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Taylor
File - Natural Area

Department

Community Development

North Carolina 27611

James C. Martin, Governor

S. Thomas Rhodes, Secretary

JTW

JULY 17, 1985

Brigadier General B. Knotts
Commanding Officer
Camp Lejeune
Camp Lejeune

Dear General Knotts:

It is my pleasure to accept the Memorandum of Understanding, initiated by Major General L. H. Buehl, designating the Camp Lejeune Longleaf Pine Natural Area and the Wallace Creek Natural Area as protected management areas on Camp Lejeune Marine Corps Base and recognizing both sites on the North Carolina Registry of Natural Heritage Areas. I have co-signed the Memorandum of Understanding and enclose a copy.

We appreciate the actions of the United States Marine Corps to protect these exceptional natural areas. I look forward to presenting framed certificates of recognition to you at a convenient date.

Sincerely,

S. Thomas Rhodes

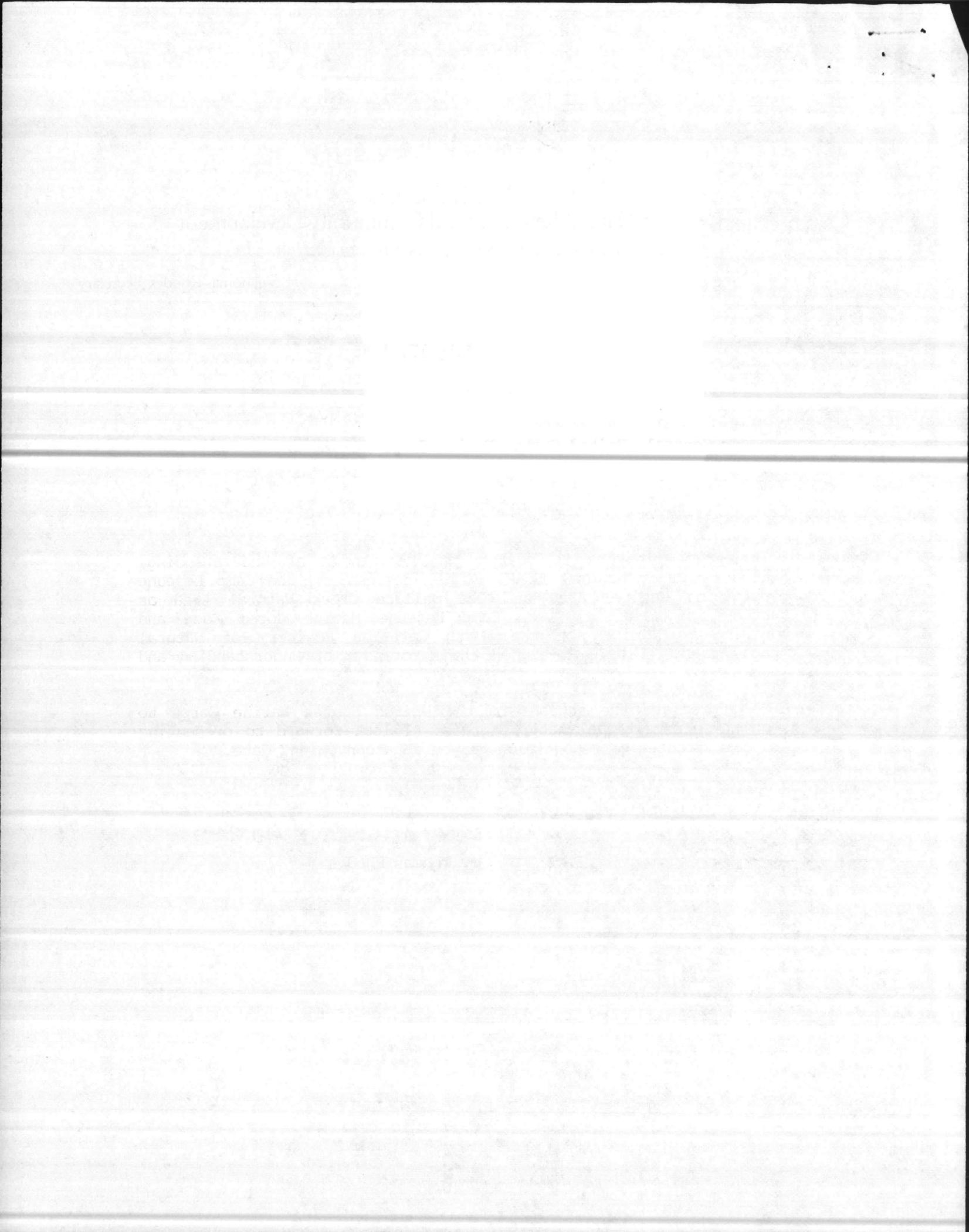
S. Thomas Rhodes

STR/wwd

Attachment

cc: W. W. Davis, Director
Division of Parks and Recreation

✓ Julian I. Wooten, Director
Natural Resources and Environmental Affairs





T-5750/1

State of North Carolina
Department of Natural Resources and Community Development
512 North Salisbury Street • Raleigh, North Carolina 27611

James C. Martin, Governor

S. Thomas Rhodes, Secretary

July 17, 1985

Brigadier General J. B. Knotts
Commanding General, United States Marine Corps
Camp Lejeune
Camp Lejeune, North Carolina 28542

Dear General Knotts:

It is my pleasure to accept the Memorandum of Understanding, initiated by Major General L. H. Buehl, designating the Camp Lejeune Longleaf Pine Natural Area and the Wallace Creek Natural Area as protected management areas on Camp Lejeune Marine Corps Base and recognizing both sites on the North Carolina Registry of Natural Heritage Areas. I have co-signed the Memorandum of Understanding and enclose a copy.

We appreciate the actions of the United States Marine Corps to protect these exceptional natural areas. I look forward to presenting framed certificates of recognition to you at a convenient date.

Sincerely,

A handwritten signature in cursive script that reads "S. Thomas Rhodes".

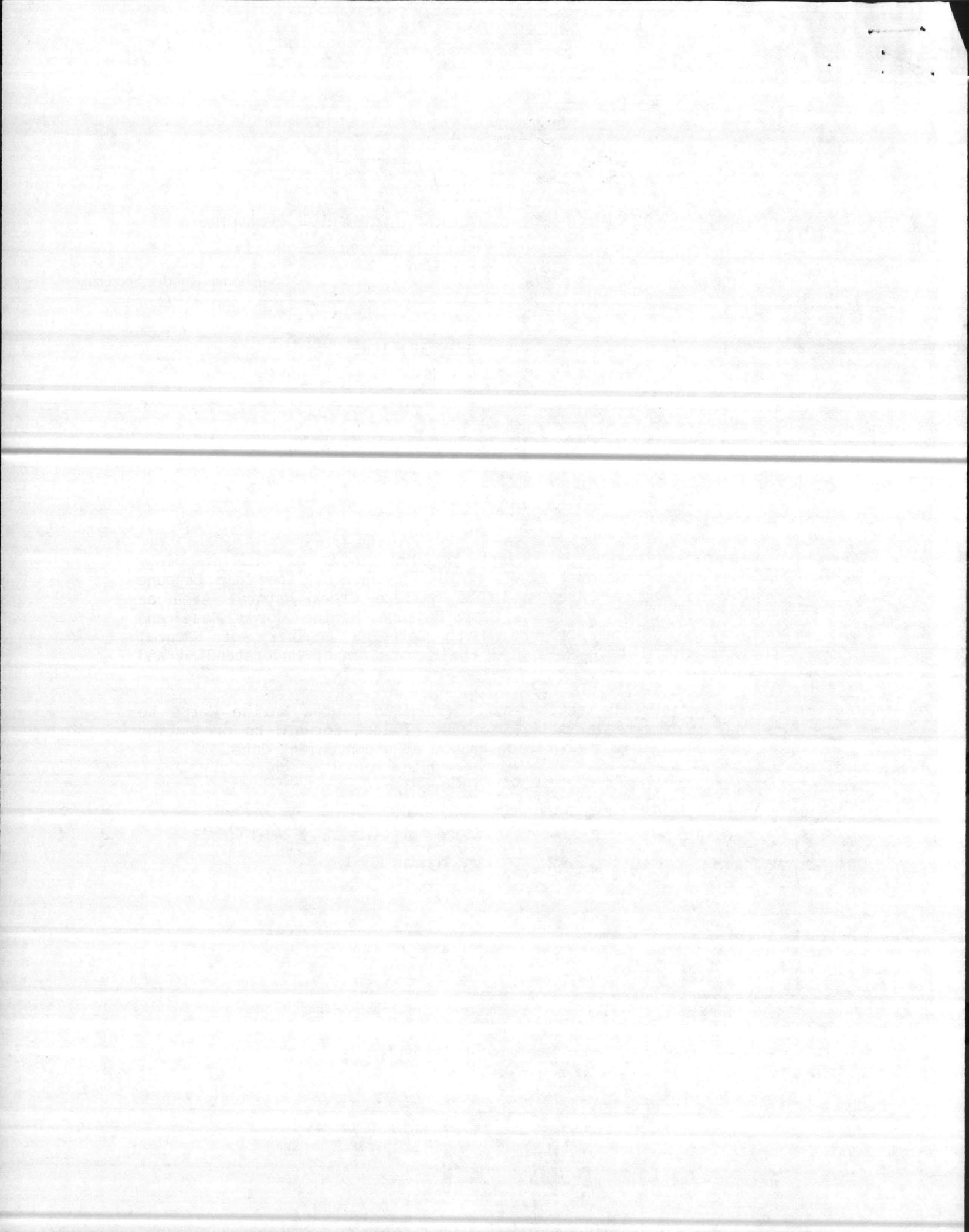
S. Thomas Rhodes

STR/wwd

Attachment

cc: W. W. Davis, Director
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✓ Julian I. Wooten, Director
Natural Resources and Environmental Affairs



MEMORANDUM OF UNDERSTANDING
BETWEEN THE
DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
STATE OF NORTH CAROLINA
AND THE
MARINE CORPS BASE, CAMP LEJEUNE
UNITED STATES MARINE CORPS
FOR
DESIGNATION AND MANAGEMENT OF HIGHLY SIGNIFICANT NATURAL AREAS
ON CAMP LEJEUNE, AND RECOGNITION OF THOSE AREAS ON THE
NORTH CAROLINA REGISTRY OF NATURAL HERITAGE AREAS

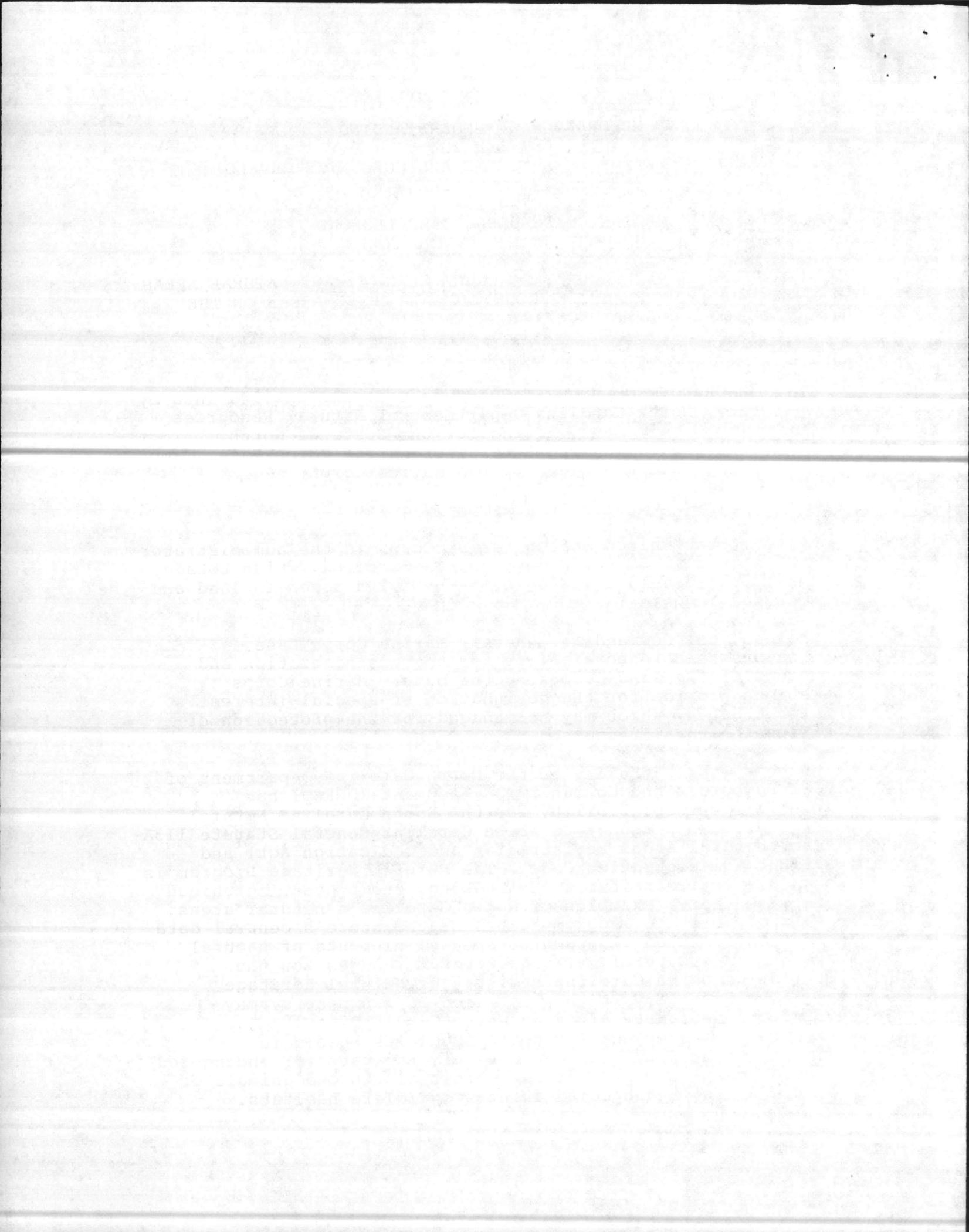
This MEMORANDUM OF UNDERSTANDING is made and entered into by the Secretary, North Carolina Department of Natural Resources and Community Development, acting for the State of North Carolina, and the Commanding General of Marine Corps Base, Camp Lejeune acting for the United States Marine Corps.

PURPOSE

Whereas, the United States Marine Corps is the administrator of Camp Lejeune in Onslow County, North Carolina, which totals in size approximately 111,208 acres -- 85,208 acres in land and 26,000 acres in water.

Whereas, the Commanding General, Marine Corps Base, Camp Lejeune, has responsibility for the administration and management of the land composing the base. Marine Corps regulations provide for the designation of special-interest management areas, which may be managed for the protection of significant natural resources.

Whereas, the Secretary of the North Carolina Department of Natural Resources and Community Development (DNRCD) has administrative responsibility for the North Carolina Natural Heritage Program pursuant to North Carolina General Statute 113A-164 (the Natural Areas Registration and Dedication Act) and Department Administrative Code. The Natural Heritage Program is responsible for identifying, evaluating, and protecting unique and representative examples of North Carolina's natural areas. The Natural Heritage Program serves as the State's central data bank for information relating to special elements of natural diversity. The Natural Heritage Program manages for the Department of North Carolina Registry of Natural Heritage Areas. The Secretary, with permission of landowners, may register and designate areas in North Carolina having rare or representative examples of plant communities, geologic landforms, aquatic systems, soil types, habitats for endangered or threatened plants and animals, other plants and animals of special concern, and special interest wildlife habitats.

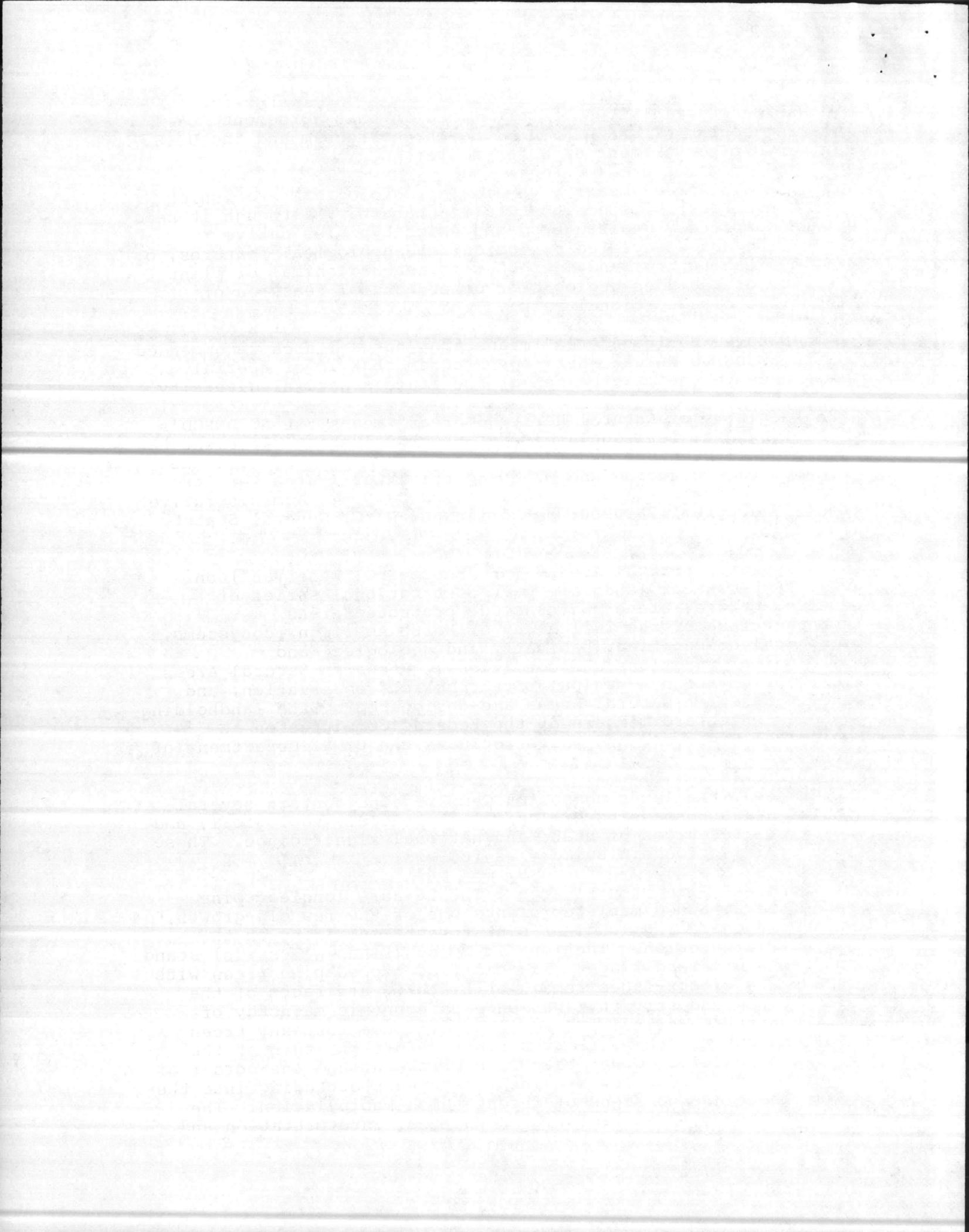


Whereas, definitions of terms used in this agreement relating to the NC DNRCD Natural Heritage Program and the U. S. Marine Corps Department of Defense are:

- (1) "Natural Area" means a physical or biological area which either has reestablished its natural character, although it need not be completely undisturbed, and which typifies native vegetation and associated biological and geological features, or provides habitat for endangered or threatened animal or plant species, or includes geologic or other natural features of scientific or educational value.
- (2) "Natural Heritage Area" means that natural area recommended by the NC DNRCD Natural Heritage Program that is of special importance to the maintenance of the state's natural diversity.
- (3) "Registry of Natural Heritage Areas" means the NC DNRCD's list of natural heritage areas for which voluntary agreement has been made between the owner of the area and the DNRCD for the purposes of protecting and managing the natural area for its specified natural values. (Established by N. C. Administrative Code 15, Chapter 12H.0200; authorized by N. C. General Statute 113A-164).
- (4) "Research Natural Areas" (or "Ecological Reserves") on Federal government lands are part of a national series of reserved natural areas that include protected areas representative of the full array of North American ecosystems, biological communities, habitats, and geological and hydrological functions and conditions. Research Natural Areas are reserved for non-manipulative research, observation, and study. Research Natural Areas are designated by the landholding agencies which are members of the Federal Committee on Ecological Reserves, and which includes the U. S. Department of Defense.

Whereas, the lands composing Camp Lejeune contain several natural areas possessing biological, botanical, zoological, and ecological resources of state and national significance. These areas are described in summary as follows:

- (A) Longleaf Pine Natural Area - The 26-acre longleaf pine stand (see attached map) represents one of the few old-growth, natural regenerating longleaf pine forests remaining on the Coastal Plain region. The longleaf pine (Pinus palustris) stand occupies a dry sand ridge. The old flat-topped pine trees with trunk scars or box-faces remain as historic artifacts of the naval stores industry that was once an economic mainstay of eastern North Carolina. There is no evidence that any trees have been cut or stumps removed since before the turn of the twentieth century. Other than fire breaks around the border of the pine stand and a few shallow fire breaks extending into the stand, there are no signs of recent human manipulation. The preserve serves as an historic and natural interpretation and

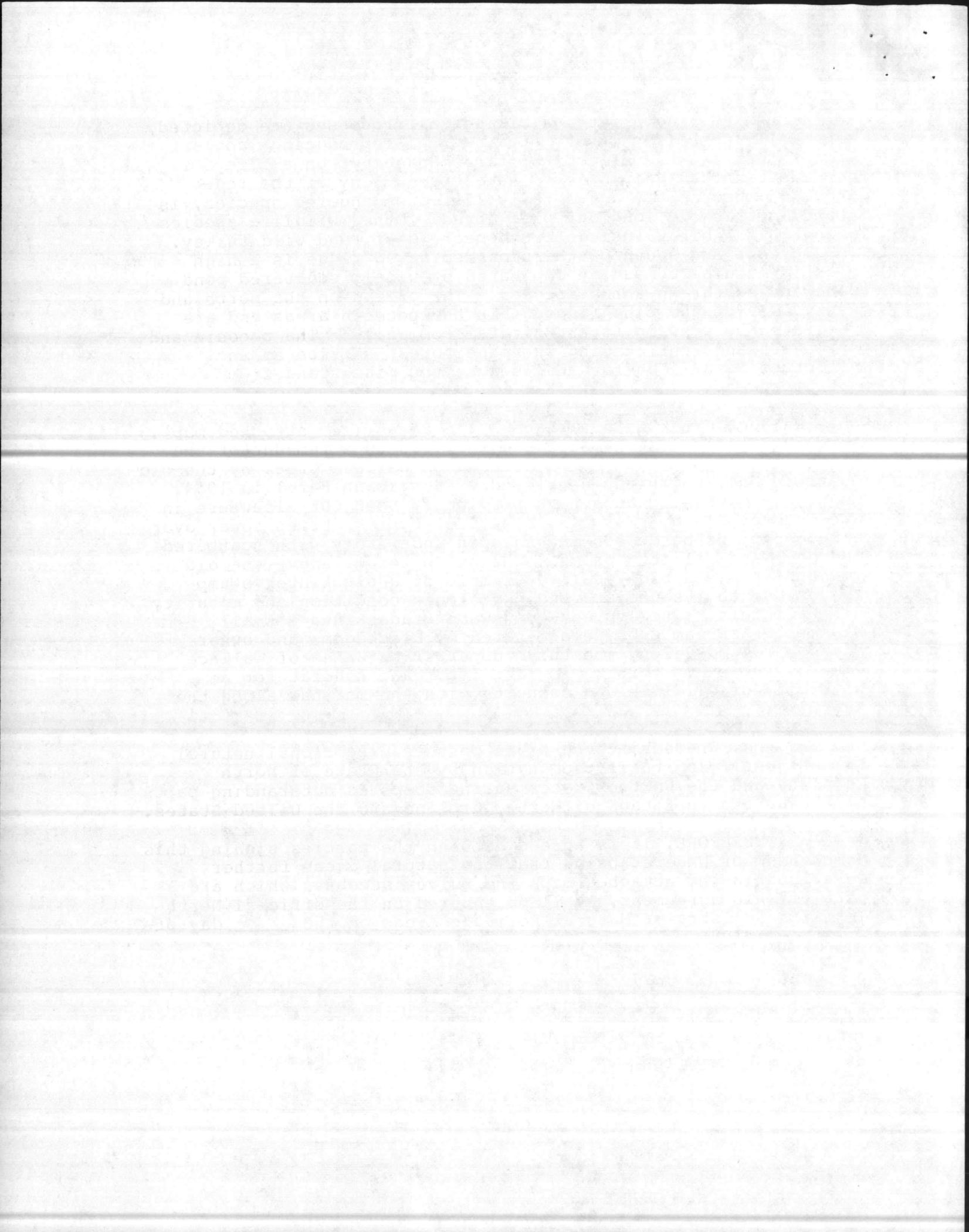


research area. A variety of biological processes are depicted, especially the life history of a natural reproducing longleaf pine forest and the effects of fire management on a fire-dependent natural community. An active colony of the red-cockaded woodpecker, a federally-listed endangered species, is found in this old longleaf pine stand. Other wildlife species using this habitat include black bear, deer, and wild turkey. To the east and south of the pine-dominated ridge is a high pocosin natural community dominated by widely scattered pond pine and evergreen shrub species. The creeks on the north and west sides of the pine ridge drain the pocosin areas and are vegetated by a swamp forest natural community. The pocosin and swamp wetlands surrounding the pine forest service as an effective natural buffer and isolate the pine stand from disturbances.

(B) Wallace Creek Natural Area - 115 acres (see attached map). An old-growth bald cypress stand survives as a remnant of the historic millpond that was impounded on Wallace Creek by the old Montford Dam, which was destroyed by Hurricane Hazel in 1954. Most such cypress stands have previously been cut elsewhere in the Coastal Plain. Massive, beautiful cypress trees tower over a subcanopy of hardwoods and an open understory with scattered red bays and palmetto palms. The swamp forest above the old impoundment is a high quality example of a blackwater swamp system due to its undisturbed hydrologic condition and maturity of the forest. The cypress-gum swamp grades into a small blackwater stream subtype dominated by black gums and other mixed hardwoods along the three upper tributaries of Wallace Creek. The swamp forest provides important habitat for a diversity of wildlife and connects with the marshes along the New River.

And, Whereas, these areas possess exceptional natural values justifying their recognition by the State of North Carolina and the United States Marine Corps as outstanding parts of the natural heritage of North Carolina and the United States.

THEREFORE, it is agreed between the parties signing this Memorandum of Understanding that the natural areas further described in the attached maps and survey accounts which are a part of this agreement, shall be entered on the official North Carolina Registry of Natural Heritage Areas on the _____ day of _____, 1985.



AGREEMENT

Accordingly, the parties signing below agree as follows:

1. It is understood that this agreement involves no change of title or loss of ownership rights, but simply expresses the intentions of the Marine Corps to refrain from making or permitting changes that substantially and negatively affect the exceptional natural resources for which the designated natural areas are registered.
2. It is understood that this agreement will not interfere with non-vehicular military training and operations in the designated areas and does not preclude future expansion of military activities, but the agreement recognizes that present uses and management of the designated areas are beneficial to the natural resources for which the natural areas are registered.
3. It is understood that ground fires, including those set incidentally, are generally beneficial to the perpetuation of the longleaf pine and pocosin community types present in the Longleaf Pine Natural Area. This agreement does not require fire suppression in that area, and does not change current fire management policies for prescribed burns to maintain the open character of the pine stand. The current three-year prescribed burning cycle reduces the accumulation of fuel material and minimizes potential damage from unscheduled fires. Wildfires that may originate in the pocosins are not likely to damage the longleaf pine forest. Fire breaks between the surrounding wetlands and the pine stand and other existing plow lines need not be maintained. Consideration may be given to hand raking flammable materials around the resin-rich standing stumps, living trees with box-face scars, and red-cockaded woodpecker cavity trees to prevent them from inadvertantly burning.
4. No active resource management is necessary for the self-perpetuating swamp forest system in the Wallace Creek Natural Area. However, the health of the wetland system is dependent upon the protection of the watershed. Ditching, channelization, construction of new roads in the natural area would have detrimental effect on the hydrology and water quality and, thus, would be inappropriate.
5. It is understood that this agreement neither restricts nor promotes hunting of game wildlife, but acknowledges that the Marine Corps has the right and discretion to permit or prohibit hunting on the designated natural lands.
6. The Marine Corps will consult with the Department of Natural Resources and Community Development's Natural Heritage Program in the event that timber management policies for the designated natural areas may be revised.

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7. It is understood that this agreement does not promote or provide for public access. The Marine Corps may control public access to the designated areas as it sees necessary. The Marine Corps reserves the right to grant or deny permission to gain access to the designated areas. Neither the Marine Corps nor the DNRCD offer any assurance as to the safety conditions on the land or for the safety of persons thereon. Registration of the natural areas does not effect the landowner's liability for injury to visitors or their property.

8. This agreement does not preclude the designation of additional special-interest natural areas on the base by mutual agreement in the future, particularly as a result of findings of ecological significance during the course of the national wetlands inventory project, now in progress.

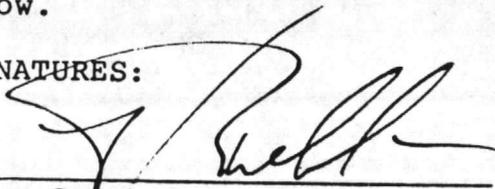
9. This agreement promotes the use of the designated natural areas for purposes of protection and perpetuation of the ecological systems that distinguish the areas.

10. The N. C. Department of Natural Resources and Community Development encourages the U. S. Marine Corps to consider designation of the registered areas to the system of Federal Research Natural Areas (Ecological Reserves) pursuant to Department of Defense procedures.

11. Either agency entering this agreement may terminate this Memorandum of Understanding by providing 30 days written notice to the other party. Unless so terminated, this agreement will remain in force indefinitely.

These Camp Lejeune Natural Areas are hereby registered as protected North Carolina Natural Heritage Areas. This Memorandum of Understanding is executed as of the last date below.

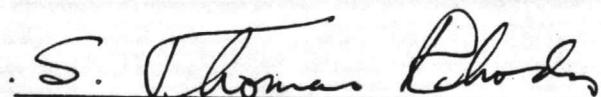
SIGNATURES:



Major General L. H. Buehl III
Commanding General
Marine Corps Base
Camp Lejeune, North Carolina
28542-5000

Date

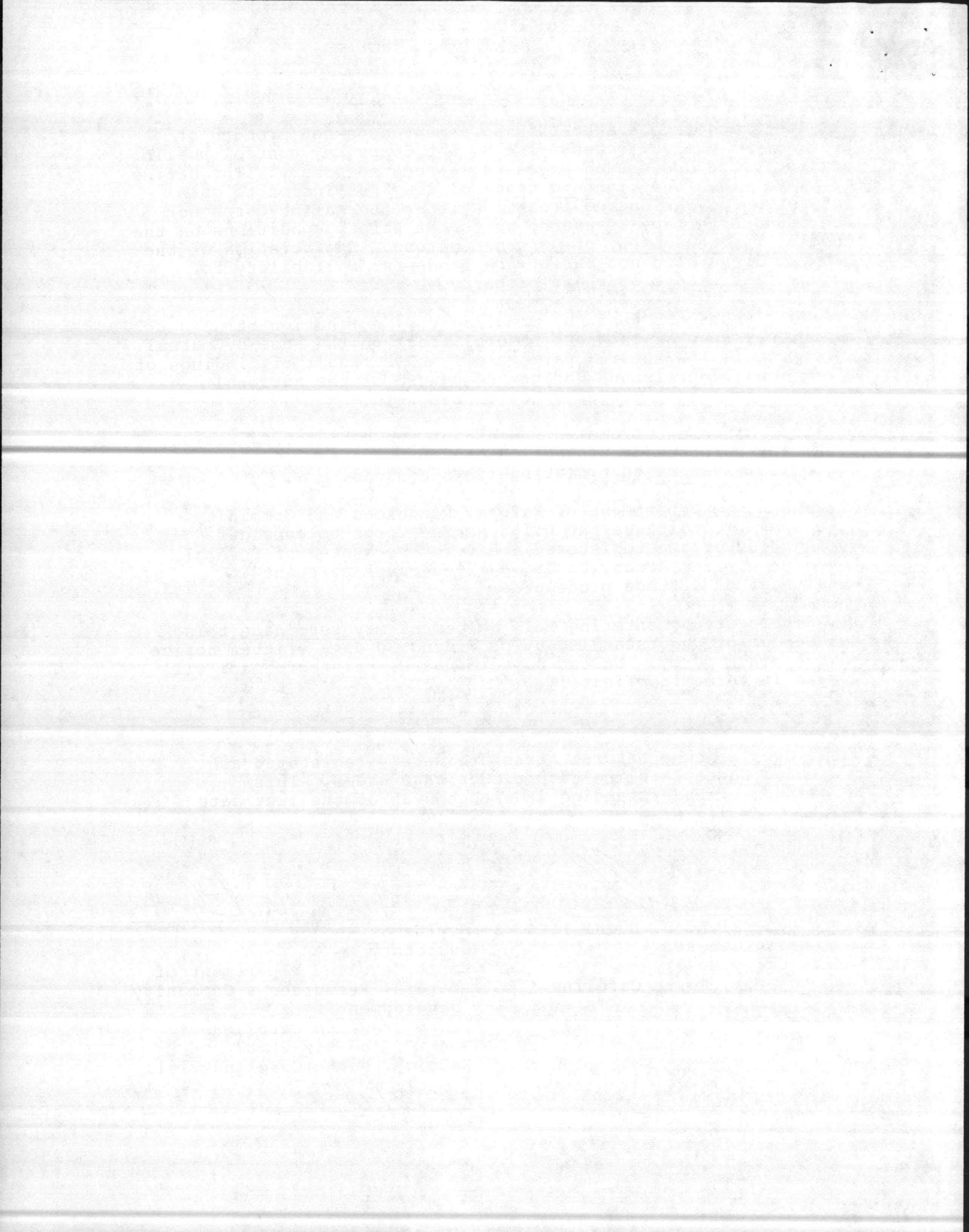
6-14-85



S. Thomas Rhodes
Secretary
North Carolina Department of
Natural Resources & Community
Development
State of North Carolina
Post Office Box 27687
Raleigh, North Carolina 27611

Date

7/18/85

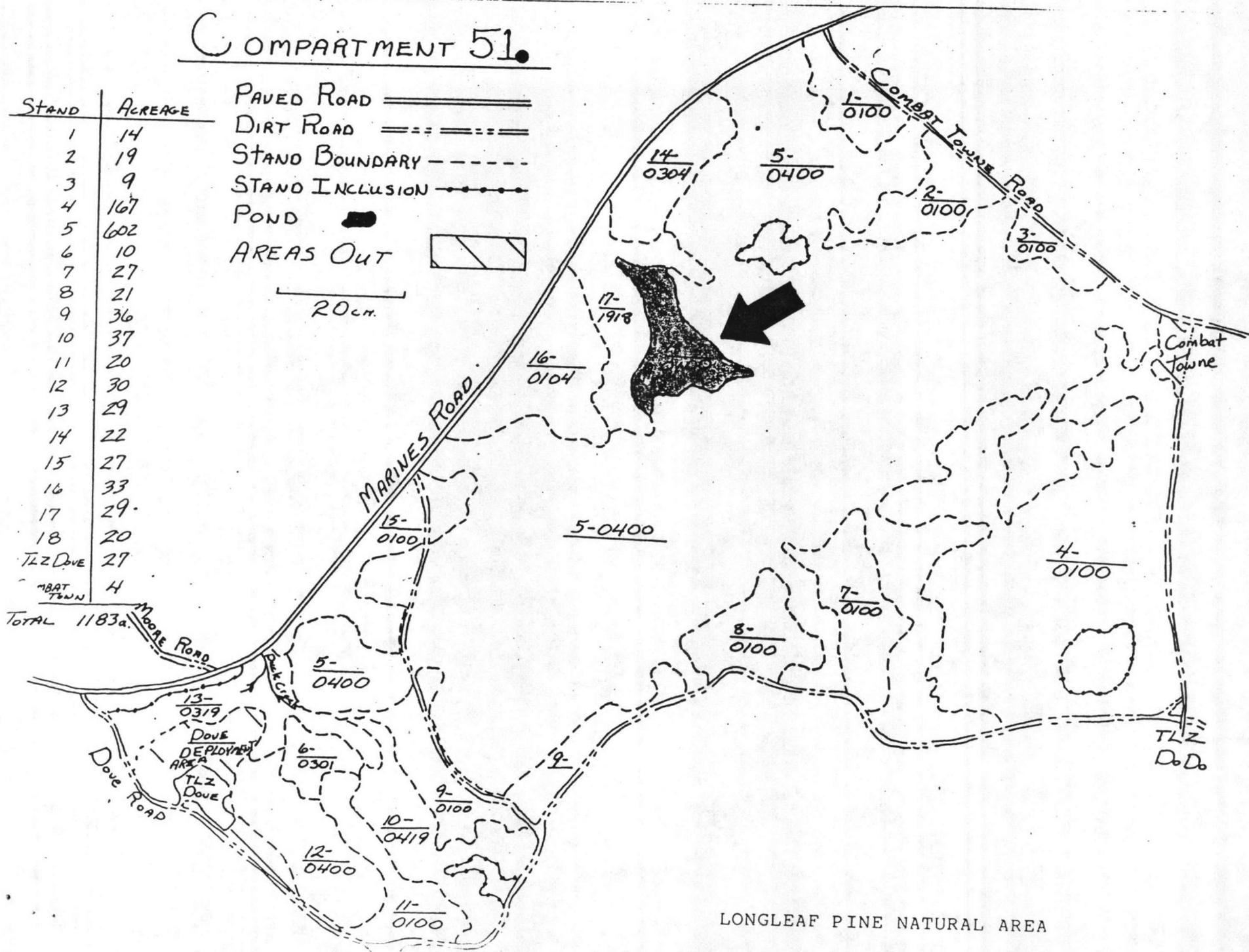


COMPARTMENT 51.

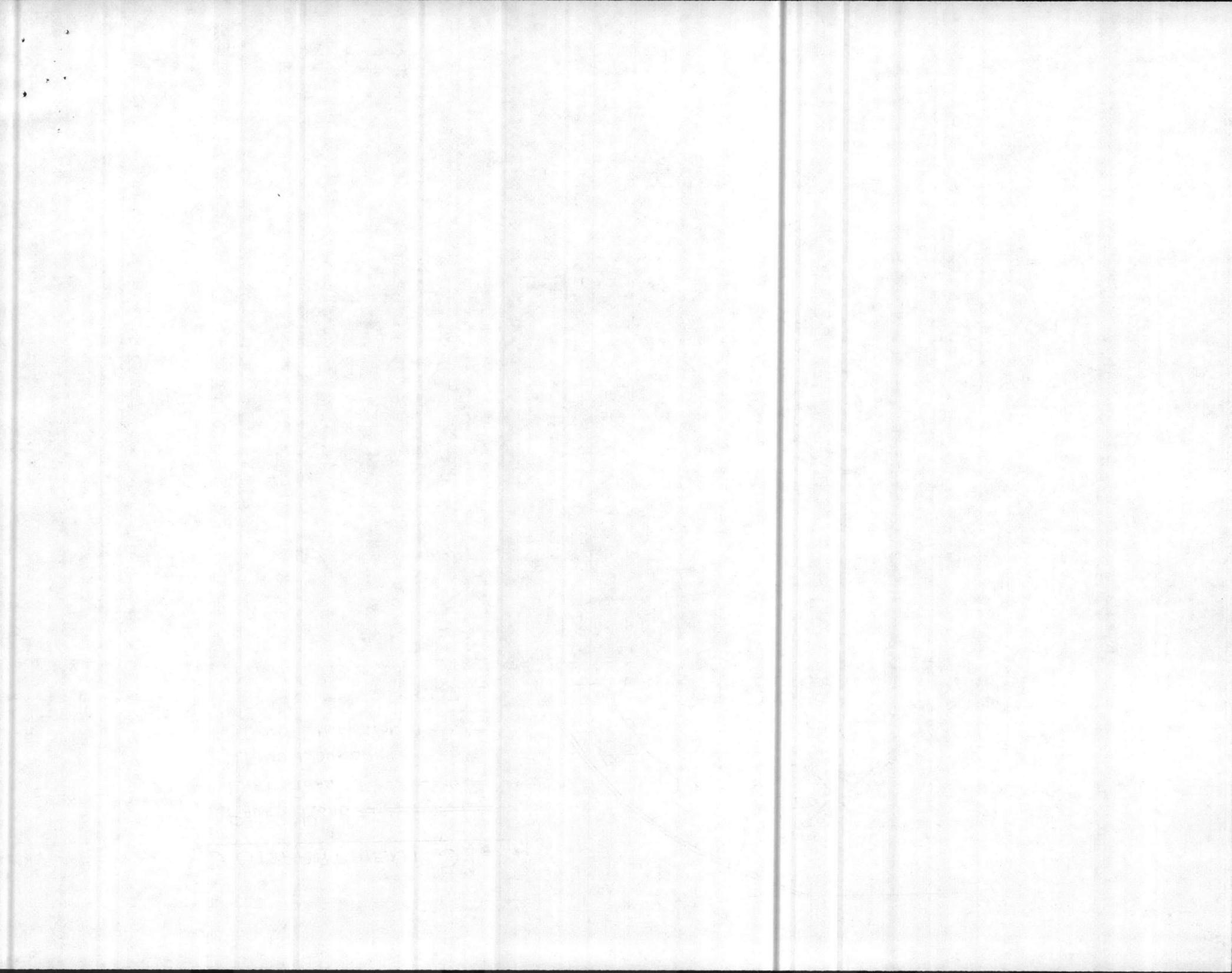
STAND	ACREAGE
1	14
2	19
3	9
4	167
5	602
6	10
7	27
8	21
9	36
10	37
11	20
12	30
13	29
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17	29
18	20
TLZ Dove	27
COMBAT TOWNE	4
TOTAL	1183a

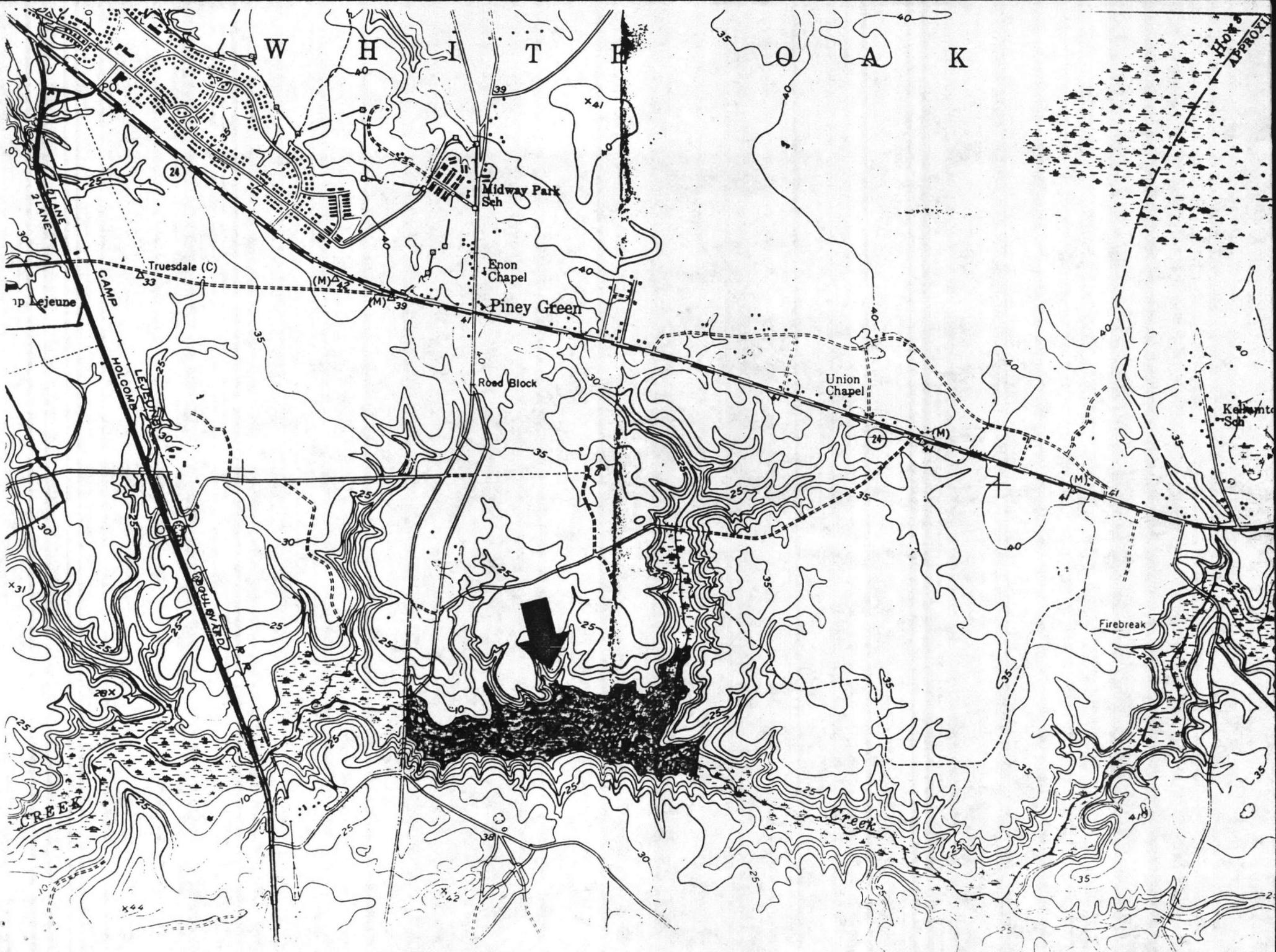
PAVED ROAD 
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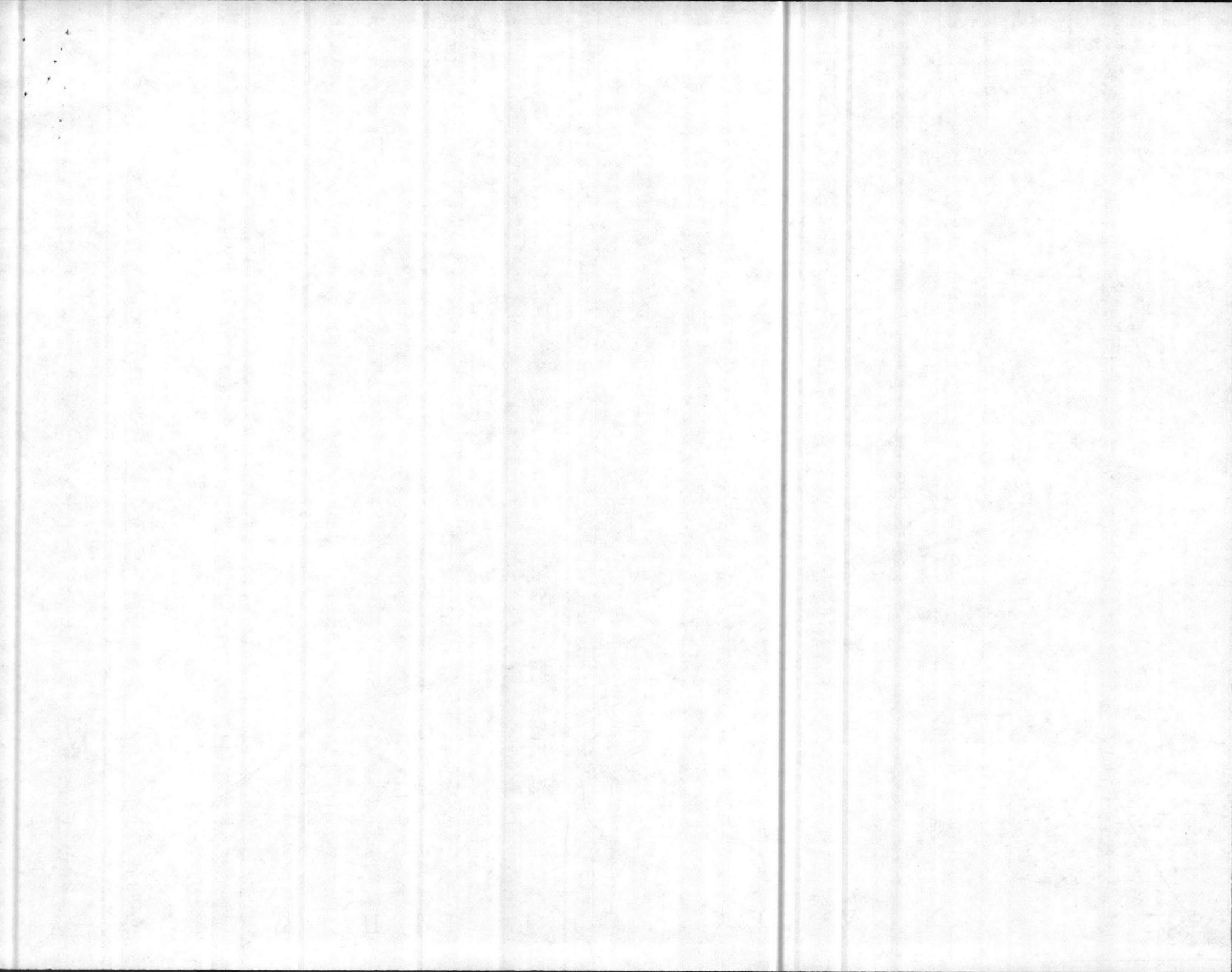

20m.



LONGLEAF PINE NATURAL AREA









North Carolina
Department of Natural Resources and Community Development

Release: IMMEDIATE

Date: Feb. 27, 1986

Contact: Jean Marie Whalen (919) 733-4181

STATE-U.S.M.C. TO PROTECT NATURAL AREAS

RALEIGH -- The North Carolina Department of Natural Resources and Community Development and the U.S. Marine Corps have agreed to register two sites on the Camp Lejeune Marine Corps Base near Jacksonville to the North Carolina Registry of Natural Heritage Areas.

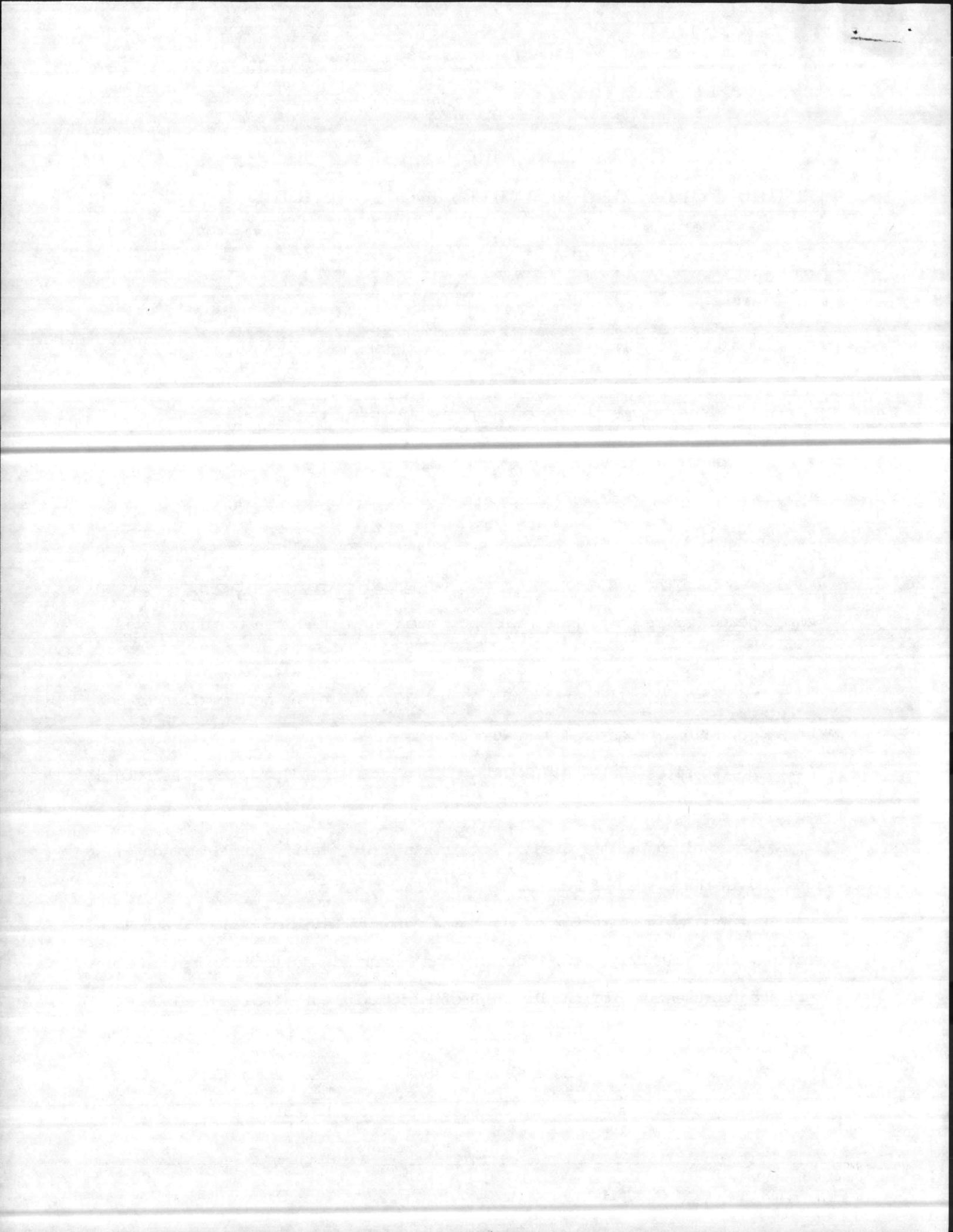
The ceremony will be held Feb. 27, at 10 a.m. in the headquarters of Base Commander, Brigadier General J.B. Knotts.

The two sites that the U.S. Marine Corps has agreed to protect as natural areas are a 26-acre ridge of old growth long leaf pine forest and a 115-acre swamp forest along Wallace Creek. Both areas could qualify for future designation in the system of Federal Research Natural Areas.

Dr. Wes Davis, Director of the North Carolina Division of Parks and Recreation, will join Brig. Gen. Knotts in the ceremony. Julie H. Moore, a Natural Heritage representative for the Division of Parks and Recreation will also be attending.

Camp Lejeune has won several annual awards for the best natural resources management programs among all United States military bases.

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WALLACE CREEK SWAMP¹

Location: Onslow County, North Carolina; Camp Lejeune 7.5 min. USGS topographic quad map; located in flood plain of Wallace Creek east of Piney Green Road, extending east to Smith Road and North Carolina 24 (see maps 1, 2 and compartment maps). Located in the Coastal Plain Geomorphic Province, Black River Section, Inner Coastal Plain Region. Elevation: CA. 20-33 ft. msl. Coordinates: 34° 41' 45"N 77° 18' 45".

Ownership and Administration: Camp Lejeune, U.S Marine Corps, Department of Defense.

Approximate Size: 350 acres total, of which 115 acres are designated as protected natural area.

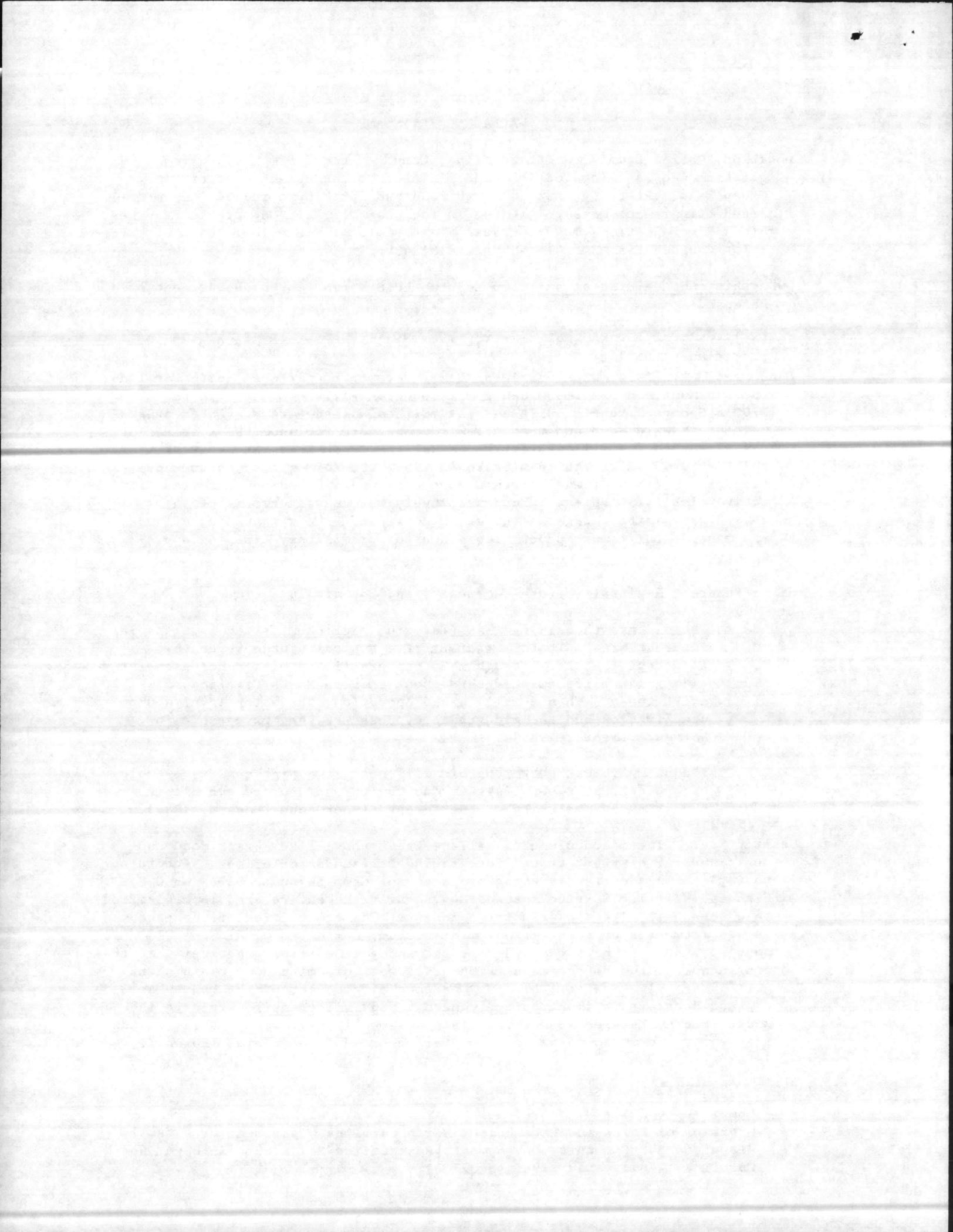
Land Use: Until 1954, when Hurricane Hazel devastated parts of North Carolina, the old Montford Dam impounded a mill pond on Wallace Creek. In the late 1700's George Mitchell built a grist mill on Wallace Creek. Later owners were Dr. Edward Ward and then Dr. W. J. Montford for whom the most recent dam was named. A mill was active on Wallace Creek into the early part of this century. Since the dam broke in 1954, the former lake bottom and floodplains of the feeder streams have been undisturbed and deferred from active timber management. The excessively wet characteristic of the substrate has limited usage of the creek corridor. The surrounding uplands are managed for timber production and used for military training operations.

Significance: Regional (Natural Community and Botanical)

1. The old growth bald cypress (*Taxodium distichum*) stand is a special interest area. It is a remnant of a typical nineteenth century landscape feature. Though many cypress filled mill ponds associated with grist mills existed throughout eastern North Carolina, few exist today. When a mill ceased operation, the water level would usually drop and the old growth cypress was then excessable for harvest (Moore, 1985).
2. The swamp forest above the old mill pond is a high quality example of a black water swamp system due to its undisturbed hydrologic condition and maturity of the forest (Moore and Leonard, 1985).

Description: The flood plain of Wallace Creek above Piney Green Road supports several distinct though integrating wetland associations. According to wetland maps currently being prepared for Camp Lejeune following U.S. Fish and Wildlife Service methodology, nearly the entire area is classified as a seasonally flooded palustrine forest. The composition of the canopy varies from bald cypress (*Taxodium distichum*) dominated within the old mill pond portion to a hardwood and cypress canopy immediately upstream. At the confluence of two of the main tributaries west of Smith Road swamp black gum (*Nyssa sylvatica* var. *biflora*) becomes a component of the canopy as cypress decrease in importance (Leonard, 1985). The entire drainage is underlain by Mucklee loam which has a seasonally high water table, floods frequently and may pond water in winter on broad flood plains (Barnhill, 1984).

¹ Compiles by Julie H. Moore, North Carolina Natural Heritage Program, Division of Parks and Recreation, North Carolina Department of Natural Resources and Community Development, Post Office Box 27687, Raleigh, North Carolina 27611. May, 1985 (3407763).

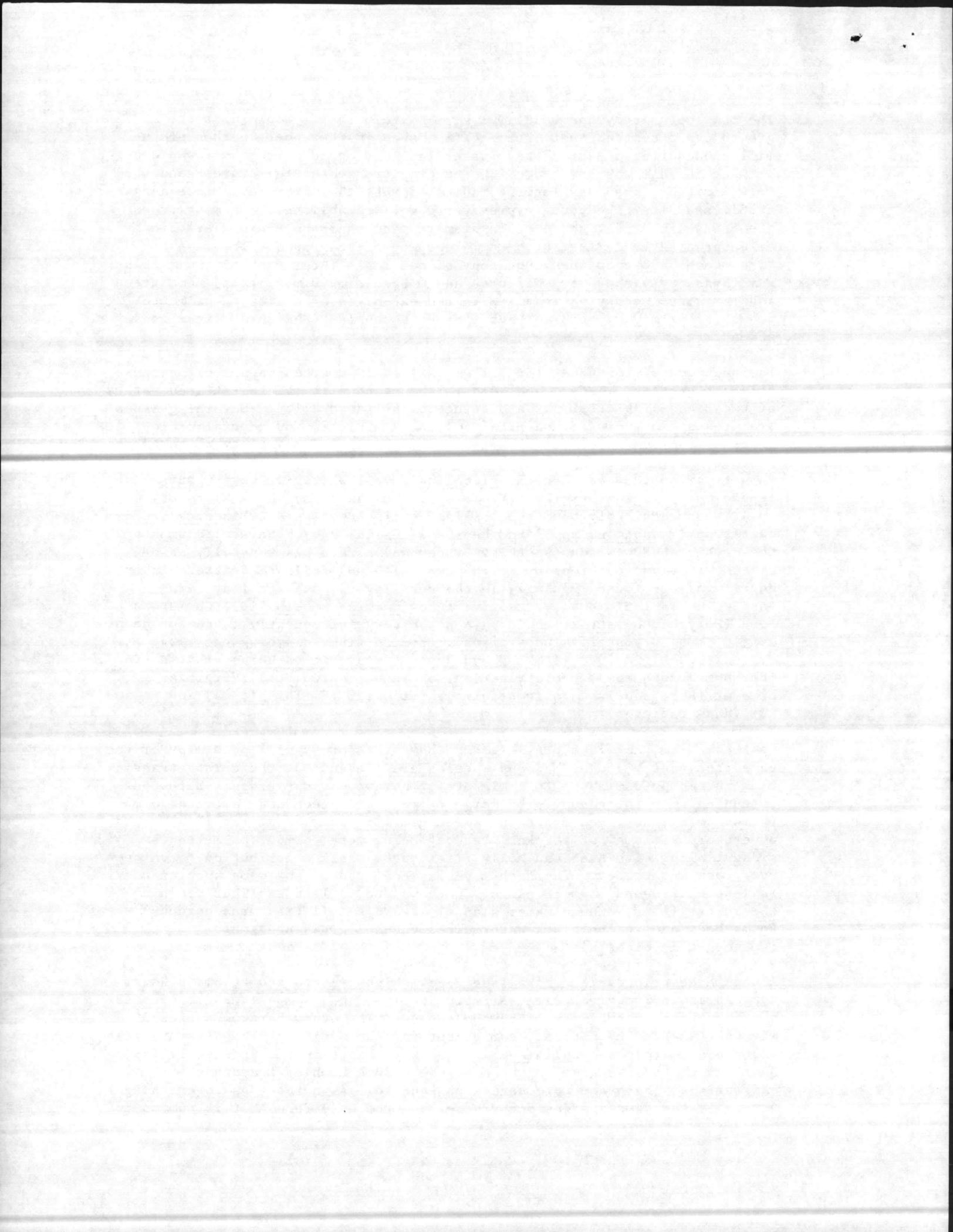


The most noteworthy and beautiful site within the floodplain is the old growth cypress stand that became established in the upper reaches of the mill pond during a period where water levels dropped either during a drought or when the dam was breached. The huge buttresses on the cypress and the very limited "knee" development indicated that the water level rose and was stabilized after the young cypress were well established. On many trees the bases are 5 feet and over in diameter and taper to a trunk or bole diameter of 2 to 2½ feet at 6 to 7 feet above the ground. The majestic trees tower above an open subcanopy of red maple (Acer rubrum), swamp black gum (Nyssa sylvatica var. biflora) and winged elm (Ulmus alata), and green ash (Fraxinus pennsylvanica). With the exception of scattered palmetto plams (Sabal minor) and red bays (Persea borbonia), the shrub layer is absent.

The openness of the understory is emphasized by a green carpet of moisture tolerant grasses, sedges and herbs. The stand with the tea-stained waters of the meandering creek has a distinct park-like quality. Several grasses are present including manna grass (Glyceria striata) and several panic grasses (Panicum spp.) and blue grasses (Poa spp.). A variety of herbs are present though none appear to be dominant. Typical species are golden ragwort or butterweed (Senecio glabellus), yellow star-grass (Hypoxis leptocarpa), various violets (Viola spp.), marsh penny wort (Hydrocotyle sp.), knotweeds (Polygonum spp.) false nettle (Boehmeria cylindrica), buttercup (Ranunculus spp.) and bedstraw (Galium sp.). Several clumps of the orchid shadow-witch (Ponthieva racemosa), a rare plant usually associated with marl outcrops or high base (high pH) soil, are scattered about. Four ferns are found regularly in the herb layer, southern lady fern (Asplenium asplenioides), sensitive fern (Onoclea sensibilis), Christmas fern (Polystichum acrostichoides) and the very infrequently found southern shield fern (Dryopteris ludoviciana). Common vines climbing the large cypress trucks include climbing hydrangea (Decumaria barbara), rattan vine (Berchemia scandens), cross vine (Anisostichus capreolata), Virginia creeper (Parthenocissus quinquefolia), cat briar (Smilax glauca) and poison ivy (Rhus radicans).

Upstream from the old cypress stand, above the former mill pond many of the same tree, shrub and herbaceous species are present but there is a transition in canopy dominance to a mixture of hardwood and cypress. Hardwoods extending into the canopy with large cypress are green ash, American elm (Ulmus americana), red maple and sweet gum (Liquidambar styraciflua). The understory is somewhat thicker, red bay being more common, palmetto is present along with American holly (Ilex opaca), all contributing to an open evergreen understory. The herb layer is composed of the same species but is less continuous or more patchy, perhaps due to less sunlight reaching the forest floor. Where water stands, lizard's tail (Saururus cernuus) forms beds and in the black water creek channel grows pond weed (Potamogeton pulchra).

Along three tributaries of Wallace Creek which are crossed by Smith Road, cypress is no longer a characteristic species, and swamp black gum becomes a common tree in the mixed hardwood canopy. The other hardwoods present are the same as those downstream except for the addition of understory tree iron wood (Carpinus caroliniana). The only change in the understory is the addition of the evergreen shrub leucothoe or dog-hobble (Leucothoe axillaris). There are more bare areas due to less herbaceous cover though generally the same species occur here, and the only fern that is common is



netted chair-fern (*Woodwardia areolata*). In some areas the creek is divided into multiple channels rather than one major channel.

According to the natural community system of Schafale and Weakley (1985), the Wallace Creek forest discussed would be classified as a cypress-gum swamp which grades upstream along the tributaries into a small stream swamp - black water subtype.

In addition to its botanical values, this high quality, free flowing swamp system is a significant resource for the diversity of wildlife present at Camp Lejeune and provides a corridor linking wetlands along the creek to the marshes at the confluence with the New River.

Threats to integrity: The most obvious threat to the swamp would be from intensive forest management. Though the swamp has been selective timbered in the past, more intensive harvesting techniques would have a negative impact. Construction of a new dam and clearing of the flood plain for a lake, as was proposed at one time, would also eliminate the significant natural resources. A more subtle threat would be channelization of the streams flowing into the swamp which would alter the hydrology and probably introduce a heavier sediment load.

Protection Status: Special training area.

Protection and Management Recommendations: Though no active management is necessary for the self perpetuating swamp forest, protection of the watershed is essential to the health of the wetland system. Ditching and snagging as well as channelization projects would degrade the existing system. Construction of roads as well as the digging of ditches into and within the swamp would also have a negative impact. However usages which cause no alteration of hydrology or the introduction of exotic species would have minimum negative impact and be compatible with protection of the swamp resources.

Data Sources:

Leonard, Steven 1985; Botanist, North Carolina Wetlands Inventory, Department of Natural Resources and Community Development, Raleigh.

Moore, Julie 1985; Botanist and Protection Planner, North Carolina Natural Heritage Program, Raleigh.

Peterson, Charles 1985; Fish and Wildlife Manager, Camp Lejeune, North Carolina.

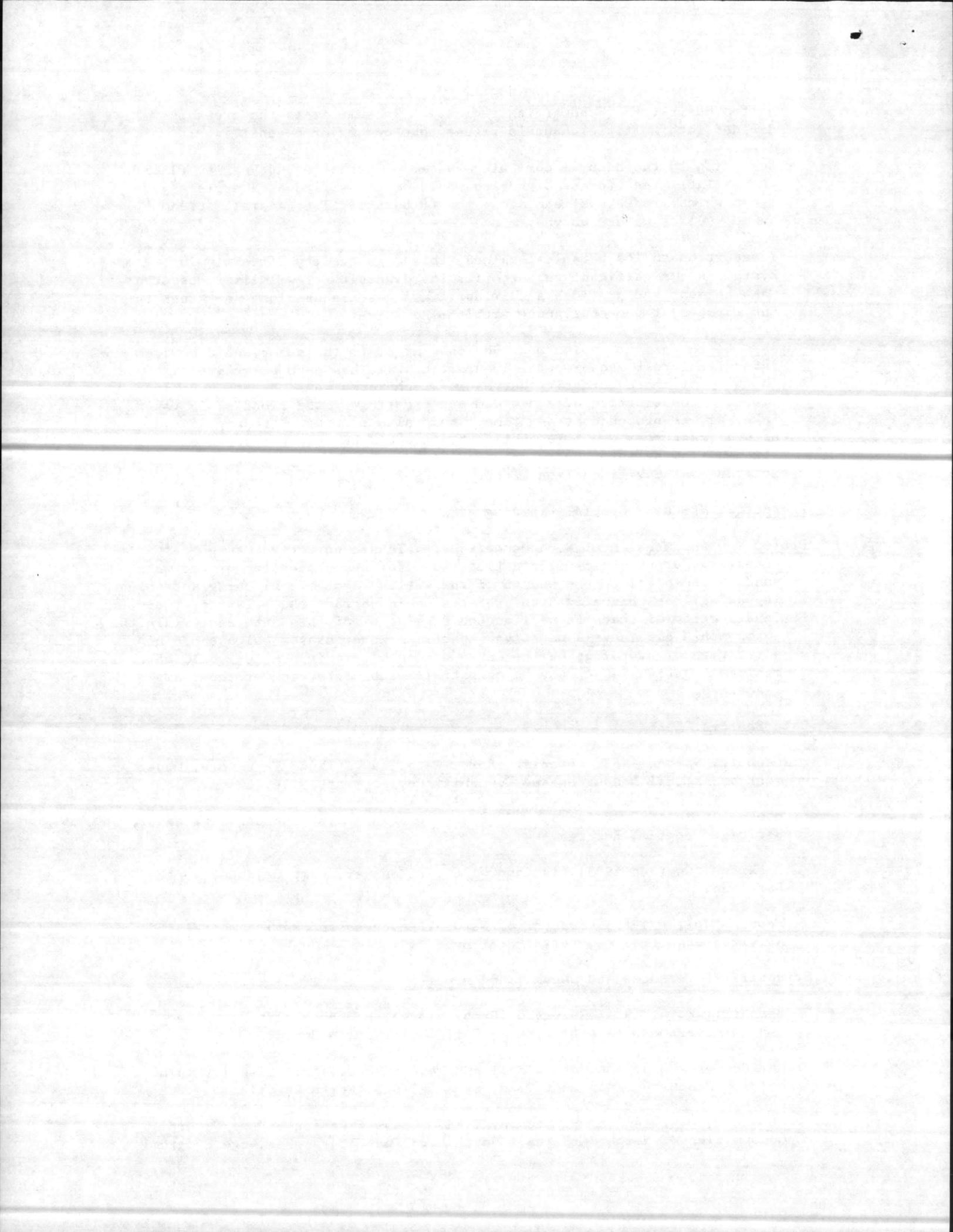
Wooten, Julian 1985; Director of Natural Resource and Environmental Affairs, Camp Lejeune, North Carolina.

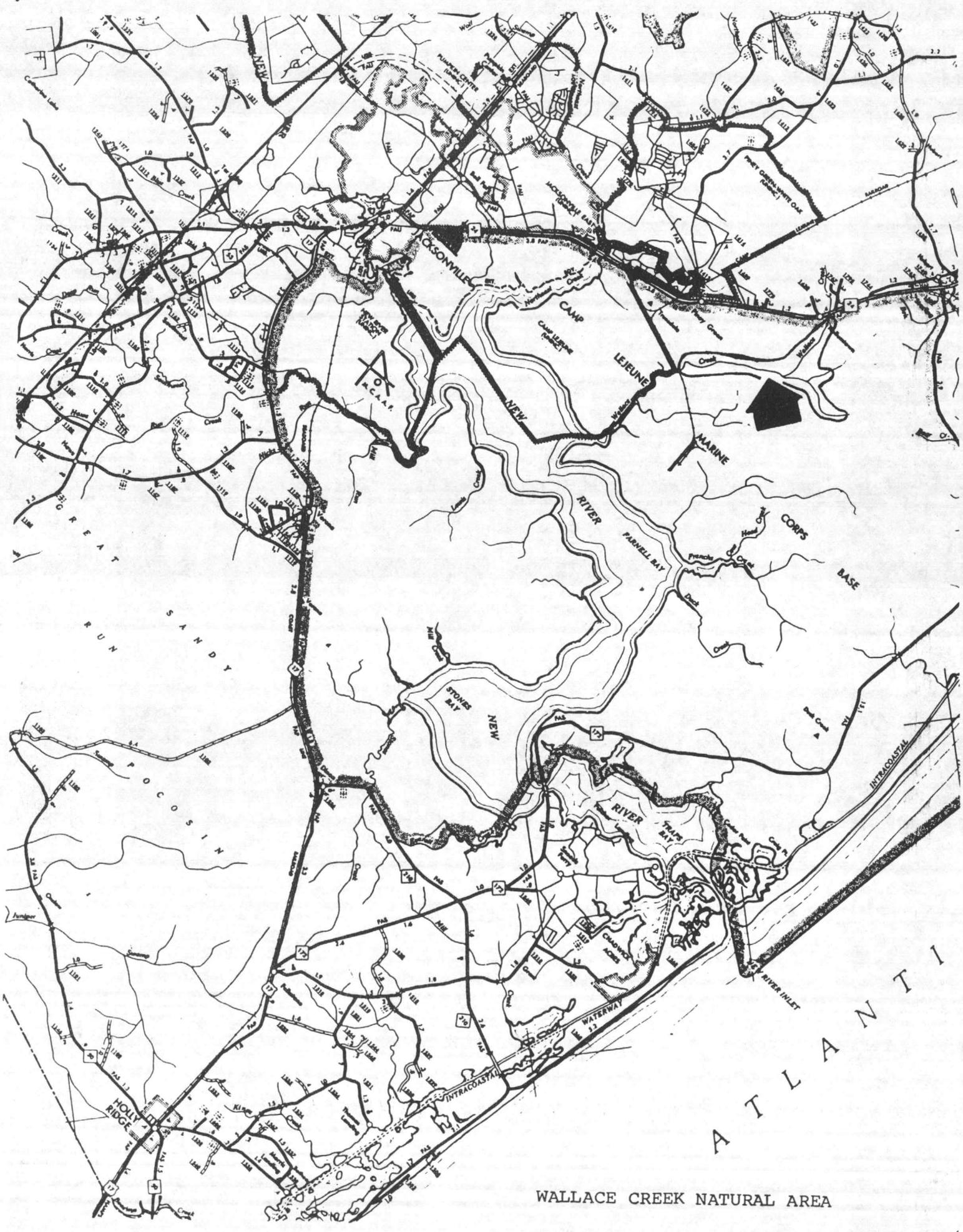
Scientific References and Unpublished Reports:

Barnhill, W. L. 1984; Survey of Camp Lejeune, North Carolina. United States Department of Agriculture, Soil Conservation Service.

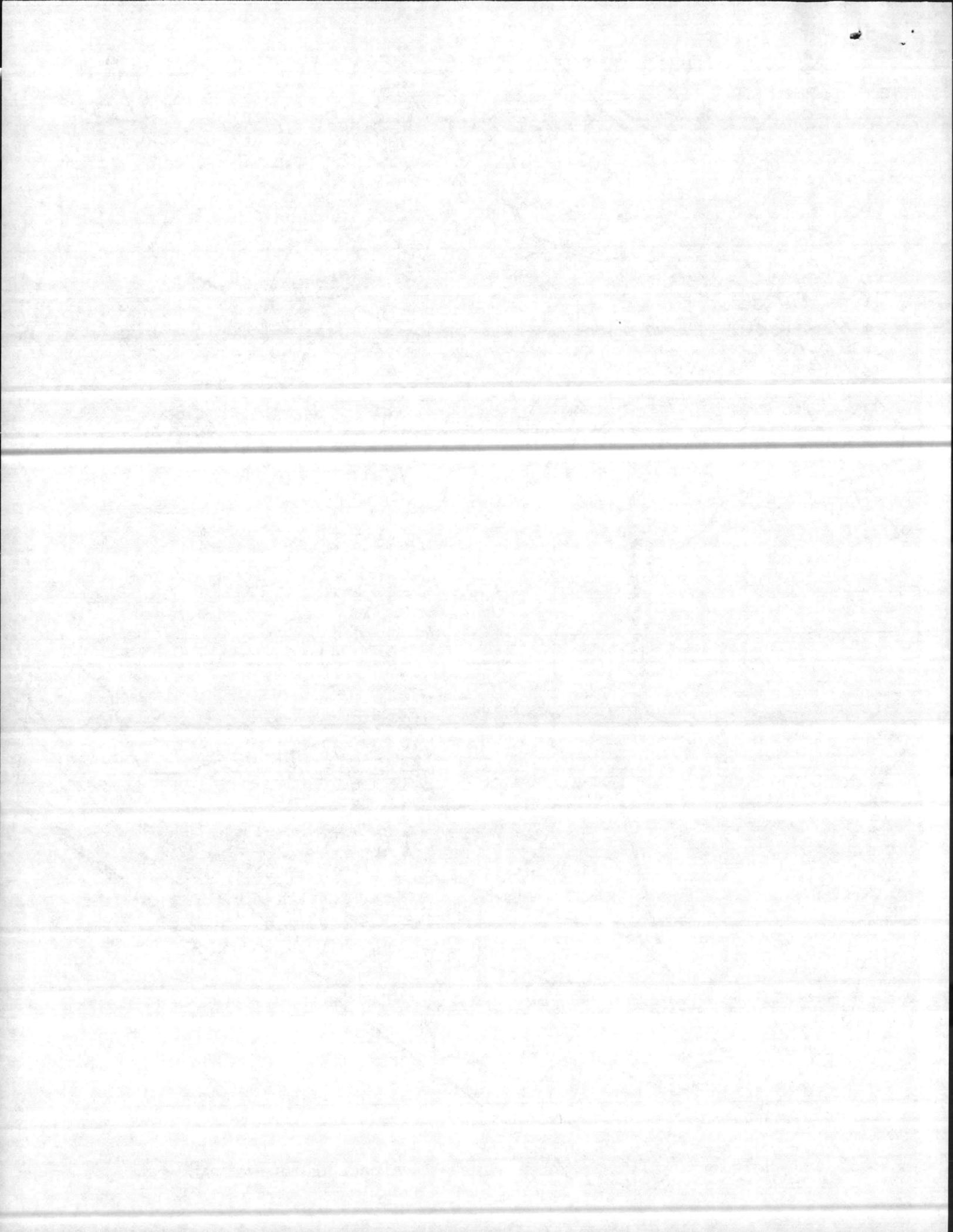
Marine Corps Base and Onslow Soil and Water Conservation District 1975. Natural Resource Management Plan, Camp Lejeune, North Carolina.

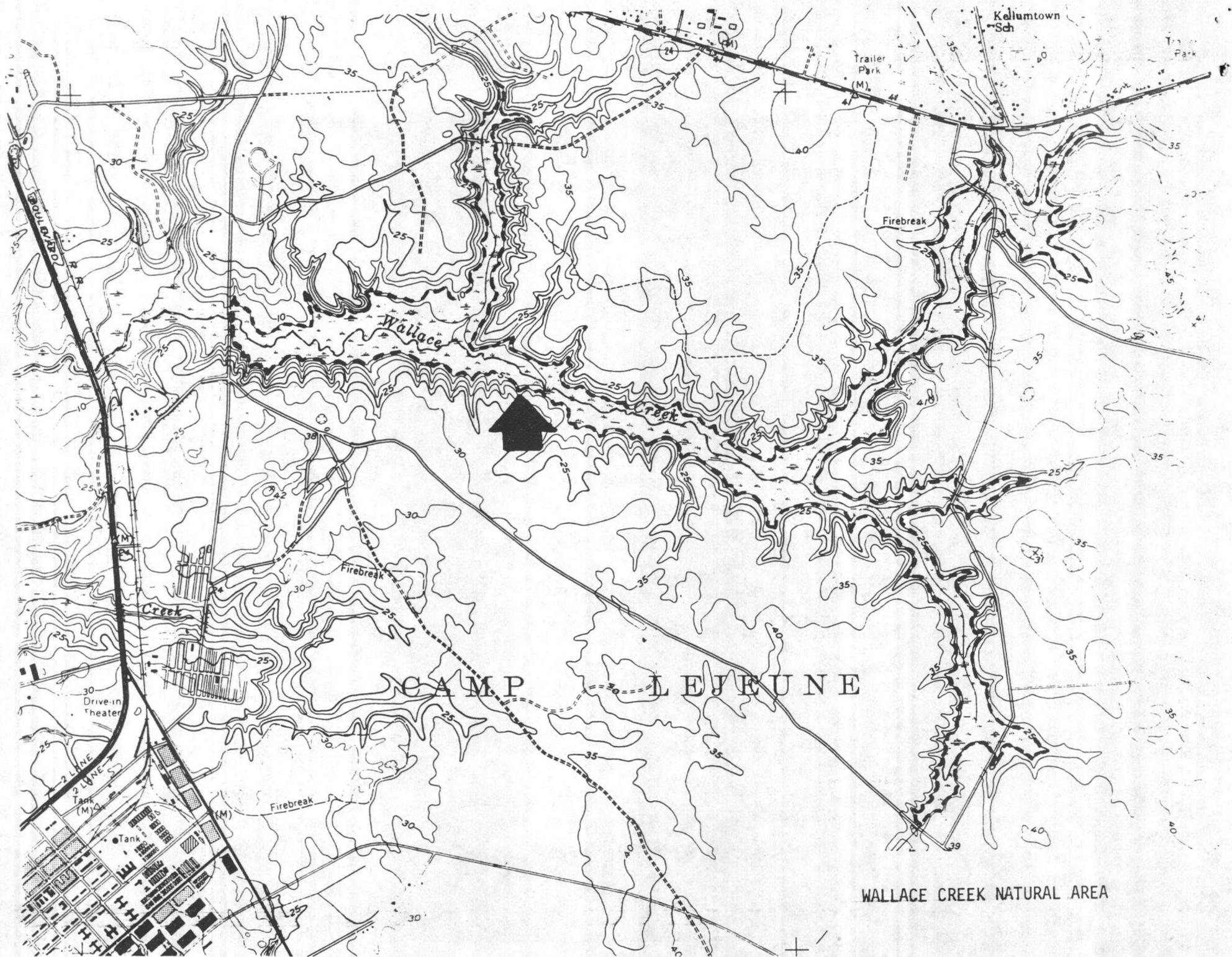
Schafale, M. P. and A. S. Weakley 1985. Classification of the Natural Communities of North Carolina. North Carolina Natural Heritage Program.

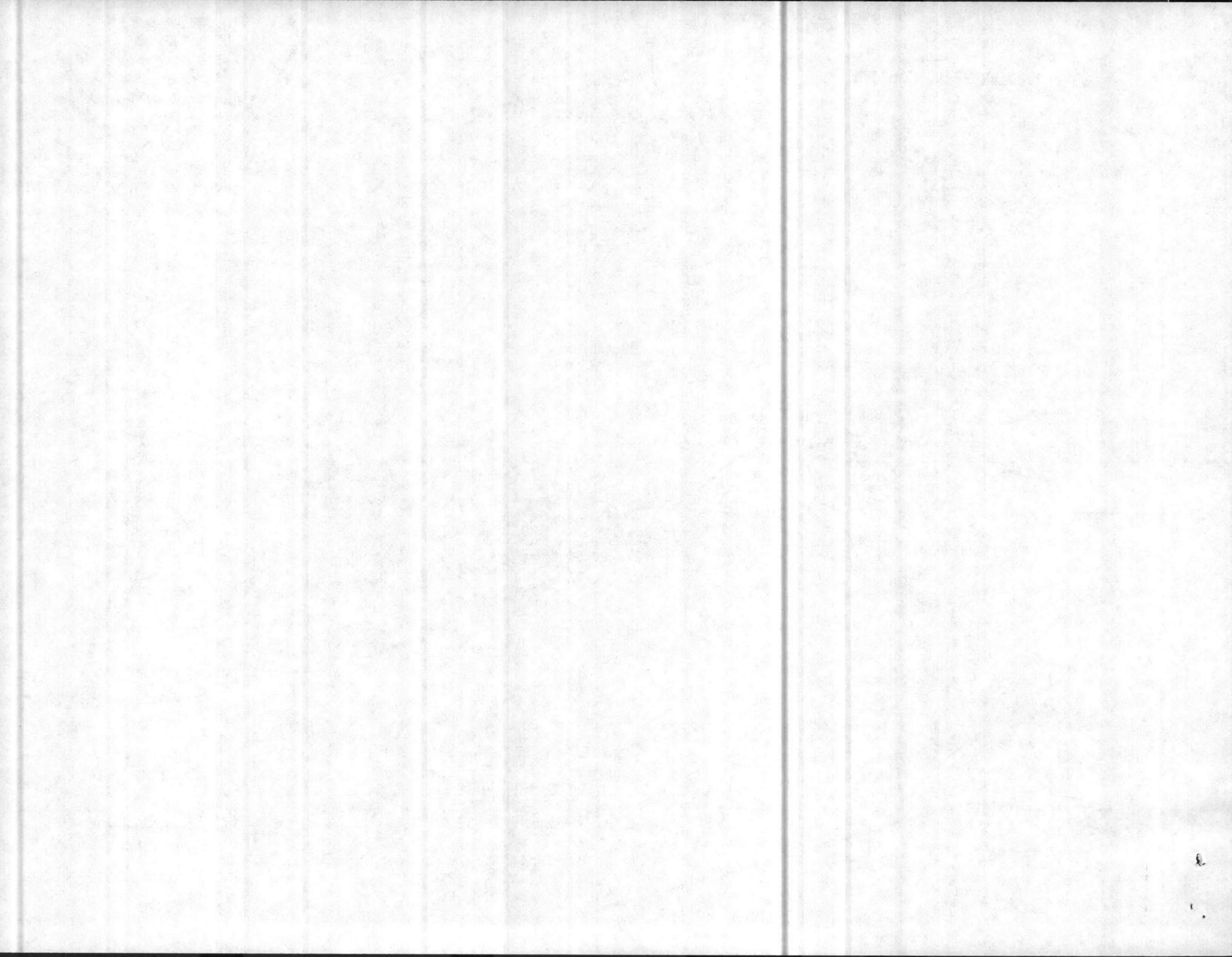


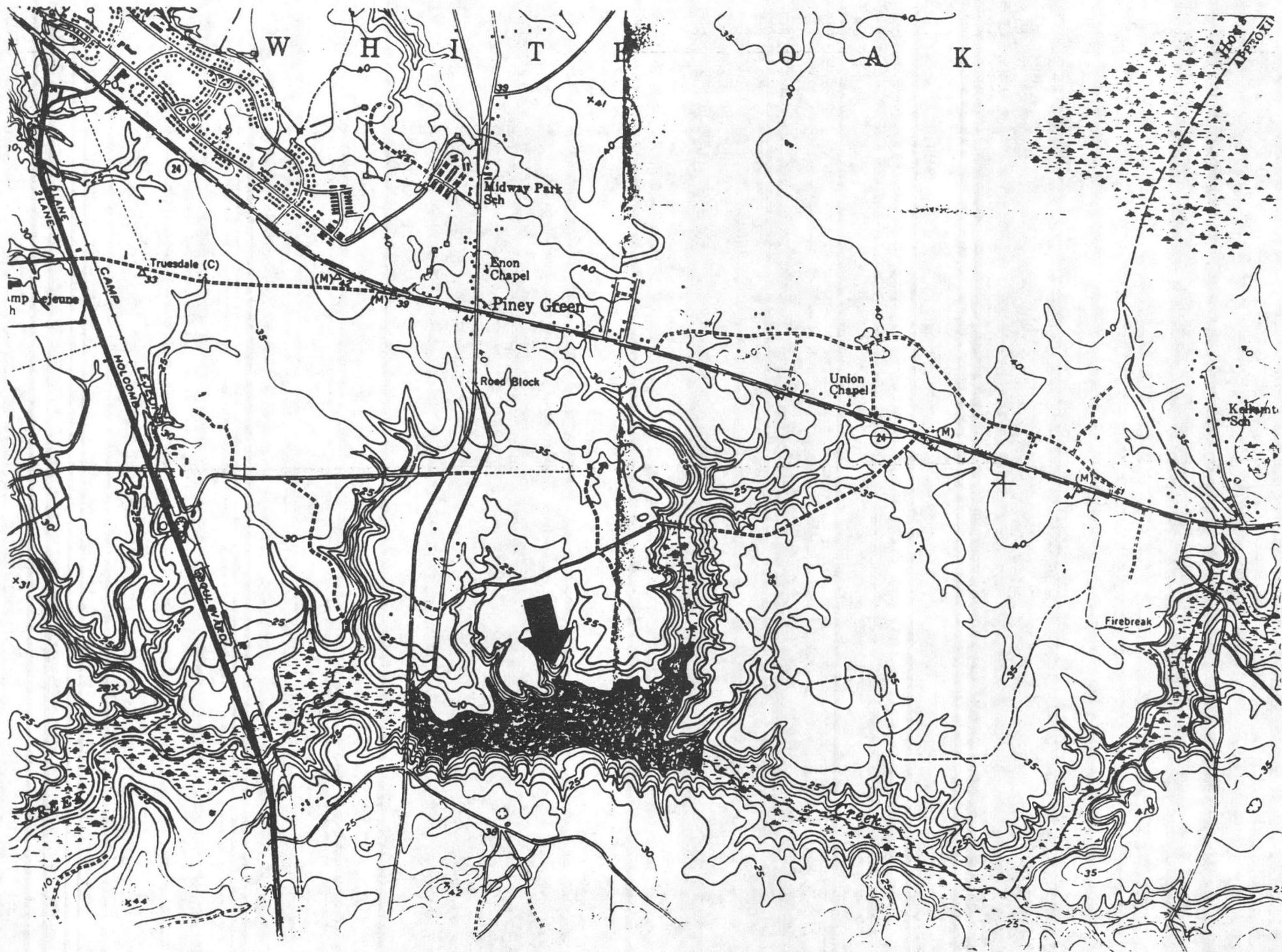


WALLACE CREEK NATURAL AREA

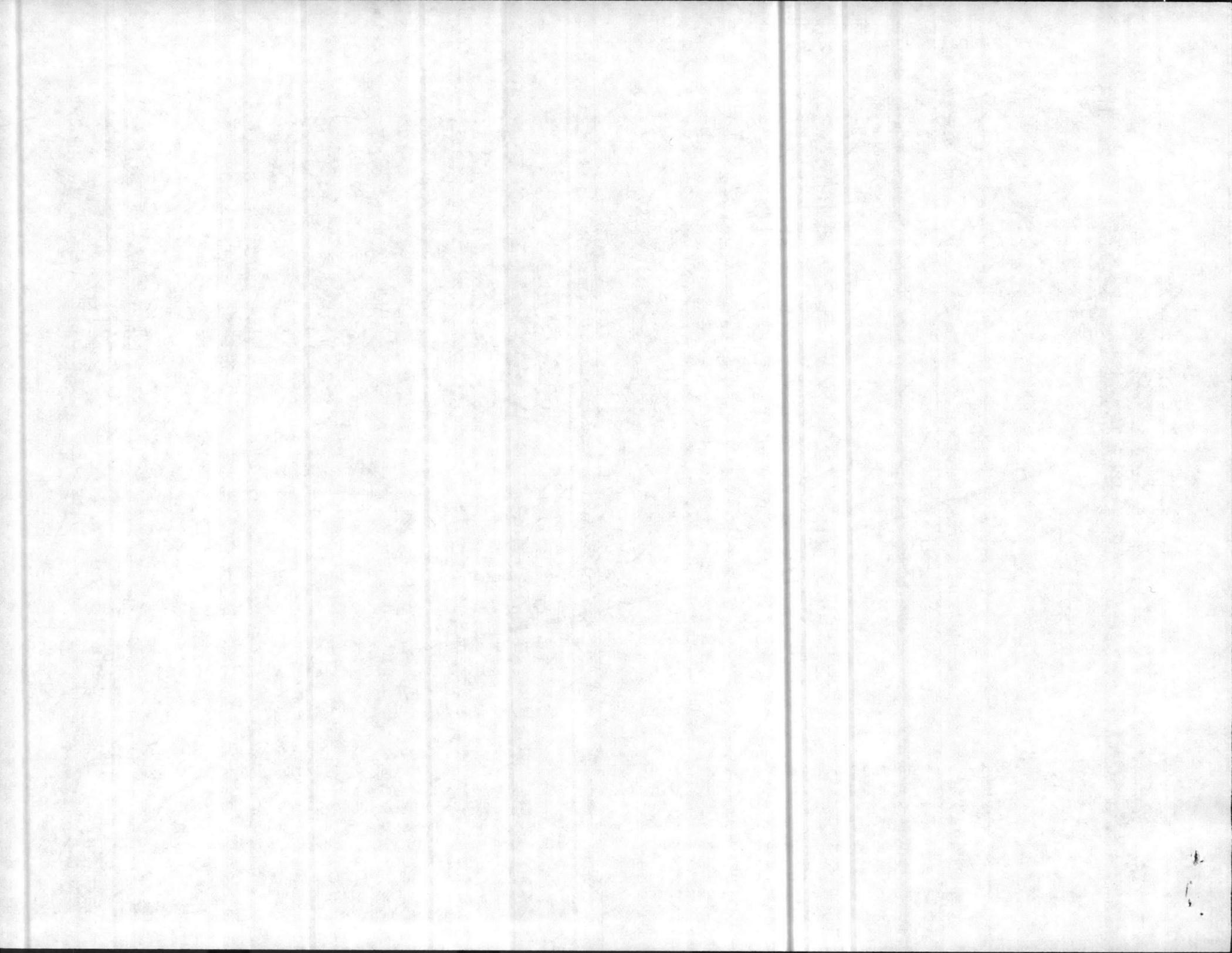








WALLACE CREEK NATURAL AREA
(REGISTERED PORTION 115 ACRES)



CAMP LEJEUNE LONGLEAF PINE NATURAL AREA¹

Location: Onslow County, North Carolina; New River Inlet 7.5-min. USGS topographic quad map; located south of Marines Road, approximately 0.6 miles southwest of junction with Sneads Ferry Road, between French Creek and Duck Creek (see Maps 1, 2, and 3). Located in the Coastal Plain Geomorphic Province, Black River Section, Inner Coastal Plain Region. Elevation: ca. 20-33 ft. msl. Coordinates: 34°36'37" N 77°19'10" W.

Ownership and Administration: Camp Lejeune, U.S. Marine Corps, Department of Defense.

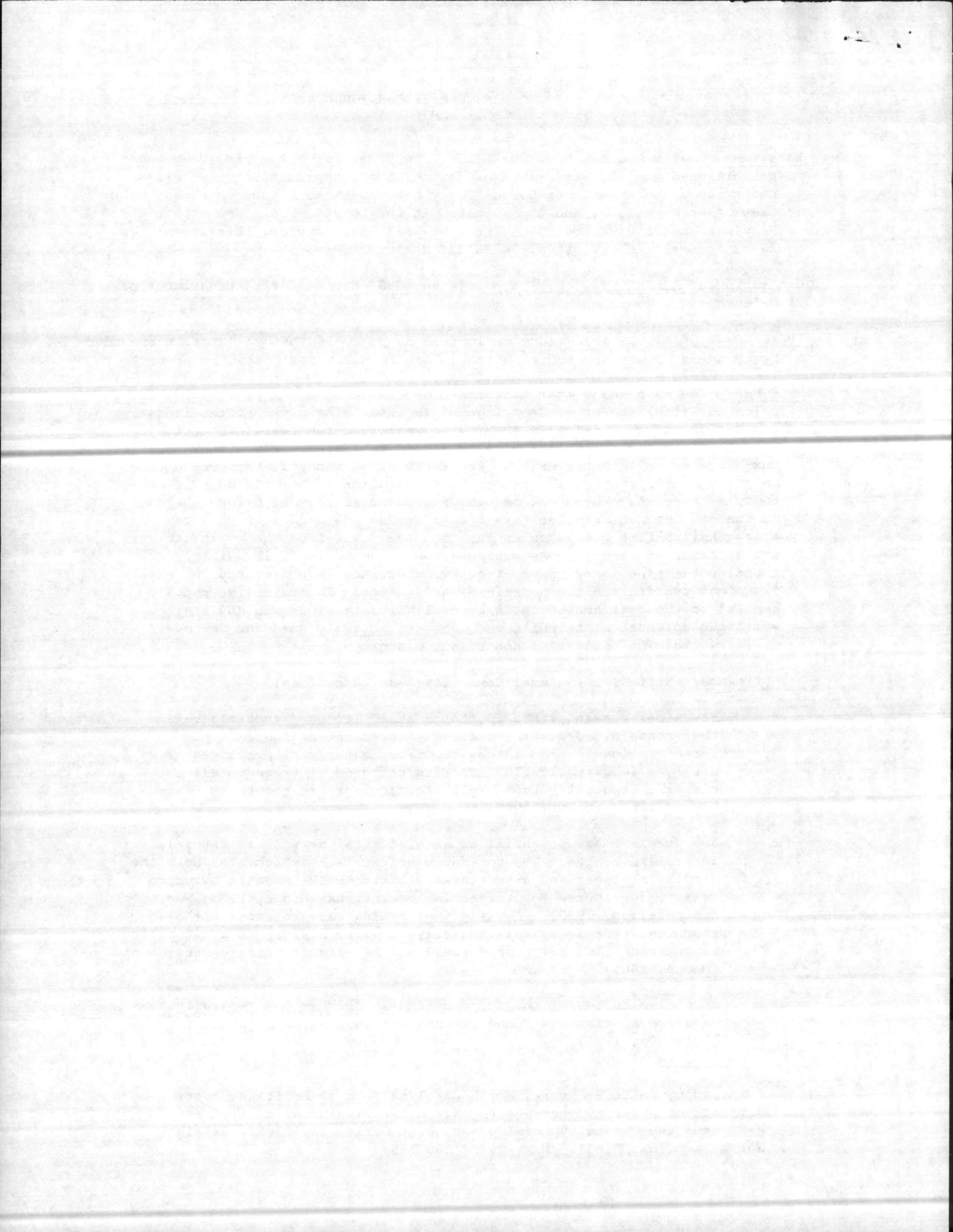
Approximate Size: 26 acre ridge designated as protected natural area; surrounded by 42 acres of wetland buffer which is not formally designated as protected.

Land Use: The main usage that has been made of the longleaf pine stand halted prior to establishment of Camp Lejeune in 1941. The naval stores industry was active though waning in the region well into the twentieth century. The old flat-topped longleaf pine trees and tall stumps with trunk scars or box-faces are all that remain as artifacts of an industry that was once a mainstay of the economy in eastern North Carolina. There is no evidence that any trees have been cut or stumps removed since well before the turn of the century. Other than fire breaks around the border of the stand and a few shallow fire breaks extending into the stand from the north, there are no signs of recent human manipulation. The wetlands immediately surrounding the pine forest have effectively screened and isolated the site from foot traffic and troop training activities. The extensive pocosin habitat to the east and south is generally inaccessible and undisturbed while the uplands to the north and west are actively used for various military training activities and timber management.

Significance: Statewide (Natural Community, and Educational)

1. Few sites remain either in the coastal plain or sandhills region that contain old growth, naturally regenerating longleaf pine forests. Logging and intensive timber management practices have nearly eliminated longleaf forests composed of trees in all age classes, especially those well stocked with old growth or flat-topped trees (Moore, 1985).
2. The preserve has potential as an historical as well as natural interpretive area. The box-faces or cat-faces which scar both the old living trees and dead trunks illustrate the process by which resin was gathered for turpentine operations (Moore, 1985; Wooten and Peterson, 1985). A variety of biological processes are also graphically depicted, particularly the life history of a naturally reproducing longleaf pine forest and the effects of fire management (Moore, 1985).
3. An active colony of the red-cockaded woodpecker, a federally endangered species, is found in this old longleaf pine stand (Peterson, 1985).

¹ Compiled by Julie H. Moore, North Carolina Natural Heritage Program, Division of Parks and Recreation, North Carolina Department of Natural Resources and Community Development, Post Office Box 27687, Raleigh, North Carolina 27611. May, 1985 (3407753).

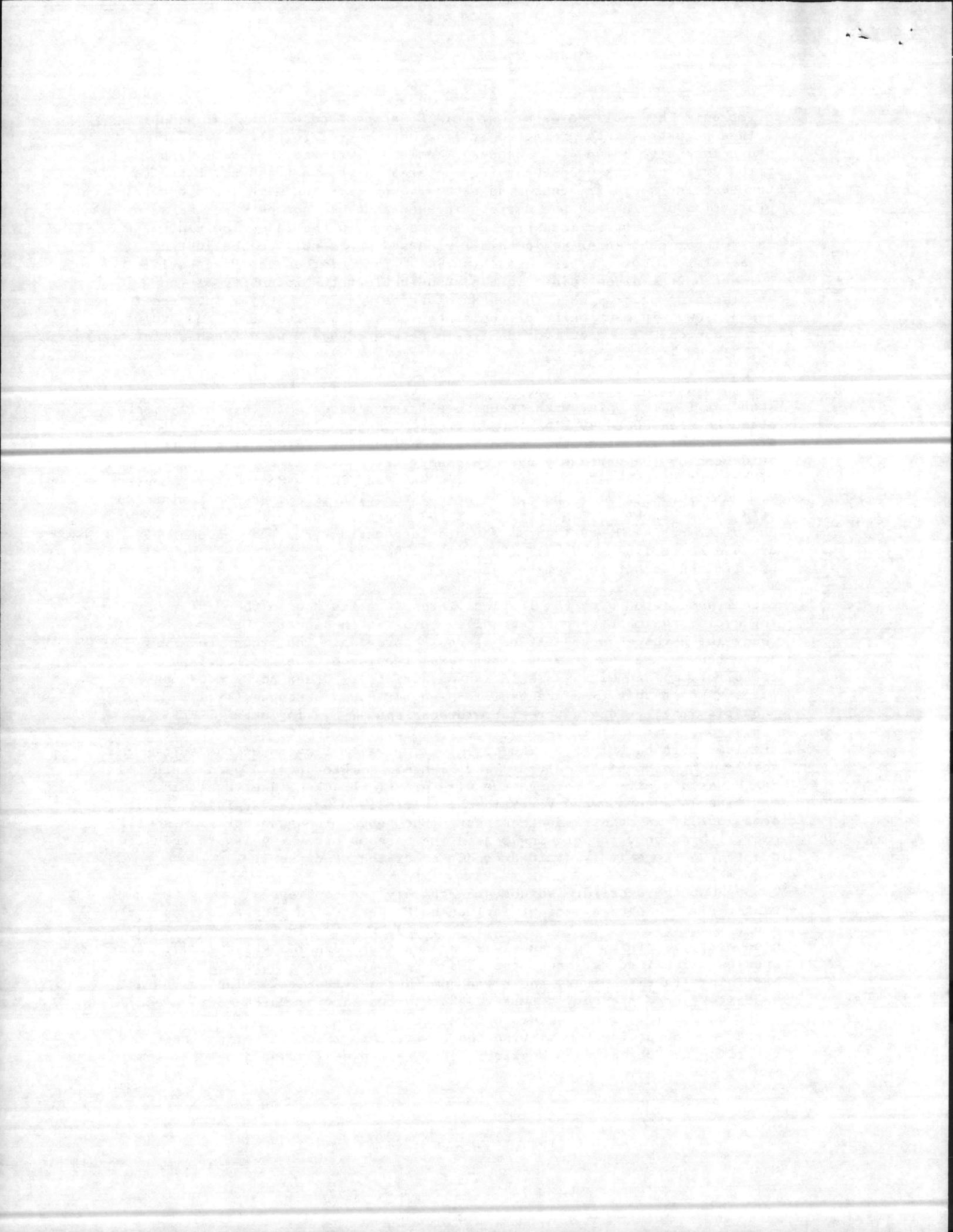


Description: The isolated nature of this 26-acre stand of longleaf pines (Pinus palustris) has protected it from both recent forestry practices and other intensive human disturbances. Wetlands surround the tract with tributaries of Duck Creek bounding the area on the west and north and to the east and south are dense and extensive pocosin. However, the natural protection afforded by the surrounding wetlands did not obscure the site from the naval stores industry that was active in the late nineteenth and early twentieth centuries in this region and apparently ceased just prior to acquisition of the base lands in 1941. The numerous cat faces still evident on the oldest pines in the stand reflect the intensity of the turpentine efforts when thousands of acres were regularly maintained for resin flow. In many parts of the state, the old scarred trees and stumps have been cut or dug out for the resin saturated heart wood known as fat-lighter or lighterwood.

The combination of dry, sandy soil and frequent fires has resulted in pure stand of longleaf pine with trees in all age classes. In this well-stocked stand between 30 to 40 flat topped trees with an estimated diameter (dbh) of 14 inches are present. There has been abundant reproduction as is evidenced by the variously aged subcanopy trees as well as seedlings. From timber stand information (Marine Corps Base and Onslow Soil & Water Conservation District, 1975) the age of one of the older trees was determined to be 84 years, however, an estimate of 100 years is conservative for some of the older trees (Moore 1985). The droughty character of the excessively drained Kureb fine sand soil (Barnhill, 1984) and the low site index of 57 has limited both tree diameter and height.

Plants associated with the longleaf forest are few due to the 3-year burning cycle, the most recent controlled burn was in January 1985 and the woody and herbaceous vegetation is now recovering. The ground cover is dominated by the low-growing, evergreen creeping blueberry (Vaccinium crassifolium) and wire grass (Aristida stricta). Other herbaceous species identified at this time are vanilla-plant or hound's-tongue (Trilisa odoratissima), golden aster (Heterotheca spp.), blazing star (Liatris spp.), dwarf iris (Iris verna), and the diminutive, mat forming pyxie-moss (Pyxidantha barbulata). The May blooming white flowers of the stinging nettle (Cnidocolus stimulosus) and black-root (Pterocaulon pycnostachyum) can be seen scattered through the wire grass. Bracken fern (Pteridium aquilinum) is common and Virginia chain fern (Woodwardia virginica) occurs occasionally in moister depressions in the sand. Though other plants will emerge throughout the growing season, herbaceous diversity is probably low due to the excessively drained condition of the sandy soil.

Throughout the sandridge shrubs are actively resprouting following the winter fire. Species present include huckleberries (Gaylussacia frondosa and G. dumosa), fetterbush (Lyonia mariana), wax myrtle (Myrica cerifera), blueberry (Vaccinium sp.) and dwarf azalea (Rhododendron atlanticum). Tree species maintained at shrub stature are red bay (Persea borbonia), sweet bay (Magnolia virginiana) and black gum (Nyssa sylvatica). The only true understory tree present is turkey oak (Quercus laevis) which forms a small stand on a slight rise in the northwestern portion of the pine stand. Based on the species composition and soils, this association is classified, according to Schafale and Weakley, 1985, as a pine flatwoods natural community.



The role played by fire in maintaining the open aspect of the pine stand is graphically illustrated by a small segment at the southwestern end which did not burn in January 1985. Here the shrub layer is nearly six feet high in places with several species present which are not obvious in the main, recently burned part. Bitter gallberry (Ilex glabra), sweet pepperbush (Clethra alnifolia), and sheep-kill (Kalmia angustifolia) are abundant in this less frequently burned and possibly moister area.

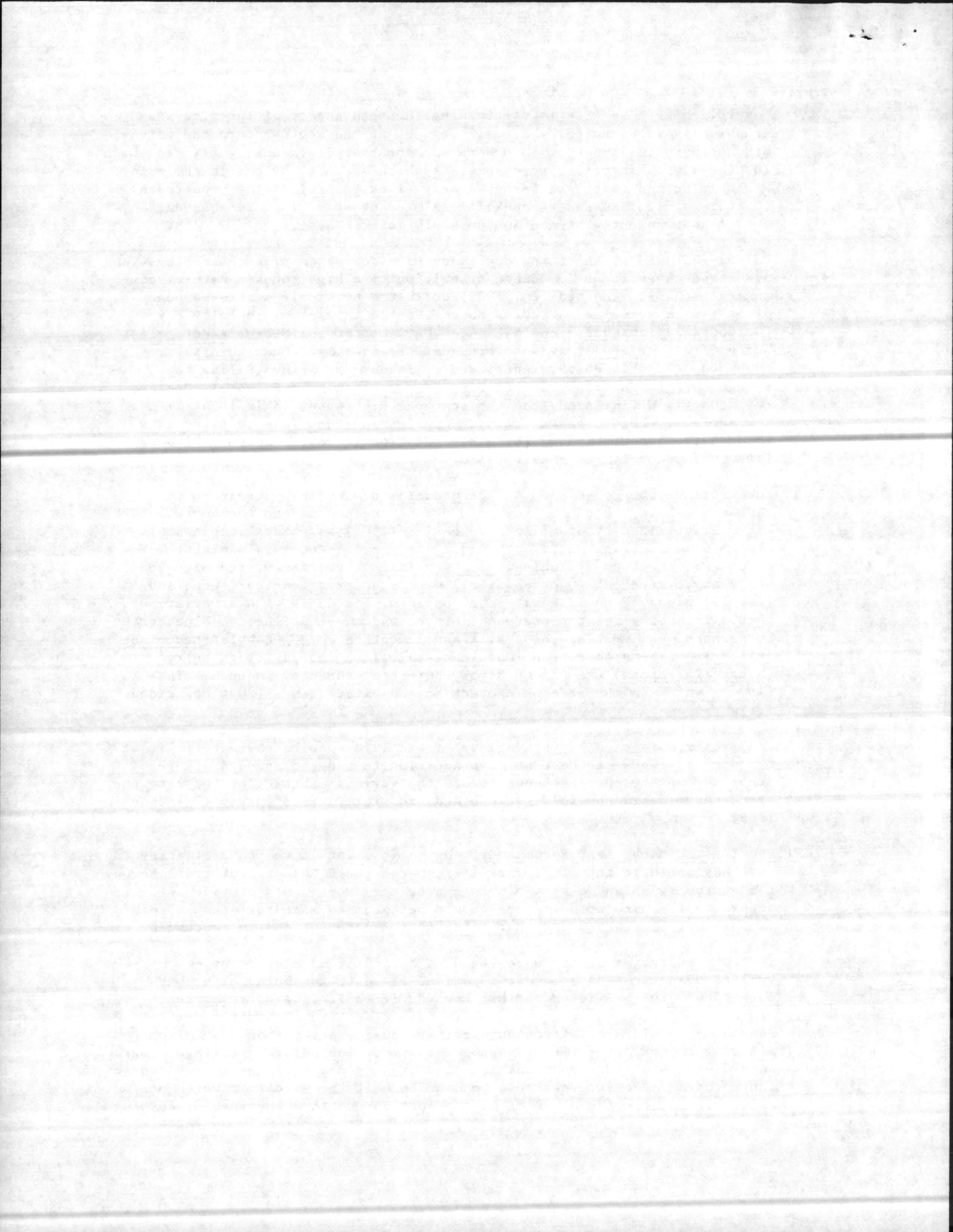
To the east and south of the dry sandy pine dominated ridge, the elevation drops and there is an immediate transition to a high pocosin natural community (Schafale and Weakley, 1985) dominated by widely scattered pond pines (Pinus serotina) standing above a dense thicket of loblolly bay (Gordonia lasianthus), red bay, sweet bay, bitter gallberry, sweet gallberry (Ilex coriacea), swamp black gum, poison sumac (Rhus vernix), honey-cup (Zenobia pulverulenta) and smilax or cat-briar (Smilax spp.). Though this impenetrable association is underlain by very poorly drained soil (Murville fine sand) and the seasonal high water table is at or near the surface, the evergreen foliage supplies fuel and intense fires burn through the association. Pocosin vegetation is well adapted to frequent fires and recovery is usually rapid.

The creek on the north side of the preserve drains the pocosin to the southeast while the one on the west drains the pocosin to the south. Both are characterized by Schafale and Weakley (1985) as coastal plain small stream swamps, black water subtypes. The uneven canopy is a mixture of black gum, sweet gum (Liquidambar styraciflua), sweet bay, red bay, loblolly bay, water oak (Quercus nigra) with scattered longleaf, pond and loblolly pines (Pinus taeda). The understory is dense with a variety of shrubs including sweet pepperbush, bitter and sweet gallberry, blueberries, fetterbush, wax myrtle, sheep-kill and leucothoe or dog-hobble (Leucothoe axillaris). Sensitive fern (Onoclea sensibilis) and partridge berry (Mitchella repens) are common herbs where the subcanopy is open. The flowing water in the streams protect this habitat from all but occasional fires.

The preserve is used by the variety of wildlife species characteristic of the natural lands of the base. In addition to red-cockaded woodpeckers other noteworthy species known to use the various habitats of the site are black bear, deer, possibly cat bob and, in winter, wild turkey (Peterson, 1985).

Protection and Management Recommendations: To maintain the natural screening that has isolated the old forest it is recommended that a foot trail through the narrow swamp and a simple bridge over the creek would provide sufficient access to the pine stand. Care should be taken to make sure that stream flow is not obstructed and that water is not unintentionally impounded.

The open character of the pine stand is currently maintained by a controlled burn cycle on a 3 year rotation. To date the burns have been carried out in the winter months, however if monitoring or research on similar habitats indicated burning is more effective at a different time of year or at a different frequency serious consideration should be given to altering the existing fire management regime. The Natural Heritage Program should be contacted for discussion prior to any major change in the management program. No attempts need be made to halt the wildfires which periodically originate in the pocosins to the east and south. The regular burning



cycle of the pine forest should keep fuel levels at a low enough level to minimize possible damage by any unscheduled fires. Consideration should be given to hand raking around the resin-rich standing stumps and living trees with box-faces and those with red-cockaded woodpecker cavities to prevent them from inadvertently burning. Existing fire breaks and other fire plow lines should be left as they are with no further maintenance.

Data Sources:

Moore, Julie 1985; Botanist and Protection Planner, North Carolina Natural Heritage Program, Raleigh.

Peterson, Charles 1985; Fish and Wildlife Manager, Camp Lejeune, North Carolina.

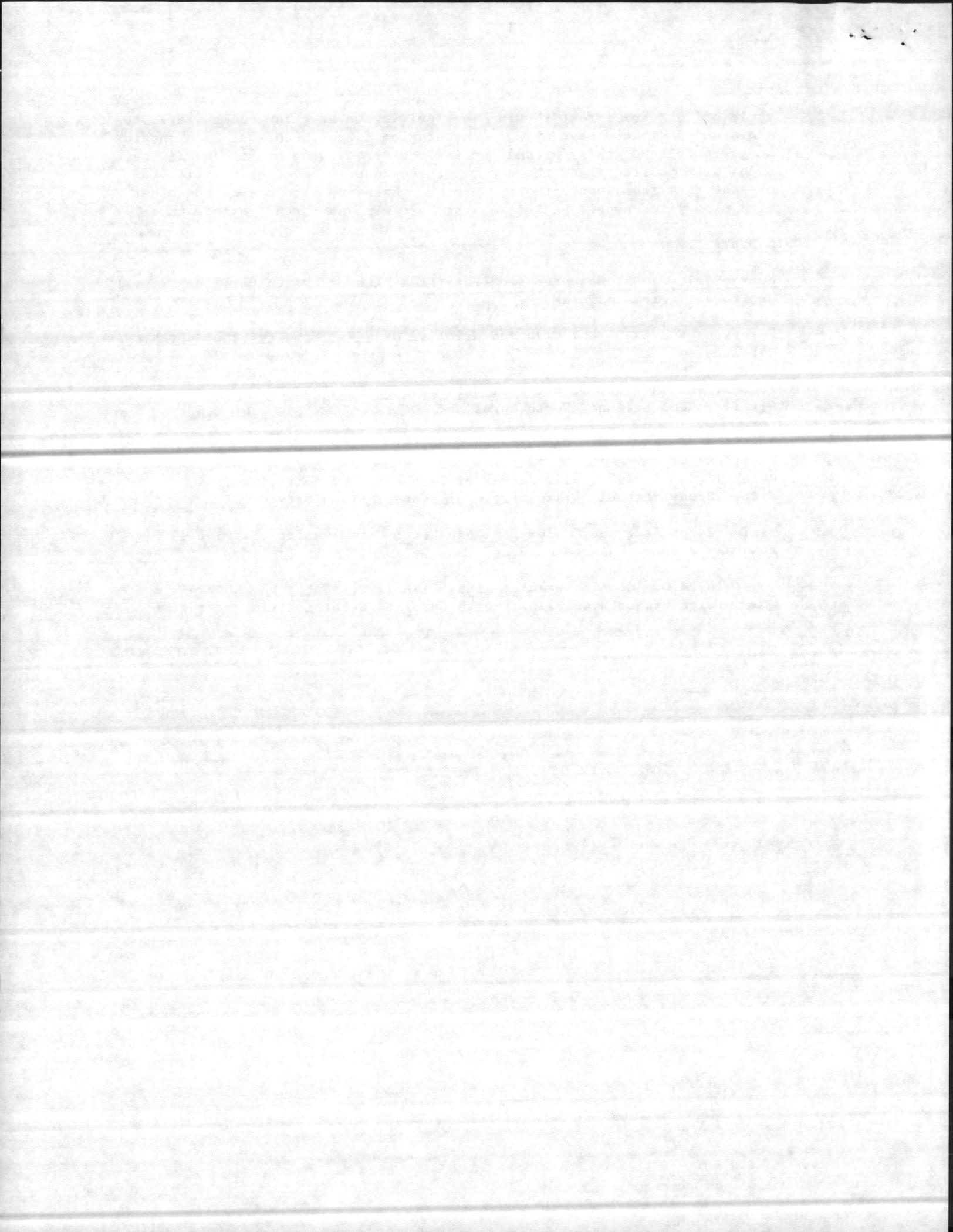
Wooten, Julian 1985; Director of Natural Resources and Environmental Affairs, Camp Lejeune, North Carolina.

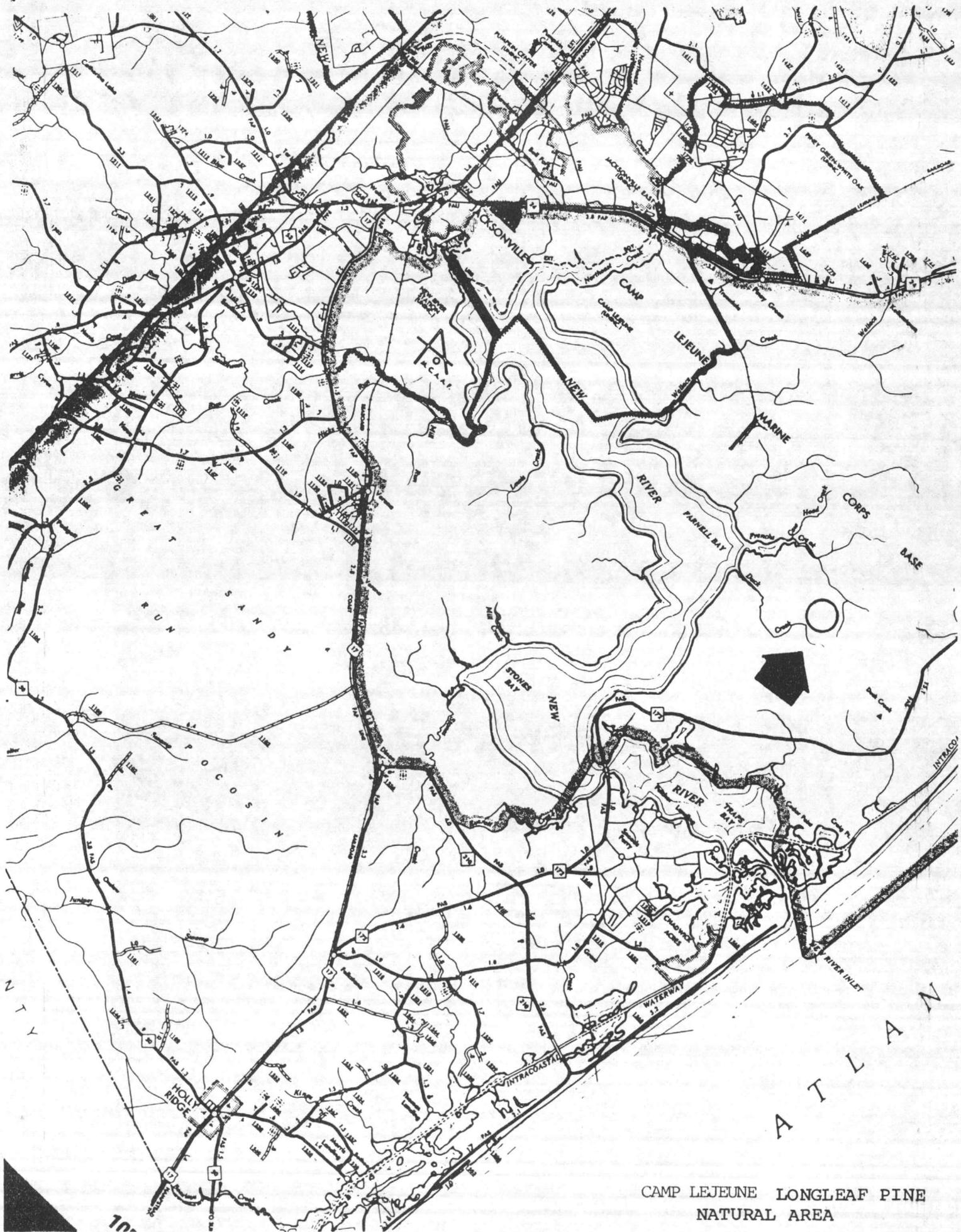
Scientific References and Unpublished Reports:

Barnhill, W. L. 1984; Soil Survey of Camp Lejeune, North Carolina. United States Department of Agriculture, Soil Conservation Service.

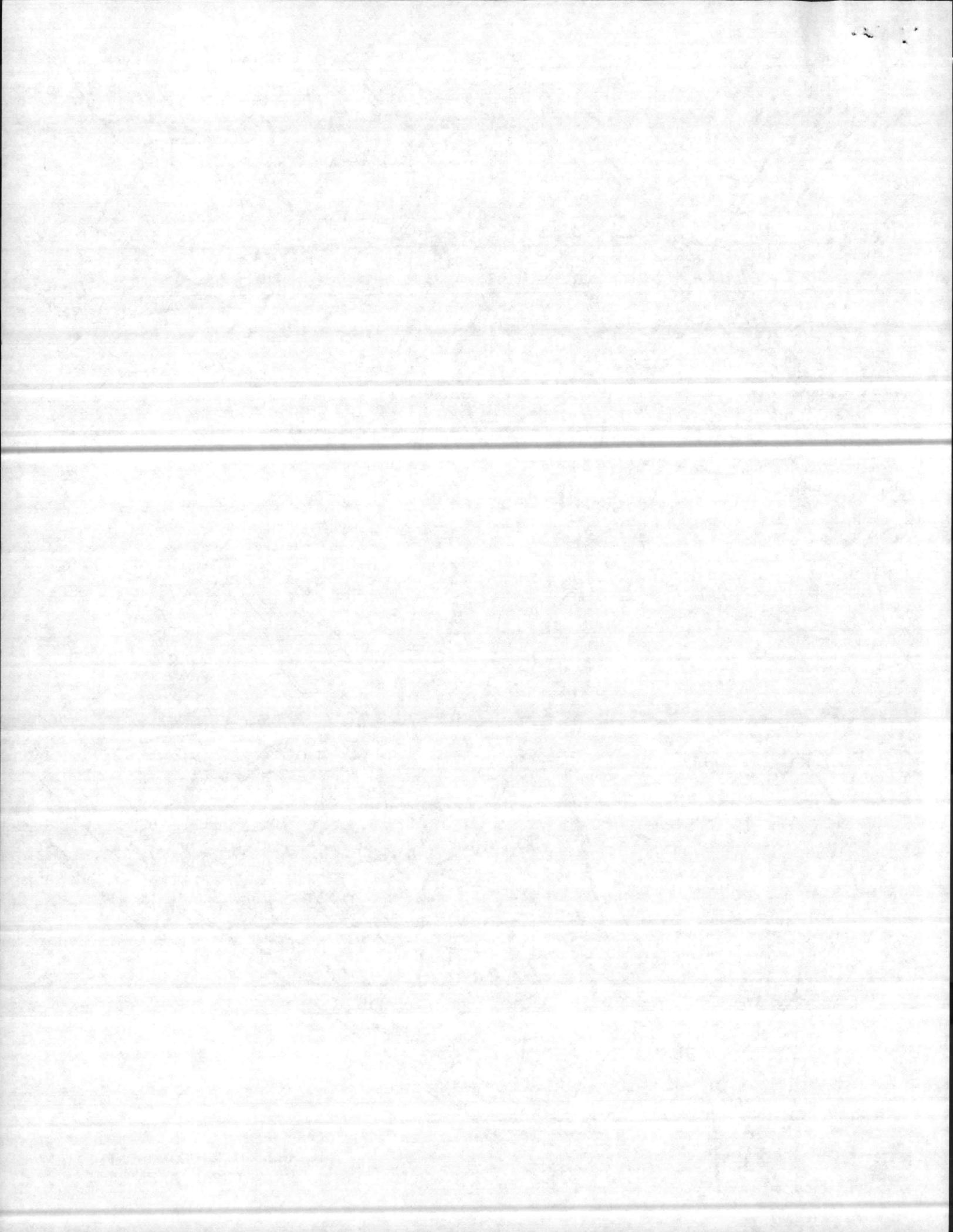
Marine Corps Base and Onslow Soil and Water Conservation District 1975; Natural Resource Management Plan, Camp Lejeune, North Carolina.

Schafale, M.D. and A.S. Weakley 1985; Classification of the Natural Communities of North Carolina, North Carolina Natural Heritage Program.





CAMP LEJEUNE LONGLEAF PINE
NATURAL AREA



UNITED STATES
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

5553 III NE
(CAMP LEJEUNE)

CAMP LEJEUNE LONGLEAF PINE
NATURAL AREA (26 AC)
WITH BUFFER WETLANDS (42 AC)

