

North Carolina
Military Installation, Training Area and Mission Protection
Land Use Planning Framework: Phase I

Prepared for



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NORTH CAROLINA DENR OFFICE OF LAND & WATER STEWARDSHIP LAND USE FRAMEWORK

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Lindsey Smart

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And the environmental and property teams at the NC National Guard

Executive Summary

The United States' military footprint in North Carolina encompasses roughly 387, 948 acres, and serves every branch – Air Force, Army, Coast Guard, Marine Corps, Navy, and reserve units (such as NC Army/Air National Guard) – of our nation's fighting forcesⁱ.

North Carolina has had a prominent military presence over the last century. According to the N.C. Department of Commerce, North Carolina currently has the fourth largest active duty military population in the United States, distributed among seven military installations and 14 U.S. Coast Guard facilities. The state is also home to more than half of all U.S. special operations forces. The military supports 540, 000 jobs in North Carolina, \$30 billion in state personal income, and \$48 billion in gross state product, second only to the state's agricultural industryⁱⁱ.

The primary purposes of military locations in our state are to 1) house and support service members and their commands, and 2) train. Encroachment on these areas – such as through the development of denser housing or tall structures (e.g. wind mill farms or cell towers) – threatens, to varying degrees, the military's ability to train for and carry out their mission.

Should a decision be made that some form of encroachment has progressed too far or had too negative an impact, it is possible (as has happened in the past) that an installation or command will be removed. It is not the purpose of this report to quantify the obvious negative impact on jobs and the economy such a closure would cause, as that has been the subject of many previous reports.

Rather, this report seeks to demonstrate the value of an extensive analysis of the properties surrounding each major military installation or training ground in North Carolina. This document, Phase I of a global framework, will focus on the North Carolina Army National Guard's Camp Butner as a pilot project for creating a comprehensive land use profile, and thus models the information that will be compiled, including: past conservation efforts, previous land use studies, current land uses, potential acquisition costs, detailed GIS data, and multiple prioritization perspectives to aid decision-makers implementing critical protection efforts.

Past & Present

History

The relationship between the military and the public, among various military branches and/or their installation leaders in our state and each other, between those installations and our state agencies, and between individual state agencies themselves regarding military issues, has at times lacked effective, appropriate communication and cooperation.

For instance, a GlobalSecurity.org report written more than a decade ago noted, "Cooperation between the military services and the State of North Carolina is also described as intermittently strained and sporadic. This is also a long standing problem, exacerbated (according to interview comments) by the inadequate internal cooperation between DoD range and airspace communities, and by diverging requirements and uncoordinated basing decisions undertaken by the Air Force and naval services."

While there have been improvement through the creation of entities such as the Governor’s Military Affairs Commission, Sentinel Landscapes, the Working Lands Group, and the Commander’s Council, for the purposes of this framework, it’s important to understand that the process of obtaining maps and relevant land use information for military installations and training areas in North Carolina is often complex, complicated, and decentralized.

Sometimes, specific information needed to create a complete picture of military operations in North Carolina is unavailable due to the sensitivity of such information. Other times, the information is made available, but only after a long review and permission process via federal agencies.

Finally, there are instances when maps or data are collected and then held solely within a certain department or division, rather than being consolidated in a single, accessible location (such as NC OneMap).

Addressing current needs

The State of North Carolina lacks a complete collection of all lands used by the military in North Carolina, as well as a comprehensive database of all properties buffering those lands.

Under this framework, a concerted effort will be made to compile a thorough collection of relevant maps and update and review GIS files from a multitude of sources, including NGOs, and local, state and federal governmental entities simultaneously for multiple installations. Ft. Bragg’s Joint Land Use Study by Benchmark Planning, along with others will be referred to as guidance as well. However, standard operating procedures and best practices for collecting, storing, and using that data effectively will center on one primary location: NCANG’s Camp Butner. Whenever possible, materials obtained will be uploaded to NC One Map. Maps to be sought include, but are not limited to:

1. Military Training Routes (MTRs)
2. Base boundary properties
3. Installations and facilities
4. Training areas

Major military installations and training areas in NC

NC National Guard

Camp Butner

Located along the edges of northeastern Durham County and southwestern Granville County, Camp Butner is the NCARNG's primary training location. The camp, originally encompassing 50,000 acres, was established in 1942 at the outset of WWII. Today, slightly less than 5,000 acres support several live-fire training ranges, training aids and simulators, and limited lands to meet tactical unit maneuver training requirementsⁱⁱⁱ.

Charlotte Air National Guard Base

Charlotte Air National Guard Base is the home base of the North Carolina Air National Guard 145th Airlift Wing. It is located at Charlotte/Douglas International Airport and is one of a select number of Air National Guard and Air Force Reserve Command C-130 airlift wings employing the Modular Aircraft Fire Fighting System (MAFFS) in support of wildfire suppression operations in the United States. As a North Carolina Air National Guard unit, the 145 AW is "operationally gained" by the Air Mobility Command (AMC) and maintains worldwide deployment capability in support of both AMC and unified combatant commander tasking.

The base is located on the east side of the airport on a 79 acre parcel of highly developed land. The base also has two geographically separated units: Badin Air Guard Station (Badin AGS) and Stanly County Airport Regional Training Center that are located approximately 60 miles northeast of Charlotte ANGB^{iv}.

US Air Force

Dare County Bombing Range

The Air Force's Dare County Range (DCR) is the primary training range for F-15E "Strike Eagle" aircraft crews from Seymour Johnson Air Force Base and the primary backyard range for F/A-18 "Super Hornet" squadrons operating out of Naval Air Station Oceana.

DCR nearly spans the width of the Dare County mainland from the Alligator River to the Pamlico Sound. Located away from major population centers, DCR is surrounded by Alligator River National Wildlife Refuge. While Dare County contains portions of the popular Outer Banks barrier islands, mainland Dare County consists of rural communities. More than 80% of Dare County land is government-owned.

The range is an electronic combat, day-night, and air-to-ground training site critical to both installations and Army and Navy special operations teams (including SEALs). Together, the Air Force and Navy are working to protect land near and under special use airspace, military training routes, and bombing run flight tracks nearby^v.

Fort Fisher Air Force Station

Fort Fisher Air Force Station was opened in 1955 on as USAF Permanent System radar station. The base closed in 1988 and the USAF retained a housing complex on the land and converted it into the Fort Fisher Air Force Recreation Area which transferred to Seymour Johnson Air Force Base when Myrtle Beach AFB closed in 1993. The Ground Equipment Facility J-02 continued use of the USAF radar in the Joint Surveillance System. A portion of the base was returned to the state of North Carolina which turned much of it into the Fort Fisher State

Recreation Area and historic site. It is now the Ground Equipment Facility J-02, a Federal Aviation Administration Joint Surveillance System radar station^{vi}.

Roanoke Rapids Air Force Station

Roanoke Rapids Air Force Station is a closed United States Air Force General Surveillance Radar Station. It is located approximately 6 miles southwest of Gaston, North Carolina. It was closed in 1978. Today, the site is abandoned with deteriorating buildings. Two radar towers remain in poor condition. The housing area is in use by private individuals. The Gap Filler support buildings remain, however the radar towers were dismantled and removed^{vii}.

Seymour Johnson Air Force Base

Seymour Johnson Air Force Base is a United States Air Force base located to the southeast of Goldsboro, North Carolina. It occupies over 3,300 acres. Seymour Johnson was opened in 1942 as Headquarters, Technical School, Army Air Forces Technical Training Command. The base is named for Seymour Johnson, a native of Goldsboro, a Navy test pilot who died in an airplane crash. It is home to the 4th Fighter Wing of the Air Combat Command, which functions as the host wing for the installation. The 916th Air Refueling Wing, an Air Force Reserve Command unit operationally gained by the Air Mobility Command and the 414th Fighter Group, an Air Force Reserve Command unit operationally gained by Air Combat Command reside as tenant units^{viii}.

Winston-Salem Air Force Station

Winston-Salem Air Force Station is a closed United States Air Force General Surveillance Radar station. It is located 1 mile southeast of Winston-Salem, North Carolina. It was closed in 1970. It was established in 1954 by Air Defense Command as one of a planned deployment of forty-four Mobile radar stations to support the permanent ADC Radar network in the United States sited around the perimeter of the country^{ix}.

US Army

Ft. Bragg

Ft. Bragg is a major United States Army installation, located in Cumberland, Hoke, Harnett and Moore counties in North Carolina. It is located in Fayetteville but also borders the towns of Spring Lake and Southern Pines. It was also a census-designated place in the 2010 census, during which a population of 39,457 was identified. It covers 251 square miles and is the home of the U.S. Army Airborne Forces and Special Forces, as well as the U.S. Army Forces Command and the U.S. Army Reserve Command.

Camp Bragg was established in 1918, as an artillery training ground. The aim was for six artillery brigades to be stationed there. There was an airfield on the camp used by aircraft and balloons for artillery spotters. The air field was later named Pope Field in 1919. Camp Bragg was renamed Fort Bragg, to signify becoming a permanent Army post in 1922. From 1923 to 1924 permanent structures were constructed on Fort Bragg, a few of which still stand today.

Several airborne units of the U.S. Army are stationed at Ft. Bragg, notably the XVIII Airborne Corps HQ, the 82nd Airborne Division, and the United State Army Special Operations Command.

Ft. Bragg is the only locality where the endangered St. Francis' Satyr butterfly is known to occur. The butterfly is found in wetland habitat dominated by grasses and sedges^x.

Pope Field

Pope Field is a U.S. military facility located 12 miles northwest of the central business district of Fayetteville in Cumberland County, North Carolina. Formerly known as Pope Air Force Base, the facility continues to be used by the United States Air Force but is now operated by the U.S. Army as part of Ft. Bragg.

The United State Army Fort Bragg Garrison is the host organization at Pope Field. The garrison provides airfield support, security, and protection to include emergency medical and fire response.

In 1918, Congress established Camp Bragg, an Army artillery site. An aviation landing field was added a year later. The War Department officially established "Pope Field" in 1919^{xi}.

Simmons Army Airfield

Simmons Army Airfield is a military use airport located in Cumberland County, North Carolina. It is located on the southeast portion of Fort Bragg and supports the aviation needs of the XVII Airborne Corps, the 82nd Airborne Division, Special Operations, U.S. Army Reserve and the U.S. National Guard aviation units.

The field was originally known as Smith Lake Airfield. By 2002, Simmons AAF had more than 180 aircraft, along with UH-60 and AH-64 flight simulators. It has one runway designated 9/27 with an asphalt surface measuring 4,650 by 110 feet^{xii}.

Camp Greene

Camp Greene was a United States Army facility in Charlotte, North Carolina during the early 20th Century. In 1917, both the 3rd Infantry Division and the 4th Infantry Divisions were first organized and assembled at this camp. The Camp was named after the Revolutionary War hero, Nathaniel Greene^{xiii}.

Camp Mackall

Camp Mackall is an active U.S. Army training facility located in eastern Richmond County and northern Scotland County, North Carolina, south of the town of Southern Pines. The facility is in close proximity to and is a sub-installation of Fort Bragg.

Camp Mackall is the setting of primary training to become a member of the U.S. Army Special Forces. Inside the camp is the Resistance Training Laboratory, a mock prisoner-of-war camp in which special operations forces soldiers are trained in resistance techniques for use if captured by enemy combatants.

The Mackall Army Airfield has two runways: 4/22 is 5,001 by 150 feet with an asphalt surface and 11/29 is 4,740 by 150 feet with a concrete surface^{xiv}.

Fort Greene, North Carolina

Fort Greene is a U.S. Army military base located in North Carolina. It was established in 1890 and was used through World War I, World War II, Korea, Vietnam, and present. The facility trains U.S. Army soldiers and National Guard soldiers^{xv}.

Military Ocean Terminal Sunny Point

Military Ocean Terminal Sunny Point is the largest military terminal in the world. It serves as a transfer point between rail, trucks, and ships for the import and export of weapons, ammunition, explosives and military equipment for the United States Army. The terminal lies between Boiling Spring Lakes and the Cape Fear River a few miles upstream of Fort Johnson and the small city of Southport, North Carolina. The facility is situated on an Army-owned 8,500 acre site on the banks of the Cape Fear River in Brunswick and New Hanover counties. An additional 2,100 acres was set aside on Pleasure Island as a buffer zone around the facility.

It is a key ammunition shipping point on the Atlantic Coast and the Army's primary east coast deep-water port. The Terminal is not an open port and access is restricted^{xvi}.

US Coast Guard

Station Elizabeth City

Comprised of more than 880 acres of real estate, including runways, taxiways, airport traffic control tower, roadways, more than 100 buildings and a 32-acre housing complex.

Located in Pasquotank County, the old Holowell Plantation was selected by the Coast Guard in 1938 for its potential strategic value as a seaplane base. Air Station Elizabeth City was commissioned on August 15, 1940 with four officers, 52 enlisted men and ten aircraft. During World War II, the Air Station was under U. S. Navy control conducting Search and Rescue, anti-submarine and training missions.

Since then the Air Station's missions and assigned aircraft have shifted and grown with changing national priorities and technologies. In 1966 Air Station Elizabeth City expanded after absorbing the Air Stations in Bermuda and Argentina.

In addition to the Air Station, Elizabeth City's Coast Guard complex includes the Aircraft Repair and Supply Center, Aviation Technical Training Center, Support Center, and Boat Station Elizabeth City. On any given day, aircrews may be as far away as Greenland, the Azores or the Caribbean.

The base provides a wide variety of mission support services to units and personnel, and is a regional command that provides logistics, engineering, administrative, financial, purchasing, and health care services to Coast Guard units throughout North Carolina^{xvii}.

US Marine Corps

Auxiliary Landing Field Bogue

Marine Corps Auxiliary Landing Field Bogue, also known as Bogue Field, is an 875-acre landing field located on Bogue Sound that serves as the Marine Corps' only East Coast Site for Field Carrier Landing Practice. By performing many of these landings at night, pilots simulate landing on an aircraft carrier or an amphibious assault ship.

When the United States Navy purchased 573 acres of land in 1942 for an auxiliary airfield, three runways were built for use by the Marine Corps Air Station Cherry Point. Facilities were also constructed to support two squadrons with a combined total of 45 aircraft.

Camp Lejeune is supplemented by four satellite facilities: Camp Geiger, Stone Bay, Courthouse Bay, Camp Johnson, and the Greater Sandy Run Training Area. When added together, the Base and four satellite facilities along with MCAS Cherry Point comprise the largest concentration of Marines and U.S. Navy sailors in the world.

- Onslow County Planning & Development Dept., July '14

Bogue is still actively used as a satellite airfield with one active runway. The field is the primary location for AV-8B Harrier practice operations. It is also used by other locally based USMC aircraft^{xviii}.

Camp Geiger

The School of Infantry aboard Camp Geiger is separate from Camp Lejeune. The main entrance to Camp Geiger is on US Highway 17, South of Jacksonville, NC. Camp Geiger is a vital training center unto itself with nearly 20,000 Marines undergoing Marine Combat Training here each year^{xix}.

Camp Lejeune

Located in the coastal county of Onslow, MCB Camp Lejeune includes a 156,000-acre training base, with 11 miles of beach capable of supporting amphibious operations, 34 gun positions, 50 tactical landing zones, three training facilities for Military Operations in Urban Terrain, 80 live fire ranges, 1,000 miles of roadway, a railroad line, and more than 6,600 facilities including five water treatment plants and a

wastewater treatment plant.

There are several major Marine Corps commands and one Navy command aboard Camp Lejeune: II Marine Expeditionary Force conducts operational planning for Fleet Marine Force commands; 2nd Marine Division is the ground combat element of II MEF; 2nd Marine Logistics Group is the combat service support element of II MEF; and 2nd Marine Air Wing, headquartered at Cherry Point, N.C., is the air combat element of II MEF.

Additionally, the naval hospital provides primary medical care to service members and their families stationed at Camp Lejeune and Marine Corps Air Station New River.

The Base and surrounding community is home to an active duty, dependent, retiree, and civilian employee population of approximately 180,000. Camp Lejeune generates nearly \$3 billion in commerce each year, emanating from payrolls and contracts to support the structure necessary to train Marines^{xx}.

Cherry Point

Marine Corps Air Station Cherry Point or MCAS Cherry Point is a United States Marine Corps airfield located in Havelock, North Carolina. Congress authorized the station on July 9, 1941 and it is currently home to the 2nd Marine Aircraft Wing. MCAS Cherry Point also maintains a satellite field at MCALF Bogue in Bogue, North Carolina and an outlying airfield at Marine Corps Outlying Field (MCOLF) Atlantic in Atlantic, NC. As of 2009, total population was 49,996. MarineCorpsUSA.org Approximately 8,000 acres of cleared historical swamps, farms, and timberland. It now includes 13,164 acres on the air station proper, with an additional 15,975 acres of auxiliary activities including Marine Corps Auxiliary Landing Field Bogue along Bogue Sound in Carteret County.

The 2nd MAW headquarters is located at Cherry Point, as well as Marine Aircraft Group 14, Marine Wing Support Group 27, and Marine Air Control Group 28. Other 2d MAW units include helicopter squadrons at MCAS New River, NC and F/A-18 Hornet squadrons at MCAS Beaufort, SC^{xxi}.

Other major tenant units at MCAS Cherry Point are the Naval Aviation Depot and the U.S. Naval Hospital.

Marine Corps Air Station New River

MCAS New River is the primary United States Marine Corps helicopter base on the East Coast and supports aircrew training for the helicopters operated by Marine Corps aviation units. McCutcheon Field is named in honor of Brigadier General Keith B. McCutcheon, one of the pioneering figures of Marine helicopter aviation^{xxii}.

New River is also the east coast home of the Marine Corps' variant of the V-22 Osprey, the most innovative and capable rotary winged aircraft in military aviation history^{xxiii}.

Camp Gilbert H. Johnson

Camp Gilbert H. Johnson is a satellite camp of Marine Corps Base Camp Lejeune in Jacksonville, North Carolina and home to the Marine Corps Combat Service Support Schools (MCCSSS). Various support military occupational specialties such as administration, supply, logistics, finance, and motor transport maintenance are trained here.

Camp Johnson is situated on Montford Point, the site of recruit training for the first African Americans to serve in the Marine Corps, known as the "Montford Point Marines". The purpose of the camp is to conduct formal resident training for officers and enlisted personnel in the occupational fields of logistics, motor transport, personnel administration, supply, and financial management^{xxiv}.

Courthouse Bay

Courthouse Bay is a subdivision of Marine Corps Base Camp Lejeune and is home to the Marine Corps Engineer School and the 2nd Assault Amphibian Battalion. Located near Camp Lejeune's southwestern Sneads Ferry gate and 6 miles from the main side amenities, the sub-camp is largely self-sufficient, in that it has its own mess hall, post exchange, recreation facilities and water supply^{xxv}.

Outlying Field Camp Davis

Marine Corps Outlying Field (MCOLF) Camp Davis is a military use airport located 1 nautical mile southeast of the central business district of Holly Ridge, in Onslow County, North Carolina. It is used as a training facility by the United States Marines of Camp Lejeune and MCAS New River.

In late December 1940, Camp Davis was built by the United States Army as an antiaircraft artillery training facility. Manned by about 20,000 officers and men, Camp Davis was attached to the First Army, Fourth Corps Area. Camp Davis has two runways which are designated 5/23 and 18/36. Both runways have concrete surfaces measuring 5,000 by 150 feet. One runway is not in use while the other is used for helicopter assault landing exercises^{xxvi}.

Julian C. Smith Hall

The Julian C. Smith Hall is a historic building located in Marine Corps Base Camp Lejeune in Jacksonville, North Carolina. It currently serves as the headquarters building for the II Marine Expeditionary Force and the 2nd Marine Division. The building was initially used as a Naval hospital^{xxvii}.

US Navy

Harvey Point

The Harvey Point Defense Testing Activity facility, is located on a peninsula in Perquimans County, North Carolina along the Albemarle Sound near the city of Hertford, NC. It was established in World War II as Naval Air Station Harvey Point, an operating base for sea planes conducting anti-submarine surveillance off the Atlantic coast. A close-by naval facility, Naval Air Station Weeksville, served as a blimp base during and after World War II.

The Department of the Navy holds the title to and budgetary responsibility for the facility. Agencies such as the CIA and FBI have used the facility for complex training related to overseas counterterrorism and asset-protection training. The installation has two usable landing fields and are used for special military air operations^{xxviii}.

Putting GIS to work

Implementing this land use framework will entail retrieving data from, and providing new data (when applicable) to, the NC OneMap project.

NC OneMap is the GIS backbone supporting North Carolina data users. It is an organized effort of numerous partners throughout North Carolina, involving state, local and federal government agencies, universities, K-12 schools, utilities, non-profit organizations and the general public -- all of whom need a reliable statewide resource.

NC OneMap is a critical linkage helping to promote public safety, better government decision-making, and economic vitality in our communities by providing:

1. Access through one location to the most up-to-date geospatial data
2. Instant availability of multi-jurisdictional data
3. Data distribution costs lessened for participating governments
4. Public investment leveraged for maximum effect

Camp Butner Case Study

Installation POC list

Camp Butner

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Beginning in mid-2014, a collaborative effort began between the Department of Natural Resource's Office of Land and Water Stewardship and N.C. DENR's military liaison, the NC Working Lands Group, and the NC National Guard's environmental, property, and Camp Butner teams. This partnership led to the development of a list of geospatial data needs.

Geospatial data was collected from various sources including, but not limited to – NCOnemap, military installations, U.S. Forest Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, county government and municipalities – and is described in more detail below. Data was compiled into a geodatabase for distribution to Camp Butner personnel to further assist them with buffer land prioritization.

After initial compilation of geospatial data deemed pertinent for prioritization, a meeting was held in late November, 2014. Attendees included personnel from Camp Butner, Triangle Land Conservancy, N.C. Heritage Program, the Office of Land and Water Stewardship, and Tar River Land Conservancy. In the joint meeting, parcels within the buffer area of Camp Butner were identified and ranked according to priority. Parcels were ranked from 1-3 (highest to lowest priority respectively) and those parcels not assessed were not given a ranking value. The rankings were chosen based on the presence of rare or threatened species or ecosystems, size and contiguity of the parcel, development threat, riparian buffer capacity, and landowner willingness.

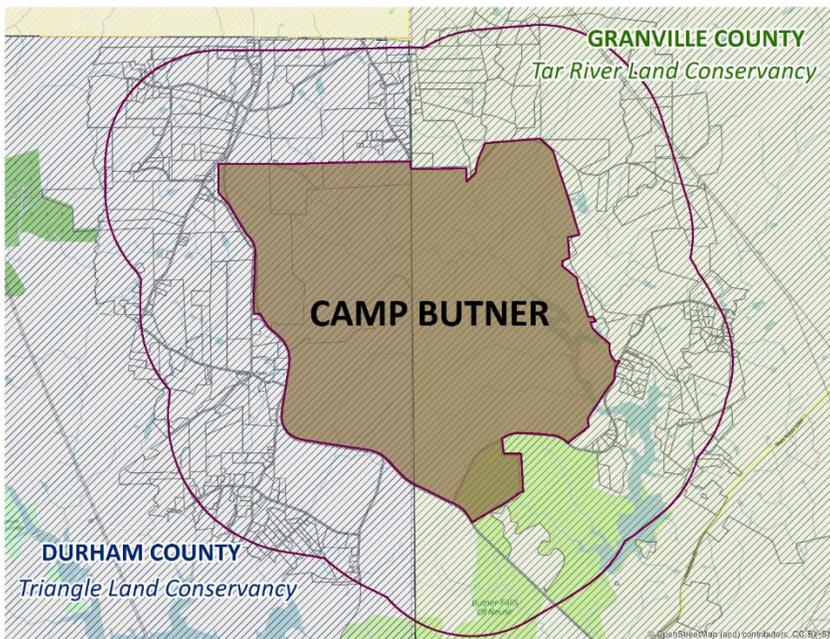
As a result of the meeting, eleven priority tracts were identified – these were tracts that were listed as high priority and established relationships with landowners. Personnel from the N.C. Natural Heritage Program and the local land trusts reached out to the landowners for each of these tracts by mail and by phone if needed, and sought permission to survey each of these parcels for significant natural features and element occurrences. Five landowners granted permission to the N.C. Natural Heritage Program to survey their land. In late fall and winter of 2014, trained botanists and zoologists went to each of these parcels and assessed the property, talked to the landowner, and provided information about conservation.

As a result of the data compilation, parcel prioritization, the surveys, and outreach to landowners, the Tar River Land Conservancy has submitted a Clean Water Management Trust Fund application this cycle (FY2015) for consideration of one priority tract.

Geospatial Data

Data was compiled from multiple sources or was created by Office of Land and Water Stewardship staff to aid in the prioritization effort. A description of the data layers, along with their data sources, can be found below.

Data Layer	Source
Installation Boundary	GIS Specialist Todd Preddy, Camp Butner
Installation Buffer	Lindsey Smart, Office of Land and Water Stewardship
Parcel Boundaries	http://www.lib.ncsu.edu/gis/counties.html
Conservation Easements	John Finnegan, N.C. Natural Heritage Program
Managed Areas	John Finnegan, N.C. Natural Heritage Program
Streams and Rivers	http://nhd.usgs.gov/data.html
Water Quality Classifications	N.C. Onemap, ftp://ftp.nconemap.com/outgoing/vector/waterqclass.zip
High Quality Waters	N.C. Onemap, ftp://ftp.nconemap.com/outgoing/vector/hqworw.zip
Soils	http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx
Natural Heritage Program Ratings	John Finnegan, N.C. Natural Heritage Program
Natural Heritage Program Element Occurrences	John Finnegan, N.C. Natural Heritage Program
Military Priorities	Camp Butner, in consultation with N.C. Natural Heritage Program
Current Zoning	Durham County Government, http://durhamnc.gov/Pages/Home.aspx Granville County Government, http://www.granvillegis.org/
Land Value	http://www.lib.ncsu.edu/gis/counties.html
Military Training Areas	GIS Specialist Todd Preddy, Camp Butner
Military Airspace	N/A
Tall Structures	GIS Specialist Todd Preddy, Camp Butner
Historic and Cultural Resources	N.C. Historic Preservation Office, http://gis.ncdcr.gov/hpoweb/



Installation Boundary

Data for Camp Butner’s boundary was obtained from Camp Butner’s GIS Specialist. The data can also be obtained from the parcel boundaries (see Parcel Boundaries layer below).

Installation Buffer*

A one-mile buffer was applied to the installation boundary for the purpose of parcel assessment and NCNHP site ratings. Properties directly adjacent to the installation boundary are of highest priority but others within the one-mile buffer are also considered.

Figure 1 Camp Butner installation boundary and installation buffer.

* Layer created by Office of Land and Water Stewardship.

Parcel Boundaries

Parcel data was obtained from the following website, <http://www.lib.ncsu.edu/gis/counties.html> . The website directs the user to individual county websites that have the data available for download. Granville County was obtained from the following: <http://granvillelegis.org/Downloads/tabid/55/Default.aspx> and Durham County parcel data was obtained directly from NCONemap at <ftp://ftp.nconemap.com/outgoing/vector/parcels/>. Data is current as of April 2014.

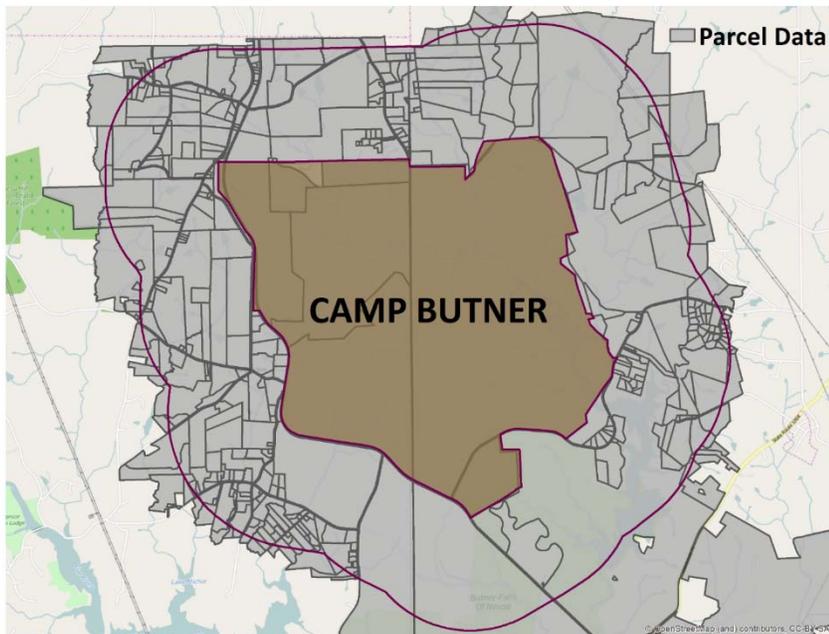


Figure 2 Parcel data for Camp Butner.

Conservation Easements on Adjoining Properties

Data were obtained from the North Carolina Natural Heritage Program’s Managed Areas dataset. The dataset is primarily a collection of fee simple properties and easements where conservation is one of the management goals. It does include a number of properties and easements that are not primarily managed for conservation, but that are of conservation interest. The data is current as of October, 2014.

Publicly-owned Areas Adjacent to Installation

Data were obtained from the North Carolina Natural Heritage Program’s Managed Areas dataset. The dataset is primarily a collection of fee simple properties and easements where conservation is one of the management goals. It does include a number of properties and easements that are not primarily managed for conservation, but that are of conservation interest. The data is current as of October, 2014.

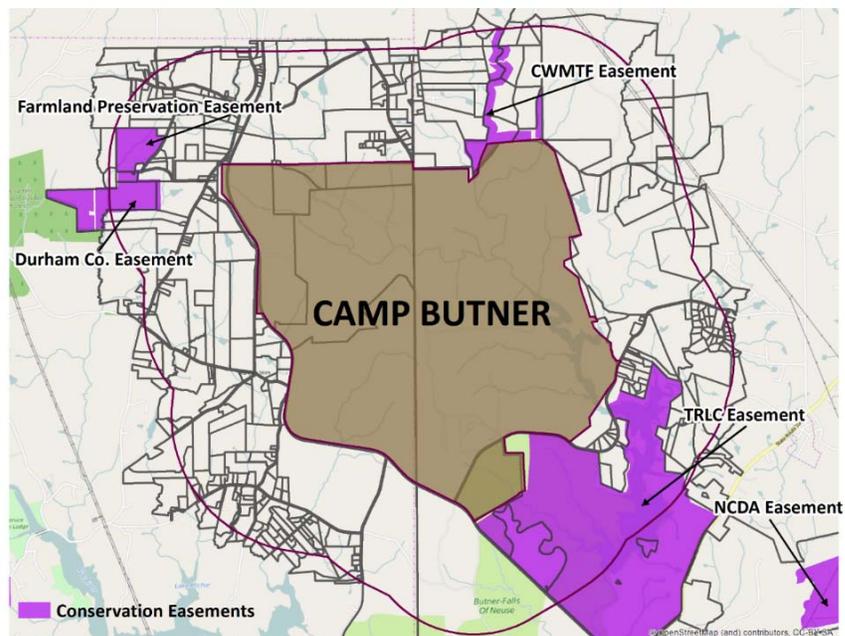


Figure 3 Conservation easements around Camp Butner.

Soil Surveys

Soil data were obtained from the Soil Survey Geographic (SSURGO) Data Base, available via the interactive Web Soil Survey, hosted by the USDA Natural Resources Conservation Service (NRCS). The field MUSYM (map unit symbol) was used to identify priority soil types conducive for rare or sensitive natural communities. This, in turn, informed the buffer ranking that was developed during a collaborative meeting of members from land trusts, state government, and the military. The website can be accessed at the following: <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

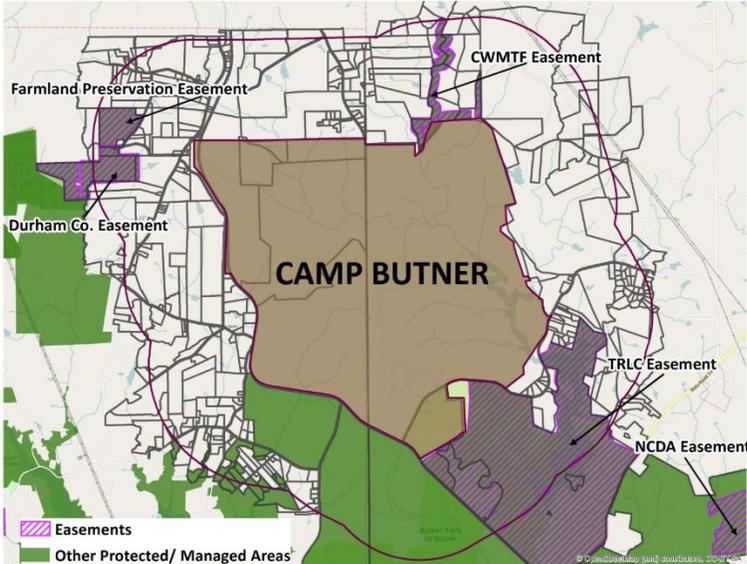


Figure 4 Other protected and managed areas around Camp Butner.

the N.C. Department of Cultural Resources' web GIS tool at <http://gis.ncdcr.gov/hpoweb/>.

Current Zoning

Current zoning data for Granville County was available online via a geospatial web page hosted by the county planning site. The website can be found at: <http://www.granvillegis.org/>. Zoning data for Durham County was obtained by contacting the county's GIS Specialist.

Land Value

Parcel data was obtained from the following website, <http://www.lib.ncsu.edu/gis/counties.html>. The website directs the user to individual county websites that have the data available for download. Granville County was obtained from the following: <http://granvillegis.org/Downloads/tabid/55/Default.aspx> and Durham County parcel data was obtained directly from NCONemap at <ftp://ftp.nconemap.com/outgoing/vector/parcels/>. Data is current as of April 2014.

Cultural Sites

Historic sites were clipped to the Camp Butner buffer. The data layer includes individual historic sites, National Register listing, and Local Landmarks. The data was downloaded at

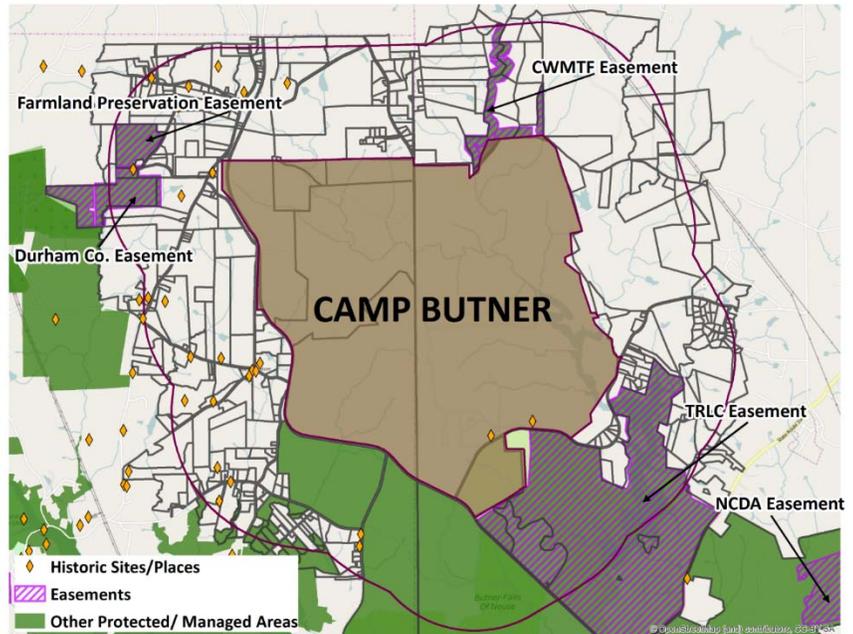


Figure 5 Historic sites around Camp Butner.

Tax value of all adjacent properties/estimated fee-simple cost of property

Parcel data was obtained from the following website, <http://www.lib.ncsu.edu/gis/counties.html>. The website directs the user to individual county websites that have the data available for download. Granville County was obtained from the following: <http://granvillelegis.org/Downloads/tabid/55/Default.aspx> and Durham County parcel data was obtained directly from NCONemap at <ftp://ftp.nconemap.com/outgoing/vector/parcels/>. Data is current as of April 2014.

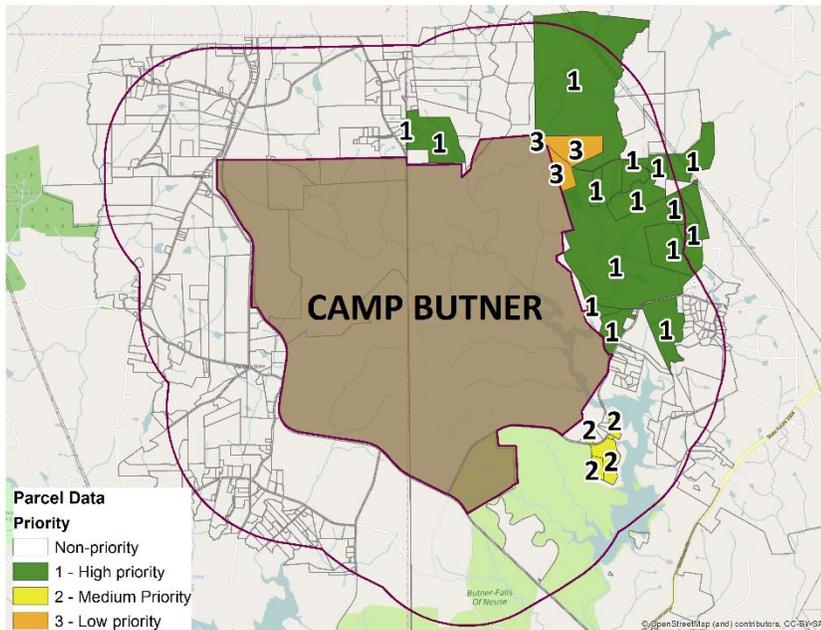


Figure 6 Prioritized parcels for Camp Butner.

Individual Installation Priorities*

In a joint meeting with members from the N.C. Natural Heritage Program, Triangle Land Conservancy, Tar River Land Conservancy, and Army National Guard Camp Butner, military priorities were identified. The priorities were identified based on several factors: (1) presence of significant habitat or species, (2) already-established relationships with landowners, (3) proximity to installation, (4) size and contiguity of the parcel and (5) threat of development. The parcels were then ranked with a value between 1 and 3 (or remained unranked or non-priority), with 1 being the highest priority and 3 being the lowest priority.

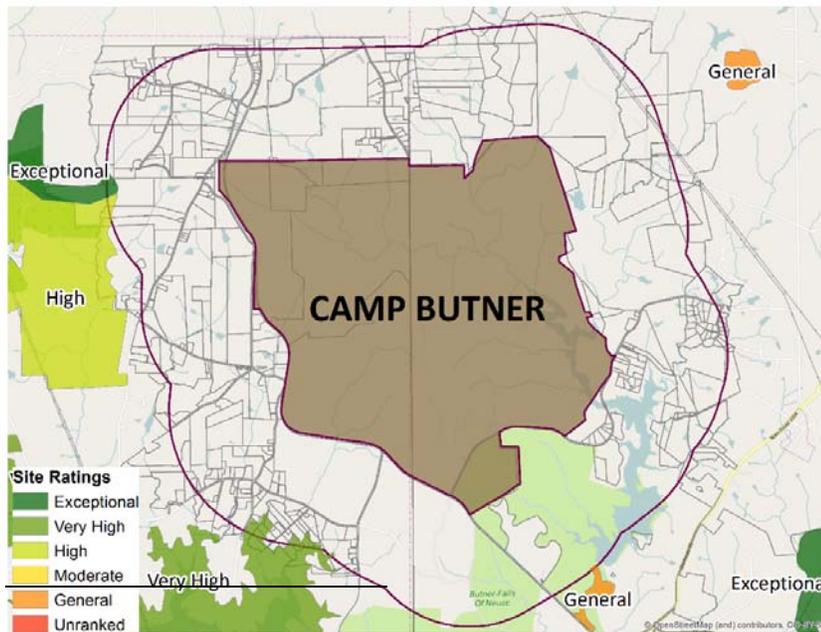


Figure 7 N.C. Natural Heritage Program site ratings for areas surrounding Camp Butner.

Estimated Conservation Easement Cost*

Estimated conservation easement cost is added as an attribute field in the Individual Installation Priorities geospatial layer. It is the best estimate of approximate easement cost derived from expert knowledge and local land trust information.

N.C. Natural Heritage Program Ratings

The Natural Heritage Program Natural Areas (NHPNA) identifies terrestrial and aquatic sites that are of special biodiversity significance. The data was downloaded at the following:

<ftp://ftp.nconemap.com/outgoing/vector/nhpna.zip>.



Tall Structures (Windmills and Cell Towers)

Data obtained from Camp Butner GIS.

Military Airspace (MTRs)

Either not applicable or not available for Camp Butner.

Military Training Areas*

Data obtained from Camp Butner GIS. Data was edited with assistance from the Office of Land and Water Stewardship.

Figure 8 Military training areas on Camp Butner military installation.

Riparian Areas

Rivers and streams geospatial data was derived from the National Hydrography Dataset, available from the U.S. Geological Survey. Watersheds and catchments are also available from this source. To obtain more information about the NHD, see <http://nhd.usgs.gov/data.html>.

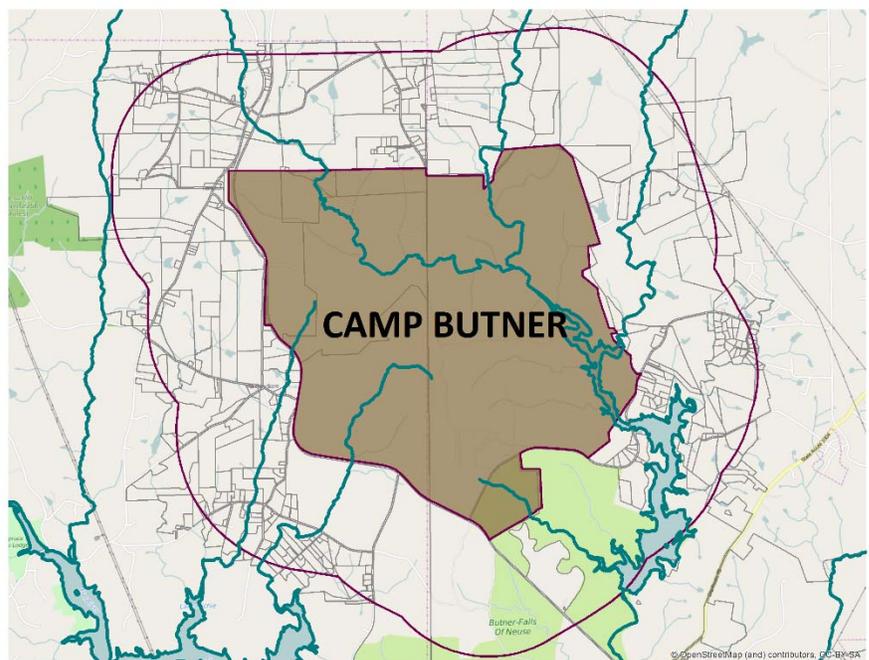


Figure 9 Rivers and streams in and around Camp Butner.

DENR/Land & Water Stewardship resources

Natural Heritage Program

The Natural Heritage Program maintains GIS data on most of the conservation land within North Carolina. These “Managed Areas” are a diverse collection of properties and easements that are managed in some degree for conservation of biodiversity and ecosystem function. Also included, are a number of properties and easements that are not primarily managed for conservation, but that are of conservation interest. This conservation interest ranges from properties and easements which support rare species and intact, high-quality natural communities to those that are simply open spaces in places where open space is scarce.

This collection of conservation areas will inform a variety of users but most importantly for this discussion – military installations – when making decisions about priority lands for buffering, conservation, land management, land use planning, and recreation.

The Natural Heritage Program works with many partners, including state and federal conservation agencies, national conservation groups, and the land trust community, to protect these ecologically significant areas. Through these partnerships, and using funding from state and federal sources, the Clean Water Management Trust Fund, and the Park and Recreation Trust Fund, the most important areas are brought into protection.

Funding for natural area inventories is provided in large part by the Clean Water Management Trust Fund. Whenever possible, matching funds are secured from local governments or raised by a partner, such as a land trust.

The N.C. Natural Heritage Program can aid military installations in numerous ways. The Heritage Program can provide geospatial data on rare or threatened species and ecosystems. They can provide geospatial data on managed and natural areas. These geospatial datasets can then help guide prioritization of buffer lands. The Heritage Program can also perform inventories or surveys of military installation buffer lands and provide recommendations on best avenues for funding opportunities. They are an excellent resource and knowledge base. For more information, see <http://www.ncnhp.org/>.

Clean Water Management Trust Fund

Established in 1996, the Clean Water Management Trust Fund provides grant assistance to conservation non-profits, local governments and state agencies for the protection of surface waters in North Carolina. CWMTF funds projects that (1) enhance or restore degraded waters, (2) protect unpolluted waters, and/or (3) contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits, (4) provide buffers around military bases to protect the military mission, (5) acquire land that represents the ecological diversity of North Carolina, and (6) acquire land that contributes to the development of a balanced State program of historic properties.

The CWMTF can assist military installations in finding funding opportunities either through the Trust Fund itself or through one of its many partners. CWMTF has an annual grant cycle but also offers mini-grants on an as-needed basis for small projects that are part of a larger-scale proposed project that will satisfy the mission of the Trust Fund.

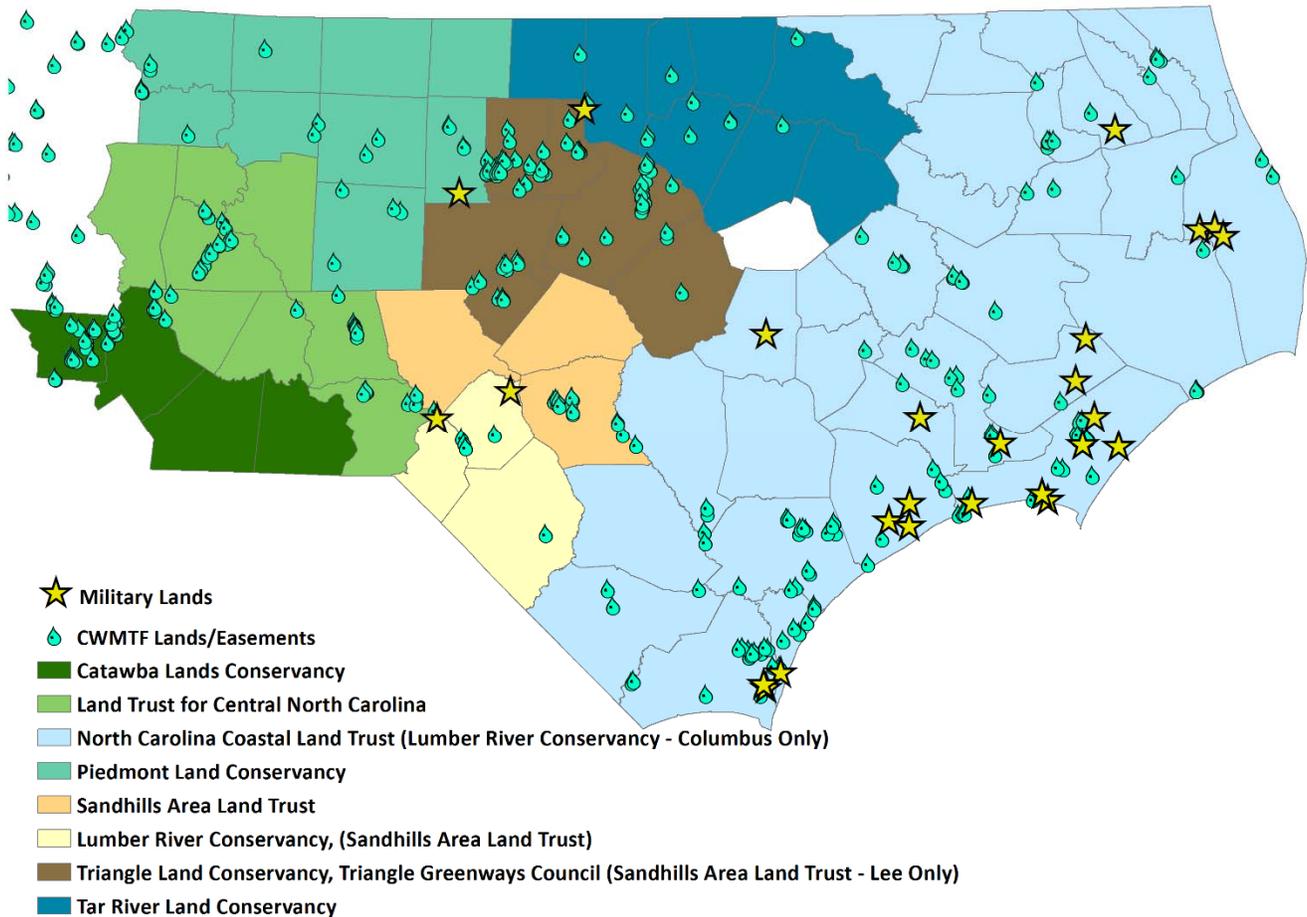


Figure 4 Clean Water Management Trust Fund lands or easements around military installations in North Carolina.

Partnerships

Land Trusts

North Carolina’s local land trusts preserve land and waterways by working with property owners to ensure land is protected for clean drinking water, recreation, tourism, military operations, healthy forests, and working farms that produce fresh, local foods.

Land trusts range from small groups run by dedicated volunteers to large, sophisticated organizations. These groups reflect the communities they serve – protecting a single river or town, building urban trails, or saving thousands of acres to create a new park.^{xxix}

- Black Family Land Trust
- North Carolina Coastal Land Trust

- Blue Ridge Conservancy
- Carolina Mountain Land Conservancy
- Catawba Lands Conservancy
- Davidson Lands Conservancy
- Eno River Association
- Foothills Conservancy of North Carolina
- Highlands-Cashiers Land Trust
- Land Trust for the Little Tennessee
- Land Trust for Central North Carolina
- Black Family Land Trust
- Lumber River Conservancy
- National Committee for the New River
- North Carolina Rail-Trails
- Northeast New Hanover Conservancy
- Pacolet Area Conservancy
- Piedmont Land Conservancy
- Sandhills Area Land Trust
- Smith Island Land Trust
- Southern Appalachian Highlands Conservancy
- Tar River Land Conservancy
- Triangle Greenways Council
- Triangle Land Conservancy
- North Carolina Coastal Land Trust
- North Carolina Rail-Trails

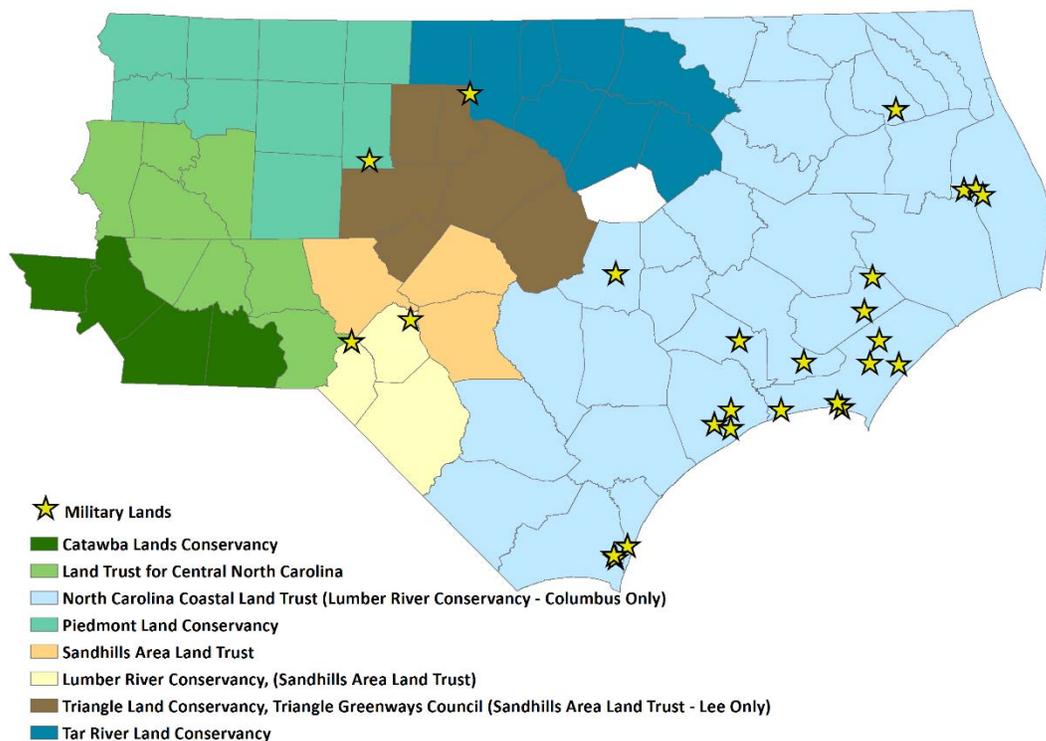


Figure 11 Military installations and local land trusts serving in the vicinity of military installations.

Local governments

Local government, municipalities, and counties are the most likely point of contact between government and citizens. Local governments fund services of concern to residents, including quality drinking water, infrastructure repair, snow removal, recreation, and emergency medical care. Citizens depend on the effectiveness and quality of local governments to maintain their own quality of life.

Local government growth management and development decisions can have a direct impact on a military installation. Understanding how local governments make these decisions is crucial for creating sustainable installations.

Local governments and military installations can better utilize limited resources, in many cases, when they participate in jointly sponsored projects and programs to serve their citizens' common needs. The majority of decisions made by installations and local governments have real consequences for the installation and jurisdictions. Because local government and installation relationships are interconnected, leadership is responsible for making management decisions that minimize conflict and promote mutual understanding.

County	Links
Alamance	Burlington , Elon , Graham , Mebane
Beaufort	Washington
Bladen	Elizabethtown
Brunswick	Bald Head Island , Boiling Spring Lakes , Calabash , Caswell Beach , Holden Beach , Leland , Oak Island , Ocean Isle Beach , Southport
Carteret	Atlantic Beach , Emerald Isle , Newport , Pine Knoll Shores
Chatham	Pittsboro
Chowan	Edenton
Columbus	Chadbourn , Lake Waccamaw , Whiteville
Craven	Bridgeton , Havelock , New Bern , River Bend
Cumberland	Fayetteville , Hope Mills , Spring Lake
Dare	Kill Devil Hills , Kitty Hawk , Manteo , Nags Head , Southern Shores
Durham	Durham
Edgecombe	Tarboro
Granville	Creedmoor , Oxford
Halifax	Roanoke Rapids
Harnett	Angier , Dunn
Johnston	Benson , Selma , Smithfield
Lee	Sanford
Lenoir	Kinston
Martin	Williamston
Moore	Aberdeen , Foxfire , Pinehurst , Southern Pines
Nash	Nashville , Rocky Mount
New Hanover	Carolina Beach , Kure Beach , Wilmington , Wrightsville Beach

Onslow	Jacksonville , North Topsail Beach
Orange	Carrboro , Chapel Hill , Hillsborough
Pasquotank	Elizabeth City
Pender	Surf City , Topsail Beach
Person	Roxboro
Pitt	Ayden , Farmville , Greenville , Grifton , Winterville
Robeson	Lumberton , Pembroke , Red Springs , St Pauls
Sampson	Clinton
Scotland	Laurinburg
Vance	Henderson
Wake	Apex , Cary , Fuquay-Varina , Garner , Holly Springs , Knightdale , Morrisville , Raleigh , Wake Forest , Wendell , Zebulon
Wayne	Goldsboro
Wilson	Elm City , Wilson

State agencies (NC)

North Carolina Department of Cultural Resources

Land with outstanding cultural heritage value is land that is identified, inventoried and evaluated by the N.C. Department of Cultural Resources. Working with the N.C. Department of Cultural Resources, the military can preserve lands with important cultural resources that will be mutually beneficial for prevention of encroachment and the preservation of historically important areas. For more information, visit <http://www.ncdcr.gov/>.

North Carolina Wildlife Resource Commission

The North Carolina Wildlife Resources Commission is the state government agency that conserves and sustains the state’s fish and wildlife resources through research, scientific management, wise use, and public input. The Wildlife Resource Commission can help military installations prepare management plans for the land acquired for military buffering. They are also able to hold the land and maintain it themselves. For more information, visit <http://www.ncwildlife.org/> .

North Carolina Department of Agriculture

Under the North Carolina Department of Agriculture, the N.C. Forest Service has established FORCES, which stands for Forest Opportunities for Resource Conservation and Environmental Security. The program promotes long-term conservation of private forestlands in a way that is compatible with the training missions and readiness of military bases. Funding can be received from the U.S. Forest Service, using state funding as match, to establish project areas. For more information, visit <http://www.ncagr.gov/> or <http://www.ncforestservice.gov/>.

U.S. Government

Department of the Interior

US Fish & Wildlife Service (USFWS)

Department of Agriculture

Third party groups

Base groups (“Friends of...”)

Local Econ Dev or other LUP groups (e.g. **RLUAC** <http://www.rluac.com>)

List of state partners (**NC Military Foundation**)

The Nature Conservancy

<http://www.nature.org/newsfeatures/specialfeatures/partnership-with-the-department-of-defense.xml>

The Conservation Fund

<http://www.conservationfund.org/partner-with-us/government-partners/us-department-of-defense/>

The National Fish and Wildlife Foundation

<http://www.nfwf.org/partnerships/federal/Pages/dod.aspx#.VM6zgWh4pcQ>

Funding programs and revenue sources

Army Compatible Use Buffer (ACUB) Program

The ACUB program allows installations to work with partners and stakeholders to obtain off-base lands to protect habitat and buffer training without actually acquiring new land for Army ownership. Through ACUB, the Army reaches out to partners to identify mutually beneficial situations for land conservation and to prevent development of critical open areas. The army can contribute funds to the partner’s purchase of easements or properties from willing landowners. These partnerships retain high-value habitat and limit incompatible development in the vicinity of military installations. Establishing buffer areas around military installations limits the effects of encroachments and maximizes land within the installations that can be trained on in full capacity. For more information, see <http://aec.army.mil/Services/Conserve/ArmyCompatibleUseBufferProgram.aspx>.

As of September 2012, more than \$258 million has been contributed to the ACUB program through the Army’s partnerships with local and national conservation groups, state and county governments, and other federal agencies.

Readiness and Environmental Protection Integration (REPI)

The Department of Defense’s Readiness and Environmental Protection Integration Program protects military sustainability by addressing and removing restrictions to allow commanders the greatest flexibility to ensure our military men and women can train now and into the future. REPI is DoD’s core effort aimed at protecting military readiness by preventing incompatible use and development and preserving habitat through buffer projects, education and outreach, and regional planning efforts. For more information about the project and funding opportunities, see <http://www.repi.mil/AboutREPI.aspx>.

Summary

The use of NCNG Camp Butner as a pilot project for creating a statewide buffer protection process was successful. The opportunity exists to increase landowner awareness of the importance of the “win-win” created by protecting a military installation while simultaneously protecting cultural heritage, or conserving a natural resource.

Another opportunity identified as a “next step” is a partnership with the NC Department of Commerce to add compatible use overlays to the buffer areas. It is not enough to simply identify incompatible use areas, and to pursue buffer actions through conservation. Compatible uses should be identified and encouraged – an action that in and of itself helps protect the military mission.

Feedback from the military and conservation communities in North Carolina who have been presented with a PowerPoint presentation on the creation of this plan has been overwhelmingly positive.

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- vi <http://www.ncparks.gov/Visit/parks/fofi/history.php>
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