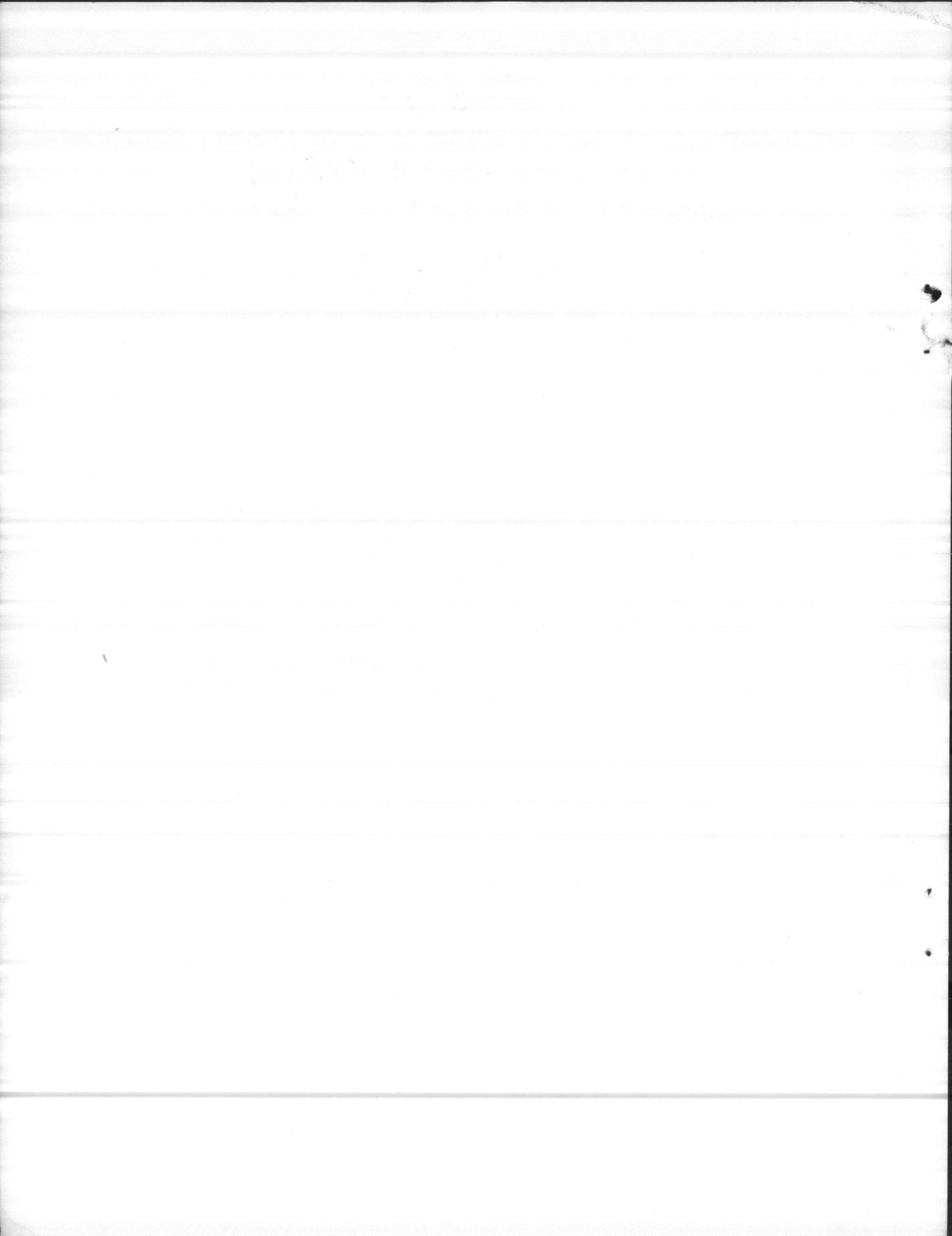


**1975
CONSERVATION
REPORT**



**MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA**



ABOUT THE COVER One of a pair of red-cockaded woodpeckers, on the endangered species list, scans the immediate area before entering its nest which is in a living, red-heart infected, longleaf pine.

The photograph was taken in a remote area of the Base in April 1974 as nest preparation was beginning. At this time the two birds were most active around the nest from daybreak until about nine o'clock in the morning. They then left the nest site, apparently, to forage for food and were not observed to return until after sunset.

The picture was taken from a blind located about 25 feet from the tree as the birds were busy preparing the tree for nesting. They were pecking the area around the nest entrance "plate" and pecking resin wells above and below the cavity entrance resulting in a continuous flow of resin over the nest, giving much of the tree a glazed appearance. It is believed that the sticky condition of the tree provides protection from predators.

More information on the red-cockaded woodpecker is included under the endangered species program located on page #57 of this report.

TABLE OF CONTENTS

Introduction, Mission, and Population	1
Highlights, 1972 - 1974	4
Organization	8
Program Background with Present and Future Trends	12
Analysis of the Activity's Acreage	15
Soil, Water, and Air Resources	19
Natural Beauty	27
Wildlife Management	31
Fish Management	62
Recreational Use of Fish and Wildlife	66
Wildlife Law Enforcement	71
Forest Management	73
Base Conservation Organizations	86
Community Relations	93
Conservation Education	95
Natural Resources Related Studies By Naval Medical Field Research Laboratory	100

APPENDIXES

Responsibilities of the Environmental Enhancement Committee	A
Vegetation	B
Base Order 11090.1	C
Wildlife Resources	D
Management Record	E
Hunter Classification and Wildlife Species Harvested	F
Cooperative Plan, Conservation of Fish and Wildlife Resources	G

INTRODUCTION, MISSION, AND POPULATION

INTRODUCTION

Marine Corps Base, Camp Lejeune, encompasses approximately 170 square miles of land and water area in the coastal region of North Carolina. The Base takes extreme pride in the management of the vast natural resources inherent to the area. The following report is submitted in order to provide an overview of planned and accomplished efforts which promote the restoration, improvement, and preservation of renewable natural resources and other environmental assets. Report period is for calendar years 1972, 1973 and 1974.

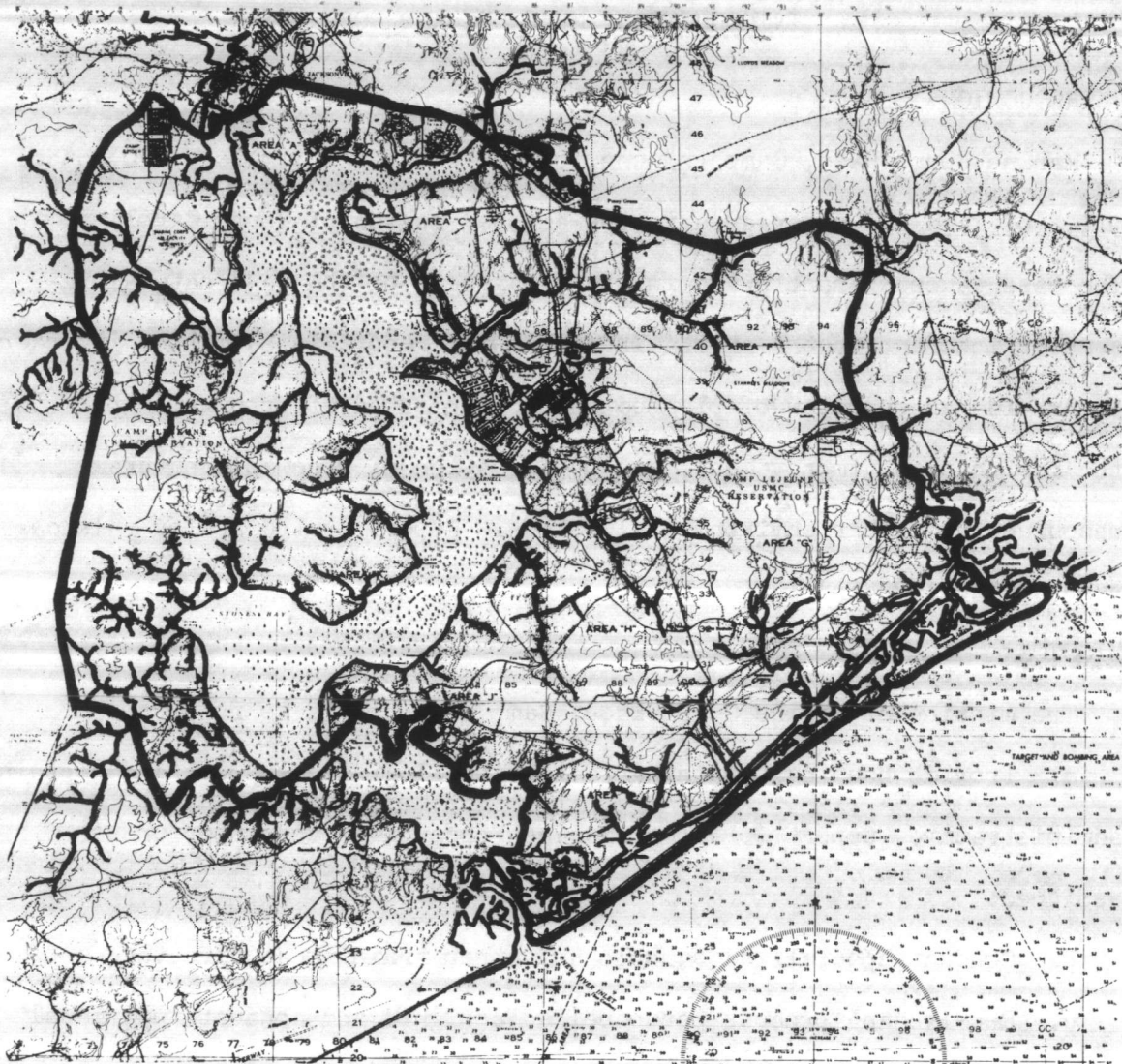
MISSION

The mission of Marine Corps Base, Camp Lejeune, is as follows:

- a. Provide housing, training facilities, logistic support and certain administrative support for Fleet Marine Force units and other units assigned.
- b. Conduct specialized schools and other training as directed.
- c. Receive and process personnel as assigned and conduct individual combat training as directed.

In addition to the above assigned mission, the Base is charged with the responsibility to ensure that management provides for the following:

- a. Protection and conservation of the watershed and natural landscapes, soil, beneficial forest and timber growth, and fish and wildlife as vital elements of an optimum natural resources program.
- b. Utilization and preservation of natural resources in the combination best serving the present and future needs of the United States and its people.



THE CAMP LEJEUNE WATERSHED

BASE BOUNDARY IS INDICATED BY HEAVY BLACK LINE.

c. Optimum ecological development of land and water and controlled public access to such areas.

d. Active participation of activity personnel assigned to resource management positions in assessing the impact of activity programs on the natural environment within the confines of the activity and on public and private resources outside the confines of the activity which may be affected by planned actions.

POPULATION

The Base houses four Marine Corps commands and two Navy commands: Marine Corps Base; Force Troops, FMFLant; 2d Marine Division, FMF; Marine Corps Air Station (Helicopter), New River; Naval Regional Medical Center; and Naval Medical Field Research Laboratory. The normal combined peacetime military strength of Camp Lejeune is approximately 38,000 personnel, augmented by approximately 4,000 civilian employees. Military dependents are in excess of 32,000 on and off Base.

HIGHLIGHTS, 1972 - 1974

PURPOSE

This summary of highlights is included to present in brief form the increased accomplishments for the reporting period 1972 - 1974.

NATURAL RESOURCES AND ENVIRONMENTAL AFFAIRS DIVISION

This division of Base Maintenance Department was created in 1972 as an organizational change in order to increase the effectiveness of Base conservation efforts.

MANAGEMENT PLAN UPDATED

In cooperation with the Soil Conservation Service, a Long Range Multiple-Use Natural Resources Management Plan was completed in 1974. This plan provides for specific management practices and schedules for a ten year period beginning 1 July 1974.

SEWAGE TREATMENT

Authorization to discharge permits for all sewage treatment plants were issued by the Environmental Protection Agency in 1974, showing that sewage treatment facilities at Camp Lejeune meet EPA standards in all respects.

SANITARY LANDFILL

In July 1972 the system of solid waste disposal was changed from an open burning dump to a sanitary landfill, eliminating a large source of air pollution. All non-recyclable solid waste is placed in the landfill and covered daily.

BURN DUMP

Site of the former burn dump was converted into a recreation area including a three-acre lake. The lake was stocked with fish in the summer of 1973 and was opened for fishing in September 1974. It was very productive for fishing the rest of the season.

INSTALLATION OF 4-1/2 TON CARDBOARD COMPACTOR

Eight 4-1/2 ton cardboard compactors were installed at strategic locations. The compacted cardboard is recycled.

PUBLICATION OF AN OIL SPILL PREVENTION, CONTAINMENT, AND COUNTER-MEASURE PLAN

This order was published to establish policy and procedures concerning oil pollution abatement. Fifty waste oil storage tanks have been installed at strategic locations throughout the Base.

USE OF ULTRA LOW VOLUME SPRAYER

In 1973 and 1974, a new type ultra-low volume sprayer has been used for adult mosquito control. Use of this machine resulted in the conservation of 8,000 gallons of fuel oil.

FOREST ACCESS ROADS

Thirteen miles of forest access roads have been planted in grasses such as rye, bahia and fescue during the past three years.

EXPERIMENTAL WOODY STOCK AND PERENNIAL PLANTING

Exotic woody stock plantings were continued in cooperation with the N. C. Wildlife Commission and the Soil Conservation Service. Plantings were made in areas with high turkey populations for the evaluation of growth, adaptation, and use as turkey food. Also five plantings of Wilmington bahiagrass were made for permanent food source for deer, quail and turkey.

SALLIERS BAY WATERFOWL IMPOUNDMENT

This new impoundment area was constructed for the improvement of waterfowl habitat.

WILD TURKEY GOBBLER COUNTS

Turkey gobbler counts continue to be conducted each spring to determine abundance.

WILD TURKEY TRAPPING

Since 1974 sixty wild turkeys have been live-trapped and transported to other public game management areas for restocking purposes. Forty turkeys have also been trapped, banded, and released at the capture site for management purposes.

DEER ABOMASUM PARASITE STUDY

It has been established that this is a direct relation between abomasum parasite count and deer herd density. Five sample deer were taken in September 1974 and parasite counts made for this purpose.

NONGAME SPECIES PROGRAM

Forty eastern bluebird nesting sites have been established.

A survey of American osprey nesting sites was made.

During 1973 and 74 nine black bear were trapped, tagged, aged, weighed and released.

Ninety-eight nesting sites have been provided for purple martins.

WILD HONEYBEES

Two colonies of wild honeybees were preserved by installing them in hives in safe areas.

EXPERIMENTAL PHEASANT RELEASE

Eight ring-necked pheasants were released at Onslow Beach in an attempt to establish a breeding population.

ENDANGERED SPECIES

Forty-two red cockaded woodpecker nesting trees have been located and marked.

Habitat for alligator was maintained.

A nesting survey of sea turtles at Onslow Beach was made.

FISH MANAGEMENT

Eleven freshwater ponds totaling 33 acres are currently under management.

REFORESTATION

For the three-year period, a total of 1,010 acres was site-prepared for natural regeneration and a total of 1,091 acres was site-prepared and planted in pine.

TIMBER HARVEST

During this reporting period, Camp Lejeune realized an income of \$1,334,036 in timber sales.

MUTUAL FIRE FIGHTING ASSISTANCE AGREEMENTS

Camp Lejeune entered into agreements with city, county, and federal authorities for fire fighting assistance and updated the agreement with state officials.

TIMBER ACCESS ROADS

Disking and planting of timber access roads for wildlife food areas and erosion control have been in progress for the past three years.

BASE-WIDE AWARENESS OF CONSERVATION PROGRAM AND ASSISTANCE RENDERED

An increase in awareness and voluntary contributions of time and efforts by Base civilians, military, and dependents has been noted throughout Camp Lejeune. Contributions by individuals, clubs, and Base organizations were most helpful.

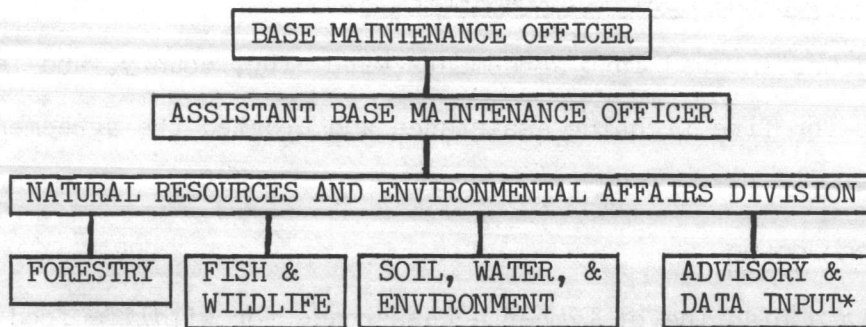
CONSERVATION EDUCATION - GUEST SPEAKER PROGRAM

Guest speaking engagements, accompanied with color slides have been very much in demand by units, school classes, and civic organizations. In 1973 and 74, ninety-four presentations were made to a total of 5,357 people.

ORGANIZATION

FORMAL

The Base Maintenance Officer has staff responsibility for the management of all natural resources aboard the Base. The management is accomplished primarily through the Natural Resources and Environmental Affairs Division of the Base Maintenance Department. However, other divisions of Base Maintenance also provide significant contributions. Branches within the Natural Resources and Environmental Affairs Division include Forestry and Fish and Wildlife. This organization is new to the Base and a further refinement has been restructured as depicted below:



*This section consists of advisory and coordinating personnel from Base Public Works Department and other divisions of Base Maintenance Department on a collateral duty basis.

COMMITTEE FOR ENVIRONMENTAL ENHANCEMENT

Base Order 11015.2E, which gives authority for this committee, was updated in 1973. In rewriting the order, the name was changed from "Committee for the Conservation of Natural Resources" to "Committee for Environmental Enhancement." The only major change was to reduce the membership from sixteen to six but retaining the original ten as advisors. This is expected to increase the efficiency of the committee in that

advisors need attend meetings only when the agenda includes items requiring their particular expertise. With the advent of consolidation, a member from Marine Corps Air Station (Helicopter), New River was added. Membership is as follows: Chairman (as appointed by the Commanding General); Director, Natural Resources and Environmental Affairs Division; Base Wildlife Manager; Representatives from - 2d Marine Division, FMF, Force Troops, FMFLant and Marine Corps Air Station (Helicopter), New River; and President, Rod and Gun Club. Advisors: Forester; Ecologist; Game Protector; Veterinarian; Special Services Officer; Maintenance Officer; Provost Marshal; Training Facilities Officer; Design Director, Public Works; and Director for Environmental Health.

This committee, originally established in 1962, assists and advises the Commanding General on matters pertaining to conservation and management of natural resources and environmental enhancement. Responsibilities of the committee encompass general cognizance over any phase or facet of the Natural Resources Conservation Program with recommendations provided to the Commanding General for implementation, instructions, procedures, regulations, and programs. Appendix A provides a detailed description of the committee's responsibilities.

The most significant contribution the committee has made recently was a recommended revision to the procedures utilized in taking administrative action against fish and wildlife violators. This recommendation has been adopted, included in the appropriate Base order, and has proven to be effective.

INFORMAL

An increased awareness of the requirements and benefits of a sound

conservation program has been observed throughout the Base. As a consequence, the efforts of individual commanding officers, Marines, civilian employees, and dependents have been producing excellent results.

Many Base organizations and clubs other than sections primarily concerned with conservation also have provided invaluable assistance in various programs. These include Base Special Services, Rod and Gun Club, Boy and Girl Scouts, and the Camp Lejeune School System. Specific accomplishments and plans of these organizations are included later in the report.

CONSOLIDATION

The consolidation of real property maintenance and other logistic support functions of Marine Corps Air Station (Helicopter), New River under Marine Corps Base, Camp Lejeune took place on 1 July 1974, Helicopter Outlying Landing Field, Oak Grove inclusive. In the area of natural resources management, this resulted in Marine Corps Base, Camp Lejeune assuming accountability for all Marine Corps Air Station (Helicopter), New River Class I property. By this action 2,672 acres at MCAS(H), New River and 976 acres at HOLF, Oak Grove were added to natural resources management at Camp Lejeune. (See Table 1)

BASE COORDINATION WITH EXTERNAL AGENCIES

Assistance provided by external organizations cannot be overemphasized as it provides an essential portion of the Base's overall program.

In 1963, a cooperative plan with the Department of the Interior (Bureau of Sport Fisheries and Wildlife, U. S. Fish and Wildlife Service) and the State of North Carolina (Wildlife Resources Commission) for the conservation and development of fish and wildlife was developed, revised,

and updated in 1973. Representatives of these agencies have made a number of visits to Camp Lejeune during the past year rendering considerable assistance and greatly enhancing the conservation program. Also, close liaison is maintained with state game law enforcement officials. In addition, a cooperative mutual aid agreement for fire suppression has been established with the North Carolina Department of Conservation and Development for many years. This agreement is part of the fire plan for the state. A cooperative agreement with the U. S. Soil Conservation Service was entered into in January 1974 for the purpose of soil and water conservation.

Valuable assistance also has been provided to the Base in technical areas by the Environmental Protection Agency and Headquarters, Marine Corps.

Specific instances of cooperation between the Base and external agencies are related in appropriate portions of the report.

PROGRAM BACKGROUND WITH PRESENT AND FUTURE PLANS

GENERAL

It is the continuing policy of this Command to restore, improve, and preserve the natural resources and environmental quality of the Base to the maximum extent possible in the interest of the public as well as the military; to encourage and give incentive to conservation activities of the Base; and to provide within manageable quotas, the control of public access to fish and wildlife resources of the Base on a first-come, first-served basis when such can be accomplished without impairing the military mission. Additionally, it is a Command policy to work in close coordination with the state and federal authorities in planning, developing, maintaining and coordinating fish, wildlife, soil and water, and forest management programs. In cooperation with the Soil Conservation Service, a Long Range Multiple-Use Natural Resources Management Plan was completed in 1974. This plan provides for specific management practices and schedules for a ten year period beginning 1 July 1974.

OBJECTIVES

The management and conservation effort of the Base is directed toward accomplishment of the following objectives to the maximum extent consistent with funding priorities and military requirements:

- a. Protection and preservation of wildlife, soil, beneficial forest and timber growth, and suitable vegetative cover.
- b. Utilization and care of natural resources in the manner best suited for present and future military requirements, and for the use of military personnel and the public.

- c. Provision for maximum multiple-use and optimum ecological development of land and water areas and access thereto.
- d. Continued development and harvest of timber stands, consistent with wildlife management and military requirements.
- e. Improvement of forest and water areas for recreational purposes.
- f. Improvement of the aesthetic value of streams and woodlands.
- g. Achievement of effective water and air pollution control in improving the environmental quality.

GENERAL PLANS

The basic conservation plan encompasses the following:

- a. Continued conservation and improvement of natural resources.
- b. Development and maintenance of artificial wildlife habitats required to support the available natural resources.
- c. Development and supervision of plans for harvesting fish and wildlife species which will preclude an over-population or extermination of any species.
- d. Development and supervision of projects for introduction of new fish and wildlife species and to supplement or replace natural species when in the best interest of conservation.
- e. Development and supervision of plans to ensure compliance with local, state, and federal laws and regulations pertaining to the conservation and harvesting of fish and wildlife.

Within the above framework, certain projects such as controlled burning, brush clearing, and elimination of low quality, overaged trees have been programmed for accomplishment in annual increments. Other projects such as the establishment of new food plots and pond clearing,

treatment, and stocking require reevaluation and annual incrementation for achievement of long range objectives in an orderly manner.

SPECIFIC FUTURE PROJECTS

a. Erosion control projects are in the planning stages in two areas of the Base - the 1800 Industrial Area and the Main Ammunition Dump.

b. Oil separators will be installed at vehicle washracks.

c. Contracts are being formulated for upgrading the sewage disposal system base-wide for such items as an additional anaerobic digester, installation of four new sludge drying beds, addition of a chlorine contact chamber, and a package sewerage treatment plant at the Boat Basin to replace the septic tank.

d. Complete installation of waste oil storage tanks at unit level in accordance with survey findings.

e. Continue to plan and accomplish improvements in trash collection through recycling of materials. Initial efforts are concentrated on paper.

f. Continue to inventory and devise more accurate survey procedures for endangered, rare, and unique species.

ANALYSIS OF THE ACTIVITY'S ACREAGE

GENERAL DESCRIPTION

History - Prior to 1941, the land of Camp Lejeune was privately-owned. Tracts ranged in size from less than an acre to several thousands of acres. There were approximately 6,000 acres of cleared land with most of the woodland having been cut over and denuded of timber. There was little or no fire protection, and the wildlife habitat generally was poor. After government ownership in 1941, with the implementation of multiple-use management programs, environmental conditions for flora and fauna and man have improved steadily.

Topography - The topography of the Base is typical coastal plain ranging in elevation from sea level to 70 feet above. Surface relief ranges from flat, savannah-like, to gentle rolling. Deep wooded forests characterize the better upland sites while most of the branches and water-courses are headed by inaccessible swamps and pocosins. The principle watershed drainage areas are New River, Northeast Creek, Southwest Creek, Wallace Creek, French Creek, Bear Creek, Freeman Creek, and Duck Creek.

Soils - There are 25 different soil series of varying structures ranging from sandy loams to fine sand and muck, but the soil type generally is classified as sandy loam. Some of the soil is low in organic matter and fertility, but most of the land produces abundant crops of timber and forage for wildlife.

In 1965 the Soil Conservation Service conducted a low-intensity soil suitability survey of woodlands on the reservation. This survey was updated in 1974. Soils were rated also as to their game potential and

fisheries possibilities. This makes it possible to compare present timber stands with the appropriate soil suitability map to determine optimum management. This plan is valuable in establishing vegetative cover programs and improved drainage as it relates to requirements for improved forestry and fish and wildlife programs.

In accordance with the Cooperative Agreement, Soil Conservation Service personnel made a survey of all soil conservation problem areas during the summer of 1974. Prescriptions were made for 230 different sites and scheduled for accomplishment by priorities over a ten year period. This information was incorporated into the Long Range Multiple-Use Natural Resources Management Plan. Most of the problem areas were soil erosion caused by mechanical disturbance of the soil.

Climate - Located just below the 35th parallel of latitude, Camp Lejeune has a mild climate. Summers are from mild to hot and humid. Winters are fairly mild with the temperature frequently dropping below freezing. Snow is the exception rather than the rule. Average annual precipitation averages 52 inches while the average temperature is 61 degrees. There is a long growing season of approximately 230 days.

Vegetation - Vegetation on the Base is typical of the southeastern coastal plain. Extensive tracts of both pure pine and pine-hardwood mixtures dominate the landscape. Pines consist of loblolly and longleaf; while the hardwoods are represented by southern red oak, white oak, turkey oak, willow oak, red gum, tupelo gum, hickory, etc. The upland swamps, commonly referred to as pocosins, are overgrown with fetter bush, cyrilla, pond pine, and greenbrier.

Several unique carnivorous plants including the venus flytrap, sundew,

bladderwort, and several species of pitcher plants commonly are found on poorly drained sites having infertile, acid soils.

Appendix B lists native plants common to Camp Lejeune that are useful to wildlife.

Types of acreage under management at Camp Lejeune are listed in Table 1.

TABLE 1

LAND UTILIZATION (ACRES)

Marine Corps Base		83,047
Improved Grounds	6,730	
Semi-improved Grounds	5,014	
Unimproved Grounds	71,303	
Woodland	58,077	
Roadside Zones and Streams	2,523	
Tidal Marsh	3,326	
Coastal Beach	1,645	
Wildlife Food Plots	285	
Impact Areas	5,447	
Marine Corps Air Station, New River		2,672
Improved Grounds	1,535	
Unimproved Grounds	1,137	
Helicopter Outlying Landing Field, Oak Grove		976
Improved Grounds	331	
Unimproved Grounds	645	
Total Land Area		86,695
Water		25,764
Grand Total		112,459



APPROXIMATELY 14 MILES OF SCENIC FRESHWATER STREAMS DRAIN THE BASE



INTRICATE PATTERNS OF SALT MARSH - AN IMPORTANT PART OF THE COASTAL ENVIRONMENT

SOIL, WATER, AND AIR RESOURCES

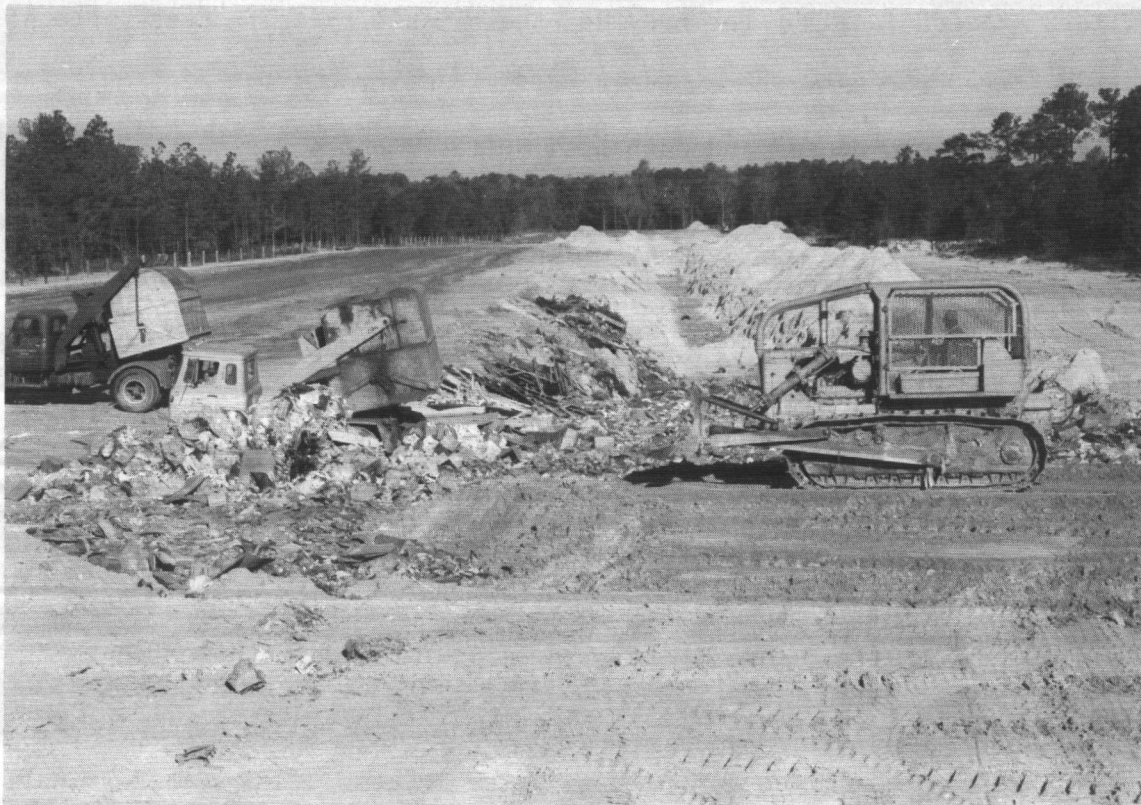
SEWAGE TREATMENT

Secondary treatment is now accomplished at all of the eight sewage treatment plants at Camp Lejeune. Construction of rotating trickling filters at each facility has provided the capability to process waste at a high state of purity, obtaining an efficiency of 90% in relation to the biological oxygen demand and suspended solids, thus assuring that the seven million gallons of waste water that daily flows through the sewage treatment system will not degrade the quality of New River. Continuous attention and control at these sewage plants by qualified personnel assures that effluents meet and exceed requirements of Environmental Protection Agency (EPA) and water quality standards established by the state of North Carolina. To help improve the qualifications of sewage treatment plant operators, all recently employed personnel are engaged in an intensive two-year on the job training program set up and administered by the Civilian Personnel Office. The final step of this training program requires the employee to pass the Waste Water Treatment Operator Examination (Grade II) administered by the North Carolina Department of Water and Air Resources. Twenty-one sewage treatment plant operators have passed examinations for certification with grades ranging from I to IV.

SANITARY LANDFILL

Operation of the sanitary landfill (since 1 July 1972) has been a success. Elimination of air pollution from the former open burning dumps was a great stride forward. One of these former burn dumps has been converted to a Base recreation area complete with a pond stocked with fish.

The Landscaping Section of Base Maintenance Department has done a commendable job in beautifying the area, and the former eyesore has become a valuable asset. Another former open burn dump near Camp Geiger will be reforested with pine seedlings in the near future.

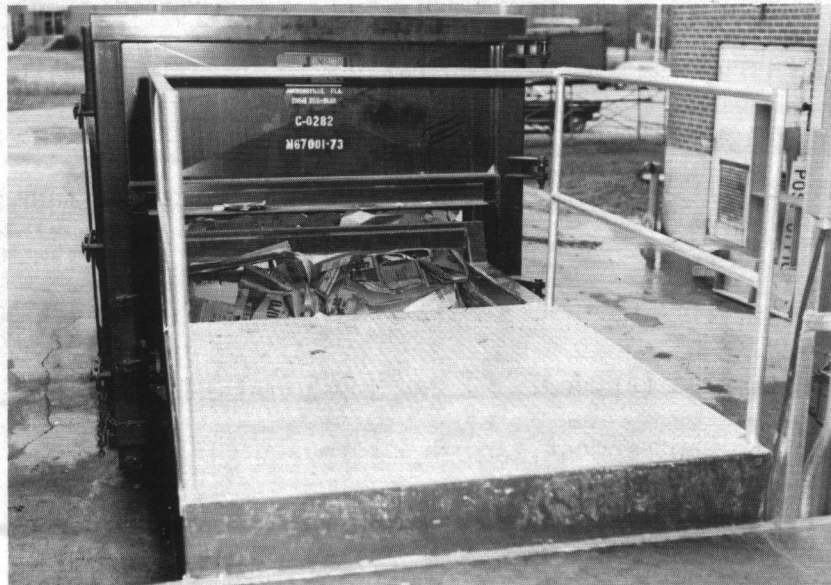


SANITARY LANDFILL IN OPERATION

COMPACTION DEVICES

Shortly following the opening of the sanitary landfill, twenty-one compaction devices were installed in Base dining facilities. Utilization has proven these devices to be a superior method of waste disposal. The compaction devices exert a 10-to-1 compression ratio, making them popular with mess personnel in that they greatly reduce the laborious task of transporting waste to dumpsters. Base-wide requirements for dumpsters at dining facilities have been reduced by half; the poundage per trip in the dumpmaster truck has been increased; and the space per pound in the sanitary landfill is substantially reduced.

In 1973-1974 additional compaction equipment was installed at the Marine Corps Exchange, Hadnot Point Commissary, Base Materiel Battalion and five other locations to compress cardboard boxes. The device exerts a 4-to-1 compression ratio and is equipped with a container capacity of 4-1/2 tons of cardboard, greatly reducing the necessity for dumpsters.



800 TONS OF CARDBOARD WERE COLLECTED FOR RECYCLING FROM 8 OF THESE COMPACTION/CONTAINERS IN 1974

Pending funding for additional equipment in fiscal year 1975, Camp Lejeune's cardboard recycling program will be completed with the baled cardboard being disposed of by the Defense Property Disposal Agency. Presently, the Onslow County Workshop for the handicapped, a nonprofit organization, is recycling the cardboard generated at Camp Lejeune.

Another waste item generated is scrap lumber, which includes used lumber or boxes not required for the foreseeable needs of the generating activity or in such condition as to be unacceptable for further use. This material will be turned in and disposed of according to procedures set forth in Base Order 4570.1B of 18 December 1974 (Appendix C).

OIL SPILL PREVENTION

A complete Base-wide survey conducted to determine the extent of oil pollution in maintenance areas, motor pools, etc., revealed some minor soil and water pollution was occurring; action was initiated immediately to correct the situation. In addition to a personal explanation of the necessity for preventing oil spillage, time was spent with each unit in these areas instructing in the preparation of oil drip pans for oil dispensing drums and discussing other methods for prevention and containment. In 1973-1974 approximately fifty waste oil storage tanks with capacities of 280 and 550 gallons were modified and installed at different locations for utilization at the unit level.

Base Order 11090.1 (Appendix D) was published implementing the Base Spill Prevention, Containment, and Countermeasure Plan for oil and other hazardous substances. Marine Corps Bulletin 6240 dated 3 April 1974 directed field activities to comply with EPA regulations contained in Federal Register, Volume 38, Number 237, Part II, of 11 December 1973,



ONE OF THE 50 WASTE OIL COLLECTION TANKS INSTALLED BASEWIDE



WASTE OIL COLLECTION TRUCK EMPTYING INTO THE 272,000-GALLON STORAGE TANK

Subject: Oil Spill Prevention. To satisfy requirements of this bulletin, an engineering investigation was conducted aboard Base. A survey and inventory of petroleum storage facilities having an aggregated above-ground storage capacity of 1,320 gallons or more, or any single tank over 600 gallons, or underground storage capacity of 42,000 gallons or more, and non-transportation related facilities were made to identify potential oil spill sites. Fixes were proposed that will either eliminate the potential source or prevent any spill from entering navigable waters. The engineering report prepared by Public Works Department updates Base Order 11090.1. Oil contaminated soil has been replaced in various locations with new soil and reseeded. Further work is planned in the future to improve the appearance of the grounds around maintenance buildings, motor pools, etc.

In the past, most of the waste motor oil collected at Camp Lejeune was used for dust control on unpaved roads and parking lots. This practice has been approved by the Environmental Protection Agency. Now, a 272,000-gallon tank is available for storing excess waste oil that is not needed for dust abatement. Approximately 75,000 gallons have been stored in the tank. It is expected to use this excess oil for either heating fuel or reclamation.

Marine Corps Bulletin 6240 of 28 August 1973 directs activities to have on hand certain oil containment and cleanup equipment to combat any possible oil spill. Camp Lejeune has a boat, oil skimmer, vacuum truck, sorbent mats, straw, 500 feet of oil containment boom and other equipment that can be used to contain and cleanup oil spills. This equipment is located at Base Maintenance and, upon notification, can be transported

to the site of an oil spill.

CHEMICAL DUMP

In the past, certain items of a chemical nature which could not be utilized, reconditioned for return to the supply system, sold, donated, or transferred were buried in specific areas of the Base. Although close control of the burying was maintained, this practice has been suspended until technical advice can be gained concerning the effects of the various substances on the environment. Listings of the specific items buried in specified areas in the past have been compiled and the assistance of the Environmental Protection Agency solicited in determining the advisability of continuing the practice for each specific substance. The Environmental Protection Agency is currently working on this problem and has been most cooperative.

HERBICIDE AND PESTICIDE SAFETY PRECAUTIONS

The Base has effected several changes in utilization of herbicides/pesticides in order to improve conservation techniques and comply with current regulations. The application of less persistent approved pesticides/herbicides is now practiced and applications are made based on insect count in specific areas rather than on a routine area basis. A vigorous training program for personnel in the Insect and Rodent Control Section of Base Maintenance Department has been conducted to ensure that all personnel, including pest controllers and supervisors, are certified as competent.

Base Maintenance Officer is tasked with the responsibility of maintaining surveillance over the types of chemicals used, methods of application, formulation procedures, and recommended strengths. All pesticides

are stored in locked storage facilities and issued under strict controls. The District Entomologist, Naval Facilities Engineering Command, Norfolk, has been most cooperative in providing necessary technical expertise as required.

In the summer of 1973, a new type ultra-low volume sprayer was used by the Insect and Rodent Control Section for adult mosquito control. This machine, which provides a direct spraying of undiluted insecticide, conserved an estimated 4,000 gallons of fuel oil by eliminating its requirement as a dilutant.

NATURAL BEAUTY

BURN DUMP CONVERSION

Perhaps the most significant beautification project to be accomplished during the reporting period was the conversion of the Base burn dump site into an attractive and desirable recreation area. Prior to May 1972, all burnable trash was transported to this site and burned daily. The dump contributed to air pollution, was attractive to rats and other scavengers, and constituted a colossal eyesore. An average of 70 pounds of rodenticide was used weekly for the control of rats. Upon commencement of the sanitary landfill operation, a coordinated operation was launched to correct the situation at the burn dump. Initially, the entire area was covered with dirt. A tenant engineer battalion greatly assisted in this project by transporting earth to the dump. A 3-acre lake was then developed at the site of the former borrow pit, and extensive landscaping, including filling of the lake with water and the planting of approximately 900 plants, including 600 azaleas and 75 flowering trees, followed throughout the area. The pond, completely stocked with fish, was opened for fishing in September 1974. The conservation-oriented combined efforts of Base and tenant units to restore a formerly degraded area have provided a beautiful and necessary recreation site for Camp Lejeune inhabitants.

LANDSCAPING

Camp Lejeune with its natural beauty and well designed layout has long been noted as one of the most attractive military bases in the United States. To keep it this way requires constant endeavor by the various clubs, organizations, military units and the Groundskeeping Section, Base Maintenance Department. During the past three years, beautification projects have been completed in the areas of 2d Marine Division, Force Troops, Officers Club, quarters and housing, industrial and central areas, headquarters buildings, road intersections, golf courses, and horse stables. During the past three years over 3,500 flowering trees, shrubs, and flowers have been planted in support of the above projects. Principle plant life includes hetzi juniper, weeping willow, red cedar, flowering peach, dogwood, azalea, rose, etc.



RECENTLY PLANTED SHRUBBERY CONTRIBUTES TO BASE ATTRACTIVENESS

FORESTRY

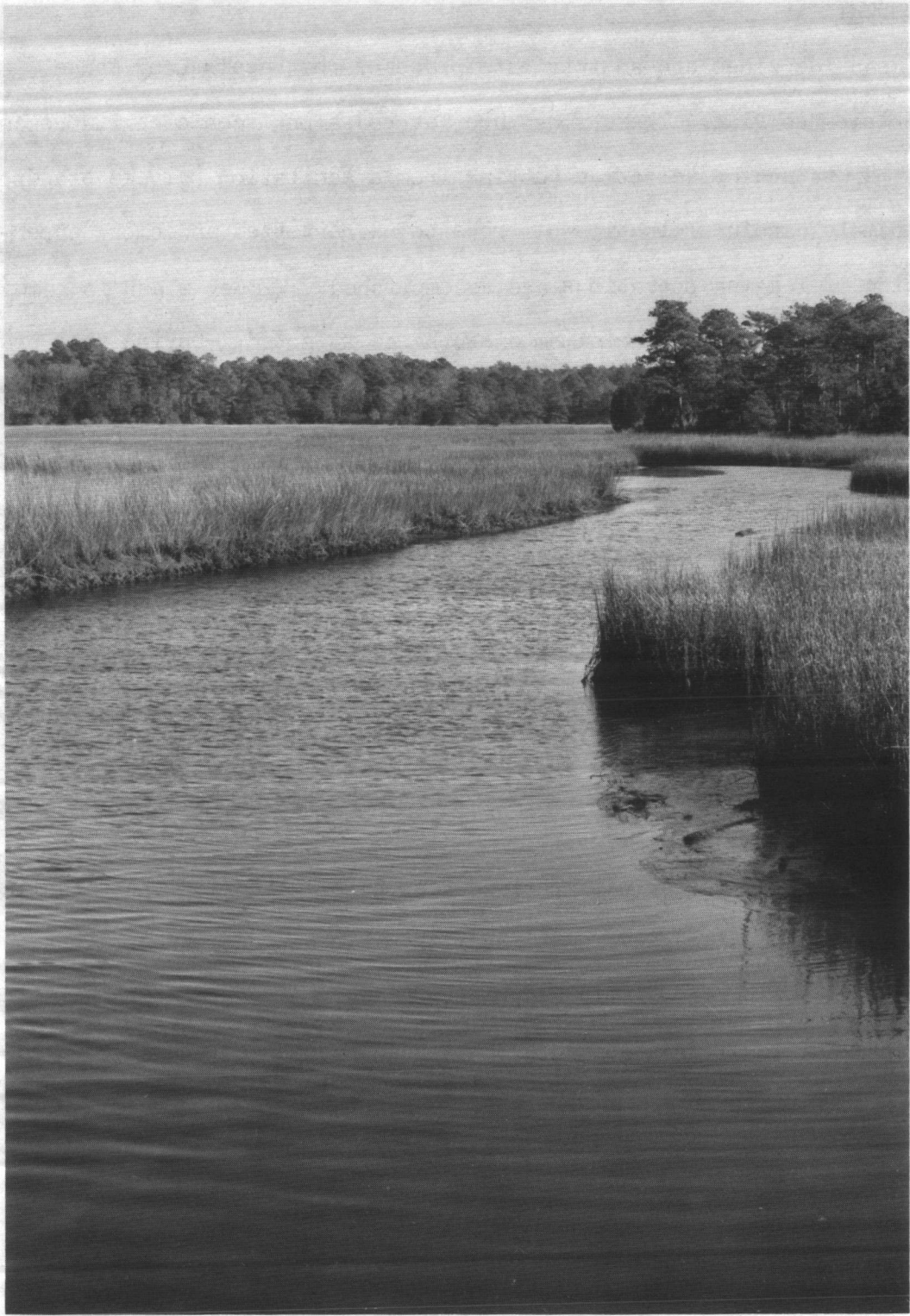
Roadside zones are an intricate phase of the Base's Long Range Multiple-Use Plan. These zones are favored along scenic corridors and are maintained by selective cutting from a sanitation salvage standpoint. Extremely careful selection of trees to be harvested and close supervision of logging operations are accomplished. Timber slash is removed from roadsides so that minimum disturbance is noted. During site preparation in clearcut and seed tree cut areas, the dogwood is protected for its flowering beauty.

ROADS AND GROUNDS

Contributions by the Grounds and Structures Section of Base Maintenance Department in enhancing the beauty of the Base include the removal of cluttering underbrush from stream banks and scenic corridors and maintenance of grassed areas along road shoulders and backslopes, buildings, etc.

AREA COMMANDERS

Each area commander has specific responsibilities for the cleanliness and general housekeeping functions within his assigned area. This system has proven to be especially responsive and effective, and the initiative of the individual area commanders has been recognized and encouraged.



THIS SALT MARSH AND ESTUARINE AREA NOT ONLY CONTRIBUTES TO NATURAL BEAUTY BUT IS A VERY IMPORTANT PART OF THE MARINE ECOSYSTEM.

WILDLIFE MANAGEMENT

GENERAL

Camp Lejeune's Wildlife Management Program is designed to provide optimum environmental conditions for the wide variety of fauna inhabiting the Base. Extensive habitat management programs have resulted in abundant, healthy populations of wildlife available for both consumptive and non-consumptive use. These programs include proper harvest of timberlands, prescribed burning, creation of food plots, maintenance of wildlife openings, and the preservation of habitat occupied by unique species.

WILDLIFE RESOURCES

A listing of wildlife species most common to Camp Lejeune, their scientific name, relative abundance, and condition of their habitat is found in Appendix E. Relative abundance ranges from common to very abundant. Population estimates were derived through sight counts, tract counts, sample area counts, and harvest estimate methods of inventory.

WILDLIFE MANAGEMENT PLAN

The initial wildlife management plan for Camp Lejeune was formulated during fiscal year 1968 and has been updated each year with an annual increment for enhancing wildlife species. A new ten-year plan, an integral part of the Long Range Multiple-Use Natural Resources Management Plan, was formulated and completed in 1974 for the purpose of improving management of all fish and wildlife. The new plan will be updated annually with an annual operational plan.

Under this new plan, the Base has been divided into fourteen wildlife units. Each features a particular game species with management emphasis being directed toward improving the habitat for that particular species. All other game and nongame species also will be considered within these

units.

Progressive improvement is expected to be realized under the plan since it is adjusted to meet the increasing needs of the public using local fish and wildlife resources. The plan is compatible with the forest management plan and with other land use on the Base.

MANAGEMENT PRACTICES

Local emphasis is directed primarily toward management of a variety of forest game species. Forest game populations are dependent upon timberlands which provide food and cover throughout the year. Successful conservation of these populations depends upon sound management of timberlands from the multiple-use viewpoint.

The Base Forester and Base Wildlife Manager enter selected timberlands together to prescribe plans for timber stands which best fit the multiple use concept. Site plans are prepared for future roadway plantings for wildlife, new food plots, natural openings, clearcuts, seed tree cuts, and thinning operations. This management procedure is necessary to ensure compatibility of the two programs and continuous progress in the future.

WILDLIFE FOOD PLOTS

Fifty-four food plots totaling 250 acres have been established to supplement the natural food supply, provide edge effects, and enhance natural brood range. One half of each plot is planted autumnally in improved varieties of rye and wheat to provide winter grazing. The remaining half of the plot is left fallow for invasion by grasses and succulent herbs. The food plots are seeded with millets and other annuals during the spring season.



A FOOD PLOT OF WINTER GRAIN IS UTILIZED BY WILD TURKEY

SMALL GAME MANAGEMENT AREA

An area was maintained as an annual work project to provide additional recreational quail hunting and further enhance the wildlife resources program. The area covers a 1300-acre continuous tract of pine-hardwood stands which generally are open enough to provide excellent quail hunting.

Forty-eight strips were seeded in annual mixtures furnished by the State Wildlife Resources Commission. Perennials, such as serica lespedeza, were maintained in six previously cleared strips. Each of the fifty-four strips in the management area is approximately one-fourth acre in size.

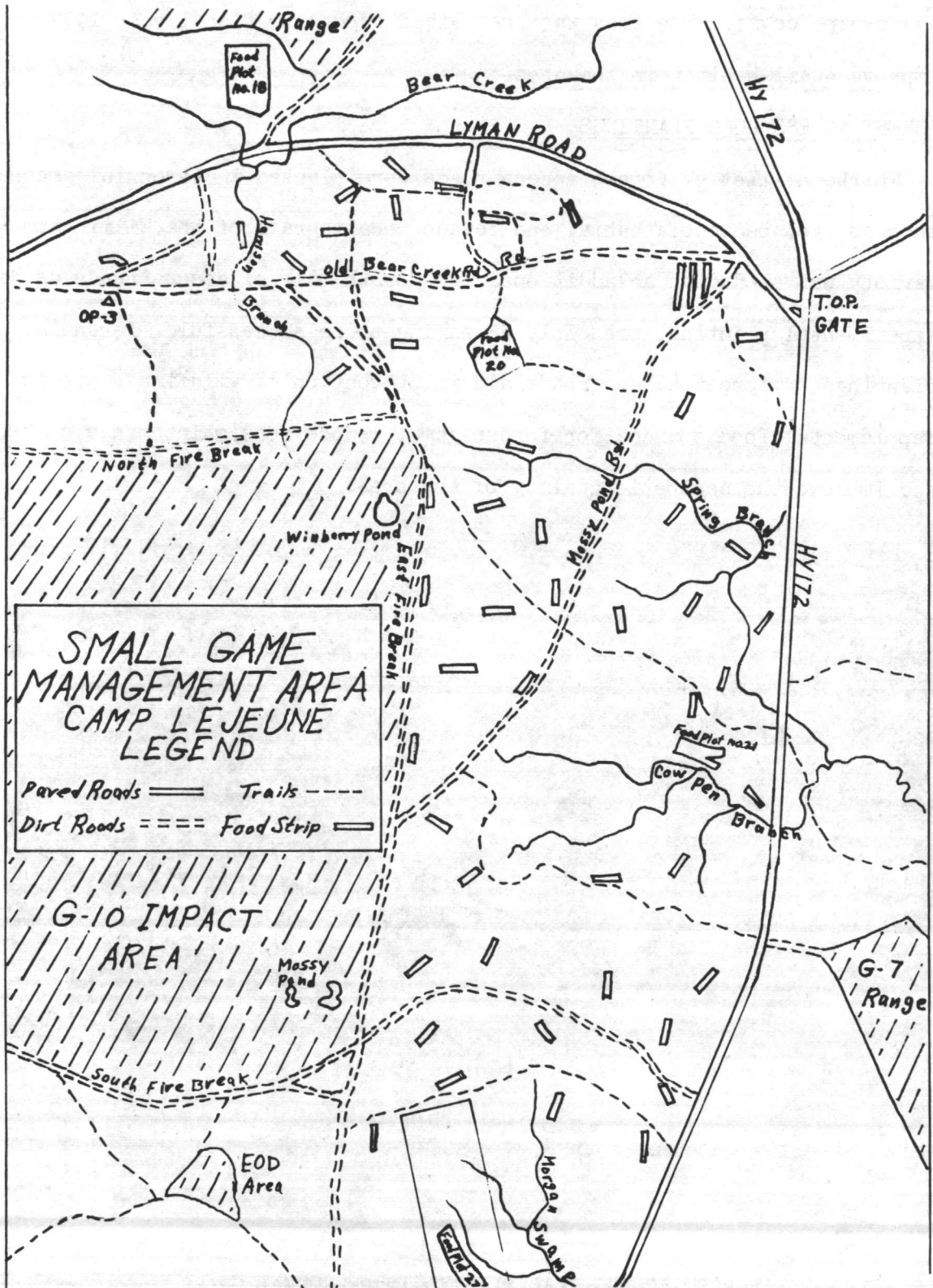
Sawtimber in the south portion of the area was thinned through timber operations during fiscal year 1972. Firebreaks were cut to divide the area into small units which are prescribed burned on two-year rotations. Management techniques are implemented to improve food sources, nesting,



HABITAT EVALUATION TO DETERMINE ANNUAL MAST CROP



DETERMINING PRODUCTIVITY OF WILDLIFE FOOD PLOT FOR SMALL GAME



and escape cover. The area was prescribed burned in fiscal year 1973 to improve quail habitat in the area.

FOREST ACCESS ROAD PLANTINGS

Thirteen miles of forest access roads were planted in perennial grasses such as rye, pensacola bahia, and fescue. Bahiagrass of the Wilmington variety was seeded on an additional one-fourth mile of access roads as an experimental planting, presently appearing to be successful. Perennial plantings on forest access roads aid in prevention of wildfires, provide supplemental food sources for forest game, reduce road maintenance costs, and improve the aesthetic quality of the area.



FOREST ACCESS ROAD PLANTED IN PERENNIAL GRASS

WILDLIFE OPENINGS

Small well-distributed openings within timberlands are very important for enhancing needs of forest wildlife. There are thirty-five of these openings ranging from 1/2 to 3/4 of an acre in size. Edge effects are maintained as an annual work project through trimming, proper placement of brush for escape cover, and slight alterations in forest management practices. Long range maintenance consists of mowing the clearings at three-year intervals which promotes grasses and prevents woody succession. The accompanying map of Wallace Creek Wildlife Management Area provides an example of the dispersal of openings.

A comprehensive survey prior to establishment of the area and a survey conducted in fiscal year 1972 indicate a 30 percent increase in the wild turkey population of the area due to intense management. This is reflective of the importance of quality wildlife management at the local level.

EXPERIMENTAL WOODY STOCK AND PERENNIAL PLANTINGS

Woody stock plantings were made in cooperation with the N. C. Wildlife Commission and the Soil Conservation Service of the Department of Agriculture. Plant materials were distributed through the Soil Conservation Plant Nursery, Albany, Georgia.

Plantings of Wilmington bahiagrass were established at five locations in cooperation with the Soil Conservation Service. Bahiagrass provides a permanent food source throughout the year for quail, wild turkey, and deer. Present plantings prove very promising and may greatly enhance local wildlife populations in the future.

DOVE MANAGEMENT AREAS

Five management areas for mourning dove were established as annual work

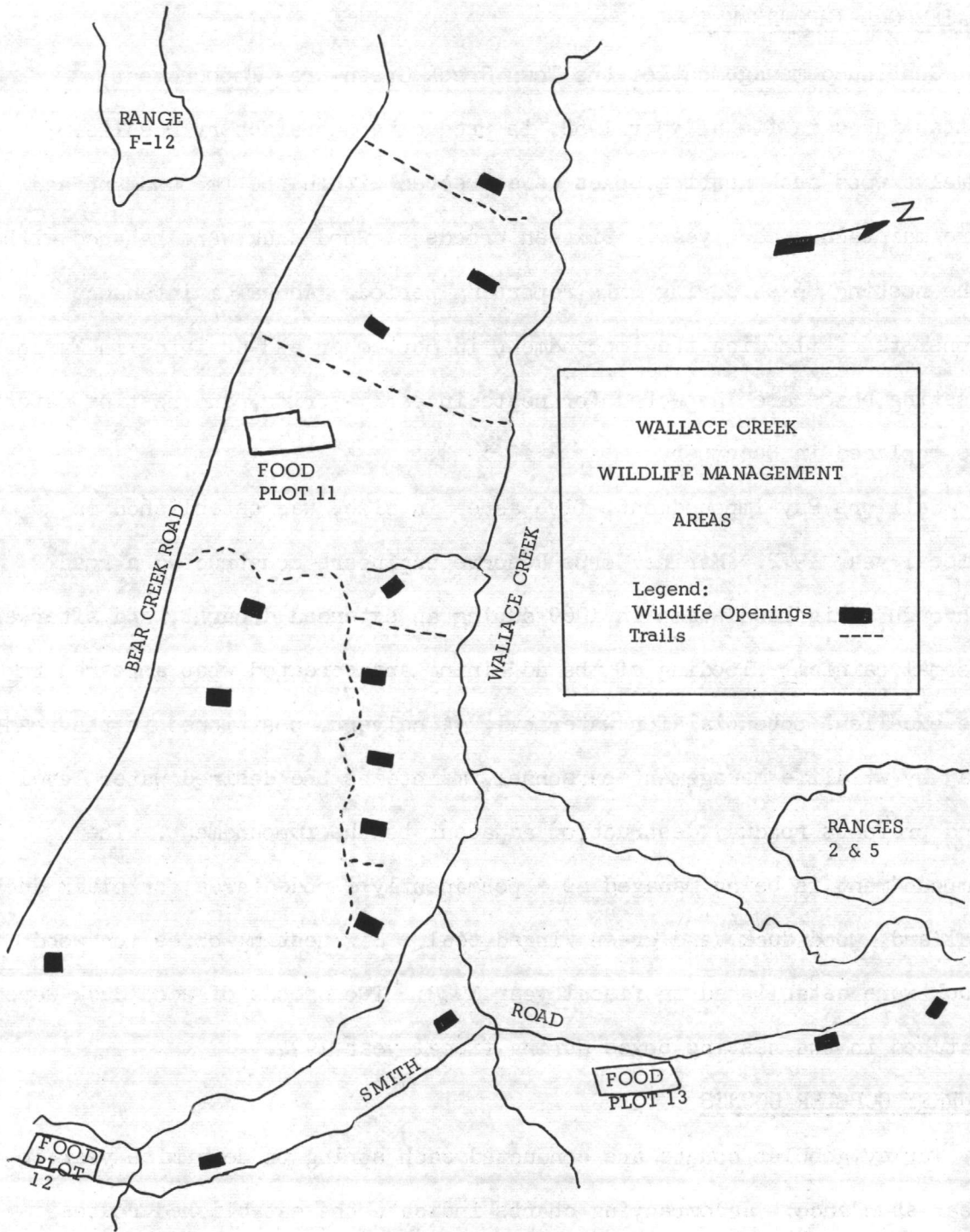
projects to provide site locations for the successful harvesting of dove during the hunting season. Strips of millet were planted adjacent to strips of winter grain to provide food sources for dove throughout the year. The strip planting method keeps breeding populations and young dove in the management areas.



REPRESENTATIVES, N. C. SOIL CONSERVATION SERVICE
EXAMINE WOODY STOCK PLANTING OF AUTUMN OLIVE



FRUIT OF THE AUTUMN OLIVE



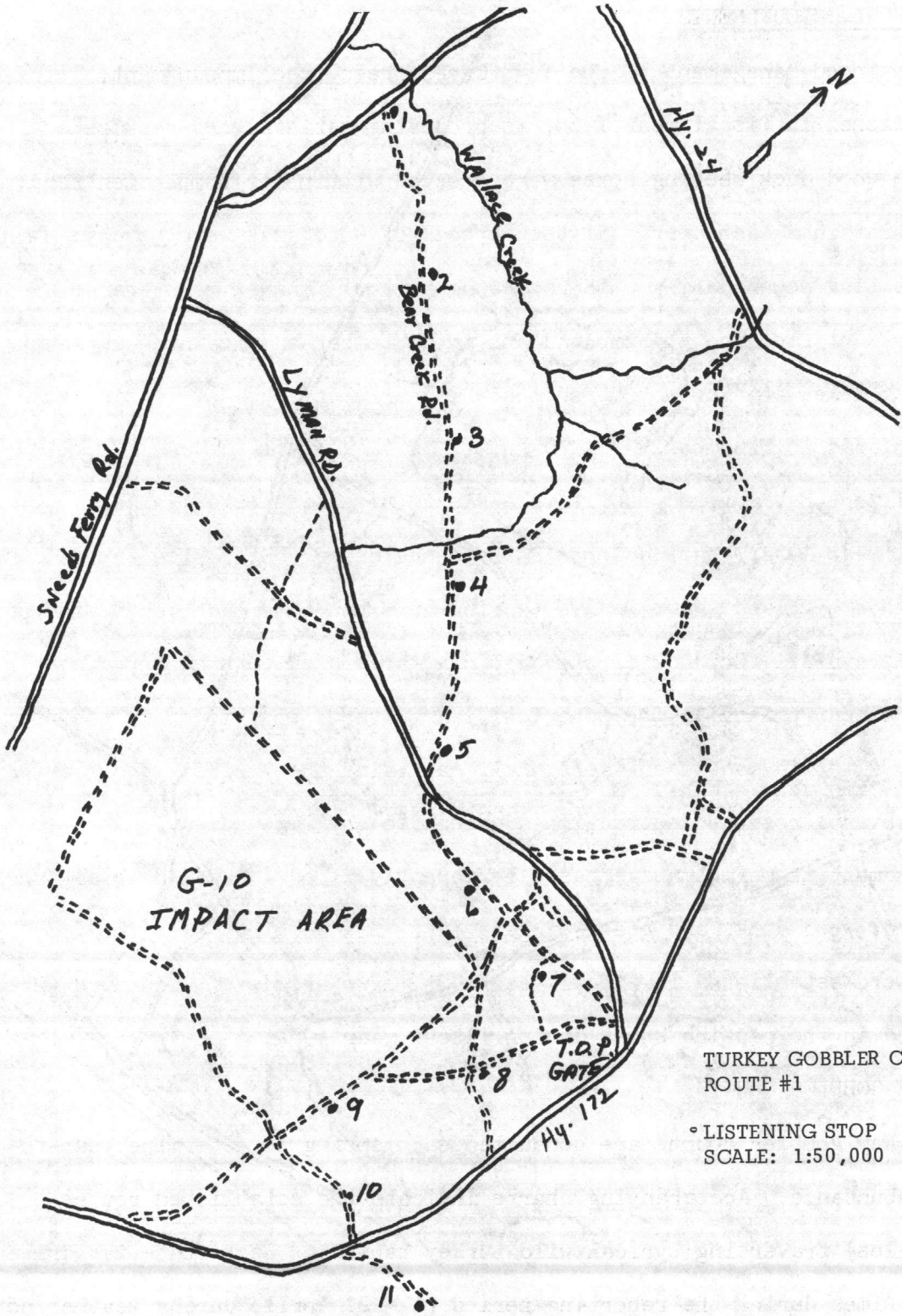
WATERFOWL IMPOUNDMENTS

Continued management of the Town Creek Green-tree Impoundment, established in fiscal year 1968, is producing satisfactory results. Twelve wood duck nesting boxes were erected within the impoundment and are maintained each year. Sixteen broods of wood duck were hatched within the nesting boxes during this reporting period. Annual maintenance consists of flooding the impoundment in September and draining in March. Nesting boxes are inspected for nests in early spring, and nesting material is replaced in December.

Salliers Bay Impoundment, five acres in size, was established in fiscal year 1972. Marine Corps Reserve engineers constructed a road through a highland swamp in 1969 during an extended drought, and afterwards, normal rainfall flooding of the adjoining area created what appeared to be excellent potential for waterfowl. A culvert, positioned in the roadway by wildlife management personnel, maintains the desired water level and prevents roadway destruction adjacent to the impoundment. The impoundment is being managed as a permanently flooded area for black duck, mallard, wood duck, and green winged teal. Six nesting boxes for wood duck were established in fiscal year 1973. Two broods of wood duck were hatched in the nesting boxes during fiscal year 1974.

TURKEY GOBBLER COUNTS

Turkey gobbler counts are conducted each spring to determine year-to-year abundance. Accompanying charts indicate the established routes (10 miles) traversing typical wild turkey habitat. Each route was driven three times during the reporting period (1 - 21 April) during weather not rainy or windy enough to interfere with hearing. Counts began 30 minutes

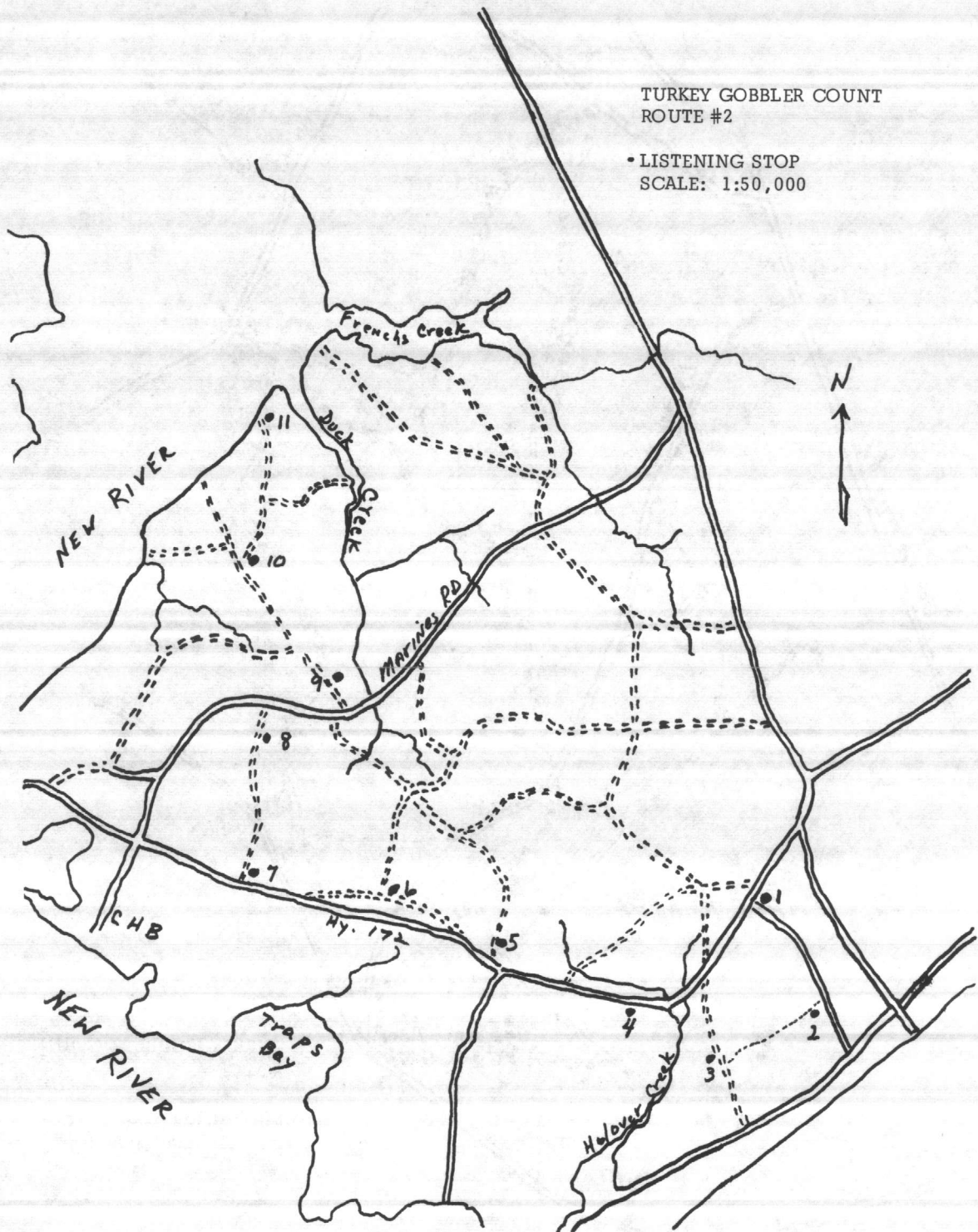


TURKEY GOBBLER COUNT
ROUTE #1

◦ LISTENING STOP
SCALE: 1:50,000

TURKEY GOBBLER COUNT
ROUTE #2

• LISTENING STOP
SCALE: 1:50,000



before sunrise with stops spaced one mile apart. Count stops lasted for three minutes, and all gobblers heard were recorded. Count data from fiscal year 1973-1974 revealed the gobbling incidence at Camp Lejeune to be higher than any other route conducted in North Carolina.

WILD TURKEY STOCKING PROGRAM

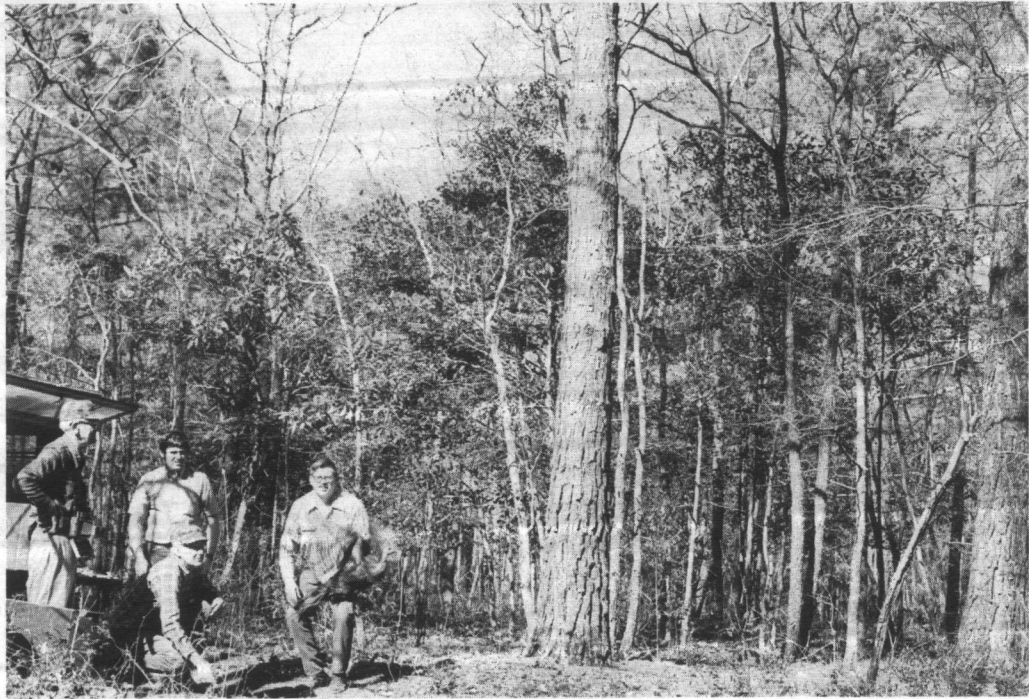
Enhancement of the wild turkey restoration project effort in North Carolina continued at Camp Lejeune. Thirty wild turkeys were live-trapped during the winter of 1972, ten of which were banded and released at locations where the trapping occurred. Twenty turkeys were removed from Camp Lejeune and released on the Green River Game Lands in western North Carolina. These transplants have taken very well to the Green River area where a high population now exists and is reported to be one of the best populated areas in the state. A very important and fine example of cooperative assistance in helping to restore this magnificent game bird in North Carolina is revealed through the wild turkey stocking program. Thirty additional turkey were trapped during late winter of 1974. Ten birds were released in the Uwharrie, Pisgah and Croatan National Forests. The Croatan release was on woodlands adjacent to Cherry Point Marine Corps Air Station.

WILD TURKEY BANDING STUDY

Forty wild turkeys were captured with tribromoethanol treated grain, banded and released to initiate the primary phases of the banding study. The objective of the study is to band samples of turkey populations in selected areas as a means of obtaining data on populations, harvest, mortality, longevity, movements, productivity and sex-age difference in vulnerability to hunting. Telemetry study is tentatively planned for the future to better determine movement and home ranges.



A BANDED TURKEY READY FOR RELEASE



RELEASED!

DEER ABOMASUM PARASITE STUDY

The Southeastern Cooperative Wildlife Disease Study Center at the University of Georgia has devised a new system of biological surveillance for evaluating population density to reduce deer mortalities when Epizootic Hemorrhagic Disease (EHD) occurs. Herd density can now be determined through abomasum parasite study to maintain deer populations within range carrying capacity. The system establishes procedures for collecting and analyzing data to reflect interpretation of herd density necessary in adjusting population level.

Five abomasums were taken from adult deer in early September 1974 under a special collecting permit issued by the North Carolina Wildlife Resource Commission. Parasite burdens are most evident during late summer or early fall prior to the fall of the mast crop. Base wildlife management personnel were recently instructed in the analyzation and interpretation of abomasum parasites at the School of Wildlife Resources, North Carolina State University. Laboratory space and equipment has been made available by the Bacteriology Division, U. S. Naval Field Medical Research Laboratory for completing this and further studies. Analysis of the collection is indicated in Table 2 and interpretation of these data is indicated in Category B of Table 3.

Abomasum parasite studies will be continued on an annual basis. This new system is a major breakthrough in deer herd management which took 15 years of research to perfect. It will be used with other factors such as age and sex ratios, growth parameters, and productivity in assessing the total picture of deer herd for management purposes.

TABLE 2

APC TALLY SHEET

State	<u>North Carolina</u>	County	<u>Onslow</u>
Area	<u>Camp Lejeune</u>	Date	<u>11 September 1974</u>
Deer #1	Age <u>3 mos</u>	Sex <u>M</u>	Wt. <u>34</u>
1st Aliquot	<u> </u>		
2nd Aliquot	<u> </u>	Accidentlly Col-	
3rd Aliquot	<u> </u>	lected (No parasite	
Total	<u> </u>	burden)	
Average	<u> </u>		
Total Para	<u> </u>		
	<u>3 yrs</u>		
Deer #3	Age <u>4 mos</u>	Sex <u>F</u>	Wt. <u>84</u>
1st Aliquot	<u>40</u>		
2nd Aliquot	<u> </u>	Good Condition	
3rd Aliquot	<u> </u>		
Total	<u> </u>		
Average	<u> </u>		
Total Para	<u>800</u>		
	<u>3 yrs</u>		
Deer #5	Age <u>4 mos</u>	Sex <u>F</u>	Wt. <u>77</u>
1st Aliquot	<u>58</u>		
2nd Aliquot	<u> </u>	Good Condition	
3rd Aliquot	<u> </u>		
Total	<u> </u>		
Average	<u> </u>		
Total Para	<u>1160</u>		
Deer #2	Age <u>4 mos</u>	Sex <u>M</u>	Wt. <u>64</u>
1st Aliquot	<u>40</u>		
2nd Aliquot	<u> </u>	Poor Condition	
3rd Aliquot	<u> </u>		
Total	<u> </u>		
Average	<u> </u>		
Total Para	<u>800</u>		
	<u>5 yrs</u>		
Deer #4	Age <u>4 mos</u>	Sex <u>F</u>	Wt. <u>100</u>
1st Aliquot	<u>6</u>		
2nd Aliquot	<u> </u>	Good Condition	
3rd Aliquot	<u> </u>		
Total	<u> </u>		
Average	<u> </u>		
Total Para	<u>120</u>		
	<u>1 yr</u>		
Deer #6	Age <u>4 mos</u>	Sex <u>F</u>	Wt. <u>62</u>
1st Aliquot	<u> </u>		
2nd Aliquot	<u> </u>	Good Condition	
3rd Aliquot	<u> </u>		
Total	<u> </u>		
Average	<u> </u>		
Total Para	<u>960</u>		

1 Aliquot represents 1/20 of total abomasum contents

#1	<u> </u>
#2	<u>800</u>
#3	<u>800</u>
#4	<u>120</u>
#5	<u>1160</u>
#6	<u>960</u>
Total	<u>3840</u>
Average	<u>768</u>

TABLE 3

CATEGORIES OF WHITE-TAILED DEER STOMACH WORM BURDENS
AS ASSOCIATED WITH HERD AND RANGE CONDITIONS*

Category A

Average adult stomach worm burden of 500 or less indicative that deer population level is lower than carrying capacity of the habitat. Herd increase may be considered with reasonable safety factor if tempered by sound judgment.

Category B

Average adult stomach worm burden of 500-1000 indicative that deer population level is compatible with carrying capacity of the habitat. Herd increase should be approached with extreme caution. Suggest maintain status quo.

Category C

Average adult stomach worm burden of 1000-2000 indicative that deer population level is in excess of carrying capacity of the habitat. Herd increase should be avoided under all circumstances. Suggest moderate reduction next hunting season.

Category D

Average adult stomach worm burden of 2000-3000 indicative that deer population level has far exceeded carrying capacity of the habitat. Herd reduction should be initiated at early date. Suggest substantial reduction as soon as feasible.

Category E

Average adult stomach worm burden of 3000 or more indicative that deer population level is at danger-point, with mortality imminent or already occurring. Herd reduction long overdue. Suggest drastic reduction without delay.

*Although the five categories cited afford a base-line from which opinions are extrapolated, they do not take into account other pertinent data with which correlations must be made. Careful consideration therefore must be given to the minute/medium/large stomach worm ratio comprising infection, adult/immature stomach worm ratio, other helminth parasites present and the intensity of infection with each, significant physiologic alterations that may be manifest, gross post mortem lesions, season of year, and other extenuating circumstances often revealed at necropsy.

COOPERATIVE WILDLIFE DISEASE STUDY

Base wildlife management personnel assisted the U. S. Department of Agriculture and Southeastern Wildlife Disease Study Center, University of Georgia, in the collection of ticks during a 1974-1975 deer kill survey. Tick specimens were collected from 261 deer kills with individual hunters and Rod and Gun Club members assisting management personnel in this project. Research findings of these collections will be made available for local management application at a later date.

NONGAME SPECIES PROGRAM

Game management practices usually benefit nongame species present throughout the various wildlife units. Songbirds, birds of prey, and small mammals also frequent food plots or wildlife openings which were primarily established for game species. Amphibians, reptiles and other animal wildlife utilize freshwater ponds established for production of game fishes. Every possible consideration is made to enhance nongame and is an integral part of the overall wildlife program.

Another management development for nongame has been the establishing of nesting facilities for the eastern bluebird. Twenty-five six-foot juniper posts were placed in open areas. Nesting cavities were drilled into the posts for shelter and nesting. Fifteen nesting boxes were established during 1974 to enhance nesting success of this valuable insectivorous bird.

An annual survey of American osprey is conducted to determine their present population status. Nest sites are surveyed through the use of both aircraft and water craft. Forty-six active nests were observed during April 1974. Productivity was determined to be 44 fledglings from a follow-up survey conducted during mid-May. Camp Lejeune has one of the three



ERECTING NEST BOXES FOR USE BY THE EASTERN BLUEBIRDS



THE SECOND FLEDGLING OSPREY REFUSED TO STAND UP FOR THIS PICTURE. CAN YOU SPOT HIM?

most important nesting locations in North Carolina. Nesting habitat receives maximum protection from adverse interference by the public.

Key areas for nongame are established through the efforts of forestry and wildlife personnel when managing timberlands. Dead trees are left standing to provide nesting cavities for flying squirrels, woodpeckers, and bluebirds. Prescribed burning promotes grasses, forbs, and plant production to provide favorable habitat requirements for nongame. Timber stands are managed to provide a variety of mast producing trees which are also favored by nongame species.

The black bear, classified as a nongame animal because it is protected at Camp Lejeune, requires special management consideration. During the past several years, a steady decline has been noted in the number of bears taken by hunters. Several areas throughout North Carolina have been designated as bear sanctuaries. Camp Lejeune added the black bear to its list of protected animals in 1969.

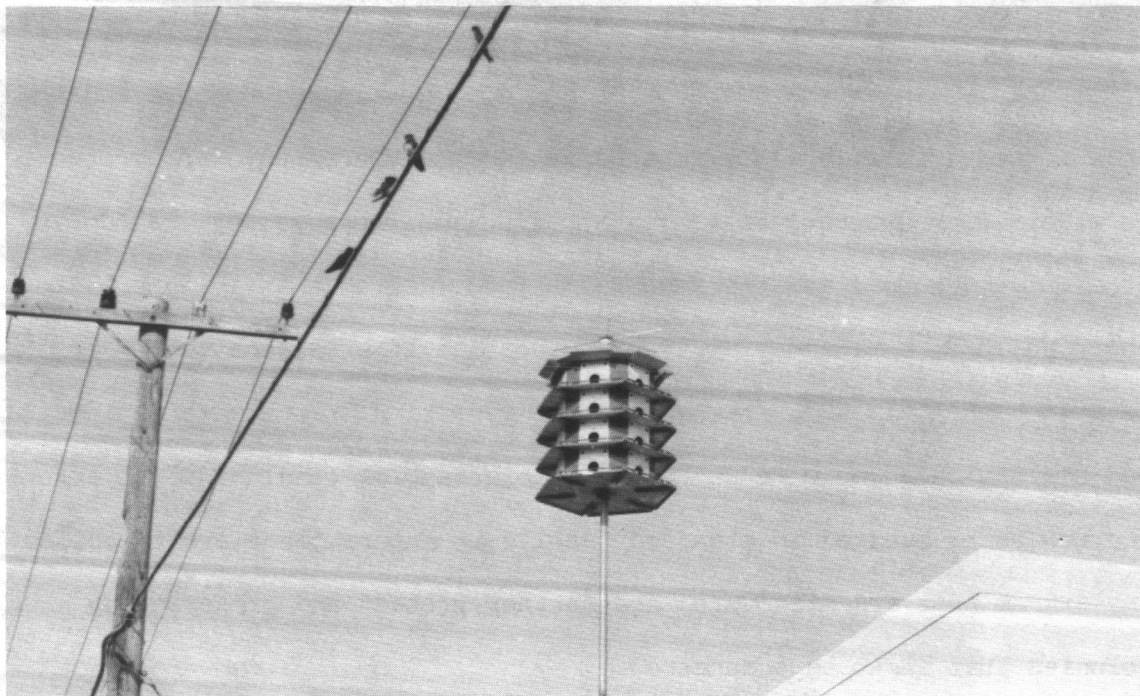
In order to gain information on the number of bears inhabiting the Base, with the assistance of North Carolina Wildlife Resources Commission and Naval Medical Field Research Laboratory, natural resources personnel conducted a bear-tagging program during fiscal year 1973 and again in 1974. Nine bears were trapped, tagged, weighed, aged, and released. The first bear trapped (May 1973) was equipped with a radio transmitter in a telemetry study to determine movement and home range. Telemetry data indicated an approximate home range of nine square miles (May-September). The last attempt to make radio contact with this bear from aircraft produced negative results (December 1973). In the summer of 1974 the bear was spotted on Highway 172 near her original trap site. She was still equipped

with the radio transmitter and ear tags, and at her side were two cubs. Another attempt will be made to recapture the bear and remove the transmitter in 1975 as the bear study continues. Technical assistance for this study was provided by the North Carolina Wildlife Commission.



WEIGHING TRANQUALIZED BEAR AT CAPTURE SITE

The purple martin, termed by some conservationists as America's most wanted bird because of its voracious appetite for flying insects, is found at Camp Lejeune. This bird will eat as many as 2,000 mosquitoes per day and can be attracted by providing good nesting sites. For the past several years, good housing has been provided by suspending gourds from a high pole. In 1973, approximately 24 nests were successful in producing broods. In addition to 24 gourd nests, in 1974 five commercially made aluminum houses with a total of 72 nesting compartments were erected at strategic places aboard Base. Successful nesting took place in three of five new houses. The mosquito has always been a problem in the coastal environment at Camp Lejeune. By enhancing the purple martin nesting site, thereby increasing the total population, it is expected the mosquito population will decrease and somewhat relieve control efforts by insect vector personnel.



PURPLE MARTINS RESTING NEAR NEW 24 COMPARTMENT HOUSE

WILD HONEYBEE PROJECT

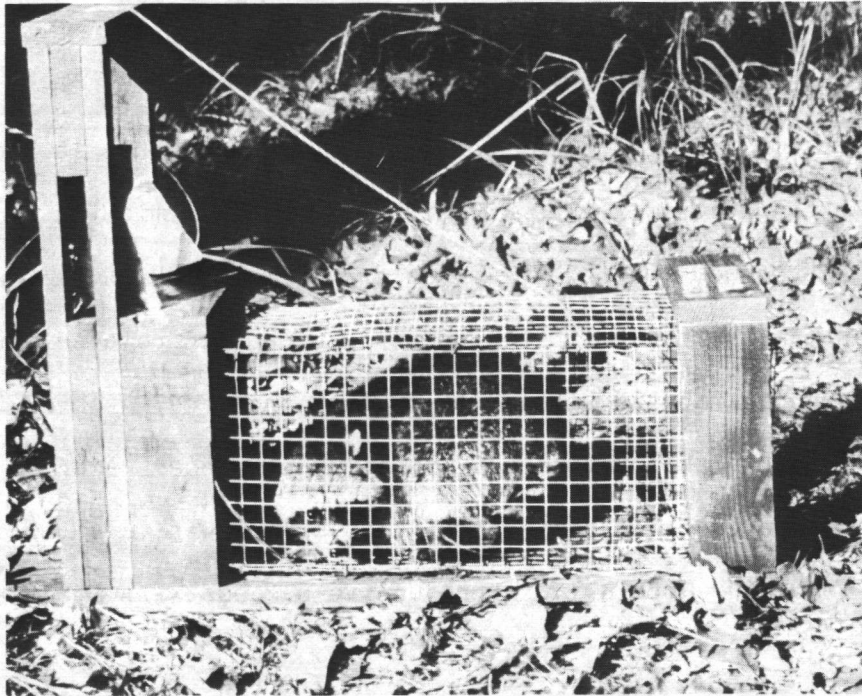
The honeybee, a very beneficial and important insect found at Camp Lejeune, performs an invaluable service to nature in cross pollinating flowers while collecting nectar and pollen for food. The continued existence of many wild flowers, which are aesthetically pleasing, and numerous other plants which derive their beauty from colorful fruits, nuts, or berries, is dependent upon pollinating insects such as the honeybee. These fruits, nuts, and berries, in turn, provide valuable food for many species of wildlife.

Honeybee colonies require some form of protective housing such as hollow trees for survival. During logging operations, many hollow trees are harvested. However, those trees known to contain honeybee colonies are marked to avoid accidental cutting during future timber harvests. Thusly, the continued existence of the honeybee at Camp Lejeune is ensured.

Two wild honeybee colonies were saved from destruction during the summer of 1973 when they were transferred to a standard beehive and then transported to a safe place in a forested area where they were protected from animal predators such as black bear. The first colony was removed from a fallen tree, and the second was removed from a training building where the bees were annoying troops. Despite efforts, one colony was lost to bears. In 1974 the bees in the remaining colony were divided, and six new colonies were successfully started. A total of seven colonies are now being managed in standard beehives. Future plans are to collect any swarms that are discovered and further protect and preserve any colonies that might be endangered.



A CEMENT WALL OF AN ABANDONED TRAINING FACILITY HAS BEEN MODIFIED TO MAKE IT SUITABLE FOR SUPPORTING WILD HONEYBEE COLONIES. HOPEFULLY, THE WOOD PLATFORM AND THE METAL SHIELDS AT EACH END OF THE WALL WILL PROTECT THE BEES FROM BLACK BEAR PREDATION.



A TRAPPED RACCOON READY FOR RELOCATION

RACCOON TRAPPING PROGRAM

The first trapping season for controlling raccoon populations was established in 1973. Trapping was not permitted prior to 1973, and consequently, a very dense population of these animals evolved, evidenced by the increasing number of raccoon visits to the housing areas in search for food. Large die-offs occurred through the years when populations reached critical densities. At present, the valuable raccoon resource is being retained from loss to the environment by trappers utilizing small leg-hold traps and live-trapping methods. One hundred and six raccoons have been made available to the North Carolina Wildlife Commission for further transport and release in the mountains to improve populations there.

EXPERIMENTAL PHEASANT RELEASE

Eight ring-necked pheasants were released at Onslow Beach in an attempt to establish a breeding population at Camp Lejeune. This is a cooperative effort with the North Carolina Wildlife Resources Commission and the Base. Commission personnel trapped the birds from wild stock on the Outer Banks in Northeastern North Carolina. The birds were then released prior to nesting season in habitat similar to that of the area in which they were trapped. Numerous observations of the birds have been recorded since release, but reproduction during the first spring was very low due to inclement weather. Hopefully, reproductive success will improve in the future.



RING NECKED PHEASANT RELEASED AT ONSLOW BEACH IN FEBRUARY 1974

ENDANGERED SPECIES PROGRAM

The Endangered Species Act of 1973 directed the Departments of Interior, Agriculture, and Defense to protect endangered species and their habitats on lands which they administer when such actions are consistent with the mission of the area. Base regulations provide legal protection for endangered species and all nongame animals.

Recently, a program was initiated that does more than just protect these creatures. Surveys are being conducted to determine the number of habitat requirements.

A brief discussion of the animals included in the Base's endangered species program follows:

The red-cockaded woodpecker's range is confined to the coastal plains of the southeastern states. An overaged pine infected with red-heart is required for a nesting site. Its decline is due to forest management practices that call for removal of all overaged pine trees.

Management practices at Camp Lejeune have been modified to leave suitable nesting trees wherever found. Forty-two nesting trees have been located and marked to ensure nonremoval during future timber operations. Base forestry personnel are trained in the identification of nest trees and assist in locating new sites.

The Camp Lejeune area of North Carolina is near the northern boundary of the alligator's range. Several alligator sightings aboard Base are reported each year, and apparently, the population is on the increase. Habitat best suited for the alligator is on the upper reaches of the salt water creeks and the tributaries of New River where there is deep and brackish water. A nesting site which probably has been used for several

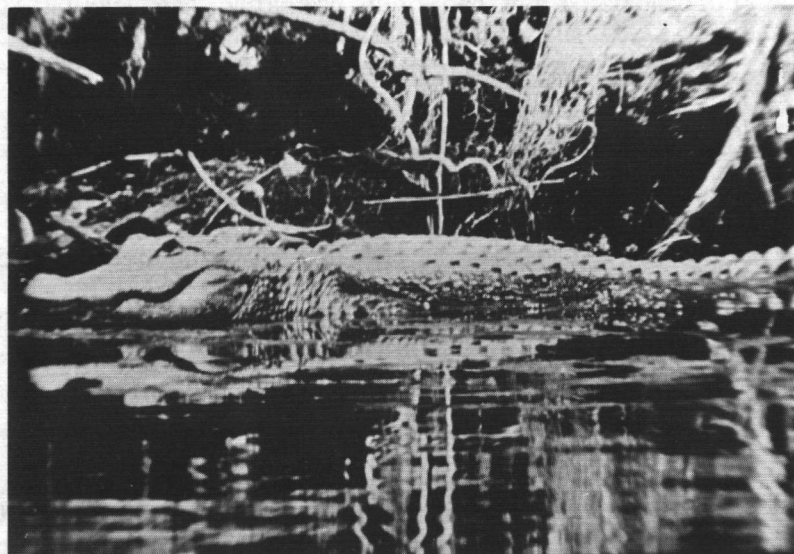


MARKING AND MAPPING NESTING SITE OF RED-COCKADED WOODPECKER



ENDANGERED SPECIES MANAGEMENT IS A PRIME FUNCTION OF THE WILDLIFE MANAGEMENT PROGRAM

years, was discovered near Freeman Creek.



ESTUARINE HABITAT FOR ALLIGATOR IS ABUNDANT AT CAMP LEJEUNE

Each summer Camp Lejeune's beaches provide nesting sites for two species of giant sea turtles. The Green Turtle (*Chelonia mydas*), a threatened species, and the Atlantic Loggerhead Turtle (*Caretta caretta*) have long used Onslow and other beaches along the East Coast for nesting; however, little else was known about their visits here.

Furnished with technical information from the University of North Carolina, Institute of Marine Sciences, Morehead City, North Carolina. Naval Medical Field Research Laboratory and Natural Resources and Environmental Affairs personnel set out to answer some of the questions surrounding sea turtle visits to Camp Lejeune. Investigations revealed that 67 turtles came ashore between 23 May 1974 and 11 August 1974 and laid several hundred soft, white spherical shaped eggs, approximately 1-5/8" in diameter. Some nests were opened, and it was learned that clutch size ranged from 95 to 166 eggs. With only one exception, all nests were made on top or at the edge of the first line of sand dunes. One nest was made on the

beach several yards from the sand dunes. This clutch of 166 eggs was placed in a styrofoam box that had been prepared for incubation by lining the bottom and sides with moist beach sand. The box was placed in the Natural Resources and Environmental Affairs office where, after 70 days, 88 loggerhead eggs hatched. Sixty-six of the turtles lived and were released on Onslow Beach. If left on the beach, this nest would have been lost to the tide which covers the area several times during the summer.

Many beaches have lost their suitability for turtle nesting as a result of man's continued encroachment. At Onslow Beach, very little development has taken place, and it is felt that the area will continue to be an important place for turtles to nest. On the other hand, many nests were raided by foxes and raccoons as they searched for food. Wire cages were constructed and placed over some nests to protect them from the predators.

More work is planned next year in an effort to learn more about these magnificent creatures of the sea so as to help them in their continued struggle for survival.

Other endangered species which might visit the Base include the brown pelican, southern bald eagle, dusky seaside sparrow, ivory-billed woodpecker, and Carolina panther. It is interesting to note that a cougar was seen at Camp Lejeune on 11 October 1972 by Charles D. Peterson, Base Wildlife Manager.



NEWLY HATCHED SEA TURTLES BEING RELEASED



A SEA TURTLES NEST PROTECTED FROM SUCH PREDATORS AS RACCOON AND FOX

FISH MANAGEMENT

OBJECTIVES

Fish management practices are programmed to produce optimum yields and ensure continued harvest of desirable fish species for the sport fisherman.

FISH RESOURCES

A wide variety of fresh and salt water species inhabit the freshwater ponds, streams, salt water bays, and the Atlantic Ocean adjoining the Base. Principle freshwater game species are largemouth bass, bluegill, robin, redear sunfish, warmouth, pumpkinseed, yellow perch, redbfin pickerel, jack pickerel, and channel catfish. Appendix E contains names of freshwater fish common to the Base and Appendix F contains management records for fiscal year 1972 - 1974. Salt water species include flounder, weakfish, bluefish, spot, croaker, whiting, drum, mackeral, tarpon, marlin, and sailfish.

MANAGEMENT TECHNIQUES

Eleven freshwater ponds totaling 33 acres are currently under management. Eight of these were natural ponds of very poor quality when first reclaimed, but are now providing quality sports fishing. Ponds under management:

<u>Name</u>	<u>Acreage</u>	<u>Productivity</u>	<u>Fishing Use</u>
Hickory	4.5	Average	Heavy
Henderson	14.0	Average	Heavy
New Pond (unnamed)	3.0	Above Average	Heavy
Prince	1.0	Average	Medium
Hogpen	1.0	Above Average	Light
Oak	.5	Below Average	Light

<u>Name</u>	<u>Acreage</u>	<u>Productivity</u>	<u>Fishing Use</u>
Mile Hammock	1.5	Average	Heavy
Cedar Point	2.0	Above Average	Intense
Ward	1.5	Average	Medium
Powerline	2.0	Above Average	Medium
Courthouse Bay	1.5	Average	Light

POND FERTILIZATION

Commercial pond fertilizers are applied at the rate of 40 pounds per surface acre to produce a "bloom" of plankton algae that prevents the development of filamentous algae and shades out submerged aquatic vegetation. The microscopic "bloom" consists of organisms that are eaten by insect larvae, the main food supply for small fish.

FEEDING FISH

Channel catfish are stocked in some ponds which have no other species present and are fed commercial foods. Floating commercial catfish pellets are used exclusively to eliminate feeding problems associated with the use of the sinking pellets. Floating pellets provide a visible indicator of over-feeding and of the physical well-being of the fish. Pellets are broadcast inside 2-inch plastic feeding rings, eight feet in diameter, which float in approximately two feet of water. Feeding rings permit the floating pellets to remain in the prescribed area until completely utilized by the channel catfish.

STOCKING

Initial stocking in freshwater ponds was at the rate of 400 bass and 1,500 bluegill-redear sunfish per surface acre. Initial stocking of channel catfish was 2,000 fingerlings per surface acre when on a feeding schedule. Channel catfish stocking is at the rate of 200 per surface acre

as necessary in ponds stocked with other game fish. Additional stocking rates are determined by seine and creel samples.

FISHING AND BOATING ACCESS

Fishing and boating access areas are maintained as necessary. Trash disposal containers were provided at several sites where littering has become a problem. Boat launching facilities available to the public include Marshden Landing, Maple Creek Landing, and Onslow Beach Bridge Landing.

SHORELINE DEVELOPMENT

Shoreline maintenance of Base ponds consists of chemical spraying and mechanical removal of brush to permit access for fishermen and management work. Littering continues to be a problem, but noticeable improvement was noted during 1974.

SEINE SAMPLE ANALYSIS

Hand seines and gill nets are used to determine fish weights, reproduction data, and size. Population controls are regulated periodically to reduce population density difficulties before they arise.

FISH STOCKING PROGRAM - 1974

<u>Species</u>	<u>Number Stocked</u>	<u>Source</u>
Channel Catfish	2,000	Fish and Wildlife Service
Largemouth Bass	4,800	Fish and Wildlife Service
Largemouth Bass	4,200	N. C. Wildlife Commission
Bluegill	30,000	N. C. Wildlife Commission

WATER CHEMISTRY STUDIES

All ponds are sampled periodically to determine pH, dissolved oxygen and carbon dioxide content, as well as total hardness. Applications of lime and fertilizer are made when necessary to maintain fertility and productivity at the desired level.



AERIAL VIEW OF HICKORY POND (L) AND HENDERSON POND



BASS (5 lb 12 oz) AND BREEM TAKEN FROM HICKORY POND-9 APRIL 1973

RECREATIONAL USE OF FISH AND WILDLIFE

FISHING

Approximately 55,000 man-days of fishing for freshwater species were provided during fiscal year 1974. It is estimated that salt water fishermen spent 100,000 man-days fishing in Camp Lejeune waters. With continued extensive management of freshwater ponds and the addition of freshwater pond acreage, this outdoor activity should increase in the future.

HUNTING

Hunters enjoy a wide variety of game birds and animals, offering many hours of sporting opportunities at Camp Lejeune. Table 3 indicates recreational participation in hunting by civilian guests, civilian employees, and military personnel. Table 3 also indicates the number of game species harvested during fiscal years 1972 - 1974. Wild turkey and raccoon are species which are underharvested and programs will be initiated to increase harvesting of these species.

Adequate harvest of deer is essential to keep the herd within carrying capacity of the Base. Examination of key browse species (cyrilla and yaupon) indicates present hunting techniques have been successful in controlling the population. Antlerless deer are usually harvested every other year. Table 4 - Deer Herd Reproductive Rates, 1959-74, and Table 5 - Age Structure of Antlerless Deer, 1973-74, indicate sufficient harvest of deer.

TABLE 3

HUNTER CLASSIFICATION AND WILDLIFE SPECIES HARVESTED

<u>Type Permits (FY-74)</u>	<u>Fee</u>	<u>Number Issued</u>
Civilian Guest (seasonal)	\$10	253
Civilian Guest (daily)	2	93
Military Hunting and Fishing	2	1,439
Civilian Employee Hunting and Fishing	2	76
Military and Civilian Employee Fishing	1	731
Trapping	3	15
Total: \$6,522		2,607

Man-Days of Hunting (FY-74)

Civilian Guest	3,981
Military and Civilian Employee	16,343

Species Harvested (1972 - 1974)

White tailed deer	1,228
Wild Turkey	28
Squirrel	4,993
Rabbit	23
Quail	304
Dove	302
Raccoon	34
Rail	308
Woodcock	34
Waterfowl	1,650 (estimated)

TABLE 4
DEER HERD REPRODUCTIVE RATE

	<u>1959-60</u>	<u>1960-61</u>	<u>1963-64</u>	<u>1966-67</u>	<u>1968-69</u>	<u>1970-71</u>	<u>1973-74</u>
Female Deer Sampled	43	31	38	75	64	45	24
Reproductive Rates*	.73	1.09	1.14	1.22	1.22	1.40	1.33

*Reproductive rates expressed as fawns per adult doe



TABLE 5
AGE STRUCTURE OF ANTLERLESS DEER, 1973-1974

<u>Age Class</u>	<u>Number Deer Weighed</u>	<u>Avg. Whole Weigh</u>
Male Fawns	9	61.4 lbs.
Female Fawns	11	49.5 "
Female 1 - 1/2	9	79.8 "
Female 2 - 1/2	14	81.8 "
Female 3 - 1/2	6	84.5 "
Female 4 - 1/2	2	92.8 "
Female 5 - 1/2	3	91.9 "
Female 6 - 1/2	2	93.4 "
Female over 6 - 1/2	1	91.8 "

OTHER UTILIZATION OF RESOURCES

Most wildlife species are protected and are never hunted in any manner. These species occupy important places in the environment and serve many useful purposes. Nature study, bird watching, conservation education, and individual well-being are enhanced by preservation of wildlife. Students from Camp Lejeune Schools, Girl and Boy Scouts, and students of Coastal Carolina Community College enjoyed field trips for observing numerous species present in the area.

COOPERATION WITH STATE AND FEDERAL CONSERVATION ORGANIZATIONS

Management specialists from the N. C. Wildlife Resources Commission, the Bureau of Sport Fisheries and Wildlife, and the U. S. Soil Conservation Service made numerous visits to the Base during fiscal year 1974.

The State Small Game Biologist provided 2,250 pounds of annual seed mixtures and 10,000 shrub lespedeza seedlings for planting. The Camp Lejeune Rod and Gun Club assisted in planting shrub lespedeza seedlings in reforested areas as a club project.

The wild turkey restoration project leader provided valuable management assistance for the wild turkey program. The endangered species program was also planned with the assistance of these specialists. Soil Conservation Service personnel in North Carolina provided seedlings and grass seed for wild turkey and assistance in planting. Fish and wildlife specialists from the Bureau of Sport Fisheries and Wildlife provided assistance through on-site inspections.



TURKEY HUNTER - "doing his thing"



RESULTS - enough said!

WILDLIFE LAW ENFORCEMENT

10 The Base Game Protector position falls under the Fish and Wildlife Branch, Natural Resources and Environmental Affairs Division, Base Maintenance Department. The Game Protector is responsible for enforcing laws and regulations pertaining to the taking of all wildlife. Personnel include a gunnery sergeant, sergeant, and twelve volunteer deputies. Sixty citations were issued during 1974 for violations of wildlife laws and regulations. Aside from law enforcement, duties consist of administering hunting license tests, issuing fishing and hunting licenses, and disposing of road-killed deer.

During the hunting season, each hunter must obtain a permit for the specific area in which he wished to hunt. This permit, which is issued by the Base Game Protector, must be returned by one hour after sunset on the same day issued. This method has several advantages: collection of harvest data through completion of forms listing the number of each species taken and number of hours spent hunting; deer kills are weighed and the lower jawbone removed for aging; and, from a safety standpoint, the number of hunters per acre can be regulated allowing immediate action to be taken in locating any hunter failing to return his permit.

Wildlife Law Enforcement program was improved during fiscal year 1972 through establishment of a Base Conservation Board with the accompanying issuance of punishment guidelines for disposition of infractions of State, Federal, and Base regulations.



WILDLIFE LAW ENFORCEMENT IS A VERY NECESSARY ELEMENT OF THE FISH AND WILD-
LIFE PROGRAM

FOREST MANAGEMENT

INTRODUCTION

It is the policy of this command to maintain a sustain-yield multiple-use forest management program that is commensurate with military training requirements. This program correlates timber management with the best wildlife habitat possible, Base recreational and nature study areas, and the ever expected aesthetic value of our forests. The following narration will express this policy.

ANALYSIS OF FORESTED AREAS UNDER MODIFIED MANAGEMENT

Timber producing areas are under even-aged management with the exception of areas along major streams and swamplands. These areas are under a modified even-age management system so that maximum coordination and benefits may be given to wildlife management and erosion control. Also included within this modified management system are roadside zones parallel to major transportation arteries running through the Base, Base Archery Range, Special Services' bridle trails, Camp Lejeune Boy Scout area, areas surrounding Special Services recreation camp sites, and forested areas parallel to and surrounding building complexes throughout the Base. Smaller areas are managed for enhancement of "endangered" wildlife species, particularly the red-cockaded woodpecker and osprey.

MANAGEMENT TECHNIQUES

Approximately 62,382 acres are under management at Camp Lejeune. Timber management methods and techniques are similar to those used on other large acreage particularly the U. S. Forest Service, in the surrounding areas. Wherever practical, natural regeneration is utilized. This process occurs mainly through seed tree cuttings in blocks of 50 acres or less. Artifi-

cial reforestation is used on clearcut areas in blocks not exceeding an average of 50 acres and on areas being converted into timber producing lands after other nonproductive uses. Management practices include mixtures of pine-hardwood with ratios of 70% pine minimum on pine producing sites and a maintenance of 90%-plus hardwood in hardwood producing sites. During site preparation operations, scattered clumps of mast producing and fruiting hardwoods are left unharmed to produce food for wildlife. Older stands are thinned to provide faster and uniform timber growth, to produce more healthy stands, and to provide ample sunlight for increased understory vegetative growth.



A FOREST TECHNICIAN MARKS TIMBER IN PREPARATION OF A TIMBER SALE



SITE PREPARATION FOLLOWING A CLEARCUT; AREAS LIMITED TO 50 ACRES IN SIZE WILL BE PLANTED IN PINE TREES.



NATURAL REPRODUCTION OF LONGLEAF PINE UNDER SEED TREES

The forest at Camp Lejeune is divided into 62 compartments, and each compartment into stands; six or more compartments receive annual silvi-cultural treatments. A prescription for each compartment, modifying the long range management plan, is prepared by a professional forester. These prescriptions take into consideration the following multiple-use factors:

- a. Military training
- b. Timber production
- c. Wildlife habitat and production; possible fish pond sites
- d. Recreation and enhancement of natural beauty
- e. Soil erosion and stream pollution
- f. Site preparation needed after treatment (including prescribed burning)
- g. Protection of endangered wildlife species
- h. Insect and disease control

After completion of prescription work, timber stands requiring treatment are marked, and products are placed for public bid. Other stand treatments occur in compartments which are closed following the sales.

REFORESTATION

Reforestation is increasing yearly to keep abreast of the even-age management system and to keep every acre under fiber production where possible. Reforestation is carried out in two distinct methods - natural and artificial. Future plans are to have more natural regeneration through seed tree cuttings.

NATURAL REFORESTATION

Natural reforestation (or natural regeneration) is the method of seeding a prepared area through seeds cast from surrounding trees, particularly

the Pinus species, or from trees left scattered over cut areas. Seed trees usually are located 60' x 60', 12 per acre. Approximately 1,010 acres were prescribed for natural regeneration over the past three years. (Equipment used in preparing the areas is described later in the report.)

ARTIFICIAL REFORESTATION

Artificial reforestation is the method whereby seedlings are planted in clearcut, bare, or nonproductive areas. Seedlings, normally of one-year old stock purchased from a local N. C. State Forestry Nursery, are transplanted in the prepared areas by a tractor-towed planting machine. In areas where the planting machine cannot be utilized, hand planting with dibbles is done. Seedlings are transplanted in rows spacing 8' x 8', 680 per acre. Approximately 1,091 acres were planted over the past three years.



THUS A NEW FOREST COMES INTO BEING

TIMBER STAND IMPROVEMENT

Improvement in even-aged timber stands is accomplished by sanitation and salvage thinnings so that weakened trees are removed while yet harvestable. Major stand improvement work is accomplished by heavy equipment subsequent to clearcuttings and seed tree cuttings. Undesirable debris such as logging slash, undergrowth, and unwanted species is removed from the sites by use of a KG blade. This debris is windrowed and either burned or allowed to decay. Occasionally, an 8,000-pound tandem disk is used in conjunction with the KG blade. Areas which are sparsely covered with debris may be single or double disked for seed bed/planting preparation. Planting experience has proved that the better the soil is prepared, the more vigorous the seedling growth is for the first few years. A total of 2,101 acres of site improvement was prescribed in the past three years. In coordination with wildlife management, several clumps of mast and berry producing hardwoods are left scattered throughout the area during site preparation. In some instances, strips extending across the complete length of a prepared site are left for wildlife purposes. These clumps or strips produce game food annually, thus providing wildlife usage while reforestation needs on the same site are being met. The strips also provide cover while the large openings provide excellent bugging and dusting for wild game birds and browsing for deer.

TIMBER HARVEST

The Forestry Branch, Natural Resources and Environmental Affairs Division, is a self-sustaining unit and provides a large excess in profits used in support of other Department of the Navy forestry programs.

TIMBER HARVEST FOR CALENDAR YEARS 1972 - 1974

1972

	<u>Product</u>	<u>Volume</u>		<u>Gross Income</u>
11	Pine Sawtimber	2,723.763	MBF	\$ 151,763
	Pine Pulpwood	4,925	Cds	41,997
	Hardwood Sawtimber	471.390	MBF	18,856
	Hardwood Pulpwood	1,595	Cds	<u>4,299</u>
				\$ 216,915

1973

	Pine Sawtimber	3,628.515	MBF	\$ 484,286
	Pine Pulpwood	4,492	Cds	84,123
	Hardwood Sawtimber	178.697	MBF	13,403
	Hardwood Pulpwood	844	Cds	<u>9,524</u>
				\$ 591,336

1974

	Pine Sawtimber	4,163.105	MBF	\$ 329,510
	Pine Pulpwood	24,293	Cds	194,339
	Hardwood Sawtimber	27.000	MBF	1,580
	Hardwood Pulpwood	119	Cds	<u>356</u>
				\$ 525,785
	Grand Total 1972 - 1974			\$1,334,036

The value of this timber as an end product is about \$10,500,000. It is estimated that the economy in the surrounding area was stimulated by \$33,350,900 due to the sale of this timber. All income was generated and planned work was accomplished on a budget of \$350,760, including salaries and equipment costs. Acreage involved in timber sales totaled approximately 3,700 acres.



TIMBER HARVEST



BRINGING IT OUT "PIGGY-BACK"

EROSION CONTROL

An area previously utilized as a heavy equipment compound was released recently from further use and was placed under forest management. Approximately 25 of the total 56 acres had been affected by a slow erosion problem. Slash and longleaf pine seedlings were planted in 1973 over the area for erosion control and site stabilization. The longleaf seedling area was replanted in 1974 to slash pine for better erosion prevention since the percent of survival of the longleaf seedlings was very low.

PRESCRIBED BURNING

Prescribed burning, contrary to much adverse public opinion, has proven to be a very effectual and cheap silvicultural tool. Approximately 30,000 acres were prescribed and treated during the winters of 1972 through 1974. This burning is done as part of the multiple-use management system. Benefits derived are: reduction of rough buildup, control of undesirable species that clutter the understory of the forest, control of brown spot disease in grass stage of longleaf pine, seedbed for natural regeneration of pine, stimulation of shrub sproutings and grasses, and opening of the understory for better wildlife utilization.

ACCESS ROADS

Approximately three miles of access roads were constructed and approximately seven miles were renovated over the past three years for timber accessibility. After sale closure and area treatment, these roads eventually will be disked and sowed with a perennial grass such as bahia for wildlife use and erosion control. Access roads are used readily for military training, wildlife feeding, openings for bugging and dusting, hunter access, and firebreaks.

3 - P FOREST INVENTORY

During the period October - December 1972, a timber inventory was conducted of the 62,382 acres under management. This inventory, normally occurring at ten-year intervals, furnishes vital information in sustained-yield forest management. The 3-P sampling system is new to most forest managers, but is a much faster, more accurate, and money-saving method. Two hundred established continuous forest inventory (CFI) plots were selected by random sampling for application of this system. Accumulated field plot data were forwarded to computers which randomly selected a certain number of trees on these field plots to be measured by a dendrometer. The final phase of accumulating field data by using the dendrometer was accomplished in the early spring and winter of 1973. Upon compilation of the work sheets, the information was forwarded to the U. S. Forest Service, State and Private Division, Atlanta, Georgia, for final computation of total volume of timber on the Base as to size, class, and forest type. According to the inventory taken, this Base has 286,700.292 MBF of sawtimber or 91,083,945 cubic feet of volume. The percent of annual growth averages 4.95%. The annual allowable cut is estimated at 8.200 MBF Scribner log rule and 20,300 cords of pole timber.



PRESCRIBED BURNING IN PROGRESS



COLLECTING DATA FOR 3-P FOREST INVENTORY. THE DENDROMETER PROVIDES EXACT TREE MEASUREMENTS.

INSECT PROTECTION

During late summer and autumn of 1973, drought conditions existed in the Southeast Coastal Plain. For the first time since the 1967-1970 epidemic, the southern pine beetle became prevalent at Camp Lejeune. According to N. C. Forest Service and U. S. Forest Service information, 1973 was the worst southern pine beetle epidemic in twenty years; however, all known beetle infested areas were salvaged and sold under existing contracts. The mild winter of 1973-1974 probably contributed to the fact that in 1974 the southern pine beetle epidemic was even more severe than in 1973. The outbreak soared to the most severe epidemic stage recorded in this area of North Carolina. Almost every compartment on Base was attacked in some part. Three helicopter flights were made to spot outbreaks. The heaviest concentration of attacks was in old field stands and mature timber stands in need of thinning. No attempts to follow scheduled harvests were made during 1974. All sale contracts were diverted to salvage of southern pine beetle infestations. The following statistics indicate the severity of the epidemic:

1973	Pine Sawtimber	714.4 MBF	\$ 96,265
	Pine Pulpwood	1,589.0 Cds	<u>26,417</u>
	Total Income		\$122,682
1974	Pine Sawtimber	4,163.1 MBF	\$329,510
	Pine Pulpwood	24,293.0 Cds	<u>194,339</u>
	Total Income		\$523,849
Total Salvage Income 1973 - 1974			\$646,531



THESE "PITCH TUBES" OR "POPCORN BALLS"
ARE EVIDENCE OF SOUTHERN PINE BEETLE
ATTACK. SALVAGE IS NOW THE ONLY
ALTERNATIVE.

SALVAGE WAS DELAYED TOO LONG HERE



BASE CONSERVATION ORGANIZATIONS

ROD AND GUN CLUB

The purpose of this Club is to assist the Commanding General in conservation, restoration, and development of fish and other wildlife and their habitats; to obtain better fishing and hunting for personnel serving at Camp Lejeune, utilizing maximum resources available locally and with the full cooperation of private, local, county, state, and federal agencies; to cooperate in promoting proper fellowship among sportsmen through instructive and demonstrative measures; to promote interest among nonsportsmen where such interests are conducive to better sportsmanship; to develop and restore natural resources; and, to support individual or group efforts of other organizations in the fight to improve the environment.

During the period covered by this report, the Rod and Gun Club participated in the following activities at Camp Lejeune:

Sponsored attendance of two members each year at the Annual North Carolina Wildlife Federation Convention.

Sponsored and conducted annually a National Rifle Association-approved Hunter Safety Course for young hunters 10 through 16 years of age.

Sponsored and conducted annually a cookout for Club members, their families, and guests to enhance interest and Club membership.

Provided each year a window display in the Marine Corps Exchange for National Hunting and Fishing Day.

In a cooperative effort with Natural Resources Division, volunteers from the Club planted 5,000 shrub lespedeza and 2,500 pine seedlings in March of 1974.

Enlarged the Club's deer skin-out area for the use of all hunters.

Invited representatives of the Base and North Carolina Wildlife Resources Commissions to address the membership.

Provided annually three huntsmasters and three assistant huntsmasters for proper control of the three organized deer hunts conducted weekly during the hunting season.

12 Provided six members to act as assistant deputy game protectors to assist the Base Game Protector in enforcing safety and wildlife regulations.

Periodically presented movies on conservation, hunting, fishing, boating, and safety on meeting nights to the membership.

Sponsored a Big Buck Contest and awarded fifteen prizes to encourage deer hunting and coordination of reporting kills.

Annually promoted military and civilian harmony by hosting unaffiliated civilian personnel on organized deer hunts including the special hunt held annually in December.

Maintained voting status in the N. C. Wildlife Federation and contributed \$1 from each member's dues to the N. C. Wildlife Federation.

Hosted the Annual Base Conservation Meeting with State and Federal Wildlife officials at the Rod and Gun Clubhouse.

Hosted Department of Defense Conservation Award Team along with Federal, State, and Base representatives for a dinner in conjunction with the acceptance by Camp Lejeune of the Department of Defense Conservation Award in 1973.

BASE SPECIAL SERVICES

The Recreation Section, Base Special Services, operates one of the largest and most varied recreation programs within the Armed Forces. Military personnel, their dependents and guests daily utilize and enjoy the many recreational facilities and natural resources available at Camp Lejeune.

The Base Stables is one of the more popular facilities offering the outdoorsman a variety of activities to enjoy. Organized activities include horse shows and early morning rides that climax with a hearty meal of steak, eggs and grits. In addition, for those horsemen wishing to try pot luck dinners there are bimonthly supper rides. There are 55 horses and ponies available for rent and boarding facilities for 50 privately owned

mounts. Classes are available to patrons in jumping and Western and English riding.

The Base Archery Range, consisting of a practice area and a nationally approved 28-target field course, is another popular facility during the spring and summer months. The Archery Range is located in a beautifully wooded area just west of the Base Drive-In Theater.

Gottschalk Marina, located on Wallace Creek which is a tributary of New River, is a haven for would-be sailors during the spring and summer months. Equipment available includes 15 motorboats, 31 sailboats in Rebel, Lightning and Sunfish classes, 40 canoes and berthing facilities for privately owned craft. Trailers are available for use both on and off Base. During the summer season, qualified personnel are present to assist those patrons wishing to take part in Gottschalk Marina's water skiing program. The Summer Youth Program conducted each year takes full advantage of the Marina and equipment and offers classes in small craft safety which includes basic canoeing, rowing, sailing and motor boating. Water skiing is also a vital part of the Summer Youth Program. Other boating facilities located aboard Base include the smaller, but popular, Courthouse Bay Marina.

The Base Skeet Range caters to many skeet and trap enthusiasts, both recreationally and competitively. Shotguns and ammunition are available to the shooters for a nominal fee. Skeet matches including state and invitational matches are conducted each year.

Onslow Beach, a popular spot from April through September, plays host to thousands of military personnel, their dependents and guests. Thirty-nine completely furnished beach cabanas are available for a nominal fee to those who would enjoy a three or four day stay at the beach. In addition, three large pavilions offering food and drink are located along the scenic 1 1/2

miles of beach. Qualified lifeguards and beach personnel are assigned each year to Base Special Services to ensure safe and efficient operation of the beach.

During the summer months, the PIRATE, a 65-foot, twin diesel, deep sea, fishing boat operates daily out of Swan Point Marina. Fishermen may book passage for a day's deep sea fishing for \$12 to include fishing tackle, bait, and ice.

Skin and scuba diving equipment is available also for those who qualify to use it. The Scuba Club offers instructions in the safe operation of this equipment, and the close proximity of several shipwrecks makes this an enjoyable recreational opportunity.

Paradise Point Golf Course offers two of the finest 18-hole courses in this part of the country.

Twenty-four campers are available for a nominal fee for those who would enjoy a weekend in the great outdoors. Trailer hitches to fit most cars are available at no cost. In addition, two major camping areas with twenty-eight camping sites each are located in the Onslow Beach area. These camping sites are adjacent to swimming, surfing and fishing areas and are equipped with sanitary facilities. Shelters, water, electricity and barbecue grills have been installed in the camp sites for the convenience of campers.

Parallel to the shores of the New River and winding through the North Carolina pine forest, Recreational Area No. 5 offers the novice outdoorsman a venture into dynamic land use and development. Picnic tables, shelters, barbecue grills and sanitary facilities provide patrons with every convenience. In addition, a freshwater pond stocked with brim and bass awaits the enthusiastic angler.



WINNER OF BIG BUCK CONTEST SPONSORED BY ROD & GUN CLUB IS PRESENTED HIS PRIZE



FISH POND AND NEWLY DEVELOPED RECREATIONAL FACILITIES AT SITE OF THE OLD BURN DUMP

BOY SCOUTS

The Boy Scout Program includes Cub Scout to Explorer Scout levels. Adult participation is commendable with individuals acting as Cubmasters, Scoutmasters, Commissioners, and Unit Committeemen.

The Scout camping area on the Base is a beautiful spot in the area of Northeast Creek. This site provides an excellent location to perfect camping and woodsmanship skills and increasing their knowledge of the environment. Scout troops from other areas are usually hosted at this camp site.

Contributions to the conservation program by Boy Scouts have proven to be timely and effective. For the reporting period, approximately 10,000 pine seedlings have been planted under supervision of Base Forester as troop projects. Another project was building bird houses and placing them in appropriate locations. A recent project included the clearing away of logging debris from a southern pine beetle salvage operation in a scenic area.



BOY SCOUTS ENJOYING A SUMMER OUTING

GIRL SCOUTS

Active participation in conservation projects by the Girl Scouts has been evidenced on many occasions. In addition to picnic area cleanups and flower planting projects, the Girl Scouts participated in a well coordinated and effective cleanup of Onslow Beach.

Since March of 1972, Girl Scouts have collected used paper on the last Saturday of each month in conjunction with the Ecology Club. To date, in excess of 238 tons recyclable material have been collected and sold.

Not to be overlooked in both the Boy and Girl Scout Programs is the importance of the educational benefits derived. Emphasis on sportsmanship, woodsmanship, camping, and wildlife helps build our environmental and conservation minded citizens of the future.



GIRL SCOUTS COOPERATING ON A WASTE PAPER DRIVE

COMMUNITY RELATIONS

Utilization of Brown's Island as an impact area during military training operations has been a necessity for years, resulting in many claims for property damage by residents of nearby communities. Since the use of Brown's Island as a training area could not be discontinued, a workable solution had to be ascertained. Studies at Elgin Air Force Base, Florida, indicated that under certain atmospheric conditions, explosion overpressures could cause unexpected damage. Thusly, since February 1972, all bombing runs have been canceled when unfavorable atmospheric conditions prevail thereby minimizing complaints of damage.

During the Fall of 1972, Mutual Fire Fighting Assistance Agreements were entered into with the city of Jacksonville, North Carolina, Onslow County, and the U. S. Department of Agriculture Forest Service. In addition, the existing agreement with the North Carolina Department of Natural and Economic Resources was updated. Under these agreements, mutual available fire fighting support is rendered when required. In April 1973, over a period of four days, 130 Marines helped control a large forest fire in an adjoining county.

Appropriate personnel attend wildlife, forestry, and environmental meetings, training sessions, and symposiums sponsored by private, state, and federal agencies in these fields. Professional personnel attend the meetings and conventions of the Society of American Foresters.

Cooperation with state and federal authorities in planning, developing, maintaining, and coordinating fish and wildlife management programs has been discussed separately in this report, as has the guest speaker program, news articles, etc., provided by the Base. Appendix G depicts cooperative plan.

On 2 July 1973, a dedication ceremony formally naming/opening Henderson Pond was held at the pond site. Friends and the family of the late Mr. W. N. HENDERSON were invited to attend the ceremony wherein Mrs. Henderson was presented a plaque by the Commanding General honoring her late husband, who served as the first civilian Game Protector at Camp Lejeune.

Under sponsorship of the Marine Corps Human Relations Program, approximately 100 marines from Force Troops have voluntarily constructed nature trails and planted several hundred pine trees for several nearby public elementary schools during the past two years. The nature trails, located in wooded areas adjacent to the schools are proving invaluable to the school in teaching the basics of conservation. The pine trees were planted as borders around bare portions of school grounds.

Marines from 2d Marine Division have assisted Coastal Carolina Community College in clearing and establishing a nature trail for its Biology Department. The trail is located on a tract of land adjacent to and formerly a part of Camp Lejeune.



MRS. HENDERSON MAKES THE FIRST "OFFICIAL" CAST INTO THE POND NAMED FOR HER LATE HUSBAND

CONSERVATION EDUCATION

GUEST SPEAKER PROGRAM

13 In addition to conservation education programs concerning proper and safe handling of guns, water safety, sportsmanship, and woodsmanship conducted by Base clubs and organizations (separately discussed in this report), personnel of the Natural Resources and Environmental Affairs Division take an active part in guest speaking engagements.

One of the most popular methods of providing information to groups desiring knowledge in the conservation field has been the guest speaker program. Guest speaking engagements, accompanied with slides, have been very much in demand by units, school classes, and civic organizations. In 1973 and 1974, ninety-four presentations were made to a total of 5,357 people. In addition, seven appearances were made on local television stations wherein wildlife conservation, forestry management, and pollution abatement were discussed. It is believed that explanations of Base plans and accomplishments in the conservation field are especially beneficial in fostering community relations and the exchange of ideas.

POLLUTION ABATEMENT EDUCATION

Beginning in January 1974, the educational process is being used in an effort to promote the pollution abatement program. Classroom time was granted for a slide/lecture presentation on the environment to be routinely included as a part of the Motor Transport School Company, Montford Point, student training program. The Base Ecologist gives the presentations with special emphasis being placed on oil pollution. By making each student more aware of environmental problems, it is hoped more desirable habits and attitudes will be developed, resulting in better Marines and

eventually better citizens. To date, approximately 1,300 students have attended the lecture.

FORMAL ADULT EDUCATION

Formal conservation education for this reporting period included an 8-week course in Ecology conducted by Lieutenant Commander R. H. Grothaus, MSC, USN, of the Naval Medical Field Research Laboratory for the benefit of Camp Lejeune personnel and the community. Lieutenant Commander Grothaus holds a PhD in the Biological Sciences, with specific training in general ecology, plant ecology, animal ecology, and entomology. Topics discussed included Ecological Definitions and Terms; Principles of Ecology; Energy Flow and Competition; Pollution and the Environment; Populations and the Future; Ecological Cost of Technologically Developing Nations; and Will the Earth and Man Survive?. Classes were well accepted by the thirty persons that attended and constituted another facet of the overall education program.

PROJECT TRANSITION

Although it was canceled in April 1974, Project Transition has provided conservational benefits to more than one hundred military personnel for this reporting period. These personnel received on the job training in both forestry and wildlife management, instilling a feeling for conservation goals and procedures in its broad aspects as well as practice experience in the field.

NATURAL RESOURCES WORKSHOP

A natural resources management workshop, sponsored by Headquarters, U. S. Marine Corps, was held at Camp Lejeune during the period of 10-13 September 1974. Representatives from all east coast Marine Corps activities

and EFDs attended. Also in attendance were visiting speakers from the Fish and Wildlife Resources Commission and the U. S. Soil Conservation Service. A variety of topics concerning natural resources and environmental problems were presented and discussed. The workshop was valuable to all personnel concerned. An opportunity was afforded for getting together, exchanging ideas and resolving common problems.

During lunch break on the first day of the workshop a fish fry, sponsored by Base Maintenance personnel, was given for all attendees of the workshop and other invited guests at the new pond and recreation area at the site of the old burn dump. This occasion was utilized to officially open the recreation area for use and to open the pond the first time for fishing. Base Maintenance Officer had the pleasure of making the first official cast into the pond and catching the first fish.



Camp Lejeune

Environment workshop, new recreation, pond

The opening of a recreation area and new fishing pond highlighted last week's East Coast Natural Resources and Environmental Workshop at Camp Lejeune.

Sponsored by Headquarters Marine Corps, the workshop hosted representatives from major east coast Marine Corps commands.

Discussion throughout the week covered forest management, endangered animal species, management of fish and wildlife, community relations, outdoor recreation programs, and water soil conservation.

According to Carroll F. Russell, director of Camp Lejeune's Natural Resources and Environmental Affairs Division, "The greatest benefit of the week long meeting was exchange of ideas. Nothing new as far as technical information was discussed. It was more a meeting and sharing of our experiences." Guest speakers included

conservationists from the Department of the Interior and the Water and Soil Conservation Service.

The first day of the workshop featured a fish fry at the recently completed Recreation Area No. 5, which encircles a new fishing pond.

The recreation area was officially opened by Colonel E.A. Vom Orde, Jr. After lunch, he made the first cast into the new pond and a few minutes later, caught the first fish.

Formerly a burn dump site, source of air pollution and an eyesore, the area is now an attractive spot to fish, have a picnic, or just relax.

Hours of operation have been established as 7 a.m. to sunset daily. It is located at the south

end of River Road just beyond the .45 caliber pistol range and is available to active and retired military personnel and dependents.

A base fishing permit is required to fish in the pond. This can be purchased from the Base Game Warden, Bldg. 4002, from 7:30 a.m. to 1:30 p.m. on Thursdays and Fridays. A county or state fishing license is required also if artificial baits are used.

Bass and bream have been stocked in the pond waters. There is no limit on bream, size or amount caught, but bass must be at least 12 inches long. Possession limit on bass is eight.

It is unlawful to use minnows, nets, explosives, trotlines and set hooks.

BASE SCHOOL SYSTEM

If conservation is the recognition of the interdependence of all living things with one another and with their environment, then the job of education is abundantly clear. It is to provide the children in our schools with an opportunity for experiences with their environment and all of life.

Elementary students are gaining scientific literacy through direct experiences with organisms and their environment. The Science Curriculum Improvement Study (SCIS) is the basis of the science program for grades one through six. This program consists of a physical science sequence and a life science sequence. The life science sequence for grades 1-6 is organisms, life cycles, populations, environments, communities, and ecosystems. Uses of outdoor laboratories are stressed in those lessons where the environment itself is the most efficient place for the teacher to provide the experiences which will help develop concepts of environment. Workshops and classes are conducted to train the teachers. The SCIS program will be used at the kindergarten level next year.

The junior high school social studies and science teams include mini-courses on conservation of natural resources and water, air, and noise pollution. Both seventh and eighth grades read the latest in books and periodicals, get into active discussions, perform experiments and do research projects, all related to themselves and wise use of our planet's resources. The high school science team includes conservation in its biology and horticulture classes.

Teachers will be encouraged and shown how to use ideas for lessons from curriculum guides for Environmental Education provided by the State Department of Public Instruction. Activities will cover the four broad areas of ecological concepts, natural resources, pollution, and environmental

decision-making.

The teachers and students of Camp Lejeune participated in Energy Conservation Month, January, 1975, with great enthusiasm. This enthusiasm carries over to a desire for conserving all natural resources. It will always be a part of our curriculum.



BIOLOGY STUDENTS RECEIVE "ON THE SCENE" INFORMATION

NATURAL RESOURCES RELATED STUDIES BY
NAVAL MEDICAL FIELD RESEARCH LABORATORY

The two following paragraphs are descriptions of studies carried out by Naval Medical Field Research Laboratory during the past year.

Surveillance of natural animal resources is greatly enhanced by disease diagnosis and study. Consultative service in this regard was provided by the Naval Medical Field Research Laboratory's Veterinary Sciences Division. A contagious viral disease outbreak in raccoon and fox was diagnosed by the laboratory's veterinary pathologist after completing necropsies and histologic studies on many of the sick dying animals. The histopathologic studies rendered much insight into some otherwise unknown parasitic disease problems within the raccoons. Reports of unique lesions found in this study will appear in a wildlife disease journal. The veterinary pathologist examined some neonatal sea turtles that had died shortly after hatching. Lesions heretofore unreported were found in these baby turtles. Further study to explain the cause and development of the lesions and how they relate to early death of the turtles is warranted.

Base continues to cooperate and support the Naval Medical Field Research Laboratory, Camp Lejeune, in a program to develop effective insect control programs that are compatible with the environment. Work continues on 100% biodegradable insecticides. The development of nonchemical control techniques for mosquitoes, flies, mites and ticks is also underway. Studies using CO₂ as an attractant for ticks have promise and are continuing. New personal protection repellents are being screened in an effort to provide more protection for troops undergoing training in base areas which now carry higher vector populations as a result of increased wildlife populations, etc.

Rod and Gun Club assists nature

Story by Sgt. Dan Haberer

Hunting and fishing abounds on and about Camp Lejeune and the Rod and Gun Club offers personnel their fill of both outdoor sports.

Well organized and efficiently managed, the Camp Lejeune Rod and Gun Club offers membership to all active duty and retired military personnel and their dependents who are 12 years of age and older.

Club president CWO John O'Hara explained, "Annually, the club conducts a hunters safety course with graduates receiving a certificate, issued by the state, along with a State Wildlife Safety Patch.

"There are quarterly barbecues for members and their families, with fish or wild game as the main meal and games for the children," according to club member LCpl. Roger Sperry.

The club is also available to assist in the conservation, restoration and development of fish and game in their habitats at Camp Lejeune.

The Rod and Gun Club is an affiliated member of the North Carolina Wildlife Federation and works in full cooperation with private, local, state and federal agencies to develop and restore natural resources.

Cpl. Dan Bill, club member, said, "In addition to our family functions, we seek to obtain better fishing and hunting for personnel aboard base by working with the Base Game Management Office. Together, we supply areas of wildlife with feed plots and construct or repair bird nesting boxes."

The club conducts three hunts during the deer season and these are the only times dogs are allowed for deer hunting on base. Club members are looking forward to wild turkey season, April 13 through May 4.

This year the club will sponsor a local fishing derby with the competition broken down into age groups allowing children an equal chance to bring home their share of the prizes.

Women, as well as men, take part in club activities and the club urges more women to join the club and introduce the whole family to the refreshing outdoor life.

B

Globe

March 21, 1974

The Rod and Gun Club also has special committees to help members plan their outings.

The club's fishing committee plans fresh and salt water fishing trips and sponsors a team in the State Surf Fishing Contest.

The hunting committee plans trips in nearby counties

for quail and rabbit.

Regular meetings are held every other Thursday at the Rod and Gun Clubhouse, Bldg. 1938, at 7:30 p.m. Food and refreshments are served at 6:30 p.m.

For more information call Olen Smith at 455-0840 or CWO O'Hara at 347-6472.



THE HUNT BEGINS — Members of the Camp Lejeune Rod and Gun Club prepare to enter the woods during a rabbit hunt here. Club membership is open to all military personnel, active or retired, and their dependents 12 years of age and older.

Nurturing our natural resources--ecology

By Sgt. Tom Griggs

This year, Marine Corps Base, Camp Lejeune, was selected as the Marine facility conducting the best work in protecting our surroundings. The award was the 1974 Secretary of the Navy's Environmental Protection Award.

A number of persons at Camp Lejeune were asked what they thought about environmental protection. Some related it to clean air, a few to ecology, but most did not know its meaning.

The individuals who related ecology to environmental protection were right. They are related.

"The word 'environment' means our surroundings," said Carroll F. Russell, director of Natural Resources and Environmental Affairs at Lejeune, "and ecology is the study of our surroundings."

Air pollution control, water pollution control, sewage treatment, oil pollution prevention, forest, fish and wildlife management are all areas of environmental protection.

These areas were covered by numerous departments and personnel who devoted much planning and talent to achieve this year's award. The ingredients came mostly from the Natural Resources and Environmental Affairs Division (NREAD), Utilities Division and other sections of Base Maintenance.

Management is handled mainly by NREAD. It is rather like a foundation for the overall environmental protection program at Camp Lejeune.

Organized in October 1972, NREAD employs professional people to conduct work in forest, fish and wildlife management, oil pollution control and other aspects of keeping our surroundings livable and enjoyable.

By directing the operation of effective water and sewage treatment plants, the Utilities Division can also be noted as a major contributor to a better Lejeune environment. The director, James E. Herndon, helps lead the fight against water and air pollution.

"We operate seven sewage treatment plants that effectively clean waste products before being discharged into New River," said Herndon. "After being inspected by the State Environmental Protection Agency (EPA), we were the first location to receive discharge permits."

"As far as air pollution is concerned," Herndon explained, "all our heating plants were converted to burn 100 percent oil rather than coal, which means much less waste released into the air."

Also in relation to air pollution, Russell noted, "We aren't too concerned with air pollution here. EPA tells us that our major air pollution comes from automobiles. In comparison to large cities, Lejeune has no real problem."

Oil has been a big pollution problem in the past, according to Russell.

He reflected, "A base as large as this uses large amounts of fuel — gasoline, diesel fuel, motor oil and more. There are opportunities in a large scale operation like this for much pollution to take place.



STILL WATER RUNS DEEP — And hopefully clean, is on the mind of this Utilities Division employee who's collecting water samples in New River. Regular collection sites on the river have been established by the Environmental Protection Agency.

"For instance," he continued, "around a typical motorpool, we find people performing all types of maintenance involving oil, and before we became conscious of pollution by oil, no doubt disposal was handled carelessly."

Things are different now. Assisted by Base Ecologist, Julian Wooten, Russell has seen that waste oil is disposed of properly and persons using oil are instructed as to its use and disposal.

Conservation of our forests, fish and wildlife is accomplished through the joint efforts of Ralph Gurganus, base forester, and Charles Peterson, fish and wildlife manager. These two professionals fall under Russell's direction and have numerous forestry and wildlife aids and technicians under their own direction.

The base ecologist coordinates work concerning some of our wildlife. His studies include endangered species living aboard the base. He has also researched Camp Lejeune's black bear population.

To round out the environmental protection effort, certain phases are handled by other sections on base. For example, noise control has been improved through the work of the Hearing Conservation Center of the Base Medical Department. Another phase, pesticides control, is the responsibility of the Base Medical Officer, while correct use is carried

out by Base Insect Vector Control.

Apart from Lejeune's everyday workers involved in areas of environmental protection, an Environmental Enhancement Committee was organized to help recognize certain problems.

"This committee consists of representatives from Base, Division and Force Troops, president of Rod and Gun Club, Base Maintenance Officer, Public Works Officer and others," commented Russell.

"We meet at least quarterly," he said, "and discuss environmental affairs, anything dealing with natural resources, or concerns about hunting and fishing areas."

All these people are important for the proper management of our environment aboard Camp Lejeune. However, we shouldn't let them do all the work.

"I think there's something everyone can do," Russell suggested. "The Marine in a motorpool should be sure oil is used and disposed of properly. Troops in the field can clean up after exercises. And everyone should take care not to throw trash out of cars. These are just a few ways."

We all can take care of our Camp Lejeune surroundings and take genuine pride in the 1974 Secretary of the Navy's Environmental Protection Award.

You won't be paid to vote but it pays.



PITCHING IN — This auto passenger knows what's happening in environmental protection by putting trash in one of the "Pitch In!" containers on

Holcomb Blvd. Everyone can pitch in for a better Lejeune environment.

4 Globe

Aug. 15, 1974

Beetles attack trees

Nature lovers might be wondering why trees are being cut in areas along the Main Service Rd. and Brewster Blvd.

According to Carroll F. Russell, director of Natural Resources and Environmental Affairs, the trees are being harvested because they've been infested by southern pine beetles.

"We have a very serious

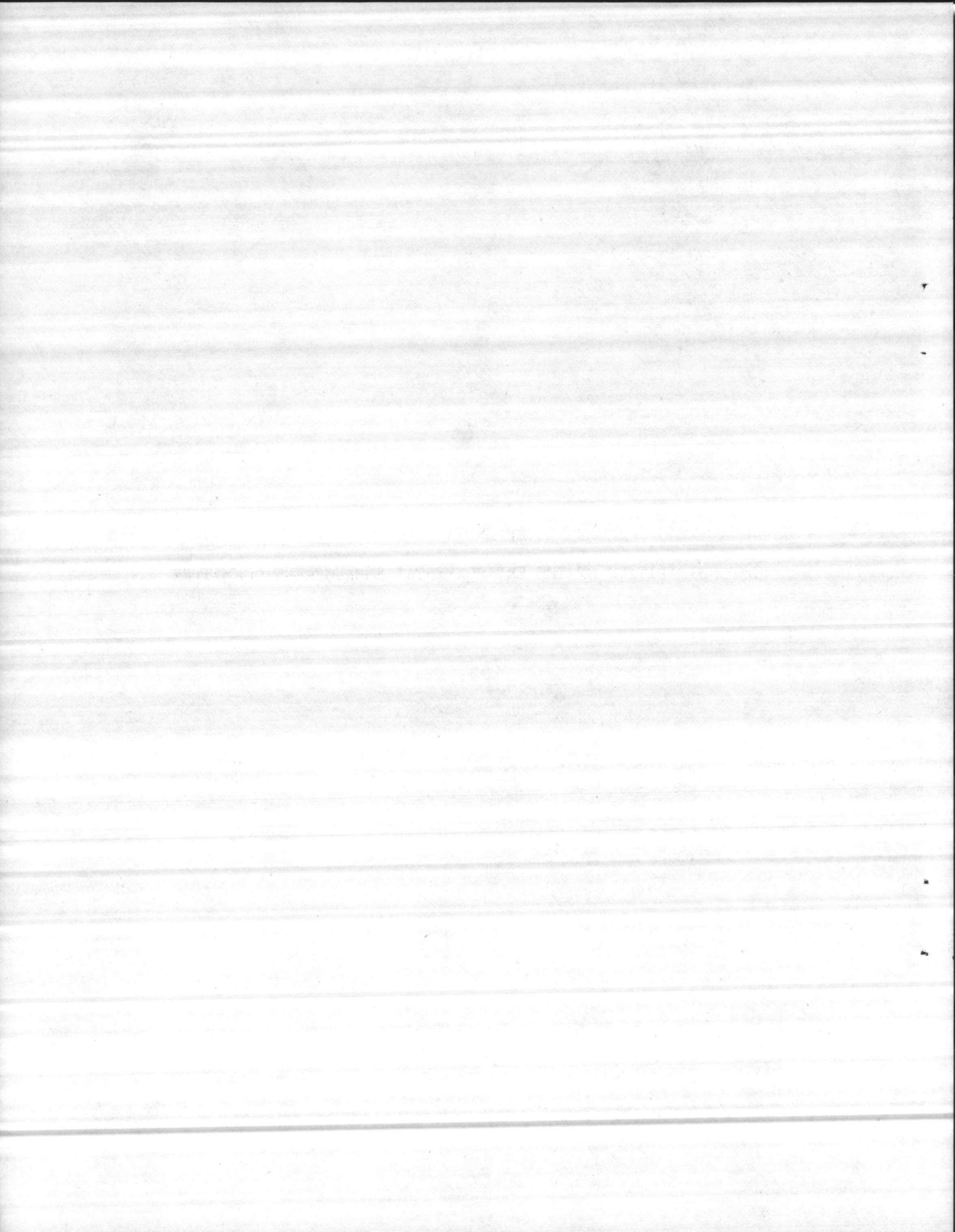
southern pine beetle problem," Russell said. "Our timber is steadily struck by the beetle, and we must continue selective cutting of infested trees."

"If the infested trees aren't removed before they die, the resource, or useful benefit of the timber, is lost."

"Also," he concluded, "I'm sure people don't want to look at dead trees along our roads."

APPENDIX A

RESPONSIBILITIES OF THE ENVIRONMENTAL ENHANCEMENT COMMITTEE



RESPONSIBILITIES OF THE ENVIRONMENTAL ENHANCEMENT COMMITTEE

1. Conduct annually a comprehensive review of the Base hunting, fishing, boating, and trapping regulations and make recommendations to the Commanding General regarding changes, additions, or deletions required.
2. Review recommendations submitted by the Rod and Gun Club regarding organized deer and bear hunts, and make appropriate recommendations to the Commanding General regarding same.
3. Prepare annually for the Commanding General's approval a schedule and procedures for the conduct of organized and controlled hunts for all types of wildlife.
4. Prepare annually for the Commanding General's approval a schedule for open seasons and bag and creel limits in consonance with current federal, state, and county laws and regulations.
5. After consultation with federal, state, and county fish and wildlife authorities and officially chartered conservation agencies, make recommendations to the Commanding General regarding annual harvest of fish and wildlife on the Base.
6. Provide command liaison and establish procedures for scheduling and

15

conducting frequent meetings between representatives of federal, state, and county fish and wildlife agencies and officially chartered conservation organizations. The committee will take the initiative to seek out help and to work effectively and in harmony with the above agencies and/or organizations. A full report of such meetings will be included in the minutes of the committee.

7. Ensure, when feasible, that local sportsman groups are invited to attend meetings of the committee as guests. The importance of establishing, maintaining, and improving Base-community relations cannot be over-emphasized.

8. Review annually the cooperative plan between the Base, the Regional Director of the U. S. Fish and Wildlife Service, and the Executive Director, N. C. Wildlife Resources Commission and make recommendations to the Commanding General for any desirable changes in the Wildlife Management Plan.

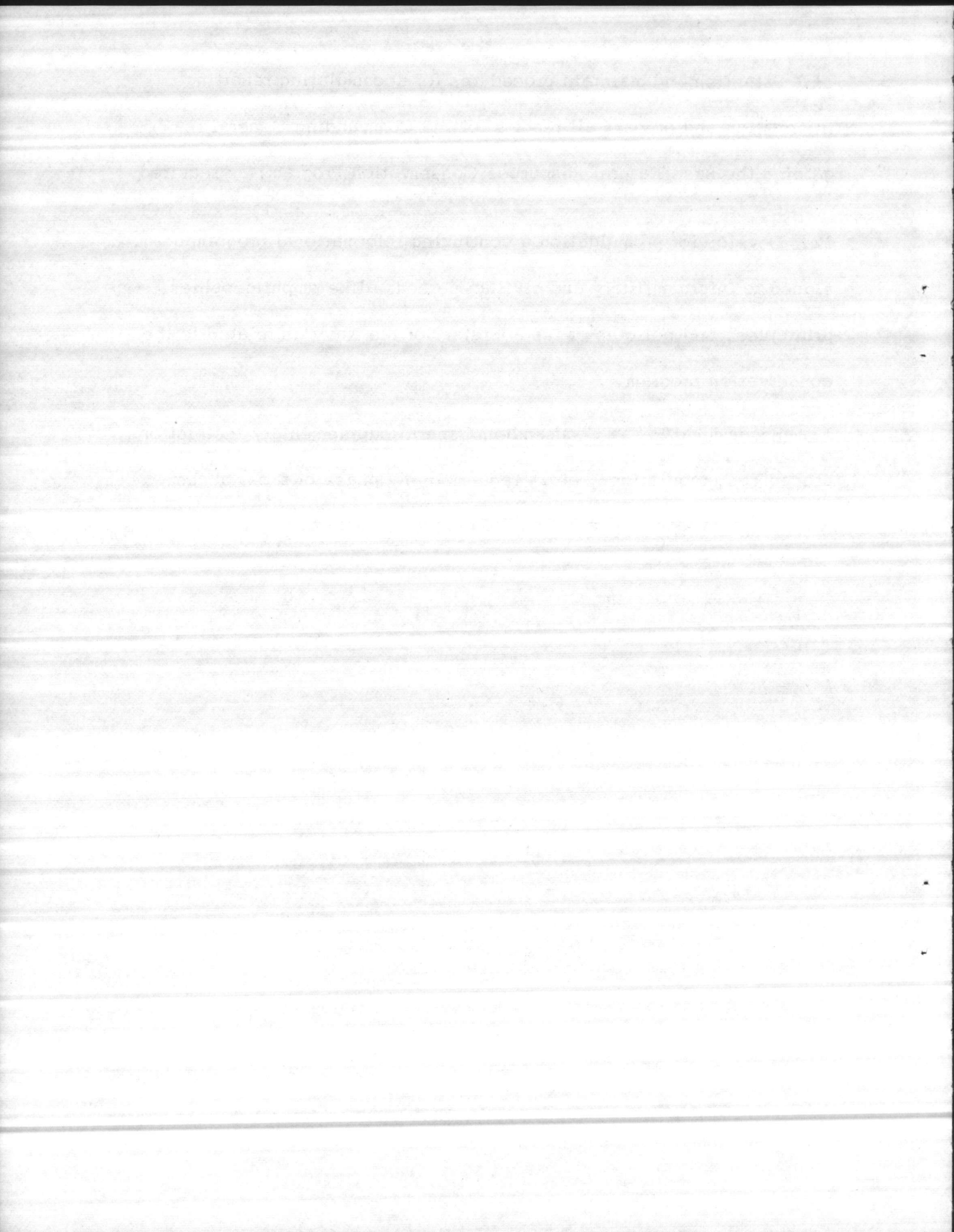
9. Monitor and make frequent reports to the Commanding General concerning all aspects of the Base Wildlife Food Plot Program.

10. Act as command representatives for any inspecting individual or group visiting the Base in connection with the Natural Resources Conservation Program.

11. Establish and maintain procedures for accumulating reporting information and prepare all reports for the Commanding General regarding the Base Natural Resources Conservation Program, as required.

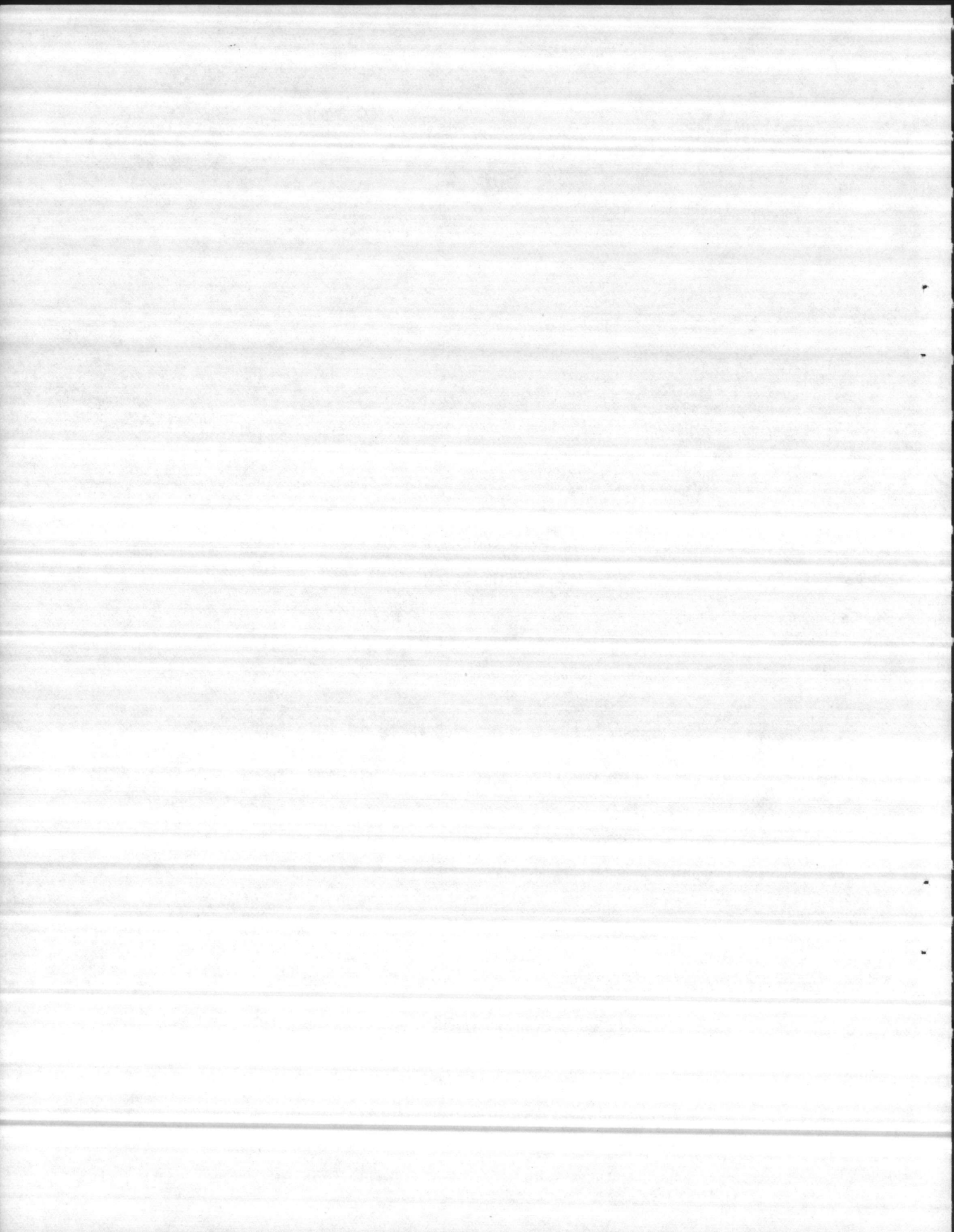
12. Develop for promulgation a continuing informational program designed to inform military and civilian persons alike of philosophies, principles, and policies of the Secretary of the Navy as related to the conservation program.

13. Recommend to the Commanding General supplementary instructions, procedures, regulations, etc., regarding any phase or facet of the Natural Resources Conservation Program, as required.



APPENDIX B

VEGETATION



VEGETATION

Native plants common to Camp Lejeune that are useful to wildlife are listed below:

TREES

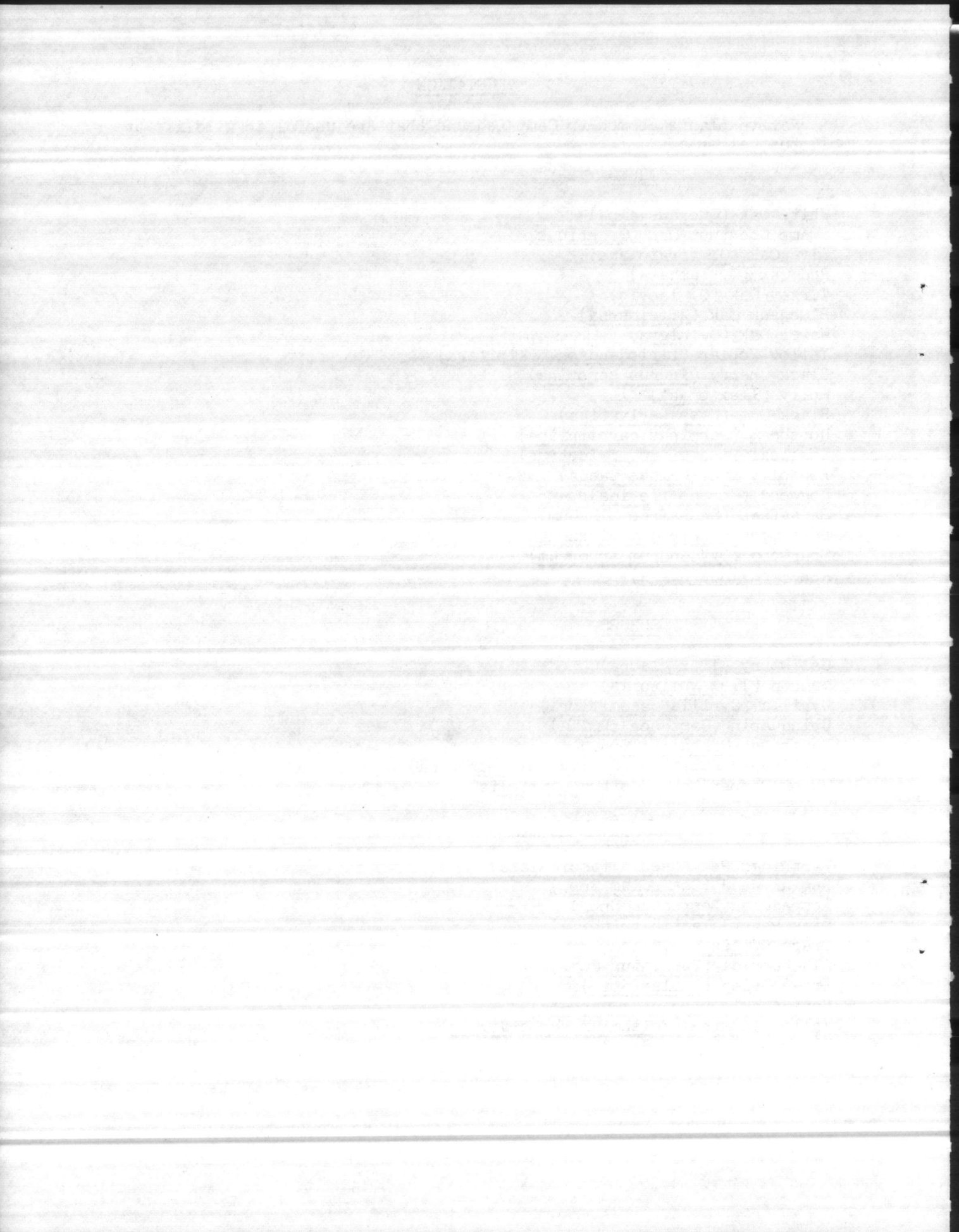
White Oak (Quercus alba)
Swamp Chestnut Oak (Q. prinus)
Live Oak (Q. virginiana)
Red Oak (Q. falcata)
Turkey Oak (Q. laevis)
Bluejack Oak (Q. cinerea)
Water Oak (Q. nigra)
Yellow Poplar (Liriodendron tulipifera)
Black Cherry (Prunus serotina)
Holly (Ilex opaca)
Black Gum (Nyssa sylvatica)
Hornbeam (Carpinus caroliniana)
Longleaf Pine (Pinus palustris)
Loblolly Pine (Pinus taeda)
Dogwood (Cornus florida)
Sassafras (Sassafras albidum)
Persimmon (Diospyros virginiana)
Sourwood (Oxydendrum arboreum)
Ash (Fraxinus nigra)

SHRUBS

Gallberry (Ilex glabra)
Yaupon (Ilex vomitoria)
Cyrilla (Cyrilla racemiflora)
Chinquapin (Castanea pumila)
Hawthorn (Crataegus Spp.)
American Beautybush (Callicarpa americana)
Sweet Pepperbush (Clethra alnifolia)

VINES AND HERBS

Partridge Pea (Cassia fasciculata)
Beggartail (Desmodium Spp.)
Lespedeza (Lespedeza Spp.)
Milk Pea (Galactia volubile)
Grape (Vitis Spp.)
Blueberries (Vaccinium Spp.)
Green Brier (Smilax Spp.)
Honeysuckle (Lonicera japonica)
Yellow Jasmine (Gelsemium sempervirens)
Blackberry (Rubus Spp.)



APPENDIX C

BASE ORDER 4570.1B

250070 17 14 1964

HEADQUARTERS, MARINE CORPS BASE
Camp Lejeune, North Carolina 28542

BO 4570.1B
21/CEA/vap
18 Dec 1974

BASE ORDER 4570.1B

From: Commanding General
To: Distribution List

Subj: Turn-in of Scrap Lumber/Disposal of Unsalable Scrap
Lumber Stored at the Base Sanitary Landfill;
procedures for

Ref: (a) Department of Defense Disposal Manual
4160.21-M of June 1973

1. Purpose. To establish procedures for disposal of scrap lumber/to inform all military and civilian personnel of the procedures to be followed in obtaining unsalable scrap lumber and boxes stored at the Base Sanitary Landfill (located on Sneads Ferry Road) for organizational and/or private use within the Camp Lejeune area.

2. Cancellation. BO 4570.1A and BBul 4570 of 11 June 1974.

3. Background

a. Chapter VI, paragraph 53, of reference (a) states that "used lumber or boxes not required for the foreseeable needs of the generating activity, or in such condition as to be unacceptable for further use, will be disposed of by retail or other sales method." In view of the contents of this paragraph, it has been determined that allowing pick up of scrap lumber and boxes would be in the best interest of the Government, rather than burying the items.

b. Experience has proven, however, that not all scrap lumber or boxes turned in to the disposal activity in the past was salable; therefore, it has become necessary to establish certain restrictions with respect to the turn-in of scrap lumber.

4. Action

a. Activities generating scrap lumber will process such lumber in accordance with the below listed procedures:

BO 4570.1B
18 Dec 1974

(1) Scrap lumber will be grouped in short (6-12), medium (12-14) and long (14 and above) linear feet sizes.

(2) Useable pallets will be stacked.

(3) Scrap lumber, pallets and ammunition boxes will be delivered to Lot #203, after an escort has been obtained from Lot #201, on Tuesday and Thursday between 0830 and 1500. It will be the responsibility of the generating activity to furnish a work party for the purpose of placing the sized lumber in designated areas.

(4) Scrap in sizes less than stated in subparagraph 4a(1) above is not considered to have resale value; therefore, such lumber will be delivered to the Base landfill.

b. Pick up of subject scrap lumber and boxes for organizational and/or private use will be allowed in accordance with the following procedures:

(1) Scrap lumber and boxes may be picked up between 0830 and 1600, Monday through Friday, by contacting the operator of the landfill.

(2) Units or individuals desiring the scrap lumber or boxes assume responsibility for the loading and hauling thereof.

(3) Posted rules and regulations will be observed to ensure noninterruption of normal landfill operations, such as the flow of traffic. Scavenging in the solid waste being buried in the landfill trench is prohibited.

5. Applicability. Having received the concurrence of the Commanding Generals, 2d Marine Division, FMF, Force Troops, FMFLant, and the Commanding Officers of MCAS(H), New River, Naval Regional Medical Center, this Order is applicable to those Commands.

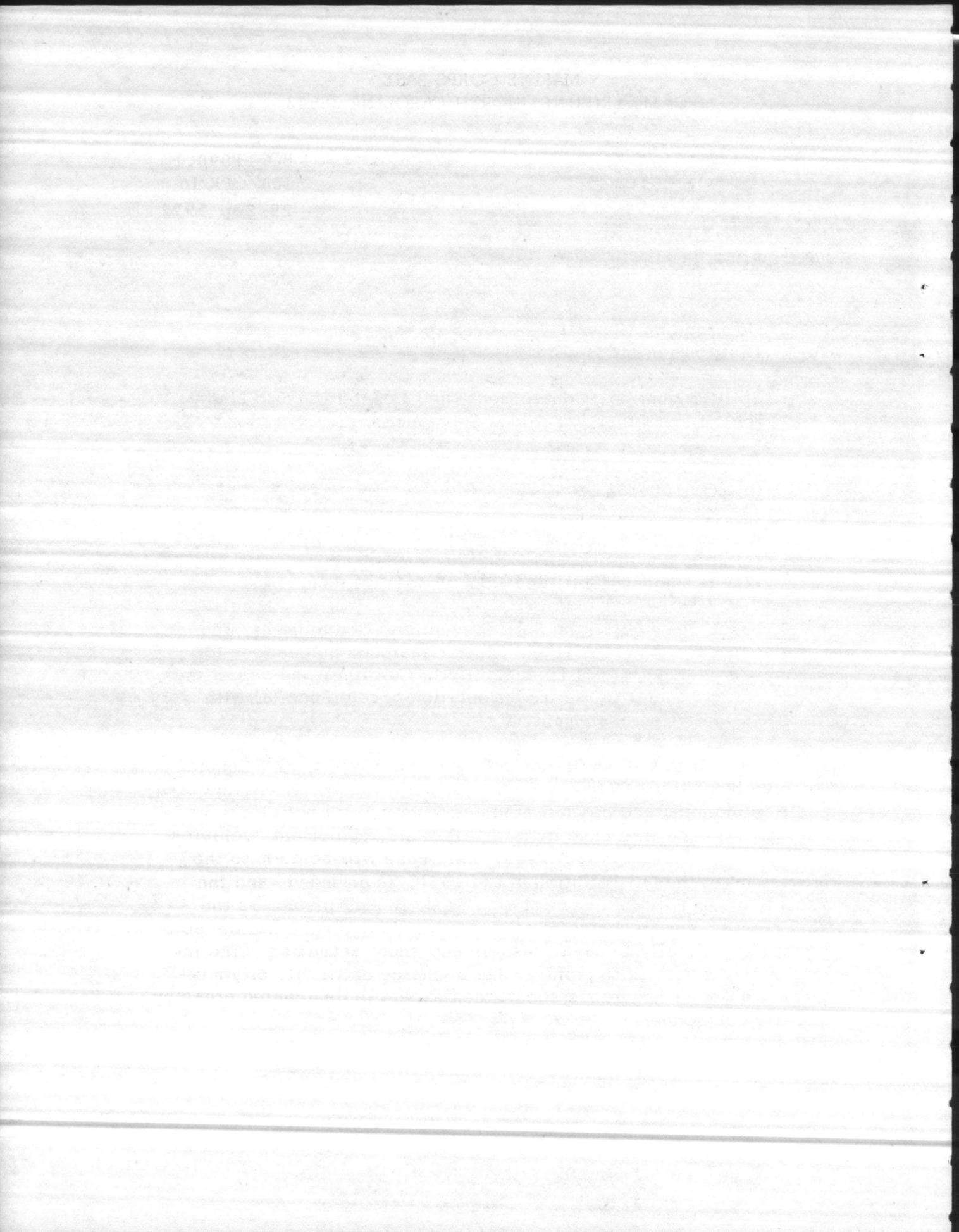
G. C. FOX
G. C. FOX

Chief of Staff

DISTRIBUTION: "A" plus the Defense Property Disposal Chief, Camp Lejeune Field Office

APPENDIX D

BASE ORDER 11090.1



MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

BO 11090.1
15A/CFR/lp
29 Sep 1972

BASE ORDER 11090.1

From: Commanding General
To: Distribution List

Subj: Spill Prevention, Containment, and Countermeasure Plan
for Oil and Other Hazardous Substances

Ref: (a) MCO P11000.8
(b) BO 5100.13A

Encl: (1) Spill Prevention and Containment Plan
(2) Contingency Spill and Countermeasure Plan

1. Purpose. To publish the Spill Prevention, Containment, and Countermeasure Plan for Oil and Other Hazardous Substances for Marine Corps Base, Camp Lejeune, North Carolina, and assist the Commanding General in the implementation of reference (a) with respect to pollution abatement.

2. Policy. It is the continuing policy of the Commanding General to actively participate in environmental pollution abatement and take positive planning and programming action to control petroleum products pollution on this Base from installations, equipment, vehicles, and other Marine Corps facilities. This Base will conform to the provisions of the Oil Pollution Act of 1961, as amended, and the Federal Water Pollution Control Act, as amended, insofar as the acts prohibit the discharge of oil and regardless of whether the acts pertain specifically to naval vessels and shore activities. The intent of this policy is to prohibit the discharge of all oil, oily mixtures, and other hazardous substances except in designated areas by qualified personnel.

BO 11090.1
29 Sep 1972

3. Responsibilities

a. Base Maintenance Officer is charged with the overall responsibility of carrying out the various measures of this order.

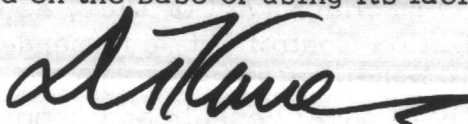
(1) Environmental Control Director (telephone 5003) is responsible to the Base Maintenance Officer for the day to day monitoring, surveillance, and up-channel reporting of events concerning pollution caused by oil or other hazardous substance spills.

b. Area/Unit Commanders are charged with the responsibility of preventing spills of oil or other hazardous substances within their own areas/units and will develop local plans for containment in case of accidental spills.

c. Base Fire Chief or his senior representative will act as the On-Scene Coordinator (OSC). He will make the initial response to any contingency spill and will be in overall charge at the scene until relieved by the arrival of the Environmental Control Director.

4. Action. Discharge of oils or other hazardous substances into ditches, culverts, or receiving streams is prohibited. Special attention will be directed to areas where vehicles and equipment are serviced. Cognizant officers will take necessary action to assure compliance. Area/Unit Commanders shall conform to the standards and criteria as set forth in enclosures (1) and (2).

5. Applicability. Having received the concurrence of the Commanding General, 2d Marine Division, FMF; the Commanding General, Force Troops, FMFLant; and the Commanding Officer, Naval Hospital, Camp Lejeune, this order is applicable to those commands and all civilian personnel employed on the Base or using its facilities.



D. T. KANE
Chief of Staff

DISTRIBUTION: "A" less 3,4,5,6 Cat IV

SPILL PREVENTION AND CONTAINMENT PLAN

1. Oil spill prevention is the responsibility of all organizations/activities. Each unit commander will ensure all personnel are indoctrinated in order to make them thoroughly conscious and aware of the environmental impact of oil spills and other hazardous substance discharges.
2. All activities will guard against the creation of possible oil spills and hazardous substance discharge situations and necessary action shall be taken to assure containment.
3. Disposal of oil, gasoline, kerosene, paint thinner, organic solvents, deteriorated cleaning solutions, poisonous chemical waste, corrosives, acids, and pesticides through any drainage system (either surface or subterranean) is prohibited. Waste oil will be disposed of in accordance with paragraph 7 below. Other substances mentioned herein will be disposed of as outlined in reference (b).
4. Disposal of empty or damaged containers of all types in wooded areas, drainage ditches, and other areas that might cause environmental damage is prohibited. All empty 55-gallon drums will be disposed of through Redistribution and Disposal Branch, Base Materiel Battalion. Other containers will be disposed of at the sanitary landfill, or prepared for recycling if practical.
5. Storage of pesticides, insecticides, herbicides, and other hazardous materials shall be in a secure area. They shall be neatly stacked and labeled to provide easy identification and ready access. All storage areas shall be provided with adequate mechanical ventilation. They shall be dispersed under the supervision of certified personnel as outlined in reference (b). Used containers of these materials shall be punctured or crushed so as to prevent reuse and disposed of at the sanitary landfill.
6. Oil and gasoline storage tanks larger than 500-gallon capacity will be properly diked. The dike will be properly equipped with a

BO 11090.1
29 Sep 1972

drainage line and valve(s). Only authorized personnel will be permitted to open and close said valve(s). After each drainage, the valve(s) will be closed and locked.

7. Waste oil will be collected in a tank of at least 250-gallon capacity equipped with a funnel, strainer, and cover so as to prevent entrance of trash, water, and other foreign matter. When the container requires emptying, the officer in charge will call Base Maintenance Department (telephone 3001) and a truck will be dispatched to remove the oil.

29 Sep 1972

ACCIDENTAL SPILL AND COUNTERMEASURE PLAN

1. Reporting. Spills, accidental or otherwise, of oil or other hazardous substances will be reported immediately to the Base Fire Department (on Base - telephone 3333/off Base - telephone 451-3333) giving location, substance spilled, and approximate amount.
2. Response. Upon receiving a report of a significant oil or other hazardous substance spill, the Base Fire Department will dispatch a regular fire fighting unit to the scene. The Base Fire Chief or his senior representative will also report to the scene as soon as possible. Upon arrival, the Base Fire Chief or his senior representative will:
 - a. Assume the role of On-Scene Coordinator (OSC).
 - b. Take necessary steps to eliminate any fire hazard developed from the spill.
 - c. Notify Environmental Control Director (telephone 5003).
 - d. Evaluate the situation and request necessary logistic support from the Base Maintenance Officer to contain the spill and facilitate recovery or mopping up action.
 - e. Upon arrival at the scene, the Environmental Control Director or his representative will assume command and will direct further containment and clean-up activities.
3. Supplies and Materials. Base Maintenance Officer will provide the basic materials and equipment necessary to contain and mop up on-Base spills. The U. S. Coast Guard will be contacted for equipment and assistance in the event of a major spill.
4. Reports. A report of oil spills and other hazardous substance discharges in the inland navigable waters of the United States and the coastal waters including between 3 and 12 miles from the coast

BO 11090.1
29 Sep 1972

will be made immediately by the Environmental Control Director or his representative to:

- a. Base Maintenance Officer.
- b. Assistant Chief of Staff, Facilities, Marine Corps Base.
- c. Captain of the Port, Room 101, Federal Building, Wilmington, North Carolina 28401 (telephone 919-763-9435).
- d. Commandant of the Marine Corps.

In every case, a report of the incident will be made to the Commandant of the Marine Corps (Code COA). Incidents of a serious nature, which require urgent action at the Headquarters level, or may result in adverse news coverage or public relations, will be reported by message.

5. Small Spills. Occurrence of small gasoline and fuel oil spills on refueling aprons is very common. Gasoline and fuel oil spilled on refueling aprons will not be flushed into any ditch or storm sewer. To reduce the pollution and fire hazard, the spill will be covered with sand obtained from a nearby storage bin. As the sand absorbs the fuel, it will be taken up and returned to the storage bin after evaporation or placed into the sanitary landfill as required. Sand can be obtained by calling Base Maintenance Department (telephone 3001).

6. Restoration of Damaged Area. Grounds around grease racks and maintenance buildings that have been severely damaged by oil and grease will be restored to their natural state. If necessary, the contaminated soil will be removed and replaced with clean soil and reseeded.

APPENDIX E
WILDLIFE RESOURCES

WILLIAMS REPORT

REPORT OF THE WILLIAMS COMMISSION ON THE STATE OF TEXAS

CHAPTER I. THE STATE OF TEXAS

SECTION 1. THE STATE OF TEXAS

SECTION 2. THE STATE OF TEXAS

SECTION 3. THE STATE OF TEXAS

SECTION 4. THE STATE OF TEXAS

SECTION 5. THE STATE OF TEXAS

SECTION 6. THE STATE OF TEXAS

SECTION 7. THE STATE OF TEXAS

WILDLIFE RESOURCES

Wildlife species most common to Camp Lejeune, their population size estimate, and their relative range condition are listed below:

Species	Population (Estimated)	Range Condition
<u>Game Birds and Animals</u>		
Whitetailed Deer (<i>Odocoileus virginianus</i>)	3,100	Good
Black Bear (<i>Ursus americanus</i>)	Common	Fair
Squirrel (<i>Sciurus</i> Spp.)	Very abundant	Good
Rabbit (<i>Sylvilagus</i> Spp.)	Abundant	Fair
Gray Fox (<i>Urocyon cinereoargenteus</i>)	Abundant	Excellent
Quail (<i>Colinus virginianus</i>)	Abundant	Fair
Turkey (<i>Meleagris gallopavo</i>)	550	Good
<u>Fur-Bearing Animals</u>		
Mink (<i>Mustela vison</i>)	Common	Excellent
Otter (<i>Lutra canadensis</i>)	Common	Excellent
Muskrat (<i>Ondatra zibethicus</i>)	Common	Fair
Skunk (<i>Mephitis mephitis</i>)	Abundant	Excellent
Raccoon (<i>Procyon lotor</i>)	Very abundant	Excellent
Opossum (<i>Didelphis marsupialis</i>)	Very abundant	Excellent
Bobcat (<i>Lynx longirostris</i>)	Common	Excellent
<u>Migratory Game Birds</u>		
Dove (<i>Zenaidura macroura</i>)	Abundant	Fair
Woodcock (<i>Philohela minor</i>)	Abundant	Good
Rail (<i>Rallus longirostris</i>)	Abundant	Excellent

Waterfowl

Wood Duck (*Aix sponsa*)
Black Duck (*Anas rubripes*)
Canada Goose (*Branta canadensis*)
Mallard (*Anas platyrhynchos*)
Green-winged Teal (*Anas carolinensis*)
Ruddy Duck (*Oxyura jamaicensis*)
Hooded Merganser (*Lophodytes cucullatus*)
Canvasback (*Aythya valisineria*)
Bufflehead (*Bucephala albeola*)
Lesser Scaup (*Aythya affinis*)
Pintail (*Anas acuta*)
Greater Scaup (*Aythya marila*)
Ring-neck Duck (*Aythya collaris*)
Coot (*Fulica americana*)

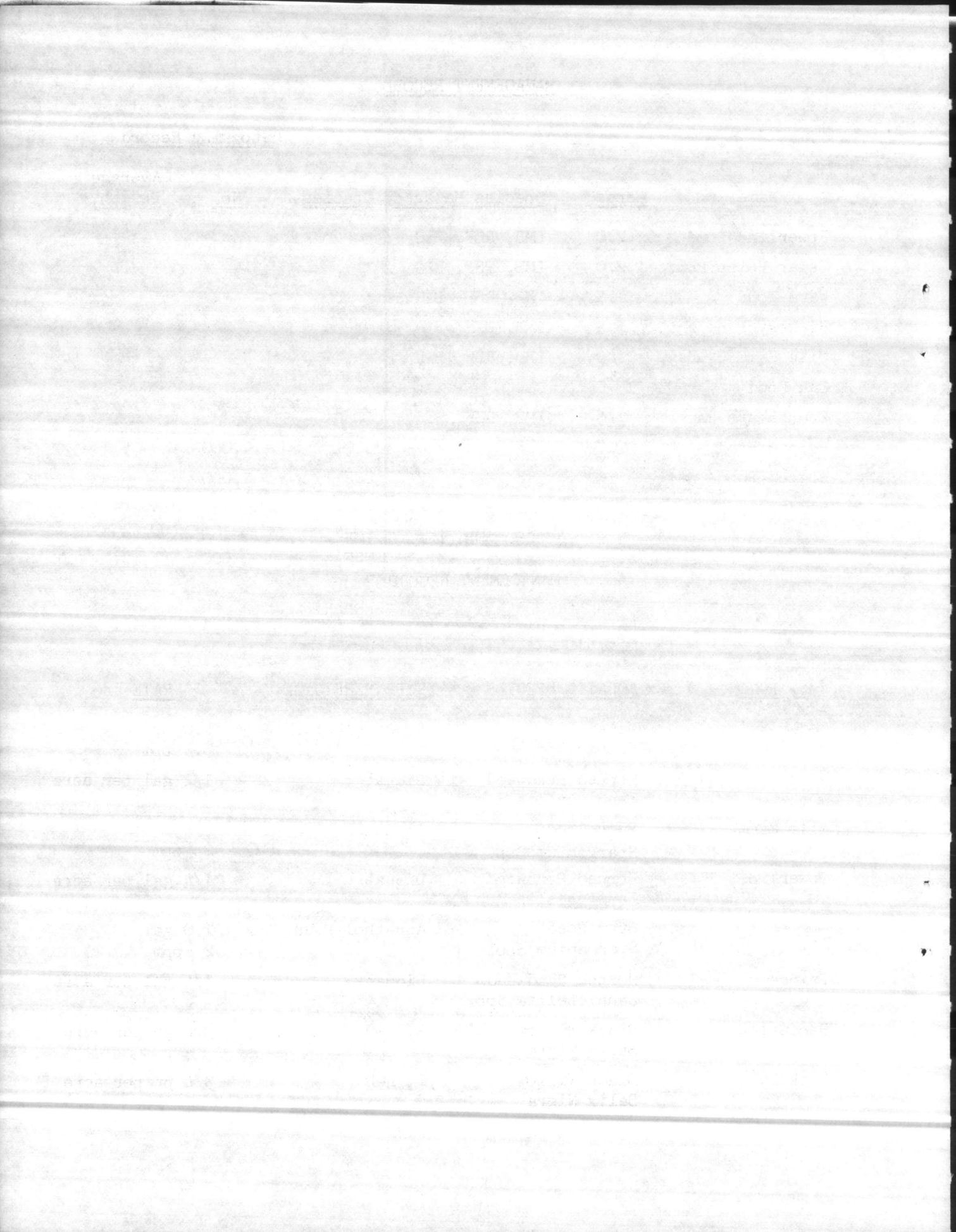
Game Fish

Largemouth Bass (*Micropterus salmoides*)
Bluegill (*Lepomis macrochirus*)
Redbreast (*Lepomis auritus*)
Pickerel (*esox Spp.*)
Redear (*Epomis microloplus*)
Warmouth (*Chaenobryttus gulosus*)
Black Crappie (*Pomoxis nigromaculatus*)
Yellow Perch (*Perca flavescens*)
Pumpkinseed (*Lepomis gibbosus*)
Flier (*Centrarchus macropterus*)
Striped Bass (*Roccus saxatilis*)

Non-game Fish

Carp (*Cyprinus carpio*)
Bowfin (*Amia calva*)
Shad (*Dorosoma cepedianum*)
Catfish (*Ictalurus Spp.*)
Longnose Gar (*Lepisosteus osseus*)

APPENDIX F
MANAGEMENT RECORD



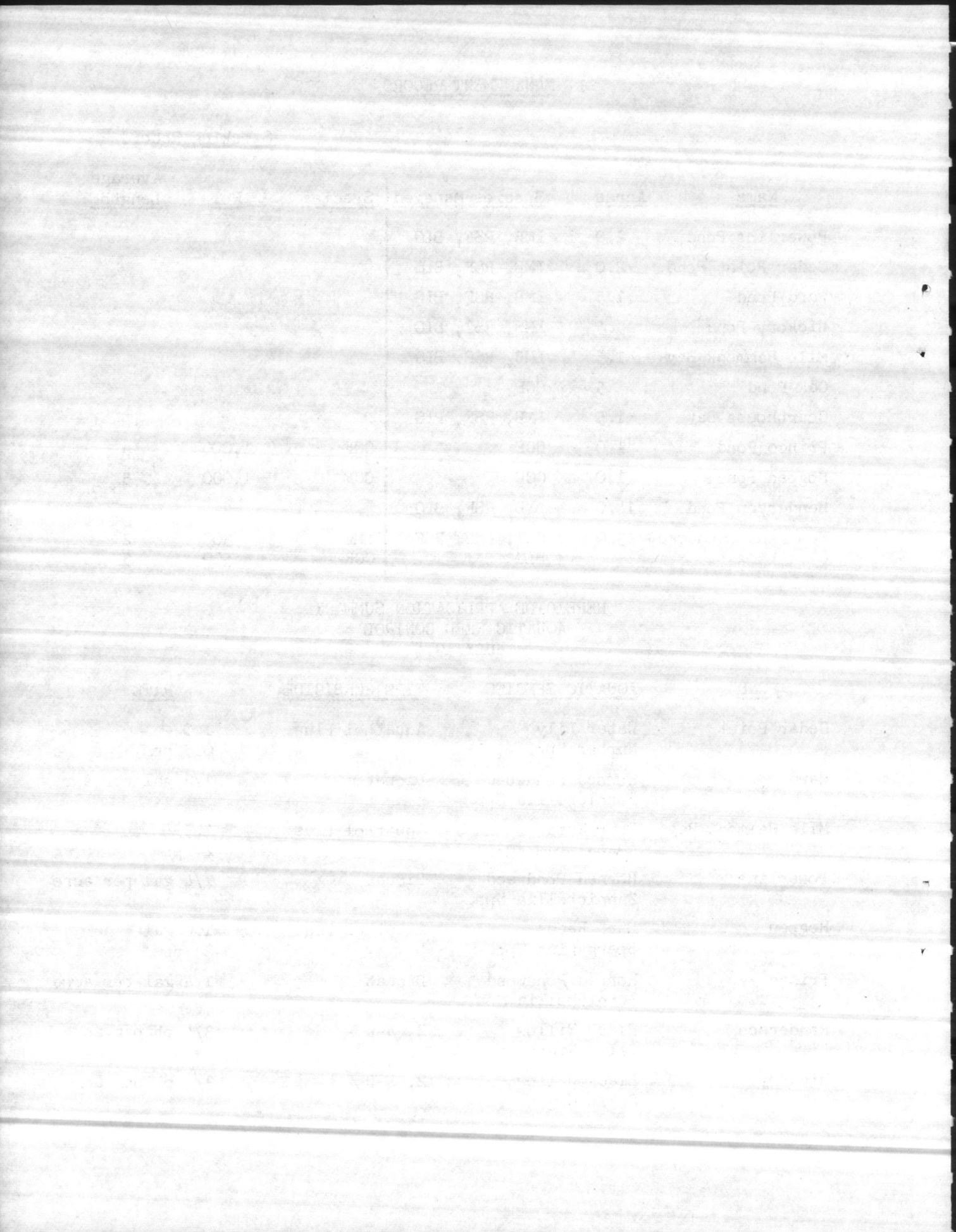
MANAGEMENT RECORD

Stocking Record

<u>Name</u>	<u>Acres</u>	<u>Species Managed</u>	<u>Species</u>	<u>No.</u>	<u>Average Length</u>
Powerline Pond	2.0	LMB, RSF, BLG			
Cedar Point Pond	2.0	LMB, RSF, BLG			
Ward Pond	1.5	LMB, RSF, BLG			
Hickory Pond	5.5	LMB, RSF, BLG			
Mile Hammock Bay	1.5	LMB, RSF, BLG			
Oak Pond	5	CCF			
Courthouse Bay	1.5	LMB, RSF, BLG			
Prince Pond	1.0	CCF	CCF	1,000	5
Hogpen Pond	1.0	CCF	CCF	1,000	5
Henderson Pond	14.0	LMB, RSF, BLG			
New Pond (unnamed)	3.0	CCF, LMB, RSF, BLG	LMB CCF	300 500	2 5

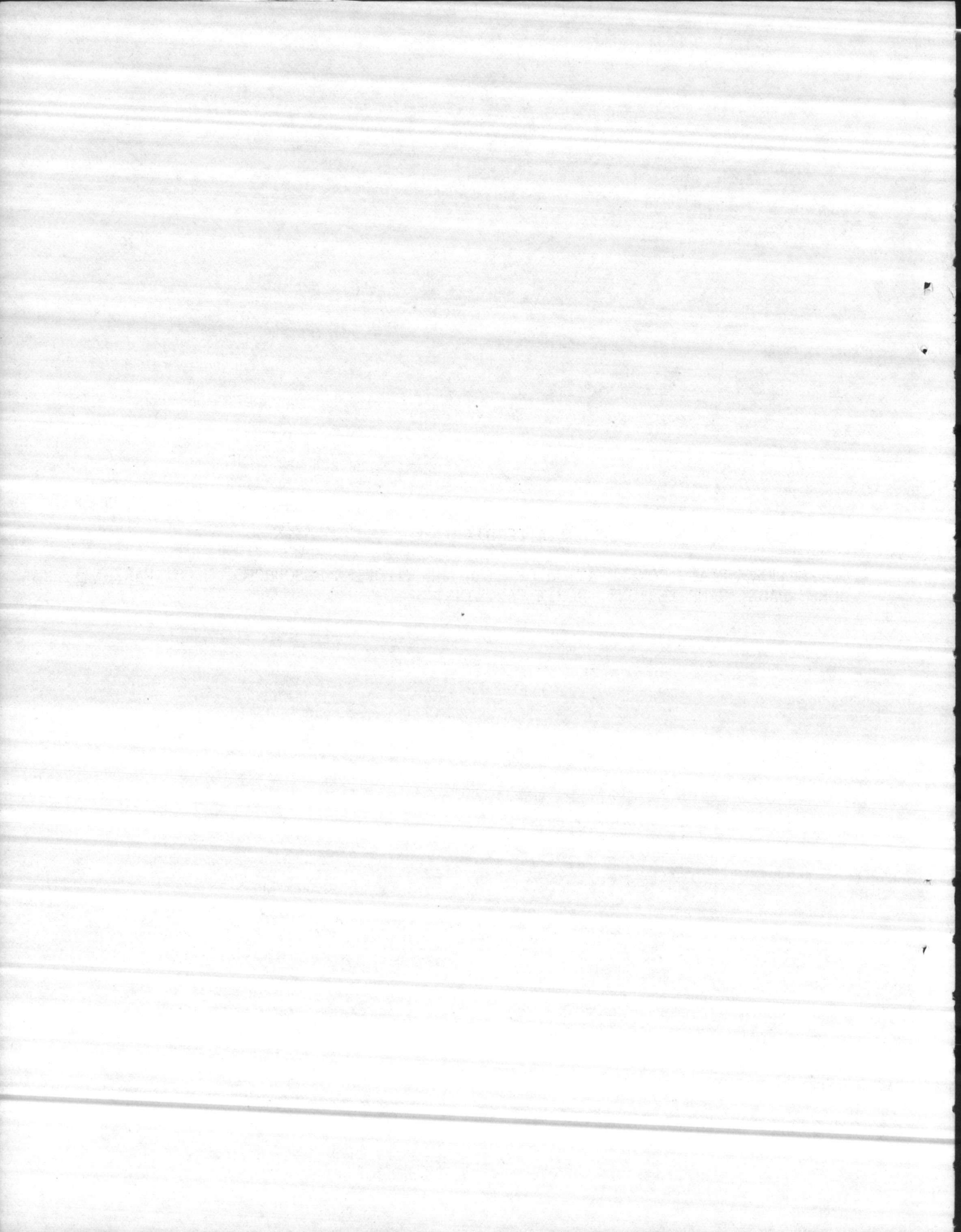
HERBICIDE APPLICATION SUMMARY
AQUATIC WEED CONTROL
JULY 1974

<u>POND</u>	<u>AQUATIC SPECIES</u>	<u>TYPE HERBICIDE</u>	<u>RATE</u>
Cedar Point	Water Lily Nuphar Spp.	Aquathol Plus	1.0 0.5 ppm
Ward	Horned Pondweed Zannichellia Spp.	Diquat	1/2 gal per acre
Mile Hammock Bay	Burr Reed Sparganium Spp.	Aquathol Plus	1.5 2 ppm
Powerline	Horned Pondweed Zannichellia Spp.	Diquat	1/4 gal per acre
Hogpen	Burr Reed Sparganium Spp.	Aquathol Plus	1.0 gal 2 ppm
Prince	Horned Pondweed Zannichellia Spp.	Diquat	1/4 gal per acre
Henderson	Black Willow Salix Nigra	2, 4-D	3/4 pt per acre
Hickory	Black Willow Salix Nigra	2, 4-D	3/4 pt per acre



APPENDIX G

COOPERATIVE PLAN, CONSERVATION OF FISH AND WILDLIFE RESOURCES, U. S. MARINE
CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA



COOPERATIVE PLAN
CONSERVATION OF FISH AND WILDLIFE RESOURCES
U. S. MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

I. Authority

A. In accordance with the authority contained in Public Law 85-337 (approved 28 February 1958) and in Public Law 86-797 (approved 15 September 1960), the Department of Defense, the Department of the Interior, and the state of North Carolina, through their duly designated representatives whose signatures appear below, approved the following cooperative plan for the protection, development, and management of fish and wildlife resources on Marine Corps Base, Camp Lejeune, North Carolina.

B. Under the authority delegated to him by higher echelons of command, the Commander, Marine Corps Base, hereinafter referred to as the Commanding General, is recognized as the official representative of the Commandant of the Marine Corps.

C. Under the authority vested in him, the Regional Director, Bureau of Sports Fisheries and Wildlife, hereinafter referred to as the Regional Director, is recognized as the official representative of Sports Fisheries and Wildlife.

D. Under the authority vested in him, by the state of North Carolina, the Executive Director, North Carolina Wildlife Resources Commission, hereinafter referred to as the Executive Director, is recognized as the official representative of the state of North Carolina.

E. By definition, action by and to the Marine Corps shall be understood to refer specifically to the U. S. Marine Corps Base, Camp Lejeune, North Carolina.

II. Forest - Wide Wildlife Habitat Inventory

An inventory of fish and wildlife resources was completed in 1973 and included in the updated Management Plan for the Base. The inventory was accomplished through the cooperation of field personnel of all three representatives to this agreement. The inventory was planned to identify and describe habitat conditions of all present species regardless of the degree of public use.

III. Base - Fish and Wildlife Management Plan

The plan for the management of fish and wildlife was updated in 1973. This plan, primarily, involves management techniques for fresh water game fish, upland game animals, upland game birds, fur-bearing animals, migratory

waterfowl, and endangered species. Consideration will be given to all other fish and wildlife species present in all aspects of management.

IV. The Cooperative Plan

The Marine Corps Base, the Bureau of Sports Fisheries and Wildlife, and the North Carolina Wildlife Resources Commission agree to assist together in preparing and implementing a progressive program of fish and wildlife conservation for the Base. Meetings may be called as necessary by either of the three parties to review the fish and wildlife management program.

A. Cooperative Responsibility

1. Marine Corps Base will execute the Fish and Wildlife Management Plan, provide labor, equipment, and materials for habitat improvement and development, work effectively and in harmony with local, state, and federal conservation officials, provide within manageable quotas for controlled public access for the purpose of hunting, fishing, and trapping, and regulate the taking of fish and wildlife in accordance with applicable local, state, and federal laws and regulations. Marine Corps Base, will retain and protect all wildlife habitat to the fullest extent possible for all numerous and unique species. The Base will promote an educational program of Wildlife Conservation to increase public awareness of wise use of these natural resources.

2. The Bureau of Sports Fisheries and Wildlife will render technical advice and professional assistance through the Regional Director, Atlanta Georgia concerning management of fish and wildlife. The Bureau will assist in censusing of birds and mammals through its field personnel who visits the Base. Fish for restocking ponds and lakes will be provided through the Bureau's Federal Hatchery at Edenton, North Carolina.

3. The North Carolina Wildlife Resources Commission will provide technical assistance and professional advice, through its Executive Director Raleigh, North Carolina, concerning the management of fish and wildlife. Assistance for censusing fish and wildlife will be provided through biologists who call upon Base Conservation Personnel. The Commission will provide seed mixtures and plants as needed and as available for upland game, and migratory species. Fresh water fish will be provided by the Wildlife Resources Commission through its state Hatchery at Fayetteville, North Carolina.

B. Development and Improvement of Habitat

Present habitat conditions are good to excellent for both game, and nongame species. White-tailed Deer, Wild Turkey, Squirrel, Rabbit, Quail, and Waterfowl are the featured game. Other game and nongame species will be considered in all phases of management. Additional grassy openings are needed in some wildlife units and will be established in the near future.

Forest access roads will be utilized for wildlife enhancement by establishing many of these in perennial grass plantings. Wetlands, bottomlands, hardwoods, and hardwood stands on slopes or inclusions will be managed for wildlife. The Forester and Wildlife Manager will coordinate management activities to conform to the "Multiple Use" concept.

C. Restoration or Restocking of Desired Species

Restocking practices on the Base will normally be limited to releasing fresh water game fish into ponds, lakes, and streams. The introduction of exotic species of fish and wildlife is prohibited. Only wild trapped birds and animals which are native may be released on the Base at such times that might warrant restocking efforts in the future. Preliminary studies will be required by the three parties before any restocking is permitted in the future.

D. Control of Plant and Animal Species

1. All game species will be controlled through hunting to keep populations from reaching high densities which could limit essential requirements for food and cover.

2. Raccoon will be controlled through opening a trapping season to reduce the dense population that now exists.

3. Aquatic weeds will be controlled in ponds and lakes through the application of aquatic herbicides by management personnel as necessary.

E. Protection of Fish and Wildlife

The taking of fish and wildlife will be within the manner and limits prescribed by local, state, and federal laws and regulations. All hunting and fishing access is controlled through a centrally located checking station. Game kills are reported in at the checking station where they are inspected and management data are collected.

F. Public Use of Fish and Wildlife Resources

Consumptive use of fish and wildlife resources by the public is through hunting, fishing, and trapping. Non-consumptive use of fish and wildlife includes nature study, viewing, and photographing wildlife. Plans are to make non-consumptive use more available to the public. The present civilian guest use of fish and wildlife resources comprises twenty-seven percent of the total number of trips for fishing and hunting. The following persons are authorized to hunt, fish, and trap on Base:

1. Military personnel, including retired, and their dependents.

2. Civilians assigned to or employed on the Base or living in Base housing and their dependents to include Civil Service employees retired from Marine Corps Base.

3. All civilians (other than employees) when accompanied by a military or civilian employee sponsor. Sponsors of such persons are responsible for their proper conduct. A sponsor may take with him no more than two guests on an individual hunt without special permission.

4. Public access to hunting, fishing, and trapping will be on a first-come, first-served basis within manageable quotas.

G. Permit Requirements and Use of Funds

1. All persons authorized to hunt, fish, and trap shall have in their possession a valid North Carolina or Onslow County hunting, fishing and/or trapping license. A big game permit is required to hunt deer and turkey. Persons hunting migratory waterfowl shall have in their possession a valid Federal Migratory Bird Stamp.

2. All persons must, additionally, apply for a Base Permit to meet the requirements for hunting, fishing, and trapping on Base.

3. Types of Permits, Fees, and Effective Dates

a. Combination Hunting/Fishing - to military personnel, civilian employees, their dependents: 1 August - 31 July \$ 2

b. Fishing Permits - to military personnel, civilian employees, their dependents: 1 January - 31 December \$ 1

c. Special Combination Hunting/Fishing - to civilian guests: 1 August - 31 July \$10

d. Daily Hunting/Fishing Permits - to civilian guests: \$ 2

e. Trapping Permits - to military personnel, civilian employees, and their dependents: 1 August - 31 July \$ 3

4. Fees for Base Permits will be collected by an appointed collection agent. The collection agent is accountable for all fees and is responsible for depositing fees with the Base Comptroller to a special non-appropriated project fund.

5. This project fund will be expended against an Annual Operational Plan for fish and wildlife management.

H. Technical Advice and Assistance

1. The Regional Director, Bureau of Sports Fisheries and Wildlife through his state Field Supervisor, Raleigh, North Carolina, and his Field Supervisor, Gatlinburg, Tennessee, will provide fish and wildlife management

services and assistance to the Base.

2. The Executive Director, North Carolina Wildlife Resources Commission will provide through his Eastern Game Lands Supervisor, New Bern, North Carolina, big game management services; through his Wildlife Biologist Kinston, North Carolina, small game management services; through his Wildlife Biologist, Milton, North Carolina, wild turkey management services; through his wildlife Biologist Washington, North Carolina, waterfowl management services; and through his Wildlife Patrolman, Jacksonville, North Carolina, wildlife law enforcement services.

This Cooperative Plan, upon its adoption as witnessed by its execution will be in full force and effect for an indefinite period. The plan is subject to amendment or revision as may be agreed upon by all parties represented. A request for an amendment or revision to the Cooperative Plan may originate with anyone of the represented parties. This plan supersedes the Cooperative Plan of February 10, 1969.

FOR THE DEPARTMENT OF DEFENSE

BY

R. D. Bohn

R. D. BOHN

TITLE Commanding General, MCB,
Camp Lejeune, N. C.

MARINE CORPS BASE, CAMP LEJEUNE,
NORTH CAROLINA 28542

DATE

11/27/73

FOR THE DEPARTMENT OF THE INTERIOR

BY

C. Edward Carlson

TITLE

Regional Director

DEPARTMENT OF INTERIOR, FISH AND
WILDLIFE SERVICE, BUREAU OF SPORTS
FISHERIES AND WILDLIFE

17 EXECUTIVE PARK DRIVE, N. E.
ATLANTA, GEORGIA 30329

DATE

10/30/73

FOR THE STATE OF NORTH CAROLINA

BY

Clyde Patton

EXECUTIVE DIRECTOR, WILDLIFE RESOURCES
COMMISSION, DEPARTMENT OF NATURAL AND
ECONOMIC RESOURCES

ALBEMARLE BUILDING, 325 N. SALISBURY STREET
RALEIGH, NORTH CAROLINA 27611

DATE

11/14/73

