United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

February 24, 2005

Colonel Robert M. Carpenter
District Engineer
U.S. Army Corps of Engineers
701 San Marco Boulevard, Room 372
Jacksonville, Florida 32207-8175

Service Log No.: 4-1-05-PL-1565
Corps Application No.: 200207808 (IP-MGH)
Dated: March 22, 2004
Applicant: Centex Homes
Project: Riverwood North
County: Charlotte

Dear Colonel Carpenter:

This document transmits the Fish and Wildlife Service's (Service) biological opinion for the above referenced project and its effects on the threatened Florida scrub-jay (*Aphelocoma coerulescens*), and the threatened bald eagle (*Haliaeetus leucocephalus*) nest CH-36 in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA) (87 Stat. 884; 16 U.S.C. 1531 *et seq.*).

This biological opinion is based on information provided in the February 14, 2003, U.S. Army Corps of Engineers' (Corps) Public Notice (PN); the Florida Scrub-Jay Management Plan (FSJMP), the Bald Eagle Management Plan (BEMP), a Biological Analysis prepared by Biological Research Associates (BRA); telephone conversations; meetings with representatives of Centex Homes (applicant); Ray Loraine of BRA (consultant for the applicant); the Florida Fish and Wildlife Conservation Commission (FWC); field investigations; and other sources of information. A complete administrative record of this consultation is on file at the South Florida Ecological Services Office, Vero Beach, Florida.

This document also represents the Service's view of the effects of the proposed action on the endangered West Indian manatee (*Trichechus manatus*) in accordance with section 7 of the ESA.

West Indian Manatee

The February 14, 2003, PN states that 28 lots and 32 multi-family units associated with the proposed development will have access to the Myakka River and that each of these waterfront dwellings would be expected to have a mooring (dock or pier) for at least 1 vessel and 1 personal watercraft (for a total of up to 120 watercraft). The applicant indicated the project does not

propose construction of docking facilities. However, the Service raised concerns about the potential harm to manatees from the potential future construction of these mooring facilities, and on July 9, 2003, requested additional information on the construction of the boat moorings facilities.

The proposed project is located within Reach 36, characterized by the Corps as having very high boating and dock densities and having a shape very attractive for high speed boat use. The reach has medium to very high shallowness (0-3 and 0-6 feet) in high speed areas. Speed zones are present. The project is located in close proximity to designated critical habitat (50 CFR 17.95) for the manatee. Corps information on Reach 36 indicates that no watercraft-related mortality of manatees has been recorded within this reach in the last 10 years.

The Service understands from conversations with the applicant, the Southwest Florida Water Management District and the Corps that the applicant has proposed that a "riparian rights easement" be placed along "all" lots facing the Myakka River, and to be held by the District. This easement does not preclude future development of the waterfront, but requires that any future development comply with all applicable local, State, and Federal permitting requirements, including those for manatee protection. The project as presently proposed does not include docks or waterfront development.

The Service also raised concerns about the potential harm to manatees from the construction of an access road into the development over a tidal creek on the eastern end of the property. Information provided by the applicant indicates that the shallow creek and grassy conditions of this water course during high tide would not allow for manatees to swim near the impact area. However, the applicant proposed to implement the *Standard Manatee Protection Construction Conditions* (FWC 2001) to avoid potential harm to manatees. Between July 2003 and August 2004, coordination efforts among the applicant, representatives of the Corps, and the Service resulted in the mutual acceptance of the conservation easement language prepared by the applicant and to be applied to a 10-foot strip of the project shoreline landward of the Mean High Water Line (Figure 1). Based on this information the Corps provided a revised determination on November 15, 2004, that the proposed project "may affect, but is not likely to adversely affect" the West Indian manatee. The Service concurs with the Corps' determination.

CONSULTATION HISTORY

On September 29, 2000, BRA submitted to the Service, FWC, and Charlotte County a request to manage 10 to 15 acres of the 58±-acre preserve designated on the proposed project site for the protection of Florida scrub-jay and bald eagle habitat. On that date, BRA and the Service also conducted a field review of the project site to evaluate the areas proposed for management. Following coordination among the applicant, their consultant, the Service, FWC, and Charlotte County, it was agreed that management should be postponed until after the bald eagle and Florida scrub-jay nesting seasons of 2000/2001. Following coordination with the Service, FWC, and Charlotte County and documentation that Florida scrub-jay nesting had been completed, 3 management units totaling 10.8 acres were managed by rollerchopping beginning on June 15, 2001.

On June 21, 2002, the initial Joint Application of a State of Florida Environmental Resource Permit and Corps' Dredge and Fill Permit was submitted for the proposed project. The Corps requested additional information in a letter dated July 25, 2002. Additional detailed information of previous census of federally listed wildlife and preserves proposed on the project were submitted to the Corps and Service on October 31, 2002.

On February 14, 2003, the Corps issued the PN for the application and requested initiation of section 7 consultation with the Service. In the PN, the Corps determined that the proposed project "may affect, but is not likely to adversely affect" the threatened bald eagle, Florida scrub-jay, and eastern indigo snake (*Drymarchon corais couperi*). The Corps also determined that the proposed project "may affect" the endangered West Indian manatee because of the potential for waterfront single- and multi-family lots to have single-family mooring facilities that would serve motorized vessels and personal watercraft of riverfront single- and multi-family lots.

On April 17, 2003, Ray Loraine of BRA met with the Service to discuss the history of wildlife censuses on the proposed project, preserve areas, and management plans for Florida scrub-jays and bald eagles, and the Service's pending response to the PN.

On July 1, 2003, BRA submitted to the Corps and Service a revised bald eagle site plan to remove 10 single-family residential lots proposed within the eagle primary zone. The Florida scrub-jay preserve was also further refined. BRA also submitted additional information confirming that red-cockaded woodpeckers (*Picoides borealis*) are not present on the proposed project site, and information on the proximity of wood storks (*Mycteria americana*) in accordance with draft Service Standard Local Operating Procedures for Endangered Species (SLOPES) (Service 2002).

On July 9, 2003, the Service replied to the PN, concurring with the Corps' eastern indigo snake determination; requesting additional information on aspects of the project that could affect the bald eagle, Florida scrub-jay, and West Indian manatee, *e.g.*, additional site plan information, current Florida scrub-jay status, proposed dock details; and requested that the Corps change their bald eagle determination to "may affect, likely to adversely affect" because of the proposed residential lots within the bald eagle primary zone.

On December 23, 2003, BRA submitted additional information reiterating previous bald eagle plan changes, including a *BEMP Supplement, Riverwood Development of Regional Impact (DRI) Increment Two, aka North Area, Charlotte County, Florida* (December 23, 2003) (BRA 2003) incorporating the Service's Bald Eagle Monitoring Guidelines (September 2002); reiterating the history of Florida scrub-jay evaluation on the site; and providing typical boat dock designs, as requested by the FWC and Service.

On January 27, 2004, the project received State of Florida State Water Quality Certification.

On June 3, 2004, BRA requested guidance from the Corps and Service on an administrative or legal mechanism to withdraw proposed docks from the permit, and provide reasonable assurance to the reviewing agencies to address concerns regarding potential project affects on the West Indian manatee.

On June 15, 2004, the Corps issued a Request for Additional Information letter to the applicant, and revised its bald eagle determination to "may affect" as requested by the Service in their July 9, 2003, letter.

On October 2004, the Corps and Service approved the draft conservation easement language submitted by the applicant and his consultants for a strip-of-land along the shoreline where lots are proposed to address concerns regarding the West Indian manatee and allow a "No Effect" determination for manatees.

On November 15, 2004, pursuant to a request from the Service, the Corps provided a revised determination for the bald eagle that the proposed project "may affect, but is not likely to adversely affect" the bald eagle. This revised determination was considered by the Corps upon the applicant's willingness to eliminate all lots from the bald eagle's primary protection zone.

On December 3, 2004, the Service, Tom Wegwert of Centex Homes, and Ray Loraine of BRA met to discuss measures to facilitate completion of the Service's consultation with the Corps and preparation of a biological opinion for the project.

On December 28, 2004, BRA informed the Service of the construction of a new bald eagle nest approximately 360 feet east of nest CH-36. The primary zone for the new nest, tentatively identified as CH-36A, shifted 360 feet east including areas slated for residential development.

Given the newly available information, the Service requested from the Corps a revised determination from a "may affect, but is not likely to adversely affect" to a "may affect" the bald eagle. On January 19, 2005, the Corp provided a revised determination that the proposed project "may affect" the bald eagle and requested formal consultation on this species.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The applicant proposes to build lots and affiliated infrastructures (roadways and a surface water management system) associated with the last phase of a multi-phase residential subdivision called Riverwood North. The 314-acre project site contains 260.4 acres of uplands consisting of 249.9 acres of native uplands, distributed among the following habitats: palmetto prairie (94.4 acres); scrub oak (52.1 acres); pine flatwoods (30.2 acres); scrubby flatwoods (64.5 acres); pine/oak disturbed (5.6 acres); primitive trails (3.1 acres); and 10.5 acres of barren lands. The project parcel contains 53.59 acres of wetlands most of which (30.2 acres) constitutes saltwater marsh. The applicant proposes to impact approximately 0.41 acre of tidal wetland and tidal

creek for a culverted road crossing, and 0.86 acre of freshwater transitional marsh by fill placement to complete building lots and to provide roadway access. In addition, the applicant will impact approximately 0.93 acre of isolated wetland comprised of Brazilian pepper (*Schinus terebinthifolius*)/wet prairie by excavation and/or fill placement, and to fill a 0.37-acre pond (old borrow pit) for completion of building lots and roadway access.

As compensatory mitigation for impacts on wetlands and listed species, the applicant proposes an onsite upland preserve totaling 58.5 acres of uplands specifically to protect and maintain habitat of the Florida scrub-jay, bald eagle, eastern indigo snake, and the State-listed gopher tortoise (*Gopherus polyphemus*). A total of 51.26 acres of tidal and freshwater wetlands including portions within the upland preserve will also be preserved within the proposed project. The applicant also proposes to create 0.8 acre of tidal wetland and 1.53 acres of transitional marsh. Details of the preserve and management plans proposal to maintain suitable habitat for listed species are discussed in detail below.

The proposed Riverwood North project area is part of the Riverwood DRI approved by Charlotte County pursuant to an Incremental Development Order (Charlotte County Resolution Number 97-0030140) on January 9, 1997. The Service had initial involvement with the overall DRI during Federal permitting, *i.e.*, Department of Army Permit Numbers 199130641 and 199804360, of previous project phases to the south. The project site is located adjacent to the Myakka River near El Jobean in Sections 17 and 20, Township 40 South, Range 21 East, Charlotte County, Florida (Figure 2).

Two Florida scrub-jay family groups were located within the project site in 1994. During a survey conducted in July 1996, presumably the same groups were located in areas where no Florida scrub-jay had previously been recorded. Field work on the site as recently as November 2, 2003, during which all areas of potential scrub and scrubby flatwoods habitats were surveyed, confirmed that a single-family group continues to occupy an area on the eastern portion of the project site. The consultant for this project has not observed Florida scrub-jays within the area previously occupied on the western side of the project since the fall of 2001. Later surveys indicate that the Florida scrub-jays occurring on the site have shifted their territory. At present, the Florida scrub-jays occupy an area approximately 400 feet inside of the Phase I construction area.

The project site contains a bald eagle nest, identified by the FWC as nest CH-36. Bald eagle nest CH-36 is an active nesting territory and was in use from the 1996/1997 nesting season through the 2001/2002 nesting season, with the exception of nesting season 1999/2000 when the nest was occupied by great horned owls (*Bubo virginianus*). The nest was active during the 2002/2003 nesting season and two chicks were produced. The Service was informed of the construction of a new bald eagle nest approximately 350 feet east of nest CH-36, presumably built by the resident pair of eagles. The primary zone for the new nest, tentatively identified as CH-36A, shifted 350 feet east and includes areas slated for residential development (see Figure 3).

The applicant has proposed residential construction within the Phase I, occupied by Florida scrub-jays and within the primary protection zone of nest CH-36A. Construction activities may result in harassment or alteration of Florida scrub-jay and bald eagle ecology, nest failure resulting in indirect "take". To minimize the potential for the project construction to impact the Florida scrub-jay and the bald eagle on the project site, the applicant has proposed the following conservation measures:

1. To minimize potential impacts to the Florida scrub-jay and the bald eagle, the applicant has designated a 58.5-acre upland preserve on the subject site (Figure 4). The preserve area includes palmetto prairie (0.1 acre), scrub (18.8 acres), pine flatwoods (6.8 acres), scrubby flatwoods (29.0 acres), oak/pine disturbed (2.7 acres), and primitive trails (1.1 acres).

2. The applicant will manage the Florida scrub-jay and bald eagle preserve. The proposed FSJMP will be consistent with the existing *Florida Scrub-Jay Plan, Riverwood DRI Increment Two, Charlotte County, Florida* prepared by Florida Land Planning, Incorporated, and WilsonMiller, Barton, and Peek, Incorporated with input from Bill Pranty (revised January 8, 1997) and the *Scrub Jay Plan Implementation Protocol* prepared by BRD (December 17, 2004).

3. Management treatments and timing will be conducted by the applicant as indicated in the management plan and management units (see Figure 5) as follow:

    a. Management Unit 1 is a 2.94-acre unit supporting scrub. The unit was first managed by rollerchopping in June 2001. Future management will occur at 8-year intervals and consist of mechanical management by rollerchopping, heavy bushhogging, or hydroaxing.

    b. Management Unit 2 is a 3.26-acre unit supporting a community of mixed pine and oak. Management of this unit will focus on control and eradication of nuisance and/or exotic species, *e.g.*, Brazilian pepper. Beginning in 2005, the unit will be assessed on a biennial basis (every 2 years) for the presence of nuisance and exotic vegetation. Treatment will consist of the cutting of target species and spot basal treatment of the stumps with herbicide to prevent resprouting.

    c. Management Unit 3 is an 8.37-acre unit supporting predominantly scrub and scrubby flatwoods. Management will be initiated in 2005 and occur at 8-year intervals thereafter. Management will be by mechanical means, e.g., hydroaxing, heavy bushhogging, or rollerchopping. To protect the root zones of existing pine trees from impacts of soil compaction or damage by heavy or tracked equipment, mechanical management activities will not be conducted within 10 feet of the drip lines of the existing live pine trees.

d. Management Unit 4 is an 8.06-acre unit dominated by pine flatwoods. Management Unit 4 supports bald eagle nests within territory CH-36. This unit will be managed beginning in 2005 and every 4 years thereafter. Future management will consist of mechanical means, *e.g.*, heavy bushhogging or hydroaxing. Rollerchopping will not be used because tree density will preclude maneuvering of equipment and out of concern to protect existing trees. To ensure tree protection, including any trees supporting eagle nests, no mechanical equipment will be used within the 10 feet of the drip lines of live pine trees. If needed, dense vegetation immediately adjacent to bald eagle nest trees will be thinned by hand.

e. Management Unit 5 is a 7.49-acre unit supporting predominantly scrubby flatwoods. This unit will be managed beginning in 2009 and every 4 years thereafter. Future management will consist of mechanical means, *e.g.*, heavy bushhogging, hydroaxing, or rollerchopping. To ensure tree protection, no equipment will be used within 10 feet of the drip lines of live pine trees. If needed, dense vegetation immediately adjacent to pine trees will be thinned by hand.

f. Management Unit 6 is a 2.64-acre unit supporting scrub. The unit was first managed by rollerchopping in June 2001. This unit will next be managed in 2007 and then at 8-year intervals thereafter, to allow the synchronization of management of Units 6 and 7. Future management will consist of mechanical management by heavy bushhogging, hydroaxing, or rollerchopping.

g. Management Unit 7 is a 3.45-acre unit supporting scrub and scrubby flatwoods. Management will be initiated in 2007 and occur at 8-year intervals thereafter. Management will be by mechanical means, *e.g.*, hydroaxing, heavy bushhogging, or rollerchopping. Management activities will protect the root zones of existing pine trees from impacts of soil compaction or damage by heavy or tracked equipment by avoiding the area within 10 feet of the drip lines of live pine trees.

h. Management Unit 8 is a 5.17-acre unit supporting predominantly scrub. The unit was first managed by rollerchopping in June 2001. Future management will occur at 8-year intervals and consist of mechanical management by rollerchopping, heavy bushhogging, or hydroaxing.

i. Management Unit 9 is a 7.46-acre unit supporting predominantly scrubby flatwoods. This unit will be managed beginning in 2007 and every 8 years thereafter. Future management will consist of mechanical means, *e.g.*, heavy bushhogging, hydroaxing, or rollerchopping. To ensure tree protection, no equipment will be used within 10 feet of the drip lines of live pine trees.

j. Management Unit 10 is a 1.28-acre unit supporting dense scrub. Management will be initiated in 2005 and occur at 8-year intervals thereafter. Management will be by mechanical means, *e.g.*, hydroaxing, heavy bushhogging, or rollerchopping.

k. Management Unit 11 is a 4.4-acre unit supporting dense scrub and scrubby flatwoods. Management will be initiated in 2005 and occur at 8-year intervals thereafter. Management will be by mechanical means, *e.g.*, hydroaxing, heavy bushhogging, or rollerchopping.

l. Management Unit 12 is a 2.23-acre unit supporting dense scrub that covers a former Native American burial mound of archeological significance. Management of this unit will be initiated in 2005 and occur at 8-year intervals thereafter. Because of the sensitivity of the unit, thinning of exiting vegetation will be conducted by hand to minimize physical disturbance of the mound surface. Management will consist of the cutting of oaks at ground level. The cut material will be removed from the unit and disposed of by burning or other means. Any work within this management unit will be closely coordinated with and supervised by a qualified archeological consultant.

The management units and treatments, as described above, may be modified following coordination with and approval by the Service when proposed modifications are consistent with the objectives of the habitat management plan.

4. The applicant will continue to manage the subject preserve as detailed here, until such time as that responsibility may be turned over to a successor Homeowners Association or the Riverwood Community Development District (CDD), a local unit of special purpose government organized and existing pursuant to Florida laws. The applicant and its successor will be financially responsible for the continued management of the preserve.

5. Concurrent with the initiation of habitat management practices at the Florida scrub-jay preserve, and prior to initiation of site development, the applicant and their consultant will begin a supplemental feeding program targeted to attract the resident Florida scrub-jays back to the previously occupied preserve by baiting the birds with feeders filled with peanuts. The Service and the consultant will maintain communication on the progress of this initiative until the success criterion (*e.g.*, Florida scrub-jays re-establish a new territory in managed habitat) has been attained.

6. Limited rights-of-way land-clearing will occur within the Florida scrub-jay occupied portion of the site plan's Phase I. If this clearing is to occur within the Florida scrub-jay's nesting season (typically March 1 through June 30), the roadway path should be surveyed prior to clearing to determine if there are any active Florida scrub-jay nests located within the vegetation. If an active Florida scrub-jay nest is located, clearing activity cannot take place within 200 feet of the nest site until nestlings have fledged or the nest has failed and no re-nesting attempt by the pair of scrub-jays is observed.

7. Except for limited land-clearing within Phase I road rights-of-way, land-clearing within occupied Florida scrub-jay habitat shall not occur until there is enough suitable Florida scrub-jay habitat (through management) for the scrub-jays to potentially relocate, or the scrub-jays have been enticed and have re-established a territory within the Florida scrub-jay preserve or areas not slated for development, whichever occurs first.

8. Continued management of the preserve will also occur as quickly as can be initiated without conflict to both nesting bald eagles and Florida scrub-jays. Monitoring and protection measures will also be implemented to minimize harassment or take of Florida scrub-jays during clearing and construction activities.

9. If the resident pair of Florida scrub-jays persists on staying within their current territory, and if the enticing approach to relocate the scrub-jays fails, clearing of occupied habitat can only take place outside the Florida scrub-jay nesting season.

10. To minimize potential impacts to bald eagles, the applicant proposes to implement the *BEMP, Riverwood DRI Increment Two, Charlotte County* prepared by Florida Land Planning, Incorporated and WilsonMiller, Barton, and Peek, Incorporated (revised December 26, 1996) and the *BEMP Supplement, Riverwood DRI Increment Two, aka North Area, Charlotte County, Florida* prepared by BRA (December 23, 2003).

11. All construction within the secondary zone will be conducted during the non-nesting season (May 16 through September 30). Project construction, which may occur within the secondary zone during the nesting season (October 1 through May 16), shall be accomplished while the nest is being monitored by a protocol that is consistent with the Service's *Bald Eagle Monitoring Guidelines* (Service 2002). Any activity resulting in disruption of normal nesting behavior, defined in the *Bald Eagle Monitoring Guidelines* (Service 2002) would result in immediate stoppage of work and the implementation of corrective measures.

STATUS OF THE SPECIES/CRITICAL HABITAT

This section summarizes Florida scrub-jay and bald eagle biology and ecology as well as information regarding the status and trends of these species throughout its entire range. The Service uses this information to assess whether a Federal action is likely to jeopardize the continued existence of these species. The "Environmental Baseline" section summarizes information on status and trends of both species specifically within the action area. This summary provides the foundation for the Service's assessment of the effects of the proposed action, as presented in the "Effects of the Action" section. A thorough treatment of the biology and ecology of the Florida scrub-jay and the bald eagle, both in south Florida and throughout its range, can be found in the *South Florida Multi-Species Recovery Plan* (Service 1999).

Florida Scrub-Jay

Florida scrub-jays are about 10 to 12 inches long and weigh about 3 ounces. They are similar in size and shape to the blue jay (*Cyanocitta cristata*), but differ significantly in coloration (Woolfenden and Fitzpatrick 1996a). Unlike the blue jay, Florida scrub-jays do not have a crest. They also lack the conspicuous white-tipped wing and tail feathers, black barring and bridle of the blue jay. The Florida scrub-jay's head, nape, wings, and tail are pale blue, and it is pale grey on its back and belly. Its throat and upper breast are lightly striped and bordered by a pale blue-grey "bib." The sexes of the Florida scrub-jay are not distinguishable by plumage, and males average only slightly larger than females (Woolfenden 1978). The sexes may be differentiated

by a distinct "hiccup" call vocalized only by females (Woolfenden and Fitzpatrick 1986). Florida scrub-jays less than about 5 months of age are easily distinguishable from adults; their plumage is smokey grey on the head and back, and they lack the blue crown and nape of the adults. Molting occurs between early June and late November and peaks between mid-July and late September (Bancroft and Woolfenden 1982). During late summer and early fall, when the first basic molt is nearly complete, fledgling Florida scrub-jays may be indistinguishable from adults in the field (Woolfenden and Fitzpatrick 1984). The wide variety of vocalizations of the Florida scrub-jay is described in detail in Woolfenden and Fitzpatrick (1996b).

Florida scrub-jays are non-migratory, extremely sedentary, and have very specific habitat requirements (Woolfenden 1978). They usually reside in oak scrub vegetated with sand live oak (*Quercus geminata*), myrtle oak (*Q. myrtifolia*), scrub oak (*Q. inopine)*, and Chapman oak *(Q. chapmanii)*, along with saw palmetto (*Serenoa repens*), scrub palmetto, scattered sand pine, and rosemary. Such habitat occurs only on fine, white, drained sand, along the coastlines in Florida, and in dunes deposited during the Pleistocene, when sea levels were much higher than at present (Laessle 1958, 1968). Florida scrub-jays are rarely found in habitats with more than 50 percent canopy cover over 3 meters in height (Service 1990). The habitat required for the Florida scrub-jay greatly restricts the bird's distribution. Active management either through burning or mechanical clearing is necessary to maintain optimum conditions. In general, Florida scrub-jay habitat consists of dense thickets of scrub oaks less than 9 feet tall, interspersed with bare sand used for foraging and storing of acorns (Service 1990).

No critical habitat has been designated for this species; therefore none will be affected by the proposed project.

Life History/Population Dynamics

Florida scrub-jays are monogamous and remain mated throughout the year (Sprunt 1946; Woolfenden 1978). Florida scrub-jays have a social structure that involves cooperative breeding, a trait that the western North American populations of Florida scrub-jay species do not exhibit (Woolfenden and Fitzpatrick 1984). The offspring generally stay with the parents for at least 1 year, forming a family group consisting of 3 or more family members. These "helpers" assist the breeding pair in all territorial and breeding activities except nest construction, egg-laying, and incubation. The family group resides in a territory with a well-defined boundary, defended year-round by all group members (Woolfenden and Fitzpatrick 1984). A well-developed intra-familial dominance hierarchy exists with breeding males being the most dominant, followed by helper males, breeding females, and finally, helper females (Woolfenden and Fitzpatrick 1977). Helpers participate in sentinel duties (McGowan and Woolfenden 1989), territorial defense, predator mobbing, and feeding of both nestlings (Stallcup and Woolfenden 1978) and fledglings (McGowan and Woolfenden 1990). The presence of helpers generally increases reproductive success and survival within the group, which naturally causes family size to increase (Woolfenden and Fitzpatrick 1978). However, the presence of humans near populations of Florida scrub-jays results in a variety of incidental encounters that usually increase the mortality of both juveniles and adults (Fitzpatrick et al. 1991).

Florida scrub-jay pairs occupy year-round, multi-purpose territories (Woolfenden and Fitzpatrick 1984; Fitzpatrick et al. 1991; Fitzpatrick et al. 1994a). Territory size averages 22 to 25 acres, with a minimum size of about 12 acres. Territories are a limiting factor for Florida scrub-jay populations. Because of this limitation, non-breeding males may remain in their natal territory as helpers for up to 5 years, waiting for either a mate or territory to become available (Fitzpatrick et al. 1991). New territories are established several ways: by replacing a lost breeder on a territory (Woolfenden and Fitzpatrick 1984); through "territorial budding," where a helper male becomes a breeder in a segment of his natal territory (Woolfenden and Fitzpatrick 1978); by inheriting a natal territory following the death of a breeder; or by establishing a new territory between existing territories (Woolfenden and Fitzpatrick 1984). Territories can also be obtained by creating suitable habitat in areas that were previously unsuitable through effective habitat management (Thaxton and Hingtgen 1994).

To become a breeder, a Florida scrub-jay must acquire a territory as well as a mate. Evidence presented by Woolfenden and Fitzpatrick (1984) suggests that Florida scrub-jays are permanently monogamous and occupy the same territory year after year. Courtship to form the pair is lengthy and ritualized, and involves posturing and vocalizations made by the male to the female (Woolfenden and Fitzpatrick 1996b). Copulation between the pair is generally out of the sight of other jays (Woolfenden and Fitzpatrick 1984). These authors also reported never observing copulation between unpaired jays, nor courtship behavior between a female and a jay other than her mate. Age at first breeding varies from 1 to 7 years, although most breed between 2 and 4 years of age (Fitzpatrick and Woolfenden 1988). Persistent breeding populations of Florida scrub-jays exist only where there are scrub oaks in sufficient quantities to provide an ample winter acorn supply, cover from predators, and nest sites during spring (Woolfenden and Fitzpatrick 1996a).

Nesting is synchronous, normally occurring from March through June (Woolfenden and Fitzpatrick 1990; Fitzpatrick et al. 1991). In suburban habitats, nesting is consistently initiated earlier (March and April) than in natural scrub habitat (Fleischer 1996). Clutch size ranges from 1 to 5 eggs, but is usually 3 or 4 eggs. Clutch sizes are generally larger (up to 6 eggs) in suburban habitats, and the birds attempt to rear more broods (Fleischer 1996). Eggs are incubated for 17 to 18 days, and fledging occurs 16 to 21 days after hatching (Woolfenden 1974, 1978; Fitzpatrick et al. 1991). Only the breeding female broods the eggs and nestlings (Woolfenden and Fitzpatrick 1984). Average survival is two fledglings per pair per year (Woolfenden and Fitzpatrick 1990; Fitzpatrick et al. 1991), and the presence of helpers improves success (Mumme 1992). Annual productivity must average at least 2 young per pair for a pair to maintain long term stability (Fitzpatrick et al. 1991). Toland (1991) reported that productivity averaged 2.2 young fledged per pair in contiguous, optimal scrub, 1.8 young fledged per pair in fragmented, moderately developed scrub, 1.2 young fledged per pair in suboptimal and only about 0.5 young fledged per pair in residential lawns.

Fledglings remain nutritionally dependent for about 10 weeks, during which time they are fed by both parents and helpers (Woolfenden 1975; McGowan and Woolfenden 1990). Survival of

Florida scrub-jay fledglings to yearling class averages about 35 percent, while annual survival of adult males and females is around 80 percent (Fitzpatrick et al. 1991). The maximum observed lifespan of a Florida scrub-jay is 15.5 years (Woolfenden and Fitzpatrick 1996b).

Juveniles remain in their natal territory for up to 5 years before dispersing (Woolfenden and Fitzpatrick 1984). Once they pair and become breeders, generally within two territories of their natal grounds, they remain in their breeding territory until death. In suitable habitat, fewer than 5 percent of Florida scrub-jays disperse more than 5 miles (Fitzpatrick et al. 1991). All documented long distance dispersals have been in unsuitable habitat such as woodland, pasture, or suburban plantations. Florida scrub-jay dispersal behavior is affected by intervening landscape matrix. Protected scrub habitats will most effectively sustain Florida scrub-jay populations if they are located within a matrix that can be utilized and traversed by Florida scrub-jays. Brushy pastures, scrubby corridors along railways, county road rights-of-way, and open burned flatwoods provide links for colonization among Florida scrub-jay subpopulations. Stith et al. (1996) believed that a dispersal distance of 5 miles is closer to biological maximum for Florida scrub-jays.

Florida scrub-jays forage on or near the ground, often along the edge of natural or manmade openings. Insects, particularly orthopteran and lepidopteran larvae, comprise the majority of the animal diet throughout most of the year (Woolfenden and Fitzpatrick 1984). Acorns are by far the most important plant food, and from August to November Florida scrub-jays harvest and cache thousands of scrub oak acorns throughout their territory (Fitzpatrick et al. 1991). It is estimated that one-third of these acorns are later recovered and eaten. Caching allows Florida scrub-jays to eat acorns every month of the year. This reliance on acorns and caching may constitute a major reason for the Florida scrub-jay's restriction to the oak scrub and sandy ridges within Florida (Fitzpatrick et al. 1991).

Status and Distribution

The Florida scrub-jay is geographically isolated from other species of Florida scrub-jays found in Mexico and the western United States. The Florida scrub-jay is found almost exclusively in peninsular Florida, and is restricted to scrub habitat (Service 1990). The Florida scrub-jay was listed as a threatened species on June 3, 1987 (52 FR 20715-20719). The main causes responsible for the decline were as follows:

Habitat Destruction - The existence of Florida scrub-jays throughout their range depends completely on existence of a particular seral stage of oak scrub habitat growing in conjunction with open, sandy soils. This habitat occurs naturally only in localized patches associated with recent or ancient shoreline deposits. By the time of listing, a large proportion of these habitat patches had been converted for human use, or was slated for imminent conversion. Most of the coastal scrub habitat had already been cleared for beachfront hotels, houses, and condominiums, and much of the central Florida scrub had been converted to citrus groves, housing developments, and commercial real estate. It was estimated that 40 percent of occupied scrub habitat had already been converted to other uses and total population of the species had declined

by at least half. Owing to a rapid increase in human population numbers throughout south Florida, the pace of housing and agricultural development had accelerated since the 1960s, and showed no signs of abating.

Overutilization for Commercial, Recreational, Scientific, or Educational Purposes - Reported shooting of Florida scrub-jays and collection of the species as pets were considered threats.

Disease or Predation - Disease and predation were not believed to be major threats at the time of listing.

The Inadequacy of Existing Regulatory Mechanisms - The only laws protecting the Florida scrub-jay at the time of listing were the Migratory Bird Treaty Act (16 U.S.C. 703 *et seq.*) and Florida State Law (Chapter 39-27, Florida Administrative Code). Neither of these laws protected the birds from habitat destruction, which constituted the major threat to the species.

Other Natural or Manmade Factors - Suppression of fire by humans was identified as a factor in species decline at the time of the listing. Historically, lightning strikes started fires which maintained the sparse low scrub habitat required by Florida scrub-jays. Human efforts to suppress these fires to protect human interests allowed the scrub to become too dense and tall to support populations of Florida scrub-jays. Vehicular mortality of Florida scrub-jays due to accidental collisions along roadsides was recognized as a cause of the decline in some portions of the species' range.

Continued and Current Threats

Habitat Destruction - Scrub habitats continued to decline throughout peninsular Florida since listing occurred, and habitat destruction continues to be one of the main threats to the Florida scrub-jay. Cox (1987) noted local extirpations and major decreases in numbers of Florida scrub-jays and attributed them to the clearing of scrub for housing and citrus groves. Eighty percent or more of the scrub habitats have been destroyed along the Lake Wales Ridge since prehuman settlement (Fitzpatrick et al. 1991). Fernald (1989), Fitzpatrick et al. (1991, 1994b), and Woolfenden and Fitzpatrick (1996a) noted the role that habitat losses due to agriculture, silviculture, and commercial and residential development have continued to play in the decline in numbers of Florida scrub-jays throughout the State. Statewide estimates of scrub habitat loss range from 70 to 90 percent (Bergen 1994; Woolfenden and Fitzpatrick 1996a; Fitzpatrick et al. 1991).

Less than 1,977 acres of an estimated pre-settlement of 14,826 acres of scrubby flatwoods habitat remain in Sarasota County, mostly occurring in patches averaging less than 2.5 acres in size (Thaxton and Hingten 1996). According to Fernald (1989), in the Treasure Coast region of Florida (Indian River, St. Lucie, Martin, and Palm Beach Counties), only 10,673 acres of viable coastal scrub and scrubby flatwoods remained; Fernald estimated that 95 percent of scrub had already been destroyed for development purposes in Palm Beach County.

Miller and Stith (2002) identified and mapped 160 different habitat polygons totaling 11,167.8 acres classified by the authors as current or restorable Florida scrub-jay habitat in Charlotte County. Habitat polygons ranged in size from 1.1 to 829.3 acres and comprised approximately 1 percent of the Charlotte County land area. Only 1 percent of the mapped habitat was considered in optimal condition and less than 50 percent was classified as "heavily overgrown". Only 10 percent of the current or restorable habitat was on public lands (Miller and Stith 2002).

Habitat destruction not only reduces the amount of area Florida scrub-jays can occupy, but also increases fragmentation of habitat. As more scrub habitat is altered, the habitat is cut into smaller and smaller pieces, separated from other patches by larger distances. Such fragmentation increases the probability of genetic isolation, which is likely to increase extinction probability (Fitzpatrick et al. 1991; Woolfenden and Fitzpatrick 1991; Snodgrass et al. 1993; Stith et al. 1996; Thaxton and Hingten 1996). Dispersal distances of Florida scrub-jays in fragmented habitat are further than in optimal unfragmented habitats (Thaxton and Hingten 1996; Breininger 1999).

Overutilization for Commercial, Recreational, Scientific, or Educational Purposes - The Service knows of only one case in Volusia County where a Florida scrub-jay had been shot. Several other cases were investigated, but there was no evidence revealing the taking of any more jays through this means. However, in areas where jays are tamed by the presence of human-feeding activity, the species becomes bold, and therefore, vulnerable to recreational or malicious shooting (Woolfenden and Fitzpatrick 1996b).

Disease or Predation - Most Florida scrub-jays probably die from predation. The second most frequent cause may be disease, or predation on disease-weakened jays (Woolfenden and Fitzpatrick 1996b). Known predators of Florida scrub-jays are listed by Woolfenden and Fitzpatrick (1990) and Fitzpatrick et al. (1991); the list includes eastern coachwhip (*Masticophis flagellum)*, known to eat adults, nestlings, and fledglings; and the eastern indigo snake, known to eat adults and fledglings. Mammalian predators include bobcats (*Lynx rufus*); raccoons (*Procyon lotor*); sometimes cotton rats (*Sigmodon hispidus)*, known to eat eggs; and domestic cats (*Felis cattus)*, known to eat adults. Fitzpatrick et al. (1991) suspect that populations of domestic cats are able to eliminate small populations of Florida scrub-jays. Avian nest predators include great horned owls, eastern screech-owl (*Otus asio*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), and possibly fish crow (*Corvus ossifragus*), American crow (*C. brachyrhynchos*), and blue jay. Fitzpatrick et al. (1991) reported that overgrown scrub habitats are often occupied by the blue jay, which may be one factor limiting Florida scrub-jay populations in such areas. Raptors which seem to be important predators of adult Florida scrub-jays are merlin (*Falco columbarius*), sharp-shinned hawk (*Accipiter striatus*), and Cooper's hawk (*A. cooperii*). During migration and winter, these three hawks and the harrier are present in areas which contain scrub habitat, and jays may experience frequent encounters (as many as one pursuit a day) with them (Woolfenden and Fitzpatrick 1990). In coastal scrub, Woolfenden and Fitzpatrick (1996b) report that Florida scrub-jays are vulnerable to predation by hawks in October, March, and April, when high densities of migrating accipiters and falcons are present. Woolfenden and Fitzpatrick (1996b) and Toland (1999) suggest that in overgrown scrub habitats,

hunting efficiency for Florida scrub-jay predators is increased. Bowman and Averill (1993) noted that Florida scrub-jays occupying fragments of scrub located in or near housing developments were more prone to predation by house cats and competition from blue jays and mockingbirds. Woolfenden and Fitzpatrick (1996a, 1996b) stated that proximity to housing developments (and increased exposure to domestic cats) needs to be taken into consideration when designing scrub preserves. Young Florida scrub-jays are especially vulnerable to ground predators (*e.g.*, snakes and mammals) prior to their being fully capable of sustained flight.

The Florida scrub-jay hosts two protozoan blood parasites (*Plasmodium cathemerium* and *Haemoproteus danilewskyi*), but incidence is low (M. Garvin, personal communication, cited in Woolfenden and Fitzpatrick 1996b). Several Florida scrub-jays sick from these two agents in March 1992 survived to become breeders. The Florida scrub-jay carries at least three types of mosquito-borne encephalitis (St. Louis, eastern equine, and "Highlands jay"; [M. Garvin and J. Day, personal communication, cited in Woolfenden and Fitzpatrick 1996b]). Of particular concern is the arrival of West Nile virus (the agent of another type of encephalitis) in Florida during 2001; since corvids have been particularly susceptible to the disease in States north of Florida, it is expected that Florida scrub-jays will be affected by its arrival.

Woolfenden and Fitzpatrick (1996b) noted three episodes of elevated mortality (especially among juveniles) in 26 years at Archbold Biological Station. Each of these incidents occurred in conjunction with elevated water levels following unusually heavy rains in the fall, although not all such years cause high mortality. During the most severe of these presumed epidemics (August 1979 through March 1980), the entire juvenile cohort (with the exception of one) and almost half of the breeding adults died (Woolfenden and Fitzpatrick 1984; Woolfenden and Fitzpatrick 1990). The 1979-1980 incident coincided with a known outbreak of eastern equine encephalitis among domestic birds in central Florida (J. Day, personal communication, cited in Woolfenden and Fitzpatrick 1996b). From the fall of 1997 through the spring of 1998, the continuing population decline of Florida scrub-jays along the Atlantic coast and in central Florida may have been augmented by an epidemic (Breininger and Oddy 1998; Breininger 1999).

In the winter through summer of 1973, 15 species of helminth fauna (including 8 nematodes, 5 trematodes, 1 cestode, and 1 acanthocephalan) were found in 45 Florida scrub-jays collected in south-central Florida; the parasite load was attributed to a varied arthropod diet (Kinsella 1974). These naturally occurring parasites are not believed to contribute significantly to population declines.

Larvae of a collophorid dipteran, *Philornis* (=*Neomusca*) *porteri*, occur irregularly on Florida scrub-jay nestlings. The species pupates in the base of the nest; larvae locate in nares, mouth flanges, bases of remiges, and toes. Apparently no serious effect on the Florida scrub-jay host occurs (Woolfenden and Fitpatrick 1996b). In addition, one undescribed chewing louse (*Myrsidea* sp.) (R. Price, personal communication, cited in Woolfenden and Fitzpatrick 1996b), one wing-feather mite (*Pterodectes* sp.), two chiggers (*Eutrombicula lipovskyana*), and a flea (*Echidnophaga gallinacean*) (J. Kinsella, personal communication, cited in Woolfenden and

Fitzpatrick 1996b) occur on some individuals, usually at low densities). Nymphs and larvae of four ticks (*Amblyomma americanum*, *A. tuberculatum*, *Haemaphysalis leporispalustris*, and *Ixodes scapularis*) are known to occur on Florida scrub-jays, as well as the larvae of the tick *Amblyomma maculatum* (L. Durden and J. Keirans, personal communication, cited in Woolfenden and Fitzpatrick 1996b). These naturally-occurring parasites are not believed to contribute significantly to population declines.

The Inadequacy of Existing Regulatory Mechanisms - Woolfenden and Fitzpatrick (1996a) state the importance of enforcing existing Federal laws regarding the management of Federal lands as natural ecosystems for the long-term survival of the Florida scrub-jay. Such enforcement is necessary to increase and secure the populations of the species on Merritt Island National Wildlife Refuge (NWR), Cape Canaveral Air Force Station, and Ocala National Forest. Florida's State Comprehensive Plan and Growth Management Act of 1985 is administered mostly by regional and local governments. Regional Planning Councils administer the law through DRI reviews; at the local level, although comprehensive plans contain policy statements and natural resource protection objectives, they are only effective if counties enact ordinances. As a general rule, counties have not enacted and/or enforced ordinances to be very effective in protecting Florida scrub-jays (Fernald 1989).

The Wildlife Code of the State of Florida (Chapter 39, Florida Administrative Code) prohibits taking of individuals of threatened species or parts, thereof or their nests or eggs except as authorized. The statute does not prohibit clearing of habitat occupied by protected species, which limits the ability of the FWC to protect the Florida scrub-jay.

Other Natural or Manmade Factors - Human interference with natural fire regimes has continued to play an important part in the decline of the Florida scrub-jay, and today may exceed habitat loss as the single most important factor. Lightning strikes cause virtually all naturally-occurring fires in south Florida scrub habitat (Abrahamson 1984; Hofstetter 1984). Fire has been noted to be important in maintenance of scrub habitat for decades (Nash 1895; Harper 1928; Webber 1935; Davis 1943; Laessle 1968; Abrahamson et al. 1984). Human efforts to prevent and/or control natural fires have allowed the scrub to become too dense and tall to support populations of Florida scrub-jays, resulting in the decline of local populations of Florida scrub-jays throughout the State (Fernald 1989; Fitzpatrick et al. 1994a; Percival et al. 1995; Stith et al. 1996; Thaxton and Hingten 1996; Woolfenden and Fitzpatrick 1990, 1996a; Toland 1999). Woolfenden and Fitzpatrick (1996a) cautioned, however, that fire applied too frequently to scrub habitat also can result in local extirpations. Experimental data at Archbold Biological Station (Fitzpatrick and Woolfenden, 1991) demonstrate that fire-return intervals varying between 5 and 15 years are optimal for long-term maintenance of productive Florida scrub-jay populations in central Florida.

Stith et al. (1996) estimated that at least 2,100 breeding pairs were living in overgrown habitat. Toland (1999) reported that most of the remaining scrub (estimated to be only 15 percent of the original acreage) within Brevard County is extremely overgrown due to fire suppression. He further suggests that the overgrowth of scrub habitats reduces the number and size of sand

openings which are crucial to not only Florida scrub-jays, but also many other scrub plants and animals. Reduction in the number of potential Florida scrub-jay nesting sites, acorn cache sites, and foraging sites presents a problem for jays. Fernald (1989) reported that overgrowth of scrub results in the decline of species diversity and abundance and a reduction in the percentage of open sandy patches (Fernald 1989; Woolfenden and Fitzpatrick 1996b). Fitzpatrick et al. (1994a) believed that fire suppression was just as responsible for the decline of the Florida scrub-jay as habitat loss, especially in the northern third of its range. Likewise, the continued population decline of Florida scrub-jays within Brevard County between 1991 and 1999 has been attributed mainly to the overgrowth of remaining habitat patches (Breininger and Oddy 1998). Breininger et al. (1999) concluded that optimal habitat management is essential in fragmented ecosystems maintained by periodic fire, especially to minimize risks of decline and extinction resulting from epidemics and hurricanes.

Fitzpatrick et al. (1991, 1994a) and Woolfenden and Fitzpatrick (1996a) expressed concern for the management practices taking place on Federal lands at Ocala National Forest, Merritt Island NWR, Kennedy Space Center, and Cape Canaveral Air Force Station, containing the two largest contiguous populations of Florida scrub-jays. They predicted that fire suppression and/or too frequent fires (on the latter two) and silvicultural activities involving the cultivation of sand pine on Ocala National Forest would be responsible for continuing decline of Florida scrub-jays in these large contiguous areas of scrub where populations should be most secure.

Housing and commercial developments within scrub habitats are accompanied by the development of roads; since Florida scrub-jays frequently forage along roadsides and other openings in the scrub, there is a high probability of Florida scrub-jays being killed by passing cars. Research by Mumme et al. (2000) indicated that clusters of Florida scrub-jay territories located along roadsides represent population sinks (breeder mortality exceeds production of breeding-aged recruits), which can be maintained only by immigration. Since this species may be attracted to roadsides because of the open habitat characteristics, road mortality presents a significant and growing management problem throughout the remaining range of the Florida scrub-jay (Dreschel et al. 1990; Mumme et al. 2000), and proximity to roads needs to be considered when designing scrub preserves (Woolfenden and Fitzpatrick 1996a).

Also a potential problem in suburban areas containing Florida scrub-jays is the supplemental feeding of the species by humans (Bowman and Averill 1993; R. Bowman, unpublished data, cited in Woolfenden and Fitzpatrick 1996a). The presence of additional food may allow Florida scrub-jays to persist in fragmented habitats, but recruitment in these populations is lower than in native habitats. However, even though human-feeding of jays may postpone local extirpations, long-term survival cannot be ensured in the absence of protecting native oak scrub habitat, necessary for nesting. In addition, local populations of jays may be artificially elevated by the presence of supplemental food during the nonbreeding season, but during the summer and fall there is not enough native habitat to support them, resulting in population sinks; the presence of such sinks needs to be considered when managing wild populations that are located close to residential development.

Florida scrub-jays in suburban settings often nest high in tall shrubbery; during March winds, these nests tend to be susceptible to destruction (R. Bowman and G.E. Woolfenden, unpublished data, cited in Woolfenden and Fitzpatrick 1996b).

Hurricanes pose a potential risk for Florida scrub-jays, although the exact impact of such catastrophic events remains unknown. Breininger et al. (1999) modeled the effects of epidemics and hurricanes on Florida scrub-jay populations in varying stages of habitat quality. Small populations of Florida scrub-jays are more vulnerable to extinction where epidemics and hurricanes are common. Storm surge from a category 3 to 5 hurricane could inundate entire small populations of Florida scrub-jays, and existing habitat fragmentation could prevent repopulation of affected areas. The model also predicted that long-term habitat degradation had greater influence on extinction risk than either hurricanes or epidemics.

Fernald (1989) reported that many patches of scrub in Florida have been degraded by trails created by off-road vehicles, illegal dumping of construction debris, abandoned cars, and appliances or household waste. Also, a problem was the invasion of these areas by exotic species, including Brazilian pepper, cypress pine (*Callitris glaucophylla*), Australian pine (*Casuarina equisetifolia*), and others. Other human-induced impacts identified by Fernald include the introduction of domestic dogs and cats, black rats (*Rattus rattus*), greenhouse frogs (*Eleutherodactylus planirostris*), giant toads (*Bufo marinus*), Cuban treefrogs (*Osteopilus septentrionalis*), brown anoles (*Anolis sagrei*), and other exotic animal species. These exotic species compete with Florida scrub-jays for both space and food.

A statewide Florida scrub-jay census was last conducted in 1992-1993. At that time, there were an estimated 4,000 pairs of Florida scrub-jays remaining in the State (Fitzpatrick et al. 1994b). The Florida scrub-jay was considered extirpated in 10 counties (Alachua, Broward, Clay, Dade, Duval, Gilchrist, Hernando, Hendry, Pinellas, and St. Johns), and in an additional 5 counties (Flagler, Hardee, Levy, Orange, and Putnam), numbers were reduced to 10 or fewer pairs. In Gulf coast counties (from Levy south to Collier); populations are close to becoming extirpated (Fitzpatrick et al. 1994b; Woolfenden and Fitzpatrick 1996a). In 1992-1993, population numbers in 19 of the counties were below 30 or fewer groups. In the past, most of these counties would have contained hundreds or even thousands of groups (Fitzpatrick et al. 1994a). Based on the amount of destroyed scrub habitat, Florida scrub-jay population loss along the Lake Wales Ridge is 80 percent or more since pre-human settlement (Fitzpatrick et al. 1991). Since the early 1980s, Fitzpatrick et al. (1994a) estimated that in the northern third of the species' range, the Florida scrub-jay has declined somewhere between 25 and 50 percent. In the last decade alone, the species may have declined statewide by as much as 25 to 50 percent (Stith et al. 1996).

In Charlotte County, Miller and Stith (2002) reported 135 Florida scrub-jay groups containing 419 individuals compared to 134 groups containing 303 individuals documented in the 1992-1993 statewide Florida scrub-jay censuses. Although the overall numbers of individuals increased, some metapopulations within the county experienced significant reductions in the numbers of both groups and individuals present.

On protected lands, jays have continued to decline due to inadequate habitat management (Stith 1999). Miller and Stith (2002) concluded that 11 Florida scrub-jay groups consisting of 23 individuals had been extirpated from the Charlotte County Tippecanoe Scrub Environmental Park between 1992 and 2001 as a result of a prolonged period of overgrown conditions from a lack of habitat management. However, over the last several years, steps to reverse this decline have occurred, and management of scrub habitat is ongoing in many areas of the State (Hastie and Eckl 1999; Stith 1999; The Nature Conservancy 2001).

Miller and Stith (2002) mapped 160 different polygons, totaling 11,167.8 acres of current Florida scrub-jay habitat or restorable Florida scrub-jay habitat in Charlotte County. The potential Florida scrub-jay habitat is approximately 1 percent of the total land in Charlotte County. Over 50 percent of the potential Florida scrub-jay habitat was classified as overgrown or of poor quality, and only 2 polygons were classified as being in prime condition. Of the current or restorable Florida scrub-jay habitat within Charlotte County, an estimated 1130.0 acres (10.1 percent) occurs on public, *i.e.*, State or county land. Seven (5.1 percent) of the jay groups and 6.4 percent of the individuals occurring in the county occupy public lands (Miller and Stith 2002).

While the number of Florida scrub-jay families within Charlotte County has remained nearly the same between the 1992 and 2001 censuses and the number of individuals documented has increased by a factor of some 38 percent, marked declines have occurred within some portions of the county (Miller and Stith 2002). Within the Central-West Metapopulation (M6W), the number of family groups has declined from 33 to 10 groups and 75 to 35 individuals between 1992 and 2001. Of particular note is the apparent extirpation of 10 family groups within the county-owned Tippecanoe Scrub Environmental Park during this interval. Miller and Stith (2002) suggest that the heavily overgrown conditions in the park contributed to the loss of Florida scrub-jays at this site. Significant opportunities for habitat management and restoration occur at the Tippecanoe Scrub Environmental Park and other county-owned lands, such as the Amberjack Scrub/Slough Environmental Park. Miller and Stith (2002) identified 44 privately-owned habitat polygons totaling approximately 5,580 acres that were recommended for public acquisition. Acquisition and management/restoration of these sites could support an estimated 225 Florida scrub-jay groups (Miller and Stith 2002).

Stith (1999) utilized a spatially-explicit individual-based population model developed specifically for the Florida scrub-jay to complete a metapopulation viability analysis of the species statewide. The population was divided into 21 metapopulations demographically isolated from each other. A series of simulations were run for each of the 21 metapopulations based on different scenarios of reserve design ranging from the minimal configuration consisting of only currently protected patches of scrub (no acquisition option) to the maximum configuration, where all remaining significant scrub patches were acquired for protection (complete acquisition option). The assumption was made that all areas that were protected were also restored and properly managed. Results from Stith's (1999) simulation model included estimates of extinction, quasi-extinction (the probability of a Florida scrub-jay metapopulation falling below 10 pairs), and percent population decline. By comparing the results, the different

statewide metapopulations were then ranked in terms of vulnerability. The model predicted that five metapopulations (northeast Lake County, Martin County, Merritt Island NWR, Ocala National Forest, and Lake Wales Ridge) have low risk of quasi-extinction. Two of the five (Martin and Lake Counties); however, experienced significant population declines under the "no acquisition" option that could be improved by additional acquisitions.

Eleven of the remaining 21 metapopulations were shown to be highly vulnerable to quasi-extinction if no additional habitat were acquired (north Brevard, Levy, central Charlotte, central Brevard, west Volusia, northwest Charlotte, St. Lucie, Citrus, Lee, Manatee, and Pasco Counties). By acquiring all or most of the remaining scrub habitat, the model predicted that the risk of quasi-extinction would be greatly reduced for 7 of the 11 counties (north Brevard, Levy, central Charlotte, central Brevard, west Volusia, northwest Charlotte, and St. Lucie). The model predicted that the remaining 4 metapopulations (Citrus, Lee, Manatee, and Pasco Counties) would moderately benefit if additional acquisitions were made.

Stith (1999) classified two metapopulations (south Brevard and Sarasota Counties) as moderately vulnerable with a moderate potential for improvement; they both had one or more fairly stable subpopulations of Florida scrub-jays under protection, but the model predicted large population declines. Without further acquisitions, the remainder of the metapopulation could collapse, making the protected subpopulations vulnerable to epidemics or other catastrophes.

Three of the metapopulations evaluated by Stith (1999) (south Palm Beach, central Lake, and Flagler Counties) were classified as highly vulnerable to quasi-extinction and had low potential for improvement, since little or no habitat is available to acquire or restore.

Bald Eagle

The bald eagle was listed as endangered on March 11, 1967, due to significant population declines (32 FR 4001). The status of the bald eagle was downgraded from endangered to threatened on July 12, 1995, due to substantial population increases following conservation efforts, including the banning of DDT and other organochlorine pesticides (60 FR 36010). No critical habitat has been designated for this species. A proposed rule to delist the bald eagle was published in the Federal Register on July 6, 1999.

Distribution - The bald eagle was historically found throughout the North American continent from the Aleutian Islands and western Alaska to the Maritime Provinces of Canada and south to the Florida Keys, the Gulf Coast, and Baja California (Curnutt 1996). Apart from Alaska, most nesting bald eagles were found in Florida, the Chesapeake Bay area, the Great Lakes region, Maine, and the Pacific Northwest. Bald eagles were historically found throughout Florida, although they were probably most abundant along large rivers and lakes. Eagles were probably never numerous in the panhandle or extreme southeastern Florida. Today, bald eagle nesting is prevalent along the southwest coast, the Gulf Coast from Pinellas County north to the Suwannee River, the St. Johns/Oklawaha River basins, and the Kissimmee River valley including Polk and Osceola Counties (Curnutt 1996).

Habitat - Bald eagles are considered a water-dependent species typically found near estuaries, large lakes, reservoirs, major rivers, and some seacoast habitats (Service 1999). Their distribution is influenced by the availability of suitable nest and perch sites near large, open water-bodies, typically with high amounts of water-to-land edge. Nesting habitat includes the nest tree, perch and roost sites, and adjacent high use areas but usually does not include foraging areas. The nest, perch, roost sites, and use areas around the nest comprise the nesting territory. The size and shape of a defended nesting territory varies greatly depending on the terrain, vegetation, food availability, and eagle density in the area. Generally, bald eagle nesting habitat is adjacent to, or near large bodies of water that are used for foraging (Service 1999). Nest sites must also provide good visibility, and a clear flight path to the nest (Montana Bald Eagle Working Group 1991). Bald eagle nests in Florida, are often constructed in the ecotone between forest and marsh or water, and are constructed in dominant or codominant living pines (*Pinus* spp.) or bald cypress (*Taxodium distichum*) (McEwan and Hirth 1979). Approximately 10 percent of eagle nests are located in dead pine trees while 2 to 3 percent occur in other species such as Australian pine and live oak (*Quercus virginiana*). The stature of nest trees decreases from north to south (Wood et al. 1989), and in extreme southwest Florida, eagles can nest in black (*Avicennia germinans*) and red mangroves (*Rhizophora mangle*), half of which are snags (Curnutt and Robertson 1994). Nest trees in south Florida are smaller and shorter than reported elsewhere; however, eagles nesting here select the largest trees available (Wood et al. 1989, Hardesty 1991). The small size of nest trees in south Florida relative to other nest sites throughout its range is due to the naturally smaller stature of *Pinus elliottii*, *P. taeda*, *P. palustris*, and *P. clausa* in south Florida.

Reproduction - Most breeding eagles construct nests within several hundred yards of open water (Service 1999). Nests also may be located within 2 miles of open water, substantially further than other reported distances (McEwan and Hirth 1979, Wood et al. 1989).

Bald eagles nest once a year in the southeastern United States, with the mated pair returning to the same breeding/nest area beginning in early September or October, refurbishing their nest during November and December, and egg laying in December or January. Depending on the geographic area, incubation may be initiated as early as November or as late as March, with the eggs requiring about 35 days for incubation. Clutches usually consist of one or two eggs, but occasionally three are laid. Florida eaglets will grow to the size of the adult birds within 10 to 12 weeks, at which time they typically fledge (Wood 1987). Parental care may extend 4 to 6 weeks after fledging even though young eagles are fully developed and may not remain at the nest after fledging.

The immature bald eagle lacks the white head, neck and tail, and has a dark beak and dark eyes. The overall color of young eagles is dark to light brown with light-colored base feathers that give a blotchy appearance. The white head and tail plumage may not appear complete until the eagle is 4 to 5 years of age.

Foraging - The bald eagle is an opportunistic feeder. Accordingly, its diet varies tremendously, depending on the time of year and habitat. Most studies indicate that fish are an important component of the eagle's diet, while birds and mammals account for the bulk of the remaining

foods (Johnsgard 1990). Reduced availability of winter prey resulting from frozen waters require interior-based eagle populations to switch from a predominately fish diet to one of birds and mammals. Carrion is taken by many eagles and is also a substantial portion of the diet, especially for coastal eagles dependent on post-spawning salmonids. Non-coastal populations may also rely heavily on carrion particularly during late winter and early spring.

The bulk of bald eagle diets in the southeastern United States are fish. Broley (1947) found catfish (*Ictalurus* spp.), mullet (*Mugil cephalus*), and turtles to be the most common food items found at nests in Florida. He also found that the variety of prey items differ among individual pairs. McEwan (1977) reported 79 percent fish and 17 percent bird prey, by occurrence, based on 788 animal remains recovered from nests. The dominant items were catfish and the American coot (*Fulica americana*).

Movements - Adult birds in coastal Alaska, Canada, the Pacific Northwest, Florida, and the Chesapeake Bay areas do not migrate, although dispersal of young may occur seasonally from some of these areas. Juvenile birds fledged in Florida are highly migratory, with more than one-third of the recoveries made 1,000 miles or more north of Florida, all during the non-nesting season (Broley 1947). It is assumed these birds remain in Florida if paired, as do most other paired adults. It is not clear whether unpaired birds continue to migrate north during summer or remain in Florida with the breeding adults. Most radio-collared juveniles return to nesting areas each year, but a small proportion remain away for 2 to 3 years.

Bald eagles breed and nest in Florida during the temperate winter. Contrary to changes in habitat use exhibited by northern United States bald eagle populations, eagles in the southern United States do not substantially alter habitat use throughout the year. Some adults may remain in and defend their nesting territory outside of the breeding season (Palmer 1988), use or defend portions of their territory, or disperse and congregate at predictable food sources such as landfills. Most of those adults that do not maintain territories throughout the year are thought to not leave the State. Conversely, following fledging, many juvenile eagles disperse north and summer from along the Atlantic Coast west to the Appalachian Mountains, and north as far as Canada (Broley 1947, Wood and Collopy 1995).

Status and Trends - Bald eagle nesting has been widely studied in Florida, and published accounts are available from a variety of sources. Broley (1947) was the first to document a decline in eagle nesting in the late 1940s. A further decline from 73 to 43 active nesting areas was reported for west central Florida between 1936 and 1956. Howell (1973) reported a decline in nesting around Merritt Island NWR from 24 nests in 1935 to 4 nests in 1971. An excellent summary was provided by Peterson and Robertson (1978), in which they characterized the bald eagle population of the 1970s as less than 50 percent of historic numbers with continued, yet slow decreases.

State natural resource agencies and conservation organizations initiated surveys for nesting bald eagles in the early 1950s, revealing that bald eagle numbers declined from historic numbers in

many locations. A nationwide survey by the Service, several State wildlife agencies, and conservation groups in 1974 indicated that eagle numbers and their reproductive success in certain areas were low enough to warrant protective actions.

Bald eagle nesting and productivity has increased dramatically since the early 1970s in Florida. The State currently supports the highest number of breeding bald eagles of any southeastern State, supporting approximately 70 percent of the occupied territories in this region (Nesbitt 1995). Although numbers and productivity of bald eagles are increasing in Florida, concerns remain about the cumulative impacts associated with continued agricultural, residential, and commercial development (Wood 1987, Nesbitt 1995).

The FWC documented 88 active bald eagle nesting territories in Florida during their initial surveys of this species in 1973, and that number had increased to 391 active territories when the *Habitat Management Guidelines for the Bald Eagle in the Southeastern Region* (Guidelines) (Service 1987) were implemented in 1987. The recovery goal for bald eagles in Florida is 1,000 breeding pairs, and the number of active nesting territories currently being surveyed annually in Florida exceeds 1,133 territories. Peterson and Robertson (1978) reported that historic numbers of breeding pairs of bald eagles in Florida were likely "in excess of 1,000 breeding pairs," and the current population may now approximate historic densities.

Table 1. Steady increases that has occurred in the number of bald eagle nests in Florida since 1982.

Year	Number of Nests		Year	Number of Nests
1982	340		1994	764
1984	375		1995	831
1987	391		1996	876
1988	399		1997	912
1989	439		1998	980
1990	535		1999	1,043
1991	601		2000	1,069
1992	652		2001	1,102
1993	667		2002	1,133
			2003	1,133

Threats - A primary threat to bald eagles after World War II was the widespread use of the pesticide DDT for mosquito control (Broley 1950). It was sprayed directly into wetlands, entered the food chain, and resulted in eggshell thinning. This caused massive reproductive

failure which became evident in the 1960s. Peterson and Robertson (1978) indicated that the eagle population decreased by 50 percent in a 30-year period. The Federal government subsequently banned the use of DDT in 1972.

A major threat to eagles remains habitat loss and degradation from human alteration of the environment (Heinzman 1961, 1962; and Smith 1969). This is especially true along coasts and waterways where development has increased. Nesbitt et al. (1993) compared productivity of Florida bald eagle nests near human disturbances with nests in more natural, undisturbed settings and did not find significant differences in productivity. An additional hazard to eagles occurs predominantly in the western United States, and involves death from lead and chemical poisoning. Lead poisoning originates from lead shot that remains in dead or dying birds, and chemical poisoning from the intentional poisoning of nuisance animals. The effects to eagles are secondary.

The Service worked with each bald eagle recovery unit in the United States (*e.g.*, Southeast, Southwest, and Northern States; Chesapeake Bay; and Pacific), to produce guidelines that provide recommendations to avoid or minimize detrimental human-related effects to nesting bald eagles. These guidelines include recommendations on the frequency, distance, and type of disturbances that should be avoided in the vicinity of bald eagle nests. Though the guidelines vary from region to region, they generally provide for spatial and temporal protection of the nest site and foraging areas. These guidelines have been widely adopted by Federal and State agencies and are applied to both public and private lands.

The Guidelines have been used in Florida to avoid or minimize potential adverse effects to nesting bald eagles. Nesbitt et al. (1993) evaluated the effectiveness of the Guidelines in protecting bald eagle habitat and found that bald eagle use and productivity were not significantly affected by encroachment if the Guidelines were implemented as recommended. These results lead to the conclusion that no modifications to the guidelines were needed.

Millsap et al. (2002) provided further insight into the effectiveness of the Guidelines for protecting nesting bald eagles from development and human related disturbances. Productivity of bald eagles was compared at 60 "rural" nest sites (less than 5 percent of the land area within 1,500 meters of the nest was in intensive human use) with 60 "urban" nest sites (greater than 50 percent of the land area within 1,500 meters of the nest was in intensive human use), and it was determined that productivity was not significantly different between these nest site categories. They found that some bald eagles successfully coexist with intensive human activity but recommended it was critical to maintain suitable nesting sites (mature pine trees) as refuges within green spaces where human activity should be prohibited during nesting periods. They further recommended that additional work is needed to better define general levels of acceptance of human activity by nesting Florida bald eagles in today's landscape and that the gained knowledge should be used to evaluate and fine-tune regulations and policies governing the protection of nesting sites.

Analysis of the Species

Florida Scrub-Jay

The Florida scrub-jay's status since its listing in 1987 has not improved. The status and trends that we discussed above, clearly shows what two items are essential for recovery of this species: (1) additional purchase of scrub lands for preservation in some key areas; and (2) restoration and management of publicly-owned scrub lands already under preservation. Without both, it is unlikely that recovery can be achieved.

Bald Eagle

According to the FWC, as of the 2001/2002 nesting season, there were 27 documented active bald eagle nests in Charlotte County. This represents approximately a 15 percent increase in active nests over the past 5 years, based on the presence of 27 active nest territories. Based on the current ecological settings for many of these active nests, it is apparent that many eagle pairs nesting in Charlotte County have adapted to urban environments.

ENVIRONMENTAL BASELINE

The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions, which are contemporaneous with the consultation in progress.

Action Area

Florida Scrub-Jay

The action area for this biological opinion is defined for the Florida scrub-jay as the Charlotte County M6W of Miller and Stith (2002). The M6W metapopulation occurs west of Port Charlotte and east of the Myakka River (Figure 6). The 314±-acre Riverwood North Area project site comprises the westerly extent of the metapopulation and is bounded on the west by the Myakka River, which likely limits Florida scrub-jay dispersal to the west. Miller and Stith (2002) recorded 10 family groups supporting 35 individuals within the M6W metapopulation. These were distributed among 3 populations; Eleanor Avenue (EA), Tippecanoe North suburbs (TN), and Tippecanoe South suburbs (TS). Riverwood is located within the EA population. Five Florida scrub-jay groups, including the family of two individuals on Riverwood, occur within the EA population. The EA region supports 5 habitat polygons comprising an estimated 862.5 acres of current or restorable Florida scrub-jay habitat (Miller and Stith 2002).

Bald Eagle

The action area for this biological opinion is defined for the bald eagle as the Riverwood North Area project site, which contains the CH-36 and CH-36A bald eagle nests. Nesting within the territory was first observed during the 1993/1994 nesting season and produced a single fledgling (Florida Land Planning, Incorporated and WilsonMiller, Barton, and Peek, Incorporated 1996). During the 1994/1995 nesting season, FWC staff documented production of a single fledgling at the nest during a March 6, 1996, flyover. The FWC bald eagle nest locator internet web site documents the territory as being active between the 1997/1998 and 2001/2002 nesting seasons, with the exception of 1999/2000. Observational monitoring by BRA documented production of two chicks at the territory during 2002/2003 and a single chick in 2003/2004. During 1998/1999 and 1999/2000, great horned owls were present on the territory, and eagles did not nest successfully (BRA unpublished observations). Monitoring by BRA during 2001/2002 documented late (January/February) nest maintenance activities, but no chicks were produced. Monitoring of the territory during December 2004 by BRA documented the presence of a new eagle nest (CH-36A) approximately 360 feet east of the old nest site. The female eagle was in incubation posture when the nest was discovered. Great horned owls were also present within close proximity to the old nest and interacted with the male eagle.

The bald eagle's perching and/or roosting area includes various trees and snags within close proximity to the nests and wholly within the action area. Feeding and flight paths are likely to extend beyond the action area. The Myakka River, which likely constitutes the primary feeding area for this territory is located approximately 1,300 feet west of CH-36 and forms the western limit of the project area.

Status of the Species within the Action Area

Florida Scrub-Jay

Use of the site by Florida scrub-jays has been studied since 1994 (Pranty 1996). Pranty (1996) conducted censuses of Florida scrub-jays on the site as part of the wildlife surveys included in the Application for Incremental Development Approval for the project. A family group of three birds (Group A) and a family group of two individuals (Group B) were documented. The first group occupied an estimated territory of approximately 26 acres located in scrub and scrubby flatwoods in the southeastern portion of the project. The second group occupied a territory of an estimated 37 acres located to the south of the former group.

More recent fieldwork by BRA documented two groups of Florida scrub-jays within the site. A family of three individuals occupying a territory in scrub and scrubby flatwoods along a north-south oriented trail in the southwest portion of the site were last seen in May and June 2001. These birds occupied a territory west of the area occupied by Pranty's (1996) Group B. Habitat within the area consisted of heavily overgrown scrub, with some areas of more open scrubby flatwoods, resulting from a lightning fire in the recent past. Repeated attempts to document Florida scrub-jays in this formerly occupied territory by BRA have failed since 2001.

A single family comprised of two adult Florida scrub-jays, occupying a territory of approximately 10.36 acres, currently occurs on the proposed project site. The territory consists of a mosaic of scrub oak, scrubby flatwoods, pine flatwoods, and palmetto prairie. Development of Phase I of the project will impact the entire territory. The current occupied territory is located immediately adjacent to the northeastern boundary of the 58.5-acre Florida scrub-jay preserve proposed to minimize impacts to Florida scrub-jays and their habitat and to manage and maintain Florida scrub-jay habitat on the project. Previously, the Florida scrub-jay's occupied habitat included the proposed preserve, but the territory center shifted approximately 400 feet northeast of the preserve since the configuration of the preserve.

Recognizing the increase in density of the scrub and scrubby flatwoods habitats within the site, in 2001 the applicant initiated habitat management within a 58.5-acre preserve identified for Florida scrub-jay, bald eagle, and gopher tortoise habitat protection. Three management units totaling 10.8 acres were managed by rollerchopping. Management of the areas occurred in June 2001 following fieldwork confirming that Florida scrub-jay nesting had concluded in the management areas and following coordination with the Service, FWC, and Charlotte County.

Quality of the Site's Scrub

The project area contains 249.9 acres of nativeuplands, distributed among the following habitats: palmetto prairie (94.4 acres), scrub oak (52.1 acres), pine flatwoods (30.2 acres), scrubby flatwoods (64.5 acres), pine/oak disturbed (5.6 acres), and primitive trails (3.1 acres). General descriptions of the habitats are provided below.

Palmetto Prairie (Florida Land Use, Cover and Forms Classification System [FLUCCS] 321) - Some 97 acres of the site are comprised of areas mapped as palmetto prairie. This cover type is dominated by saw palmetto. Generally trees are lacking, although some slash pine (*Pinus elliottii*) or cabbage palm (*Sabal palmetto*) may be present as widely scattered individuals. The density of this community varies in response to fire history. Portions of the northern and eastern parts of the project have experienced recent fires as evidenced by fire plow lines and shrub layers that generally are not more than a meter tall. Other parts of the project, *e.g.*, the west central part of the site, support thick stands of saw palmetto exceeding 1 meter in height. Other shrubs, *e.g.*, wax myrtle (*Myrica cerifera*) also are quite dense in these areas, which have not experienced a recent fire. Along the edges of wetlands, Brazilian pepper may be dense. This community occurs on areas mapped as Smyrna fine sand in the *Soil Survey of Charlotte County, Florida.*

Scrub Oak (FLUCCS 325) - Approximately 56 acres of the parcel were mapped as scrub. Most of the scrub is located in the southwestern portion of the site. A smaller patch is located along the river shoreline in the northern portion of the site. These areas are dominated by myrtle oak. Chapman oak and sand live oak also are present. Saw palmetto is present in some areas. Most of the scrub is heavily overgrown because of fire suppression. However, some small portions appear to have burned in the recent past (5-15 years). This community occurs on areas mapped as Smyrna fine sand in the *Soil Survey of Charlotte County, Florida.*

Pine Flatwoods (FLUCCS 411) - Approximately 33 acres were mapped as pine flatwoods. Slash pine is the dominant canopy tree. Cabbage palm and a variety of oaks (*e.g.*, *Quercus laurifolia* and *Q. geminata*) also are present but not to such a degree that it would be appropriate to characterize the areas as scrubby flatwoods. Saw palmetto is the dominant shrub in these areas. Wax myrtle is also prevalent. This community occurs on areas mapped as Smyrna fine sand and Oldsmar sand in the *Soil Survey of Charlotte County, Florida.*

The pine flatwoods on the site are generally in good ecological condition. In most cases, the shrub layer is representative of a community that has remained on a natural fire regimen. Flatwoods in the northern part of the site have burned in the distant past, as evidenced by the lower shrub levels and fire lines that remain from suppression efforts. Other portions of the site, particularly on the western side of the site and in close proximity to wetlands, have heavy understory vegetation indicative of the absence of recent fire.

Scubby Flatwoods (FLUCCS 415) - The southeastern portion of the site, totaling approximately 63 acres, was mapped as scrubby flatwoods. This area is sparsely canopied by slash pine. The oak species present in adjacent scrubs are present. Saw palmetto is the dominant shrub as in other upland communities. Areas mapped as scrubby flatwoods were reported by WilsonMiller staff to have burned in the late 1980s. The vegetation of this community particularly the shrub layer is sparser than areas mapped as palmetto prairie or pine flatwoods. This community occurs on areas mapped as Smyrna fine sand and Oldsmar sand in the *Soil Survey of Charlotte County, Florida.*

Pine/Oak Disturbed (FLUCCS 4231D) - Areas mapped as pine/oak disturbed are anthropogenic cover types supporting a mixture of slash pine, laurel oak (*Quercus laurifolia*), and cabbage palm. One area mapped under this category occurs along the river shoreline and is used as a site for camping and partying. The other is located in the center of the site and has been disturbed by trail construction and some dumping.

Relationship of the Site to the Action Area

The Riverwood North Area project site occurs within the EA population of M6W of Miller and Stith (2002). The M6W metapopulation contains 3 populations; EA, TN, and TS. Riverwood is located within the EA population and currently supports a single family of two individuals. Table 2 summarizes the current population sizes within the action area relative to those documented in 1992 during the Florida scrub-jay statewide mapping project (Fitzpatrick et al. 1994b). In all 3 populations within the metapopulation, Florida scrub-jays have declined since 1992. The EA population declined from 11 to 5 family groups. The proposed Riverwood North Area project site includes a proposed Florida scrub-jay preserve of 58.5 acres. Management of the preserve should maintain and restore the habitat suitability for Florida scrub-jays in areas currently overgrown.

Table 2. M6W Summary of population sizes.

Metapopulation	Groups (Individuals)	
	1992[a]	2001[b]
Eleanor Avenue	11 (27)	5 (15)
North Tippecanoe suburbs	5 (13)	1 (4)
South Tippecanoe suburbs	17 (35)	4 (16)
Totals	33 (75)	10 (35)

[a] 1992 statewide Florida scrub-jay mapping project (Fitzpatrick et al. 1994b).
[b] Miller and Stith (2002).

Relationship of the Onsite Florida Scrub-Jay Preserve to the Action Area

To minimize potential impacts to Florida scrub-jays and bald eagles the applicant has designated a 58.5-acre upland preserve on the subject site. The preserve area includes palmetto prairie (0.1 acre), scrub (18.8 acres), pine flatwoods (6.8 acres), scrubby flatwoods (29.0 acres), oak/pine disturbed (2.7 acres), and primitive trails (1.1 acres). Management of the preserve was initiated in 2001 by the applicant and the applicant will continue to maintain and improve the habitat quality. The preserve has been designed to provide potential habitat for two Florida scrub-jay groups within the EA population.

EFFECTS OF THE ACTION

This section includes an analysis of the direct and indirect effects of the proposed action on the species and critical habitat and its interrelated and interdependent activities. To determine whether the proposed action is likely to jeopardize the continued existence of threatened or endangered species in the action area, we focus on consequences of the proposed action that affect rates of birth, death, immigration, and emigration because the probability of extinction in plant and animal populations is most sensitive to changes in these rates.

Florida Scrub-Jay

Factors to be Considered

A large portion of the project site occurs within habitat suitable for the Florida scrub-jay. Critical habitat has not been designated for this species. The timing of construction for this project, relative to sensitive periods of the Florida scrub-jay's lifecycle, is unknown. Florida scrub-jays may be found within and adjacent to the proposed construction footprint year-round. The project will result in permanent loss and alteration of the native upland vegetation within the project site. The time required to complete construction of the project is not known, but it is

likely that all land clearing associated with the development will be completed in a few months. The disturbance associated with the project will be permanent and result in a loss of habitat currently available to the Florida scrub-jay.

Analyses for Effects of the Action

Beneficial Effects - There are no known beneficial effects to the Florida scrub-jay from the proposed construction activities; however, the proposed project subsequently will result in the long-term preservation of suitable habitat that will be secured for at least two family groups.

Direct Effects - The development of Riverwood North Area project may result in the harassment or direct "take" of Florida scrub-jays, as a result of habitat loss. Harassment or other forms of take, including direct mortality, on the proposed project site may occur by the clearing of occupied scrub for development. Thus, the probability of direct incidental take is dependent upon the number of Florida scrub-jays in the area, their dispersal abilities, and the amount and distribution of available, suitable habitat. The probability of direct mortality of Florida scrub-jays as a result of construction activities is low with proper safeguards to protect nesting birds.

The proposed construction activity will result in the direct, permanent loss of ±10.3 acres of onsite habitat occupied by one family of Florida scrub-jays. Impacts to the species will be minimized by the designation and long-term management of a ±58.5-acre preserve. The preserve area was previously occupied by Florida scrub-jays and is immediately adjacent to areas now used. Management will occur as detailed in the management plans attached to this document and should maintain and improve habitat conditions in the preserve, providing opportunities for recolonization by Florida scrub-jays.

Interrelated and Interdependent Actions - There are no interrelated or interdependent actions associated with the proposed action that is expected to impact the Florida scrub-jay.

Indirect Effects - Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action. Indirect effects may include other Federal actions that have not undergone section 7 consultations, but will result from the action under consideration. The indirect effects will occur in several ways: (1) project-related vehicle traffic resulting in birds being struck by vehicles; (2) habitat loss further reducing available habitat within the EA Florida scrub-jay population; (3) greater predation pressure resulting from aerial predator in overgrown habitat and pets associated with surrounding residences; and (4) habitat degradation and alteration of Florida scrub-jay ecology due to supplemental feeding and dumping.

1. Project-related vehicle traffic may result in birds being struck by vehicles. Dreschel et al. (1990), Fitzpatrick et al. (1991), and Mumme et al. (2000) provide the best scientific and commercial data on the likelihood of incidental take as the result of Florida scrub-jays being killed by the vehicles. The only scientific documentation of road-kill mortality in Florida scrub-jays are from jays living in a territory immediately adjacent to a road, not from

dispersing some unknown distance across a road to a new territory. The proposed project will bring residential vehicle traffic into the project area, where it currently does not exist. To minimize this potential indirect effect, the applicant has designed the proposed preserve so that it is not bisected by project roadways.

2. Habitat loss further reducing available habitat within the EA Florida scrub-jay population. The proposed project will not only result in habitat destruction which reduces the amount of area Florida scrub-jays can occupy, but also increases fragmentation of habitat. As more scrub habitat is altered, the habitat is cut into smaller and smaller pieces, separated from other patches by larger distances; such fragmentation increases the probability of genetic isolation, which is likely to increase extinction probability (Fitzpatrick et al. 1991; Woolfenden and Fitzpatrick 1991; Snodgrass et al. 1993; Stith et al. 1996; Thaxton and Hingten 1996). However, the 58.5-acre Florida scrub-jay preserve constitutes a habitat preserved and managed in perpetuity. The Florida scrub-jay preserve will likely ensure that at least two scrub-families within the EA Florida scrub-jay population will have habitat adequately managed.

3. Greater predation pressure resulting from overgrown habitat and pets associated with nearby residences. A recurring issue with Florida scrub-jay habitat near urban areas is the elevated predation pressure over small jay populations. Bowman and Averill (1993) noted that Florida scrub-jays occupying fragments of scrub located in or near housing developments were more prone to predation by house cats and competition from blue jays and mockingbirds. Fitzpatrick et al. (1991) suspects that populations of domestic cats are able to eliminate small populations of Florida scrub-jays. Woolfenden and Fitzpatrick (1996b) and Toland (1999) suggest that in overgrown scrub habitats, hunting efficiency of hawks is increased due to more opportunities for hiding and ambushing Florida scrub-jays. However, the applicant proposes to provide an informational brochure to all the homeowners, which explains the basic habitat requirements of the Florida scrub-jay, the threats to its continued existence, and the adverse effects of human-related disturbances such as domestic pets (particularly cats). In addition the Florida scrub-jay preserve will be mechanically managed to prevent the scrub from becoming overgrown.

4. Habitat degradation, dumping, exotic species, and alteration of Florida scrub-jay ecology due to supplemental feeding. Fernald (1989) reported that many patches of scrub in Florida have been degraded by trails created by off-road vehicles, illegal dumping of construction debris, abandoned cars, and appliances or household waste. Also a problem was the invasion of these areas by exotic species, including Brazilian pepper, cypress pine, Australian pine, and others. Other human-induced impacts identified by Fernald (1989) include the introduction of black rats, greenhouse frogs, giant toads, Cuban treefrogs, brown anoles, and other exotic animal species. These exotic species compete with Florida scrub-jays for both space and food. Since the Florida scrub-jay preserve will be managed, monitored, and used for nature education purposes, it is expected that populations of exotic plants and animals will be adequately managed.

Supplemental feeding has the potential to alter Florida scrub-jay's breeding biology. Jays that were regularly feed by humans in residential areas initiated incubation and had chicks earlier than average (Karl Miller, personal communication, 2004). In general, altricial birds in their early stages of life are fed food rich in proteins (*e.g.*, insects). Food rich in proteins at early stages of growth fosters healthy, fast growth and subsequent shorter time on the nest. The shorter nestlings remain on the nest the lower the risk of predation and nest failure. Due to early initiation of the breeding cycle, by the time chicks are in need of a diet rich in insects, the rainy season in Florida is not fully onset and insects are not as readily available to growing young Florida scrub-jays. Consequences of these alterations in the breeding ecology have not been quantified. Additionally, Bowman and Averill (1993); (R. Bowman, unpublished data, cited in Woolfenden and Fitzpatrick 1996a) indicated that the carrying capacity of areas where jays are fed may be artificially elevated by the presence of supplemental food. When supplemental food stopped, there was not enough native habitat to support the jays resulting in forced dispersal and local extinction. To avoid altering the ecology of the Florida scrub-jays, the brochure mentioned above, will include information on the general ecology of this species will, and cover activities that may be detrimental to the Florida scrub-jay.

Bald Eagle

Factors to be Considered

The Riverwood North Area project site, including the primary protection zone for nest CH-36, was designed prior to the construction of nest CH-36A, during the 2004-2005 nesting season. This new nest was constructed approximately 360 feet east of the original nest. The project design prior to the construction of the second nest conformed with provisions of the Guidelines that pertain to allowable activities and the timing of activities. The Service always recommends that a proposed project conform with the Guidelines to the greatest extent possible to minimize the disturbance to the bald eagles on the nest. According to the applicant; however, further redesign of the project is not economically viable under current circumstances. According to the current project design, residential lots encroach into parts of the primary zone of nest CH-36A by approximately 350 feet (see Figure 3).

Individual bald eagles react differently to human activities, but it has become clear as numbers of nesting bald eagles increase in Florida that they likely are much more adaptive to human activities and, habitat alterations than previously thought. The increase in population numbers likely is due, in part, to the fact that survival rates and reproductive performance has responded under the management and conservation efforts of the past 3 decades. It also is due to the presence of adequate nesting habitat or structures, sufficient food sources for rearing young in some necessary proximity nesting sites, and an existing degree of protection from human related disturbance that is less than originally perceived but yet not fully understood or measurable (Millsap et al. 2002; Nesbitt et al. 1995). This reality has become increasingly more evident as bald eagles have constructed new nests and successfully fledged young in conjunction with established and ongoing residential developments during recent nesting seasons, especially in the southwest Florida area.

Beneficial Effects - There are no known beneficial effects to bald eagles from the proposed construction activities; however, the proposed project subsequently will result in the long-term preservation of suitable habitat that will be secured for nesting by bald eagles in Charlotte County.

Direct Effects - Bald eagles occupying the action area are likely to be adversely affected by the proposed action. The project may result in direct "take" of the eagles through harm and harassment as a result of the noise and disturbance generated from site work, construction of homes and infrastructure, and increased human activities after the project has been constructed. These direct effects could cause the eagles to abandon the nest prior to egg laying, abandon the nest while eggs are in the nest, which would result in embryo mortality, or abandon the nest when chicks are in the nest, which would result in chick mortality.

The project generally proposes single-family residential construction within approximately 390 feet of the nest tree. The immediate area surrounding the nest tree is presently designated as a conservation area. Only part of Phase I encroaches into the primary protection zone of eagle nest CH-36A. Project construction will not alter much of the remaining habitat within the primary zone of this eagle nest.

Construction-related disturbances such as the operation of heavy equipment, power and hand tools, and human voices are expected to have adverse effects on this pair of nesting bald eagles when construction occurs during the nesting season. The applicant has proposed to conduct certain project construction outside of the nesting season. However, given the proposed construction plans and levels of disturbance that generally will occur to within 390 feet of the nest tree, these activities may result in eventual nest site abandonment.

Interrelated and Interdependent Actions - There are no interrelated or interdependent actions associated with the proposed action that is expected to impact bald eagles.

Indirect Effects - Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside the area directly affected by the action. Indirect effects may include other Federal actions that have not undergone section 7 consultation, but will result from the action under consideration. The indirect effects that could result in harm or harassment to the bald eagles would include the following:

1. The noise and other activities associated with the development and later occupancy of houses, (landscaping equipment) and access roads (automobiles, garbage trucks, and motorcycles) may potentially disturb the eagles nesting at nest CH-36A. However, no traffic is expected to occur near the nest, since the nest is surrounded by a conservation area. In addition, the only traffic expected within the construction encroaching into the primary zone is traffic associated with two dead-end cul-de-sacs where traffic is not expected to be heavy at any time (see Figure 3).

2. The increased artificial lighting from the proposed residential development may adversely affect the bald eagle. Street and house lighting is expected to create a glare. However, all external street lighting within the primary zone will be at least 390 feet separated by a vegetative buffer from nest CH-36A.

3. Human activities within close proximity to the eagle nest tree may affect the eagles nesting at nest CH-36A. Expected events include pedestrian traffic associated with trails within the preserve surrounding the eagle nest. However, the applicant will include information on the presence of an eagle nest, eagle nesting ecology, and times when approaching the tree nest should be avoided. The nest tree will be posted using appropriate signs.

4. Future development in the bald eagle protection area may disturb the nesting eagles. The preserve established around the nest is an important feature attached to homes built around it. In 1999, the applicant recorded a conservation easement in favor of the Riverwood CDD, a local unit of special purpose government organized and existing under the laws of the State of Florida, over 20.03 acres of the preserve to provide specific protection to the area supporting CH-36 and CH-36A. The conservation easement also provided rights-of-inspection and enforcement to the State of Florida Department of Community Affairs. Therefore, it is unlikely that the proposed bald eagle protection area will be subject to future development or changes.

These indirect effects could cause the eagles to abandon the nest prior to egg laying, abandon the nest while eggs are in the nest which would result in embryo mortality, or abandon the nest when chicks are in the nest which would result in chick mortality.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Factors Affecting Species Environment Within the Action Area

Miller and Stith (2002) have identified approximately 862.5 acres of scrub and scrubby flatwoods within the EA region that provides current or potentially restorable Florida scrub-jay habitat. With the exception of the habitat occurring within the subject project, the entire habitat occurs in subdivided areas, which have been fragmented by roadways and low-density residential development. Much of the identified habitat is heavily overgrown, although some is of comparatively high quality because of fires that have occurred in sparsely developed areas. As most of the areas supporting potential habitat are platted as single-family residential lots, development pressure is likely to be high unless the lots are acquired for conservation purposes.

Charlotte County contracted Miller and Stith (2002) to conduct a countywide census of Florida scrub-jays as the basis for consideration of the development of a countywide Habitat Conservation Plan (HCP). At present, the Charlotte County has elected not to proceed with an HCP so further development of Florida scrub-jay habitat within the action area will continue to be reviewed on a case-by-case base by the Service.

All development projects that may affect occupied Florida scrub-jay habitat and bald eagle nesting territories in the action area require Federal review pursuant to either section 7 or section 10 of the ESA. However, the Service has no jurisdiction over activities that result in the loss of unoccupied, but potentially suitable habitat for the Florida scrub-jay or nesting territories for the bald eagle. Additionally, the Service cannot mandate the continuing management of occupied Florida scrub-jay habitat or nesting territories on private lands that have not come under our purview through section 7 or 10. Without continual management, occupied Florida scrub-jay habitat will continue to become overgrown to the point that it no longer supports Florida scrub-jays, and potentially suitable unoccupied habitat will be converted to other uses, precluding the potential for future management and recovery of the Florida scrub-jays. The extent to which this has historically occurred in Charlotte County and throughout the range of the Florida scrub-jay has been discussed previously in this biological opinion. The extent to which it is likely to occur, and the effect on both species in the future is unknown.

SUMMARY

Florida Scrub-Jay

This project will result in the loss of $\pm$10.8 acres of habitat occupied by one family of Florida scrub-jays. This habitat is currently unmanaged and is expected to continue to degrade over time to the point that it no longer supports Florida scrub-jays. The applicant has made an effort to minimize the impacts of the action and proposes to preserve and manage a 58.5-acre preserve located on the project site.

From the information presented above, the following facts are apparent: (1) Florida scrub-jays are dependent on continuous human management of scrub habitat; (2) Florida scrub-jay recovery depends on additional purchase of scrub lands in key areas and effective restoration and management of protected lands; (3) succession of unmanaged scrub habitat is as important a factor in the decline of Florida scrub-jay populations as is loss of habitat to competing land uses; and (4) with respect to the action area for this project, preservation and management of Florida scrub-jay habitat would enhance the potential for survival of the EA population and interchange with other populations within the Charlotte County MW6 of Miller and Stith (2002); improving chances for their long-term persistence. Habitat preservation and management will also benefit the bald eagle, and State-listed gopher tortoise.

Bald Eagle

Since 1982, the number of bald eagle nests in Florida has more than doubled. While human disturbance may lead to abandonment of this nest, the eagles will probably build a new nest elsewhere. Monitoring of bald eagle territories in the region has documented the habituation of resident birds to adjacent development where appropriate safeguards have been implemented to prevent development-related impacts on nesting. The loss of this nest, including the loss of eggs or chicks, will not appreciably affect the overall survival and recovery of the bald eagle in Florida.

CONCLUSION

After reviewing the current status of the Florida scrub-jay and the bald eagle, the environmental baseline for the action area, the effects of the proposed action ,and the cumulative effects, it is the Service's biological opinion that the proposed project is not likely to jeopardize the continued existence of the Florida scrub-jay and the bald eagle. No critical habitat has been designated for these species; therefore, none will be affected.

INCIDENTAL TAKE

Sections 4(d) and 9 of the ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or to attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" and "harass" are further defined in Service regulations (50 CFR 17.3). "Harm" is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. "Harass" is defined as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding or sheltering.

Under the terms of sections 7(b)(4) and 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply.

The Federal agency has a continuing responsibility to regulate the activity that is covered by this incidental take statement. If the agency (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, or (2) fail to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Section 7(b)(4) and 7(o)(2) of the ESA do not apply to the incidental take of listed plant species. However, protection of listed plants is provided to the extent that the ESA requires a Federal permit for removal or reduction to possession of endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such species on any State or in the course of any violation of a State criminal trespass law.

AMOUNT OR EXTENT OF TAKE

Florida Scrub-Jay

The Service has reviewed the biological information for this species, information presented by the applicant's consultant, and other available information relevant to this action, and based on our review; incidental take in the form of harm or harassment is anticipated for two individuals of a Florida scrub-jay family. If during the course of this action, this level of take is exceeded; such take would represent new information requiring review of the reasonable and prudent measures provided. The Federal agency must immediately provide modification of the reasonable and prudent measures.

Bald Eagle

The Service has reviewed the biological information for this species, information presented by the applicant, and other available information relevant to this action, and based on our review; incidental take in the form of harm or harassment is anticipated for the adult bald eagles, their eggs, or their young at nest CH-36 or CH-36A. If during the course of this action, this level of take is exceeded; such take would represent new information requiring review of the reasonable and prudent measures provided. The Federal agency must immediately provide modification of the reasonable and prudent measures.

EFFECT OF THE TAKE

In this biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the Florida scrub-jay and bald eagle or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

When providing an incidental take statement the Service is required to give reasonable and prudent measures it considers necessary or appropriate to minimize the take along with terms and conditions that must be complied with, to implement the reasonable and prudent measures. Furthermore, the Service must also specify procedures to be used to handle or dispose of any individuals taken. The Service believes the following reasonable and prudent measures are necessary and appropriate to reduce take:

Florida Scrub-Jay

1. Avoid the potential for Florida scrub-jays to be injured or killed by heavy equipment and the destruction of active nests, with or without eggs.

2. Preserve and manage in perpetuity 58.5 acres of habitat onsite consistent with *FSJMP, Riverwood DRI Increment Two, Charlotte County, Florida* prepared by Florida Land Planning, Incorporated and WilsonMiller, Barton, and Peek, Incorporated, with input from Bill Pranty (revised January 8, 1997) and the *Scrub Jay Plan Implementation Protocol* prepared by BRA (December 17, 2004).

3. Notify the Service of any unauthorized take of Florida scrub-jays.

Bald Eagle

1. For the duration of the project, the applicant must take all necessary steps to minimize the potential for incidental take of bald eagles during each nesting season and within the primary zone (750 feet) of the nest tree. During the construction of the project, the applicant must do everything possible to preserve the integrity of the bald eagle nest tree, the nest and the surrounding habitat.
2. Upon the onset of the nesting season each year (October 1), the applicant must initiate monitoring to detect the presence of bald eagles on the project site and, if present, any abnormal bald eagle behavior, if site work and building construction within the secondary zone (750-1,500 feet) is proposed to occur during the nesting season.

TERMS AND CONDITIONS

To implement the above reasonable and prudent measures, the Service has outlined the following terms and conditions for incidental take. In accordance with the Interagency Cooperation Regulation (50 CFR 402), these terms and conditions must be complied with, to implement the reasonable and prudent measures for incidental take.

Florida Scrub-Jay

1. To minimize potential impacts to the Florida scrub-jay and the bald eagle the applicant has designated a 58.5-acre upland preserve on the subject site (Figure 4). The preserve area includes palmetto prairie (0.1 acres), scrub (18.8 acres), pine flatwoods (6.8 acres), scrubby flatwoods (29.0 acres), oak/pine disturbed (2.7 acres), and primitive trails (1.1 acres).

2. The applicant will manage the Florida scrub-jay and bald eagle preserve. The proposed FSJMP will be consistent with the existing *Florida Scrub-Jay Plan, Riverwood DRI Increment Two, Charlotte County, Florida* prepared by Florida Land Planning, Incorporated, and WilsonMiller, Barton, and Peek, Incorporated, with input from Bill Pranty (revised January 8, 1997) and the *Scrub Jay Plan Implementation Protocol* prepared by BRA (December 17, 2004).

3. Management treatments and timing will be conducted by the applicant as indicated in the management plan and management units (see Figure 5), as follows:

   a. Management Unit 1 is a 2.94-acre unit supporting scrub. The unit was first managed by rollerchopping in June 2001. Future management will occur at 8-year intervals and consist of mechanical management by rollerchopping, heavy bushhogging, or hydroaxing.

   b. Management Unit 2 is a 3.26+-acre unit supporting a community of mixed pine and oak. Management of this unit will focus on control and eradication of nuisance and/or exotic species, *e.g.*, Brazilian pepper. Beginning in 2005, the unit will be assessed on a biennial basis (every 2 years) for the presence of nuisance and exotic vegetation. Treatment will consist of the cutting of target species and spot basal treatment of the stumps with herbicide to prevent resprouting.

   c. Management Unit 3 is an 8.37-acre unit supporting predominantly scrub and scrubby flatwoods. Management will be initiated in 2005 and occur at 8-year intervals thereafter. Management will be by mechanical means, *e.g.*, hydroaxing, heavy bushhogging, or

      rollerchopping. To protect the root zones of existing pine trees from impacts of soil compaction or damage by heavy or tracked equipment, mechanical management activities will not be conducted within 10 feet of the drip lines of existing pines.

   d. Management Unit 4 is an 8.06-acre unit dominated by pine flatwoods. Management Unit 4 supports bald eagle nests within territory CH-36. This unit will be managed beginning in 2005 and every 4 years thereafter. Future management will consist of mechanical means, *e.g.*, heavy bushhogging or hydroaxing. Rollerchopping will not be used because tree density will preclude maneuvering of equipment and out of concern to protect existing trees. To ensure tree protection, including any trees supporting eagle nests, no mechanical equipment will be used within the 10 feet of the drip lines of live pine trees. If needed, dense vegetation immediately adjacent to bald eagle nest trees will be thinned by hand.

   e. Management Unit 5 is a 7.49-acre unit supporting predominantly scrubby flatwoods. This unit will be managed beginning in 2009 and every 4 years thereafter. Future management will consist of mechanical means, *e.g.*, heavy bushhogging, hydroaxing, or rollerchopping. To ensure tree protection, no equipment will be used within 10 feet of the drip lines of live pine trees. If needed, dense vegetation immediately adjacent to pine trees will be thinned by hand.

   f. Management Unit 6 is a 2.64-acre unit supporting scrub. The unit was first managed by rollerchopping in June 2001. This unit will next be managed in 2007 and then at 8-year intervals thereafter to allow the synchronization of management of Units 6 and 7. Future management will consist of mechanical management by heavy bushhogging, hydroaxing, or rollerchopping.

g. Management Unit 7 is a 3.45-acre unit supporting scrub and scrubby flatwoods. Management will be initiated in 2007 and occur at 8-year intervals thereafter. Management will be by mechanical means, *e.g.*, hydroaxing, heavy bushhogging, or rollerchopping. Management activities will protect the root zones of existing pine trees from impacts of soil compaction or damage by heavy or tracked equipment by avoiding the area within 10 feet of the drip lines of live pine trees.

h. Management Unit 8 is a 5.17-acre unit supporting predominantly scrub. The unit was first managed by rollerchopping in June 2001. Future management will occur at 8-year intervals and consist of mechanical management by rollerchopping, heavy bushhogging, or hydroaxing.

i. Management Unit 9 is a 7.46-acre unit supporting predominantly scrubby flatwoods. This unit will be managed beginning in 2007 and every 8 years thereafter. Future management will consist of mechanical means, *e.g.*, heavy bushhogging, hydroaxing, or rollerchopping. To ensure tree protection, no equipment will be used within 10 feet of the drip lines of live pine trees.

j. Management Unit 10 is a 1.28-acre unit supporting dense scrub. Management will be initiated in 2005 and occur at 8-year intervals thereafter. Management will be by mechanical means, *e.g.*, hydroaxing, heavy bushhogging, or rollerchopping.

k. Management Unit 11 is a 4.4-acre unit supporting dense scrub and scrubby flatwoods. Management will be initiated in 2005 and occur at 8-year intervals thereafter. Management will be by mechanical means, *e.g.*, hydroaxing, heavy bushhogging, or rollerchopping.

l. Management Unit 12 is a 2.23-acre unit supporting dense scrub that covers a former Native American burial mound of archeological significance. Management of this unit will be initiated in 2005 and occur at 8-year intervals thereafter. Because of the sensitivity of the unit, thinning of exiting vegetation will be conducted by hand to minimize physical disturbance of the mound surface. Management will consist of the cutting of oaks at ground level. The cut material will be removed from the unit and disposed of by burning or other means. Any work within this management unit will be closely coordinated with and supervised by a qualified archeological consultant.

The management units and treatments, as described above, may be modified following coordination with and approval by the Service when proposed modifications are consistent with the objectives of the habitat management plan.

4. The applicant will continue to manage the subject preserve as detailed here, until such time as that responsibility may be turned over to a successor Homeowners Association or the Riverwood CDD, a local unit of special purpose government organized and existing pursuant to Florida laws. The applicant and its successor will be financially responsible for the continued management of the preserve.

5. Concurrent with the initiation of habitat management practices at the Florida scrub-jay preserve and, and prior to initiation of site development, the applicant and his consultant will begin a supplemental feeding program targeted to attract the resident Florida scrub-jays back to the previously occupied preserve by baiting the birds with feeders filled with peanuts. The Service and the consultant will maintain communication on the progress of this initiative until the success criterion (*e.g.*, Florida scrub-jays re-establish a new territory in managed habitat) has been attained.

6. Limited rights-of-way land-clearing will occur within the Florida scrub-jay occupied portion of the site plan's Phase I. If this clearing is to occur within the Florida scrub-jay's nesting season (typically March 1 through June 30), the roadway path should be surveyed prior to clearing to determine if there is any active Florida scrub-jay nests located within the vegetation. If an active Florida scrub-jay nest is located, clearing activity cannot take place within 200 feet of the nest site until nestlings have fledged or the nest has failed and no re-nesting attempt by the pair of jays is observed.

7. Except for limited land-clearing within Phase I road rights-of-way, land-clearing within occupied Florida scrub-jay habitat shall not occur until there is enough suitable Florida scrub-jay habitat (through management)for the jays to potentially relocate, or the jays have been enticed and have re-established a territory within the Florida scrub-jay preserve or areas not slated for development; whichever occurs first.

8. Continued management of the preserve will also occur as quickly as can be initiated without conflict to both nesting bald eagles and Florida scrub-jays. Monitoring and protection measures will also be implemented to minimize harassment or take of Florida scrub-jays during clearing and construction activities.

9. If the resident pair of Florida scrub-jays persists on staying within their current territory, and if the enticing approach to relocate the jays fails, clearing of occupied habitat can only take place outside the Florida scrub-jay nesting season.

Bald Eagle

1. To minimize potential impacts to bald eagles, the applicant proposes to implement the *BEMP, Riverwood DRI Increment Two, Charlotte County* prepared by Florida Land Planning, Incorporated and WilsonMiller, Barton, and Peek, Incorporated (revised December 26, 1996) and the *BEMP Supplement, Riverwood DRI Increment Two, aka North Area,Charlotte County, Florida* prepared by BRA (December 23, 2003).

2. Construction activities within the primary zone of the nest tree before the onset of the nesting season each year (October 1). All construction within the secondary zone will be conducted during the non-nesting season (May 16 through September 30). Project construction, which may occur within the secondary zone during the nesting season (October 1 through May 16),

shall be accomplished while the nest is being monitored by a protocol that is consistent with the Service's *Bald Eagle Monitoring Guidelines* (Service 2002). Any activity resulting in disruption of normal nesting behavior, defined in the *Bald Eagle Monitoring Guidelines* (Service 2002) would result in immediate stoppage of work and the implementation of corrective measures.

If a dead Florida scrub-jay or bald eagle is found on the project site, the specimen should be frozen, and the applicant should notify the South Florida Ecological Services Office in Vero Beach, Florida immediately at 772-562-3909.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purpose of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Provide an informational brochure to all the homeowners, which explain the basic habitat requirements of the Florida scrub-jay and the bald eagle; the threats to its continued existence; and the adverse effects of human-related disturbances such as domestic pets (particularly cats) and invasive exotic/ornamental vegetation.

2. Leave and use native scrub vegetation in landscaping around the development to provide scrub habitat for the Florida scrub-jays utilizing the site.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation measures.

REINITIATION OF SECTION 7 CONSULTATION

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required when discretionary Federal agency involvement or control over the action has been retained and if: (1) New information reveals effects of the agency action that may effect listed species or critical habitat in a manner or to an extent not considered in this biological opinion, (2) the Corps' action is subsequently modified in a manner that causes and effect to the listed species or critical habitat not considered in this biological opinion, or (3) a new species is listed or critical habitat designated that may be effected by the action.

Thank you for your cooperation and effort in protecting fish and wildlife resources. If you have any questions regarding this biological opinion, please contact Al Begazo at 772-562-3909, extension 234.

Sincerely,

James J. Slack
Field Supervisor
South Florida Ecological Services Office

cc:
Corps, Tampa, Florida (Melinda Hogan)
SWFWMD, Sarasota, Florida
EPA, West Palm Beach, Florida
FWC, Punta Gorda, Florida (Jim Beever)
FWC, Tallahassee, Florida (Daniel Sullivan)
Service, Atlanta, Georgia (Ken Graham)
BRA, Sarasota, Florida (Ray Loraine)

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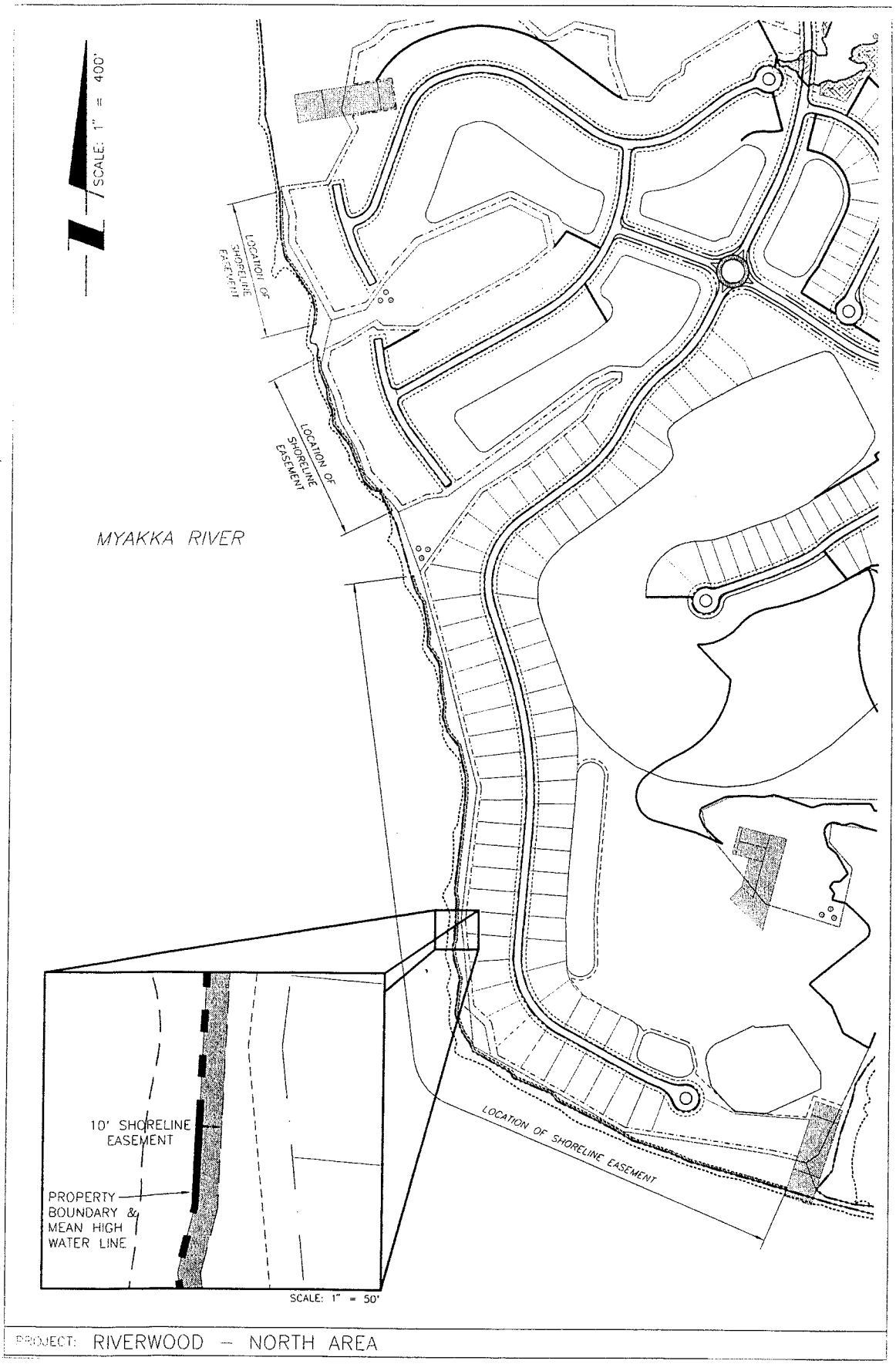

Figure 1. Overview of the residential lots adjacent to the Myakka River and inset indicating the 10 feet shoreline easement.

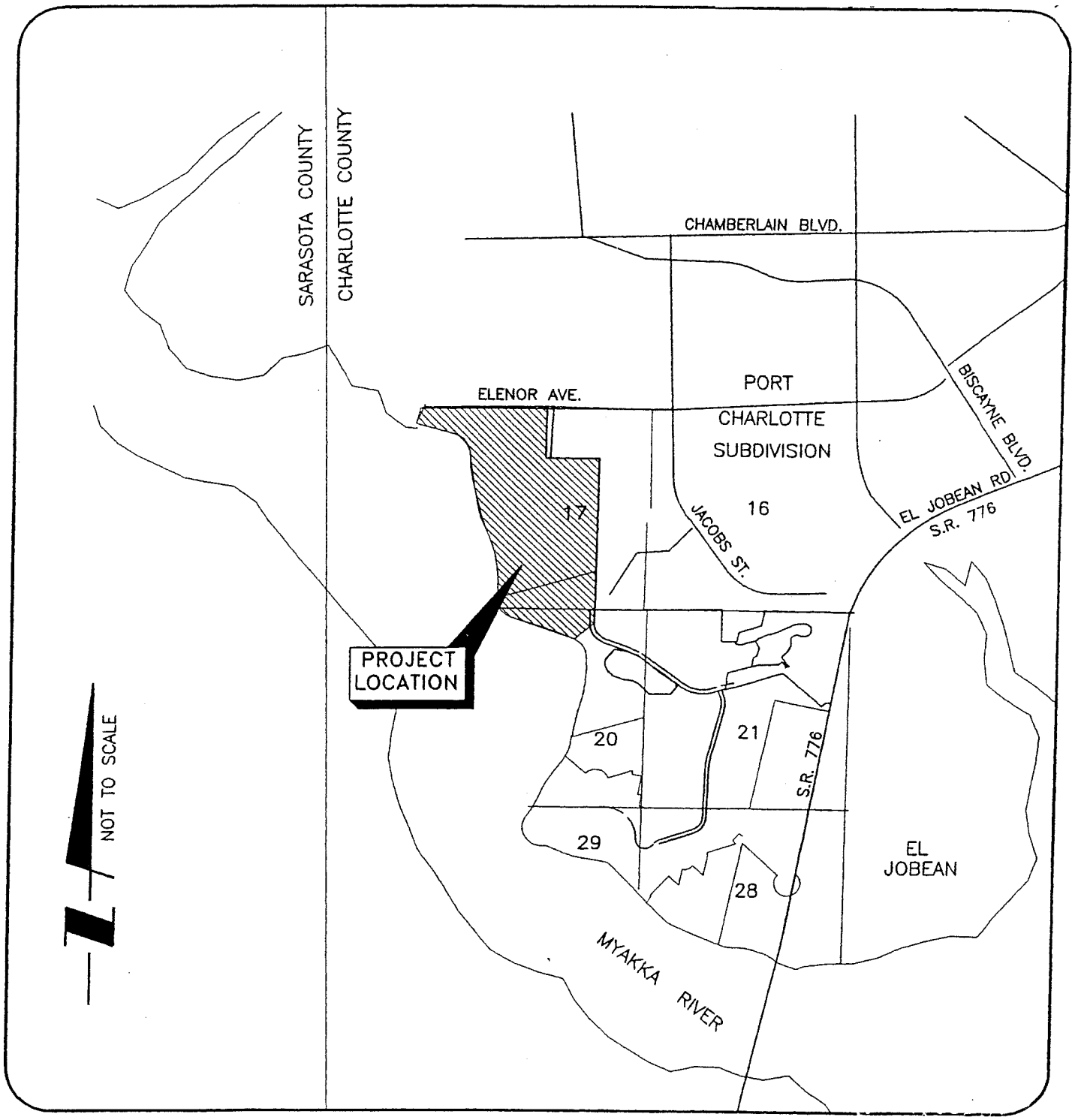

Figure 2. Location of the Riverwood North project site.

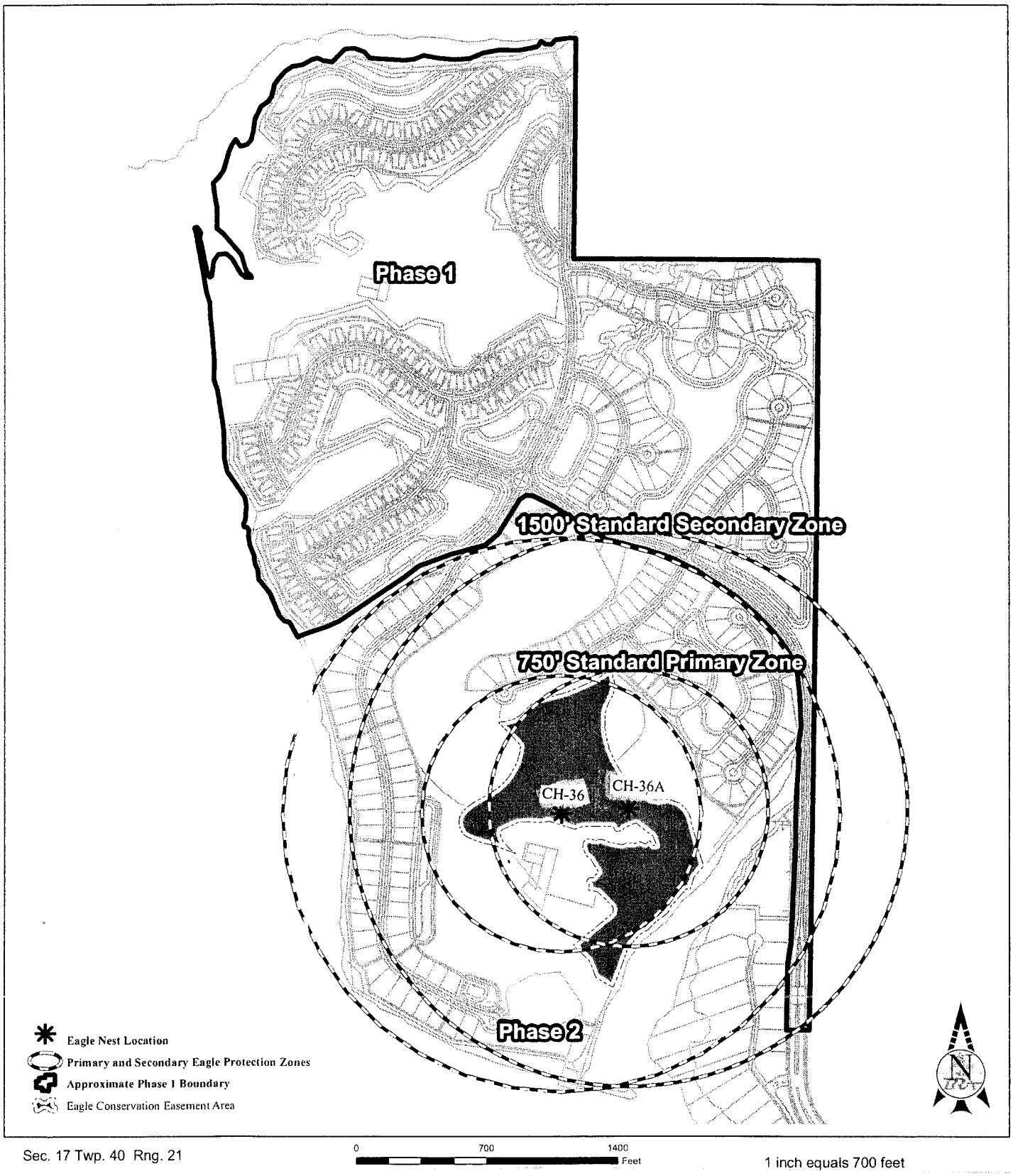

Figure 3. Overview of the bald eagle nests CH-36 and CH-36A. Nest CH-36A was discovered in January 2005.

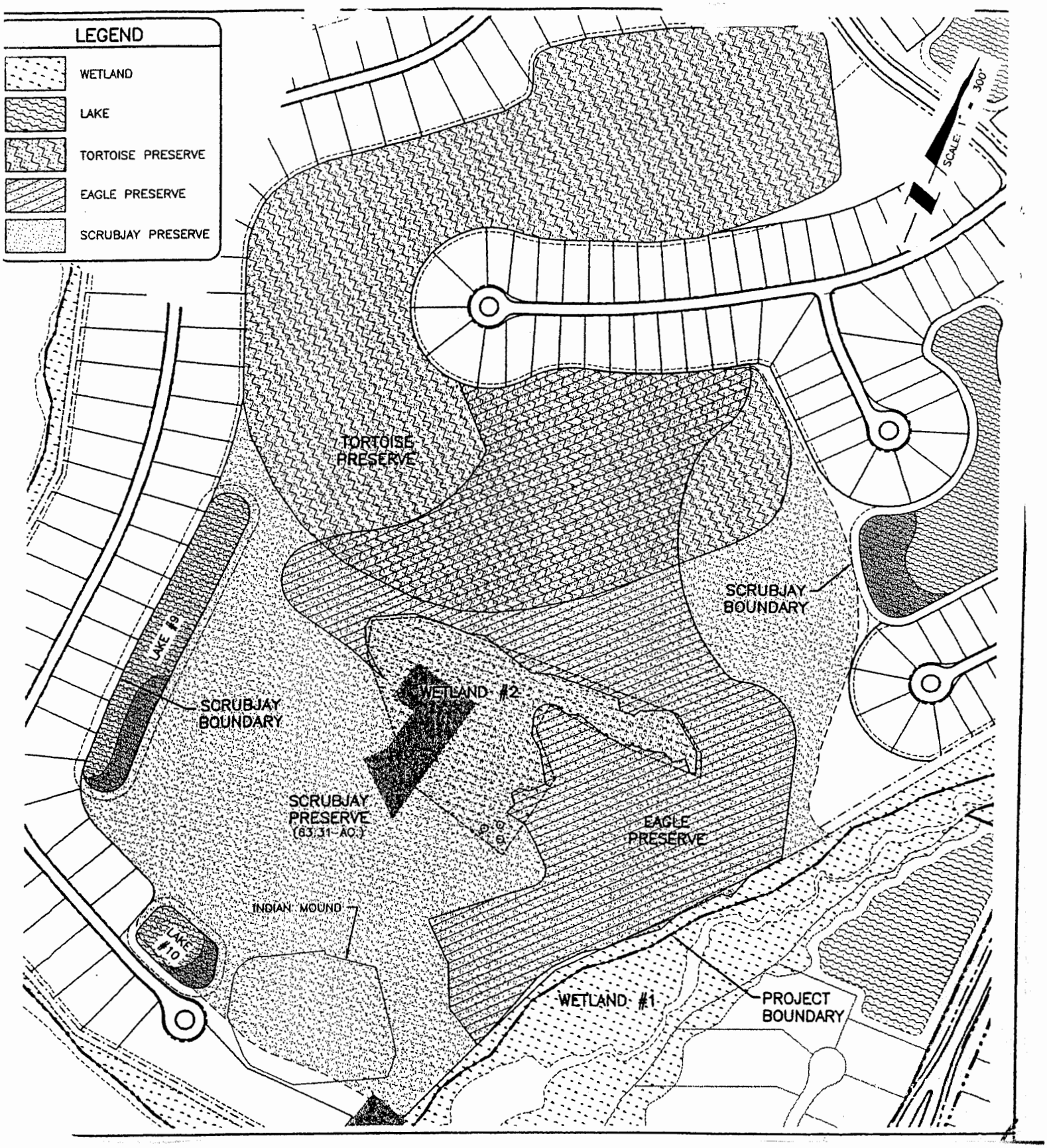

Figure 4. Configuration of the onsite conservation easement. The Florida scrub-jay preserve overlaps the bald eagle and gopher tortoise preserves.

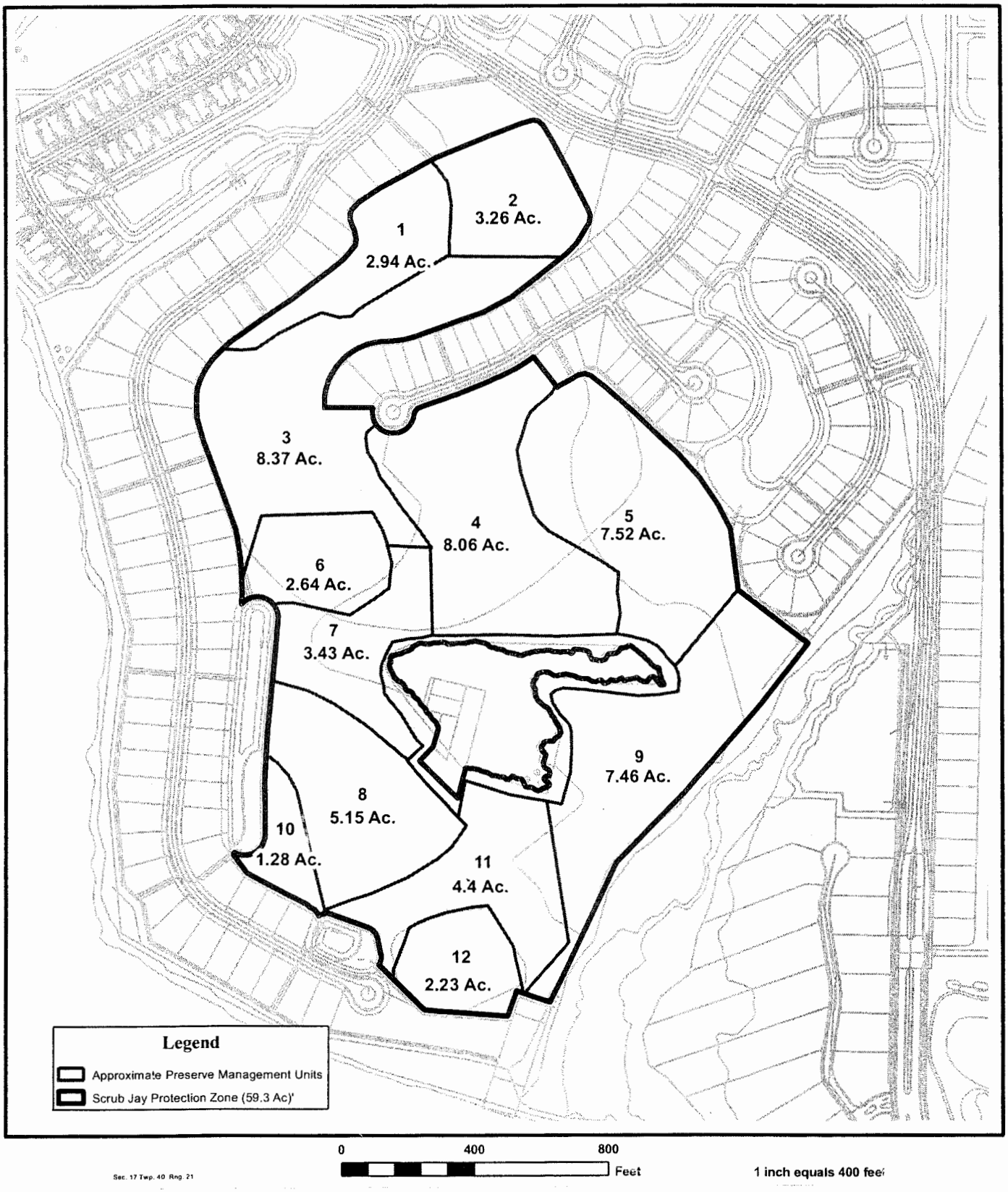

Figure 5. Configuration of management units within the Florida scrub-jay preserve.

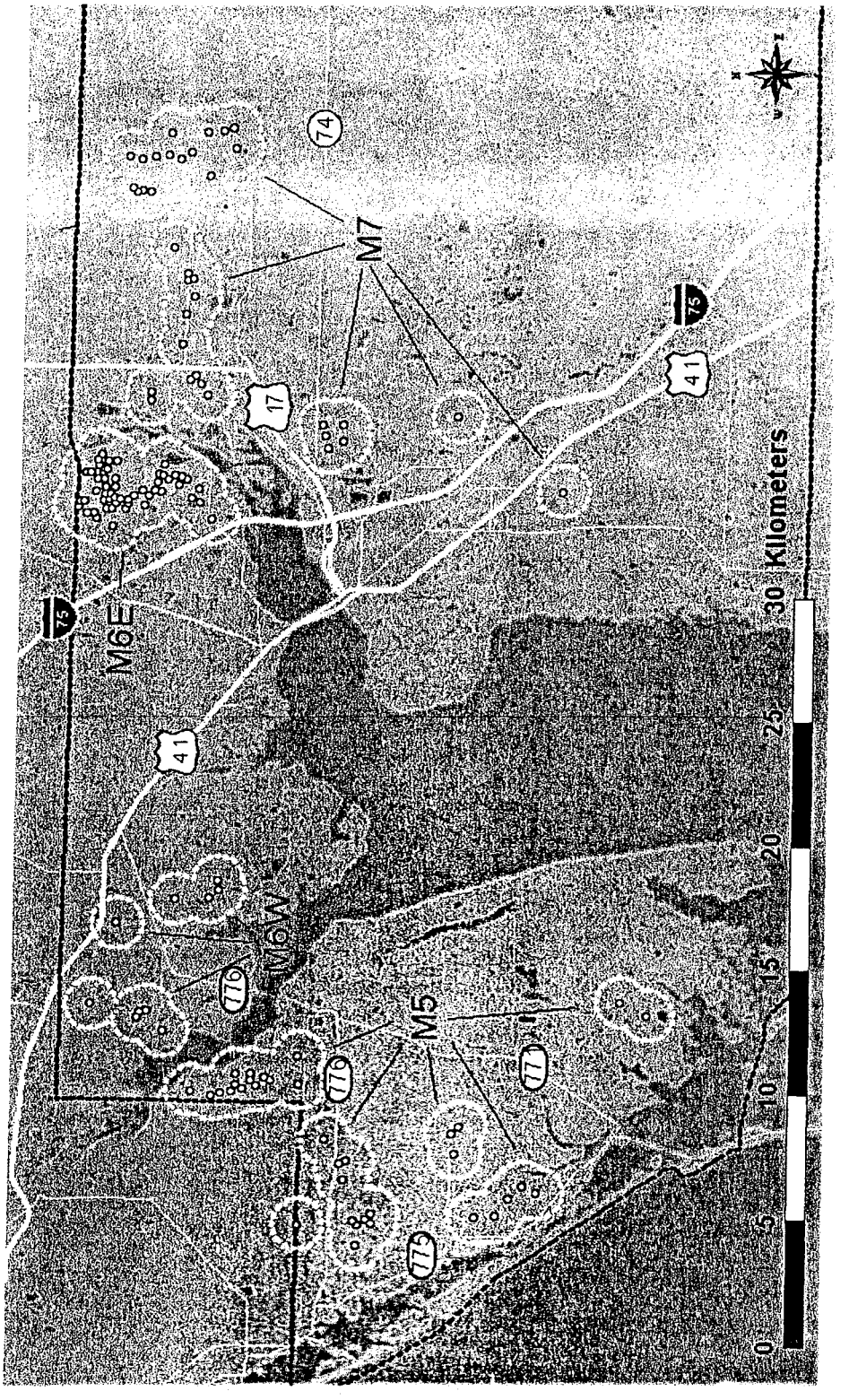

Figure 6. Overview of the Charlotte County metapopulations 5 and 6, as defined by Stith and Miller (2002). The metapopulation 6 is composed of an east and west populations. The project site includes part of the western portion of metapopulation 6 (M6W). Dashed circles indicate 1-km (0.6 mile) buffers around each Florida scrub-jay group, which are indicated by small circles.