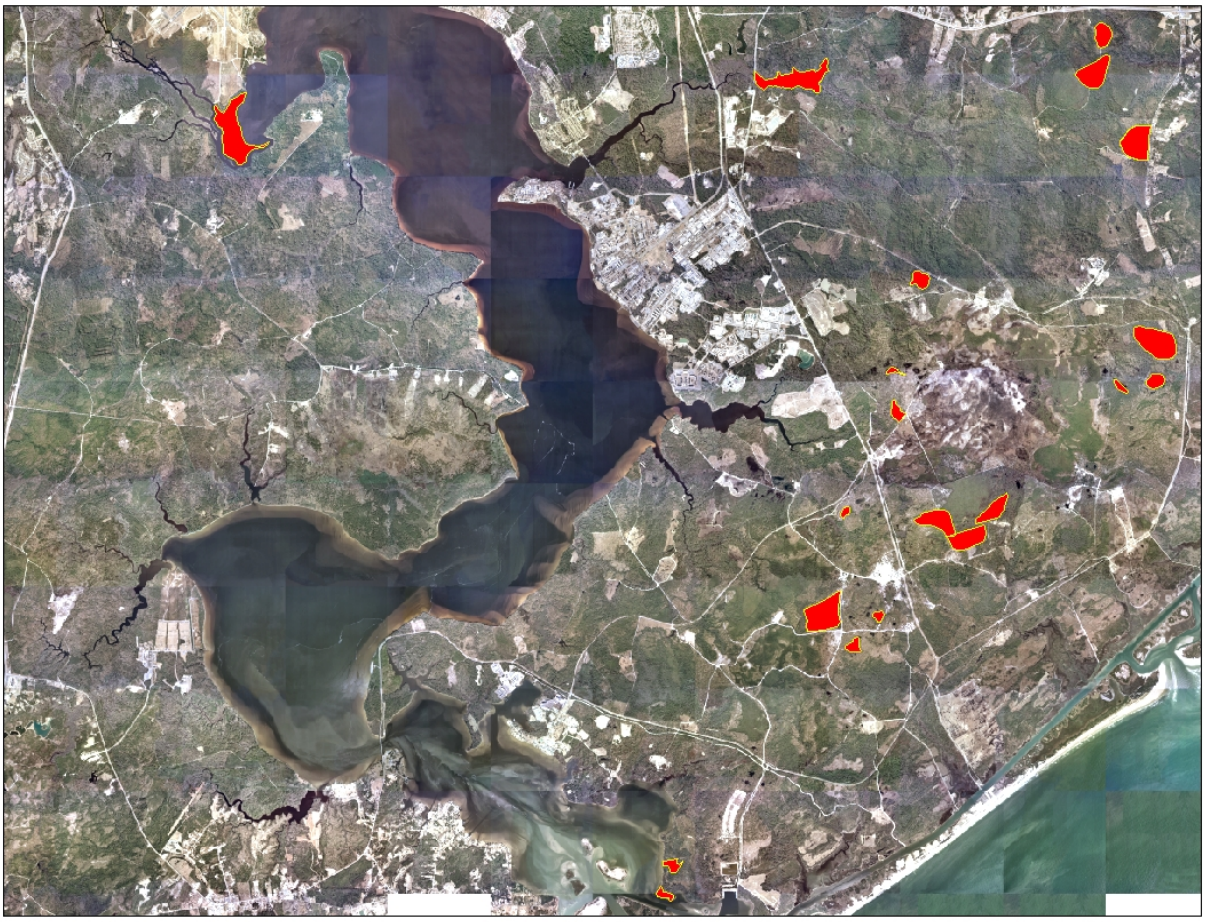
5.2 Natural Communities and Biological Diversity

Federal listing of plant and animal species can significantly affect the training mission at Camp Lejeune. Species at risk of becoming listed in the future tend to be found in sensitive natural communities. Areas identified as high priority natural communities for protection are considered in Base conservation planning and management. Of the 31 natural community types that occur in 104 localities on Camp Lejeune, eight types were selected by the ID Team in the 2001 INRMP as having high conservation priority (Appendix M). These eight types occur in 20 localities on Base, and total approximately 780 acres (Figure 5-3). These high quality areas provide habitat for many species that are currently state-listed or classified as federal species of concern. Training, road construction, silvicultural actions, and development all have the potential to affect these areas. Protecting, maintaining, enhancing, and restoring these rare elements should help forestall or lessen the possibility of federal listing of the individual species or lessen the potential impact to

Fig. 5-2. Long leaf pine, wire grass ecosystem by TLZ Heron on Camp Lejeune.

Camp Lejeune's training mission should listing occur.

Figure 5-3 Twenty occurrences of the eight types of high conservation priority natural areas.



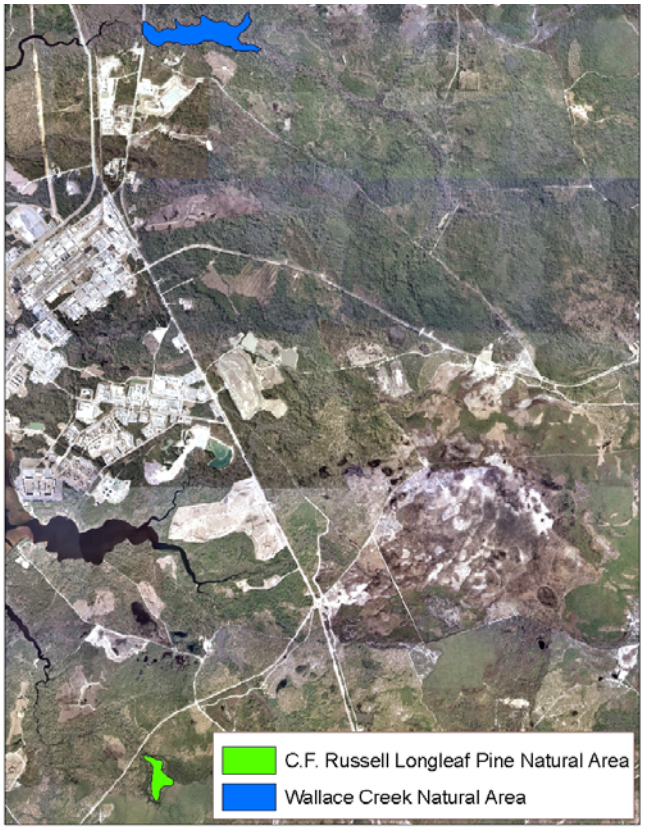
Camp Lejeune has unique lime-sink depression complexes that contain a wide range of floral and faunal diversity and serve as breeding and forage areas for avian, amphibian, and reptile species. Another unique habitat complex exists within the bottomland hardwood swamps along creeks and small tributaries. These areas support a rich avian community and provide nesting and foraging habitat for resident and Neotropical Migrant Landbirds. These unique and important habitats will continue to be given consideration in Camp Lejeune's conservation management program.

In the 2001 INRMP, Camp Lejeune developed the Ecological Classification System (ECS) (Appendix F) to guide conservation management decisions. The ECS was based, in part, on a report titled "Presettlement Vegetation and Natural Fire Regimes of Camp Lejeune" by Cecil C Frost, January 24, 2001. Camp Lejeune will continue to refer to the ECS for overall guidance on the desired future condition for these specialized habitat areas.

In 1985, Marine Corps Base Camp Lejeune entered into a memorandum of understanding with the North Carolina Natural Heritage Program to designate and manage two highly significant natural areas occurring on base. These natural areas are registered as part of the list of natural heritage areas for which voluntary agreement has been made between the owner of the area and the NC Natural Heritage Program for the purposes of protecting and managing the natural area for its specified natural values.

C.F Russell Longleaf Pine Natural Area represents one of the few old-growth, natural regenerating longleaf pine forests remaining on the Coastal Plain region. Wallace Creek Natural Area is comprised of an old-growth bald cypress stand and survives as a remnant of the historic millpond that was impounded on Wallace Creek by the Montford Dam, which was destroyed by Hurricane Hazel in 1954. Both sites can be seen in Figure 5-4.

Figure 5-4. Camp Lejeune Natural Heritage Sites.



OBJECTIVE COM1: Integrate consideration of at-risk species and natural communities into management to avoid further restrictions on military training.

- **Action 5-01**: *Designate Conservation Areas (when such protection does not interfere with military training requirements).*
- **Action 5-02**: *Monitor species at risk.*
- **Action 5-03**: *Consider the eight high priority natural community types in conservation management.*
- **Action 5-04***: Post waterbird nest sites to discourage pedestrian traffic.*
- **Action 5-05**: *Continue necessary predator control to protect shorebirds and colonial nesting waterbirds, and implement control strategies as needed.*