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FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
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Vero Beach, Florida 32960

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Memorandum to File

Subject: Biological Opinion for the proposed issuance of a Section 10(a)(1)(B) permit to V. P. Properties and Developments, LLLP, (doing business as International Airport Business Park of St. Lucie County, LLC) for incidental take of the Florida scrub-jay


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This document is the Fish and Wildlife Service (Service) biological opinion based on our review of the proposed issuance of a section 10(a)(1)(B) incidental take permit (Permit) to V. P. Properties and Developments, LLLP, (doing business as International Airport Business Park of St. Lucie County, LLC) (Applicant) for commercial construction in St. Lucie County, Florida, and its effects on the threatened Florida scrub-jay (*Aphelocoma coerulescens*) (scrub-jay) per section 7 of the Endangered Species Act of 1973, as amended (Act) (16 United States Code [U.S.C.] 1531 *et seq.*).

This biological opinion is based on information provided in the Applicant's Habitat Conservation Plan (HCP) and the Service's South Florida Multi-species Recovery Plan (Service 1999), letters, email correspondence, and site visits. A complete record of this consultation is maintained and available for review at the Service's South Florida Ecological Services Office, Vero Beach, Florida.

Consultation History

On July 14, 2008, the Service received the results of a survey conducted by the Applicant's consultants, Crossroads Environmental, which indicated that part of the project site was within the occupied territory of a scrub-jay family.

In August and September 2008, the Service and the Applicant's consultant exchanged several emails and telephone calls discussing the ITP application process, development of an HCP, and mitigation options for the proposed project's impacts on Florida scrub-jays.

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On December 1, 2008, the Service received an email from the Applicant's consultant requesting an application for an incidental take permit and an example habitat conservation plan (HCP).

The Service received draft HCPs on January 15, March 13, and November 2, 2009.

From May to October, 2009, Service staff was involved in meetings and telephone calls to discuss the progress of the ITP application, the tasks remaining to be done, and how the ITP process and the St. Lucie County permitting process could work together. The meetings were variously attended by the Applicant, the Applicant's lawyer, the Applicant's consultant, and St. Lucie County Environmental Resources Department staff.

In December 2009, the Applicant's application was certified as complete.

On January 29, 2010, the Notice of Availability of the HCP and NEPA documents was announced on the Federal Register, and the public comment period closed on March 1, 2010.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The Applicant seeks an ITP from the Service under section 10(a)(1)(B) of the Act. The Service proposes to issue an ITP to authorize take of scrub-jays associated with commercial construction on \pm 2.92 acres spanning two parcels identified as Parcel Control Numbers 1428-702-0634-000-5 and 1428-702-0232-000-7, San Lucie Plaza Subdivision, St. Lucie County, Florida (Figure 1). This site is best classified as predominantly Palmetto Prairie (FLUCCS 321) with scattered oaks (*Quercus* sp.) and Slash pine (*Pinus elliottii*) (FLUCCS 411), of varying sizes, throughout the entire parcel. A narrow trail (FLUCCS 8146) provides ingress on the southern edge of the property. The majority of the site is heavily overgrown with grape vine (*Vitis* sp.), old world climbing fern (*Lygodium microphyllum*), smilax (*Smilax* sp.), and love vine (*Cassythia filiformis*). There are no listed plant species of concern within the limits of the project property.

The Applicant proposes to construct a commercial facility comprised of a petroleum station, adjoining convenience store, light industrial warehouse condominiums, paved parking area, and associated infrastructure (Project). Land clearing, in preparation for construction will permanently alter 1.0 acre of the feeding, breeding, and sheltering habitat of one family of at least two scrub-jays. The proposed action was determined to be low effect, and as such, categorically excluded from further National Environmental Protection Act review. The Applicant's HCP provides descriptions of the Applicant's proposed project, including measures the Applicant proposes to implement to minimize and mitigate adverse effects to scrub-jays. These measures are summarized below.

To meet local and state building codes for this size of project, the entire \pm 2.92 acres will be used for the project and associated infrastructure. The Applicant agrees to restrict all land clearing to be done outside of the scrub-jay nesting season, which extends from March 1 through June 30. The Applicant also will avoid landscaping with trees that will grow taller than 30 feet, thus potentially reducing the perching opportunities for avian predators of scrub-jays, within the

extent allowable by St. Lucie County landscaping code. Additionally, the applicant will avoid or mitigate any impacts to gopher tortoises in accordance with Florida Fish and Wildlife Conservation Commission guidelines. The Applicant proposes to mitigate impacts to the scrub-jay by contributing \$82,904.00 to a Service-approved scrub-jay conservation fund, or purchase of the equivalent amount of credits in an appropriate Service-approved scrub-jay conservation bank within 180 days of ITP issuance, or before the commencement of clearing and construction activities, whichever is sooner. Specifically, payment will be transmitted in the following increments: \$27,634 due at permit issuance, \$27,635 due at 90 days after permit issuance, and the balance (\$27,635) due within the remaining 90 days after permit issuance.

The action area is defined as all areas to be affected directly or indirectly by the proposed action and not merely the immediate area involved in the action. It includes the area in which scrub-jays could reasonably be expected to feed, breed, or shelter and interact with each other. Scrub-jays on the project site are part of a larger complex of demographically connected scrub-jays that inhabit the area between the southern one-third of coastal Brevard County and Orange Avenue (CR 68) in St. Lucie County, known as the South Brevard-Indian River-North St. Lucie Metapopulation (M13) (Stith 1999). This project occurs in the southern portion of M13 within the San Lucie Plaza Subdivision area. The action area for this biological opinion is considered the southern portion of M13 from Indrio Road to Orange Avenue (Figure 2).

STATUS OF THE SPECIES/CRITICAL HABITAT

Species/critical habitat description

Scrub-jays are about 10 to 12 inches long and weigh about 3 ounces. They are similar in size and shape to blue jays (*Cyanocitta cristata*), but differ significantly in coloration (Woolfenden and Fitzpatrick 1996a). Unlike the blue jay, the scrub-jay lacks a crest. It also lacks the conspicuous white-tipped wing and tail feathers, black barring, and bridle of the blue jay. The scrub-jay's head, nape, wings, and tail are pale blue, and its body is pale gray on its back and belly. Its throat and upper breast are lightly striped and bordered by a pale blue-gray "bib" (Woolfenden and Fitzpatrick 1996a). Scrub-jay sexes are not distinguishable by plumage (Woolfenden and Fitzpatrick 1984), and males, on the average are only slightly larger than females (Woolfenden 1978). The sexes may be identified by a distinct "hiccup" call made only by females (Woolfenden and Fitzpatrick 1984; Woolfenden and Fitzpatrick 1986). Scrub-jays that are less than about 5 months of age are easily distinguishable from adults; their plumage is smoky gray on the head and back, and they lack the blue crown and nape of 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 done, fledgling scrub-jays may be indistinguishable from adults in the field (Woolfenden and Fitzpatrick 1984). The wide variety of vocalizations of scrub-jays is described in Woolfenden and Fitzpatrick (1996b).

Scrub-jays are in the order Passeriformes and the family Corvidae. They have been called a "superspecies complex" and described in four groups that differ in geographic distribution within the United States and Mexico: *Aphelocoma californica*, from southwestern Washington through

Baja California; *A. insularis*, on Santa Cruz in the Channel Islands, California; *A. woodhousii*, from southeastern Oregon and the Rocky Mountains and Great Plains to Oaxaca, Mexico; and *A. coerulescens* in peninsular Florida (American Ornithologists' Union [AOU] 1983). Other jays of the same genus include the Mexican jay or gray-breasted jay (*A. ultramarina*) and the unicolored jay (*A. unicolor*) of Central America and southwest North America (Woolfenden and Fitzpatrick 1996b).

The Florida scrub-jay, which was originally named *Corvus coerulescens* by Bosc in 1795, was transferred to the genus *Aphelocoma* in 1851 by Cabanis. In 1858, Baird made *coerulescens* the type species for the genus, and it has been considered a subspecies (*A. c. coerulescens*) for the past several decades (AOU 1957). It recently regained recognition as a full species (Florida scrub-jay, *Aphelocoma coerulescens*) from the AOU (AOU 1995) because of genetic, morphological, and behavioral differences from other members of this group: the western scrub-jay (*A. californica*) and the island scrub-jay (*A. insularis*). The group name is retained for species in this complex; however, it is now hyphenated to "scrub-jay" (AOU 1995). From here on in the document, Florida scrub-jays will be referred to as scrub-jays.

This species account references the full species name, *A. coerulescens*, as listed in the Federal Register (Service 1987).

No critical habitat has been designated for this species; therefore, none will be affected.

Life history/Population dynamics

The scrub-jay has specific habitat needs. It is endemic to peninsular Florida's ancient dune ecosystems or scrubs, which occur on well-drained to excessively well-drained sandy soils (Laessle 1958; Laessle 1968; Myers 1990). This relict oak-dominated scrub, or xeric oak scrub, is essential habitat to the scrub-jay. This community type is adapted to nutrient-poor soils, periodic drought, and frequent fires (Abrahamson 1984). Xeric (dry) oak scrub on the Lake Wales Ridge is predominantly made up of four species of stunted, low-growing oaks: sand live oak (*Quercus geminata*), Chapman oak (*Q. chapmanii*), myrtle oak (*Q. myrtifolia*), and scrub oak (*Q. inopina*) (Myers 1990). In optimal habitat for scrub-jays on the Lake Wales Ridge, these oaks are 3 to 10 feet high, interspersed with 10 to 50 percent unvegetated, sandy openings, and a sand pine (*Pinus clausa*) canopy of less than 20 percent (Woolfenden and Fitzpatrick 1991). Trees and dense herbaceous vegetation is rare. Other vegetation noted along with the oaks includes saw palmetto (*Serenoa repens*) and scrub palmetto (*Sabal etonia*), as well as woody shrubs such as Florida rosemary (*Ceratiola ericoides*) and rusty lyonia (*Lyonia ferruginea*).

Scrub-jays occupy areas with less scrub oak cover and fewer openings on the Merritt Island/Cape Canaveral Complex and in southwest Florida than typical of xeric oak scrub habitat on the Lake Wales Ridge (Schmalzer and Hinkle 1992b; Breininger et al. 1995; Thaxton and Hingtgen 1996). The predominant communities here are oak scrub and scrubby flatwoods. Scrubby flatwoods differ from scrub by having a sparse canopy of slash pine (*Pinus elliottii*); sand pine is rare. The shrub species mentioned above are common, except for scrub oak and scrub palmetto, which are restricted to the Lake Wales Ridge. Runner oak (*Q. minima*), turkey oak (*Q. laevis*), bluejack

oak (*Q. incana*), and longleaf pine (*Pinus palustris*) also have been reported. The Kennedy Space Center located in Brevard County, supports one of the largest contiguous populations of scrub-jays. Studies conducted there give good descriptions of this habitat type (Schmalzer and Hinkle 1992b).

Optimal scrub-jay habitat occurs as patches with the following attributes:

1. Ten to 50 percent of the oak scrub made up of bare sand or sparse herbaceous vegetation;
2. Greater than 50 percent of the shrub layer made up of scrub oaks;
3. A mosaic of oak scrubs that occur in optimal height (4 to 6 feet) and shorter;
4. Less than 15 percent canopy cover; and
5. Greater than 984 feet from a forest (Breininger et al. 1998).

Much potential scrub-jay habitat occurs as patches of oak scrub within a matrix of little-used habitat of saw palmetto and herbaceous swale marshes (Breininger et al. 1991, Breininger et al. 1995). These native matrix habitats supply prey for scrub-jays and habitat for other species of conservation concern. The flammability of native matrix habitats is important for spreading fires into oak scrub (Breininger et al. 1995; Breininger et al. 2002). Degradation or replacement of native matrix habitats with habitat fragments and industrial areas attract predators of scrub-jays, such as fish crows (*Corvus ossifragus*), that are rare in most regularly burned native matrix habitats (Breininger and Schmalzer 1990; Woolfenden and Fitzpatrick 1991). Matrix habitats often develop into woodlands and forests when there is a disruption of fire regimes. These woodlands and forests are not suitable for scrub-jays, decrease the habitat suitability of nearby scrub, attract predators, and further disrupt fire patterns.

Scrub-jays have a social structure that involves cooperative breeding, a trait that the other North American species of scrub-jays do not show (Woolfenden and Fitzpatrick 1984; Woolfenden and Fitzpatrick 1990). Scrub-jays live in families ranging from two birds (a single-mated pair) to extended families of eight adults (Woolfenden and Fitzpatrick 1984) and one to four juveniles. Fledgling scrub-jays stay with the breeding pair in their natal (birth) territory as “helpers,” forming a closely-knit, cooperative family group. Prebreeding numbers are generally reduced to either a pair with no helpers or families of three or four individuals (a pair plus one or two helpers) (Woolfenden and Fitzpatrick 1996a).

Scrub-jays have a well-developed intrafamilial dominance hierarchy with breeder males most dominant, followed by helper males, breeder females, and, finally, female helpers (Woolfenden and Fitzpatrick 1977; Woolfenden and Fitzpatrick 1984). Helpers take part in sentinel duties (Woolfenden and Fitzpatrick 1984; McGowan and Woolfenden 1989), territorial defense (Woolfenden and Fitzpatrick 1984), predator-mobbing, and the feeding of both nestlings (Stallcup and Woolfenden 1978) and fledglings (Woolfenden and Fitzpatrick 1984; McGowan and Woolfenden 1990). The well-developed sentinel system involves having one individual occupying an exposed perch watching for predators or territory intruders. When a predator is seen, the sentinel scrub-jay gives a distinctive warning call (McGowan and Woolfenden 1989; McGowan and Woolfenden 1990), and all family members seek cover in dense shrub vegetation (Fitzpatrick et al. 1991).

Scrub-jay pairs occupy year-round, multipurpose territories (Woolfenden and Fitzpatrick 1978; Woolfenden and Fitzpatrick 1984; Fitzpatrick et al. 1991). Territory size averages 22 to 25 acres (Woolfenden and Fitzpatrick 1990; Fitzpatrick et al. 1991), with a minimum size of about 12 acres (Woolfenden and Fitzpatrick 1984; Fitzpatrick et al. 1991). The availability of territories is a limiting factor for scrub-jay populations (Woolfenden and Fitzpatrick 1984). Because of this limitation, nonbreeding adult males may stay at the natal territory as helpers for up to 6 years, waiting for either a mate or territory to become available (Woolfenden and Fitzpatrick 1984). Scrub-jays may become breeders in several ways:

1. By replacing a lost breeder on a non-natal territory (Woolfenden and Fitzpatrick 1984);
2. Through “territorial budding,” where a helper male becomes a breeder in a segment of its natal territory (Woolfenden and Fitzpatrick 1978);
3. By inheriting a natal territory following the death of a breeder;
4. By establishing a new territory between existing territories (Woolfenden and Fitzpatrick 1984); or
5. Through “adoption” of an unrelated helper by a neighboring family followed by resident mate replacement (Woolfenden and Fitzpatrick 1984). Territories also can be created by restoring habitat through effective habitat management efforts in areas that are overgrown (Thaxton and Hingtgen 1994).

To become a breeder, a scrub-jay must find a territory and a mate. Evidence presented by Woolfenden and Fitzpatrick (1984) suggests that scrub-jays are monogamous. The pair retains ownership and sole breeding privileges in its particular 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 sight of other scrub-jays (Woolfenden and Fitzpatrick 1984). These authors also reported never observing copulation between unpaired scrub-jays or courtship behavior between a female and a scrub-jay other than her mate. Age at first breeding in the scrub-jay varies from 1 to 7 years, although most individuals become breeders between 2 and 4 years of age (Fitzpatrick and Woolfenden 1988). Persistent breeding populations of scrub-jays exist only where there are scrub oaks in sufficient quantity and form to provide an ample winter acorn supply, cover from predators, and nest sites during the spring (Woolfenden and Fitzpatrick 1996b).

Scrub-jay nests are typically constructed in shrubby oaks, at a height of 1.6 to 8.2 feet (Woolfenden 1974). Sand live oak and scrub oak are the preferred shrubs on the Lake Wales Ridge (Woolfenden and Fitzpatrick 1996b), and myrtle oak is favored on the Atlantic Coastal Ridge (Toland 1991) and southern Gulf coast (Thaxton 1998). In suburban areas, scrub-jays nest in the same evergreen oak species as well as in introduced or exotic trees; however, they build their nests in a significantly higher position in these oaks than when in natural scrub habitat (Bowman et al. 1996). Scrub-jay nests are an open cup, about 7 to 8 inches outside diameter and 3 to 4 inches inside diameter. The outer basket is bulky and built of course twigs from oaks and other vegetation, and the inside is lined with tightly wound palmetto or cabbage palm (*Sabal*

palmetto) fibers. There is no foreign material as may be present in a blue jay nest (Woolfenden and Fitzpatrick 1996b).

Nesting is synchronous, normally occurring from March 1 through June 30 (Woolfenden and Fitzpatrick 1984). On the Atlantic Coastal Ridge and southern Gulf coast, nesting may be protracted through the end of July. In suburban habitats, nesting is consistently started earlier (March) than in natural scrub habitat (Fleischer 1996), although the reason for this is unknown.

Clutch size ranges from one to five eggs, but is typically three or four eggs (Woolfenden and Fitzpatrick 1990). Clutch size is generally larger in suburban habitats, and the birds try to rear more broods per year (Fleischer 1996). Double brooding by as much as 20 percent has been documented on the Atlantic Coastal Ridge and in suburban habitat within the southern Gulf coast, compared to about 2 percent on the Lake Wales Ridge (Thaxton 1998). Scrub-jay eggs measure 1.1 inches in length by 0.8 inch in breadth (Woolfenden and Fitzpatrick 1996b), and coloration “varies from pea green to pale glaucous green... blotched and spotted with irregularly shaped markings of cinnamon rufous and vinaceous cinnamon, these being generally heaviest about the larger end” (Bendire 1895). Eggs are incubated for 17 to 19 days (Woolfenden 1974), and fledging occurs 15 to 21 days after hatching (Woolfenden 1978). Only the breeding female incubates and broods eggs and nestlings (Woolfenden and Fitzpatrick 1984). Average production of young is two fledglings per pair, per year (Woolfenden and Fitzpatrick 1990; Fitzpatrick et al. 1991), and the presence of helpers improves fledging success (Woolfenden and Fitzpatrick 1990; Mumme 1992). Annual productivity must average at least two young fledged per pair for a population of scrub-jays to support long-term stability (Fitzpatrick et al. 1991).

Fledglings depend upon adults for food for about ten weeks, during which time they are fed by both breeders and helpers (Woolfenden 1975; McGowan and Woolfenden 1990). Survival of scrub-jay fledglings to yearling age class averages about 35 percent in optimal scrub; while annual survival of both adult males and females averages around 80 percent (Woolfenden and Fitzpatrick 1996b). Data from Archbold Biological Station, however, suggest that survival and reproductive success of scrub-jays in suboptimal habitat is lower (Woolfenden and Fitzpatrick 1991). These data help explain why local populations inhabiting unburned, late successional habitats become extirpated. Similarly, data from Indian River County show that mean annual productivity declines significantly in suburban areas where 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, and 1.2 young per pair fledged in very fragmented suboptimal scrub. The longest observed lifespan of a scrub-jay is 15.5 years at Archbold Biological Station in Highlands County (Woolfenden and Fitzpatrick 1996b).

Scrub-jays are nonmigratory and permanently territorial. Juveniles stay in their natal territory for up to 6 years before dispersing to become breeders (Woolfenden and Fitzpatrick 1984; Woolfenden and Fitzpatrick 1986). Once scrub-jays pair and become breeders, generally within two territories of their natal area, they stay on their breeding territory until death. In suitable habitat, fewer than 5 percent of scrub-jays disperse more than 5 miles (Fitzpatrick et al. unpublished data). All documented long-distance dispersals have been in unsuitable habitat such as woodland, pasture, or suburban plantations. Scrub-jay dispersal behavior is affected by the

intervening land uses. Protected scrub habitats will most effectively sustain scrub-jay populations if they are located within surrounding habitat types that can be used and traversed by scrub-jays. Brushy pastures, scrubby corridors along railway and road rights-of-way, and open burned flatwoods offer links for colonization among scrub-jay populations. Stith et al. (1996) believe that a dispersal distance of 5 miles is close to the biological maximum for scrub-jays.

Scrub-jays forage mostly on or near the ground, often along the edges of natural or man-made openings. They visually search for food by hopping or running along the ground beneath the scrub or by jumping from shrub to shrub. Insects, particularly orthopterans (*e.g.*, locusts, crickets, grasshoppers, beetles) and lepidopteran (*e.g.*, butterfly and moth) larvae form most of the animal diet throughout most of the year (Woolfenden and Fitzpatrick 1984). Small vertebrates are eaten when encountered, including frogs and toads (*Hyla femoralis*, *H. squirella*, rarely *Bufo quercicus*, and unidentified tadpoles, lizards (*Anolis carolinensis*, *Cnemidophorus sexlineatus*, *Sceloporus woodi*, *Eumeces inexpectatus*, *Neoseps reynoldsi*, *Ophisaurus compressus*, *O. ventralis*), small snakes (*Thamnophis sauritus*, *Opheodrys aestivus*, *Diadophis punctatus*), small rodents (cotton rat [*Sigmodon hispidus*], *Peromyscus polionotus*, black rat [*Rattus rattus*] young), downy chicks of the bobwhite (*Colinus virginianus*), and fledgling common yellowthroat (*Geothlypis trichas*). In suburban areas, scrub-jays will accept supplemental foods once the scrub-jays have learned about them (Woolfenden and Fitzpatrick 1984).

Acorns are the principal plant food (Woolfenden and Fitzpatrick 1984; Fitzpatrick et al. 1991). From August to November each year, scrub-jays may harvest and cache 6,500 to 8,000 oak (*Quercus* spp.) acorns throughout their territory. Acorns are typically buried beneath the surface of bare sand patches in the scrub during fall, and retrieved and consumed year round, though most are consumed in fall and winter (DeGange et al. 1989). On the Atlantic Coastal Ridge, acorns are often cached in pine trees, either in forks of branches, in distal pine boughs, under bark, or on epiphytic plants, between 1 to 30 feet in height. Other small nuts, fruits, and seeds also are eaten (Woolfenden and Fitzpatrick 1984).

Many scrub-jays occur in habitat conditions where their long-term persistence is doubtful, although their persistence in these areas can occur for many years (Swain et al. 1995; Stith et al. 1996; Root 1998; Breininger et al. 2001). A primary cause for scrub-jay decline is poor demographic success associated with reductions in fire frequency (Woolfenden and Fitzpatrick 1984; Woolfenden and Fitzpatrick 1991; Schaub et al. 1992; Stith et al. 1996; Breininger et al. 1999). The reduction in fire frequency is associated with increases in shrub height, decreases in open space, increases in tree densities, and the replacement of scrub and marshes by forests (Duncan and Breininger 1998; Schmalzer and Boyle 1998; Duncan et al. 1999). These habitat trajectories result in declines in habitat use and demographic success (Woolfenden and Fitzpatrick 1984; Woolfenden and Fitzpatrick 1991). As a result, mean family size declines, and eventually the number of breeding pairs can decline by 50 percent every 5 to 10 years (Woolfenden and Fitzpatrick 1991; Breininger et al. 1999; Breininger et al. 2001).

Status and distribution

The scrub-jay was federally listed as threatened in 1987 primarily because of habitat fragmentation, degradation, and loss (Service 1987).

Historically, oak scrub occurred as numerous isolated patches in peninsular Florida. These patches were concentrated along both the Atlantic and Gulf coasts and on the central ridges of the peninsula (Davis 1967). Probably until as recently as the 1950s, scrub-jay populations occurred in the scrub habitats of 39 of the 40 counties south of, and including Levy, Gilchrist, Alachua, Clay, and Duval Counties. Historically, most of these counties would have contained hundreds or even thousands of breeding pairs (Fitzpatrick et al. 1994). Only the southernmost county, Monroe, lacked scrub-jays (Woolfenden and Fitzpatrick 1996a). Although scrub-jay numbers probably began to decline when European settlement began in Florida (Cox 1987), the decline was first noted in the literature by Byrd (1928). After 40 years of personal observation of the Etonia scrub (now known as Ocala National Forest), Webber (1935) observed many changes to the previously-undisturbed scrub habitat found there, noting that “The advent of man has created a new environmental complex.”

A statewide scrub-jay census was last conducted in 1992 and 1993, at which time there were an estimated 4,000 pairs of scrub-jays left in Florida (Fitzpatrick et al. 1994). At that time, the scrub-jay was considered extirpated in ten counties (Alachua, Broward, Clay, Duval, Gilchrist, Hernando, Hendry, Pinellas, and St. Johns), and were considered functionally extinct in an additional five counties (Flagler, Hardee, Levy, Orange, and Putnam), where 10 or fewer pairs remained. Recent information indicates that there are at least 12 to 14 breeding pairs of scrub-jays located within Levy County, higher than previously thought (Miller 2004), and there is at least one breeding pair of scrub-jays remaining in Clay County (Miller 2004). A scrub-jay has been documented in St. Johns County as recently as 2003 (Miller 2003). Populations are close to becoming extirpated in Gulf coast counties (from Levy south to Collier) (Woolfenden and Fitzpatrick 1996a). In 1992 and 1993, population numbers in 21 of the counties were below 30 or fewer breeding pairs (Fitzpatrick et al. 1994). Based on the amount of destroyed scrub habitat, scrub-jay population loss along the Lake Wales Ridge is 80 percent or more since pre-European settlement (Fitzpatrick et al. 1991). Since the early 1980s, Fitzpatrick et al. (1994) estimated that in the northern third of the species’ range, the scrub-jay has declined somewhere between 25 and 50 percent. The species may have declined by as much as 25 to 50 percent in the last decade alone (Stith et al. 1996).

On protected lands, scrub-jays have continued to decline due to inadequate habitat management (Stith 1999). However, over the last several years, steps to reverse this decline have occurred, and management of scrub habitat is continuing in many areas of Florida (Hastie and Eckl 1999; Stith 1999; The Nature Conservancy 2001; Turner et al. 2006).

Stith (1999) used a spatially explicit individual-based population model developed specifically for the scrub-jay to complete a metapopulation viability analysis of the species. The species’ range was divided into 21 metapopulations demographically isolated from each other. Metapopulations are defined as collections of relatively discrete demographic populations

distributed over the landscape; these populations are connected within the metapopulations through dispersal or migration (Hanski and Gilpin 1991). 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) (Stith 1999). 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 scrub-jay metapopulation falling below 10 pairs), and percent population decline. These were then used to rank the different statewide metapopulations by vulnerability. The model predicted that five metapopulations (Northeast Lake, Martin, Merritt Island, Ocala National Forest, and Lake Wales Ridge) have low risk of quasi-extinction. Two of the five (Martin and Northeast Lake), however, experienced significant population declines under the "no acquisition" option; the probability for survival of both of these metapopulations could be improved with more acquisitions.

Eleven of the remaining 21 metapopulations were shown to be highly vulnerable to quasi-extinction if no more habitat were acquired (Central Brevard, North Brevard, Central Charlotte, Northwest Charlotte, Citrus, Lee, Levy, Manatee, Pasco, Saint Lucie, and West Volusia). The model predicted that the risk of quasi-extinction would be greatly reduced for 7 of the 11 metapopulations (Central Brevard, North Brevard, Central Charlotte, Northwest Charlotte, Levy, Saint Lucie, and West Volusia) by acquiring all or most of the remaining scrub habitat. The model predicted that the remaining four metapopulations (Citrus, Lee, Manatee, and Pasco) would moderately benefit if more acquisitions were made.

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

Three of the metapopulations evaluated by Stith (1999) (Flagler, Central Lake, and South Palm Beach) 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.

Current Threats

Research and monitoring of scrub-jays has revealed more information about threats to this species since the time the scrub-jay recovery plan was approved in 1990 (Service 1990). The following discussion is intended to give an up-to-date analysis:

The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range: Scrub habitats have continued to decline throughout peninsular Florida since listing occurred, and habitat destruction continues to be one of the main threats to the scrub-jay. Cox (1987)

noted local extirpations and major decreases in numbers of 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 pre-European settlement (Fitzpatrick et al. 1991; Turner et al. 2006). Fernald (1989), Fitzpatrick et al. (1991), and Woolfenden and Fitzpatrick (1996a) noted that habitat losses due to agriculture, silviculture, and commercial and residential development have continued to play a role in the decline in numbers of scrub-jays throughout the state. Statewide, estimates of scrub habitat loss range from 70 to 90 percent (Woolfenden and Fitzpatrick 1996a). Various populations of scrub-jays within the species' range have been monitored closely, and more precise estimates of habitat loss in these locations are available (Snodgrass et al. 1993; Thaxton and Hingtgen 1996).

Toland (1999) estimated that about 70 to 78 percent of pre-European settlement scrub habitats had been converted to other uses in Brevard County. This is due mainly to development activity and citrus conversion, which were the most important factors that contributed to the scrub-jay decline between 1940 and 1990. A total of only 10,656 acres of scrub and scrubby flatwoods remain in Brevard County (excluding Federal ownership), of which only 1,600 acres (15 percent) is in public ownership for the purposes of conservation. Less than 1,977 acres of an estimated pre-European 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 Hingtgen 1996). Only 10,673 acres of viable coastal scrub and scrubby flatwoods remained in the Treasure Coast region of Florida (Indian River, Saint Lucie, Martin, and Palm Beach Counties) according to Fernald (1989). He estimated that 95 percent of scrub had already been destroyed for development purposes in Palm Beach County.

Habitat destruction not only reduces the amount of area scrub-jays can occupy, but may also increase 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 inbreeding and genetic isolation, which is likely to increase extinction probability (Fitzpatrick et al. 1991; Woolfenden and Fitzpatrick 1991; Stith et al. 1996; Thaxton and Hingtgen 1996). Dispersal distances of scrub-jays in fragmented habitat are further than in optimal unfragmented habitats, and demographic success is poor (Thaxton and Hingtgen 1996; Breininger 1999).

Disease or Predation: Most scrub-jay mortality probably is from predation (Woolfenden and Fitzpatrick 1996b). The second most frequent cause may be disease, or predation on disease-weakened scrub-jays (Woolfenden and Fitzpatrick 1996b). Known predators of scrub-jays are listed by Woolfenden and Fitzpatrick (1990), Fitzpatrick et al. (1991), Schaub et al. (1992), Woolfenden and Fitzpatrick (1996a, 1996b), Breininger (1999), and Miller (2004); the list includes eastern coachwhip (*Masticophis flagellum*, known to eat adults, nestlings, and fledglings), eastern indigo snake (*Drymarchon corais couperi*, known to eat adults and fledglings), black racer (*Coluber constrictor*, known to eat eggs), pine snake (*Pituophis melanoleucus*), and corn snake (*Elaphe guttata*). Mammalian predators include bobcats (*Lynx rufus*), raccoons (*Procyon lotor*), sometimes cotton rats (known to eat eggs), black rats, and domestic cats (*Felis catus*, known to eat adults). Franzreb and Puschock (2004) also have documented spotted skunks (*Spilogale putorius*) and grey fox (*Urocyon cinereoargenteus*) as

mammalian predators of scrub-jay nests. Fitzpatrick et al. (1991) postulated that populations of domestic cats are able to eliminate small populations of scrub-jays. Avian nest predators include the great horned owl (*Bubo virginianus*), eastern screech-owl (*Otus asio*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), fish crow, boat-tailed grackle (*Quiscalus major*), common grackle (*Q. quiscula*), American crow (*Corvus brachyrhynchos*), blue jay, and swallow-tailed kites (*Elanoides forficatus*).

Fitzpatrick et al. (1991) reported that overgrown scrub habitats are often occupied by the blue jay, which may be one factor limiting scrub-jay populations in such areas. Raptors which seem to be important predators of adult scrub-jays are merlin (*Falco columbarius*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*A. cooperii*), and northern harrier. During migration and winter, these four raptor species are present in areas which contain scrub habitat, and scrub-jays may experience frequent confrontations (as many as one pursuit a day) with them (Woolfenden and Fitzpatrick 1990). In coastal scrub, Woolfenden and Fitzpatrick (1996b) report that scrub-jays are vulnerable to predation by raptors 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 scrub-jay predators is increased. Bowman and Averill (1993) noted that scrub-jays occupying fragments of scrub found in or near housing developments were more prone to predation by free-roaming cats and competition from blue jays and mockingbirds. Woolfenden and Fitzpatrick (1996a, 1996b) stated that proximity to housing developments (and increased exposure to free-roaming cats) needs to be taken into consideration when designing scrub preserves. Young scrub-jays are especially vulnerable to ground predators (*e.g.*, snakes and mammals) before they are fully capable of sustained flight.

The scrub-jay hosts two protozoan blood parasites (*Plasmodium cathemerium* and *Haemoproteus danilewskyi*), but incidence is low (Woolfenden and Fitzpatrick 1996b). Several scrub-jays sick from these two agents in March 1992 survived to become breeders. The scrub-jay carries at least three types of mosquito-borne encephalitis (Saint Louis, eastern equine, and "Highlands jay") (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 (Stark and Kazanis 2001); since corvids have been particularly susceptible to the disease in states north of Florida, it is expected that scrub-jays will be affected (Breininger et al. 2003).

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 high mortality does not occur in all such years. During the most severe of these presumed epidemics (August 1979 through March 1980), all but one of the juvenile cohort and almost half of the breeding adults died (Woolfenden and Fitzpatrick 1984; Woolfenden and Fitzpatrick 1990). The 1979 through 1980 incident coincided with a known outbreak of eastern equine encephalitis among domestic birds in central Florida (Woolfenden and Fitzpatrick, 1996b). From the fall of 1997 through the spring of 1998, the continuing population decline of scrub-jays along the Atlantic coast and in central Florida may have been augmented by an epidemic of unknown origin (Breininger 1999).

At Cape Canaveral Air Force Station, Stevens and Hardesty (1999) noted a decline in juvenile survival from 60 to 70 percent in the preceding years to 22 percent in 1997 and 1998. It stayed low (only 25 percent) in 1998 and 1999 before again climbing into the mid-60 percent range. Also, adult survival dropped from 70 to 80 percent survival in the preceding years to 50 to 60 percent in 1997 and 1998. Overall, their annual surveys documented the largest one-year drop (pairs decreased by 17 percent and birds by 20 percent) in this population at the same time as the presumed statewide epidemic.

In the winter and summer of 1973, 15 species of intestinal parasitic fauna (including 8 nematodes, 5 trematodes, 1 cestode, and 1 acanthocephalan) were found in 45 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 have a negative impact on scrub-jay population levels.

Larvae of the burrowing fly, *Philornis porteri*, occur irregularly on scrub-jay nestlings. The species pupates in the base of the nest; larvae locate in nasal openings, mouth flanges, bases of the flight feathers, and toes; apparently no serious effect on the scrub-jay host occurs (Woolfenden and Fitzpatrick 1996b). Additionally, one undescribed chewing louse (*Myrsidea* sp.) (Woolfenden and Fitzpatrick 1996b), one wing-feather mite (*Pterodectes* sp.), two chiggers (*Eutrombicula lipovskiyana*), and the sticktight flea (*Echidnophaga gallinacea*; 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 scrub-jays, as well as the larvae of the tick *A. maculatum* (Woolfenden and Fitzpatrick 1996b). These naturally-occurring parasites were not believed to have a negative impact on scrub-jay population levels; however, a recent study of the impact of the sticktight flea on scrub-jays indicates that low fitness and death can be caused by this parasite (Boughton et al. 2006). The host vector for this flea was a domestic dog (*Canis familiaris*) suggesting that introduction of human pets into scrub-jay areas may increase parasite loads and reduce fitness.

The Inadequacy of Existing Regulatory Mechanisms: Woolfenden and Fitzpatrick (1996a) state the importance of enforcing existing Federal laws on the management of Federal lands as natural ecosystems for the long-term survival of the scrub-jay. The Service consults regularly on activities on Federal lands which may affect scrub-jays and also works with private landowners through the section 10(a)(1)(B) incidental take permitting process of the Act when take is likely to occur and no Federal nexus is present. 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 Development of Regional Impact reviews; at the local level, although comprehensive plans contain policy statements and natural resource protection objectives, they are only effective if counties and municipalities enact and enforce ordinances. As a general rule, counties have not enacted and enforced ordinances that are effective in protecting scrub-jays (Fernald 1989).

The Wildlife Code of the State of Florida (Chapter 68A, 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 scrub-jay and its habitat.

Other Natural or Man-made Factors Affecting its Continued Existence: Human interference with natural fire regimes has continued to play a major part in the decline of the scrub-jay and today may exceed habitat loss as the single most important limiting factor (Woolfenden and Fitzpatrick 1991; Woolfenden and Fitzpatrick 1996a; Fitzpatrick et al. 1994). Lightning strikes cause all naturally-occurring fires in south Florida scrub habitat (Abrahamson 1984; Hofstetter 1984; Woolfenden and Fitzpatrick 1990). Fire has been noted to be important in maintenance of scrub habitat for decades (Nash 1895; Harper 1927; Webber 1935; Davis 1943; Laessle 1968; Abrahamson et al. 1984). Human efforts to prevent and control natural fires have allowed the scrub to become too dense and tall to support populations of scrub-jays, resulting in the decline of local populations of scrub-jays throughout the state (Fernald 1989; Fitzpatrick et al. 1994, Percival et al. 1995; Stith et al. 1996; Thaxton and Hingtgen 1996; Woolfenden and Fitzpatrick 1990; Woolfenden and Fitzpatrick 1996a; Toland 1999). Woolfenden and Fitzpatrick (1996a) cautioned, however, that fire applied too often to scrub habitat also can result in local extirpations. Data from Archbold Biological Station show that fire-return intervals varying between 8 and 15 years are optimal for long-term maintenance of productive scrub-jay populations in central Florida (Woolfenden and Fitzpatrick 1996b). These intervals also correspond with those yielding healthy populations of listed scrub plants (Menges and Kohfeldt 1995; Menges and Hawkes 1998). Optimal fire-return intervals may, however, be shorter in coastal habitats (Schmalzer and Hinkle 1992a; Schmalzer and Hinkle 1992b).

Stith et al. (1996) estimated that at least 2,100 breeding pairs of scrub-jays were living in overgrown habitat. Toland (1999) reported that most of Brevard County's remaining scrub (estimated to be 15 percent of the original acreage) is 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 not only to scrub-jays, but also many other scrub plants and animals. Reduction in the number of potential scrub-jay nesting sites, acorn cache sites, and foraging sites presents a problem for scrub-jays. Fernald (1989) reported that overgrowth of scrub results not only in the decline of species diversity and abundance but also a reduction in the percentage of open sandy patches (Fernald 1989; Woolfenden and Fitzpatrick 1996b). Fitzpatrick et al. (1994) believed that fire suppression was just as responsible as habitat loss in the decline of the scrub-jay, especially in the northern third of its range. Likewise, the continued population decline of scrub-jays within Brevard County between 1991 and 1999 has been attributed mainly to the overgrowth of remaining habitat patches (Breininger et al. 2001). Breininger et al. (1999) concluded that optimal habitat management is essential in fragmented ecosystems maintained by periodic fire, especially to lessen risks of decline and extinction resulting from epidemics and hurricanes.

Fitzpatrick et al. (1991), Fitzpatrick et al. (1994), and Woolfenden and Fitzpatrick (1996a) expressed concern for the management practices taking place on Federal lands at Ocala National Forest, Merritt Island National Wildlife Refuge at the Kennedy Space Center, and Cape

Canaveral Air Force Station, all supporting large contiguous populations of scrub-jays. They predicted that fire suppression 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 declines of scrub-jays in these large contiguous areas of scrub. These areas should be those where populations are most secure because of Federal agencies' responsibilities under section 7(a)(1) of the Act. Monitoring of scrub-jay populations, demography, and nesting success is ongoing on all of these properties to assess the effectiveness of management practices in meeting scrub-jay recovery objectives.

Housing and commercial developments within scrub habitats are accompanied by the development of roads. Since scrub-jays often forage along roadsides and other openings in the scrub, they are often killed by passing cars. Research by Mumme et al. (2000) along a two-lane paved road indicated that clusters of scrub-jay territories found next to the roadside represented population sinks (breeder mortality exceeds production of breeding-age recruits), which could be supported only by immigration. Since this species may be attracted to roadsides because of their open habitat characteristics, vehicular mortality presents a significant and growing management problem throughout the remaining range of the scrub-jay (Dreschel et al. 1990; Mumme et al. 2000), and proximity to high-speed, paved roads needs to be considered when designing scrub preserves (Woolfenden and Fitzpatrick 1996a).

Another potential problem in suburban areas supporting scrub-jays is supplemental feeding by humans (Bowman and Averill 1993; Woolfenden and Fitzpatrick 1996a; Bowman 1998). The presence of additional food may allow scrub-jays to persist in fragmented habitats, but recruitment in these populations is lower than in native habitats. However, even though human feeding may postpone local extirpations, long-term survival cannot be ensured in the absence of protecting native oak scrub habitat necessary for nesting.

Scrub-jays in suburban settings often nest high in tall shrubbery. During March winds, these nests tend to be susceptible to destruction (Woolfenden and Fitzpatrick 1996b; Bowman 1998).

Hurricanes pose a potential risk for scrub-jays, although the exact impact of such catastrophic events is unknown. Breininger et al. (1999) modeled the effects of epidemics and hurricanes on scrub-jay populations in varying levels of habitat quality. Small populations of scrub-jays are more vulnerable to extirpation where epidemics and hurricanes are common. Storm surge from a Category Three to Five hurricanes could inundate entire small populations of scrub-jays, and existing habitat fragmentation could prevent repopulation of affected areas. However, this model also predicted that long-term habitat degradation had greater influence on extinction risk than hurricanes or epidemics. Preliminary results of the impact of Hurricane Charley on the Charlotte County scrub-jay populations indicates that at least one member of all 20 family groups surveyed after the storm had survived (Miller 2006).

Fernald (1989) reported that many of the relatively few remaining patches of scrub within the Treasure Coast region of Florida had been degraded by trails created by off-road vehicles, illegal dumping of construction debris, abandoned cars and appliances, or household waste. The invasion of these areas by exotic species, including Brazilian pepper (*Schinus terebinthifolius*),

white cypress-pine (*Callitris glaucophylla*), and Australian pine (*Casuarina equisetifolia*) also was a problem. Other human-induced impacts identified by Fernald (1989) include the introduction of domestic dogs and cats, black rats, greenhouse frogs (*Eleutherodactylus planirostris*), giant toads (*Bufo marinus*), Cuban tree frogs (*Osteopilus septentrionalis*), brown anoles (*Anolis sagrei*), and other exotic animal species. These exotic species may compete with scrub-jays for space and food.

Analysis of the species/critical habitat likely to be affected

For the reasons cited in previous sections of this biological opinion, the Florida scrub-jay's status since its listing in 1987 has not improved. The status and trends that we discussed above identify two items essential for recovery of this species: (1) additional purchase of scrub habitat for preservation in key areas, and (2) restoration and management of publicly-owned scrub habitat already under preservation. No critical habitat has been designated for the species; therefore, none will be affected.

ENVIRONMENTAL BASELINE

Climate change

According to the Intergovernmental Panel on Climate Change Report (IPCC) (2007), warming of the earth's climate is "unequivocal," as is now evident from observations of increases in average global air and ocean temperatures, widespread melting of snow and ice, and rising sea level. The 2007 IPCC report describes changes in natural ecosystems with potential wide-spread effects on many organisms, including marine mammals and migratory birds. The potential for rapid climate change poses a significant challenge for fish and wildlife conservation. Species' abundance and distribution are dynamic, relative to a variety of factors, including climate. As climate changes, the abundance and distribution of fish and wildlife will also change. Highly specialized or endemic species are likely to be most susceptible to the stresses of changing climate. Based on these findings and other similar studies, the Department of the Interior requires agencies under its direction to consider potential climate change effects as part of their long-range planning activities (Service 2007).

Climate change at the global level drives changes in weather at the regional level, although weather is also strongly affected by season and local effects (*e.g.*, elevation, topography, latitude, proximity to the ocean, etc). Temperatures are predicted to rise from 2°C to 5°C for North America by the end of this century (IPCC 2007). Other processes to be affected by this projected warming include rainfall (amount, seasonal timing and distribution), storms (frequency and intensity), and sea level rise. However, the exact magnitude, direction, and distribution of these changes at the regional level are not well understood or easy to predict. Seasonal change and local geography make prediction of the effects of climate change at any location variable. Current models offer a wide range of predicted changes.

Climatic changes in south Florida could amplify current land management challenges involving habitat fragmentation, urbanization, invasive species, disease, parasites, and water management

(Pearlstone 2008). Global warming will be a particular challenge for endangered, threatened, and other “at risk” species. It is difficult to estimate, with any degree of precision, which species will be affected by climate change or exactly how they will be affected. The Service will use Strategic Habitat Conservation planning, an adaptive science-driven process that begins with explicit trust resource population objectives, as the framework for adjusting our management strategies in response to climate change (Service 2006).

Status of the species within the action area

The scrub-jay family inhabiting the project site and surrounding area represents one of at least nine scrub-jay families of up to 21 individuals known to occur in the area near the St. Lucie County International Airport (Airport). Stith et al., (1999) described the territory cluster near the airport as having three scrub-jay families. Since then, three scrub-jay families with up to 9 individuals have been observed by environmental consultants on private lands south of the Airport, and two more families of at least four individuals occupy a mixture of private and County-owned land (Sheraton Plaza Preserve) farther south of the Airport. Three families with about six individuals have been sighted on a 120-acre conservation easement (56 acres of which are scrub habitat) northeast of, and managed by, the Airport, and another family of at least two individuals is located in the County’s Indrio Savannahs Natural Area north-northeast of the Airport. A tenth family is suspected to inhabit a territory that includes part of the eastern edge of Airport property near the east end of a runway, but there has been no confirmation that this is not one of the families identified on the Airport’s conservation easement. There have been no area-wide surveys conducted near the Airport since the one reported by Stith et al, (1999), so it is unknown if any of the nine known scrub-jay families are either the same, or are in addition to the three described in that report.

The scrub-jay families near the Airport are part of a larger approximately 169-family complex of scrub-jays known as the South Brevard-Indian River-North St. Lucie Metapopulation (M13) (Fitzpatrick et al. 1994; Stith 1999; Breininger et al. 2003). The M13 metapopulation declined from 255 families in 1992 to 169 families in 2002. The metapopulation decline was due to a decrease in habitat quality and availability resulting from habitat fragmentation and degradation associated with urban development, increased predation from domestic animals, and competition from more urban-adapted birds (Thaxton and Hingtgen 1996; Bowman 1998; Breininger et al. 2003). Viability modeling suggests this metapopulation is vulnerable to extinction and quasi-extinction if habitat acquisition and management programs are not implemented (Stith 1999).

The Applicant’s action will occur in the southern area of M13, located southeast of the Airport. While a recent study confirmed the genetic heterogeneity of scrub-jays in M13 (Coulon et al. 2008), the southern part of M13 is suspected to have become functionally isolated from the northern part because of continuing development in south Indian River County and north St. Lucie County.

There are about 860 acres of mostly disturbed scrub habitat in the area around the Airport. Much of this habitat occurs in isolated patches of poor quality scrub that are not occupied by scrub-jays, but are probably used occasionally as refugia by dispersing birds. The Applicant’s parcel is

located in an area already partially built out (about 50 percent by area in 2009). The area is composed of variously sized parcels zoned for residential and commercial development. The area may support scrub-jays into the indefinite future, but ultimately these scrub-jay groups within the urban environment are expected to be extirpated because of continued habitat fragmentation and degradation.

Scrub-jay territory was documented to encompass 1.0 acre of the Applicant's parcels. Development of these parcels will affect one scrub-jay family of at least two individuals. The parcels contain highly disturbed scrub with invasive vegetation that can provide breeding, feeding, and shelter habitat for scrub-jays.

Factors affecting the species' environment within the action area

Over the last 50 years, human occupation of southeast Florida resulted in direct habitat loss through land clearing, habitat fragmentation, and habitat degradation through fire suppression. The distribution and numbers of scrub-jays likely declined in response to these increasing urban pressures. These same factors continue to act synergistically against scrub-jays in M13. In addition, as scrub-jay populations become smaller and more isolated, the adverse demographic effects of urbanization influences may be magnified. Under these circumstances, small populations are more susceptible to extirpation than larger populations.

Demographic modeling indicates that scrub-jays in M13 are "moderately vulnerable to quasi-extinction" (falling below 10 pairs of scrub-jays) unless additional habitat is acquired (Stith 1999). There is little unimpacted scrub habitat, and remaining scrub areas are platted and under the ownership of many different owners, making land acquisition difficult and expensive. A few areas near the Airport that contain scrub have been set aside for conservation, but overall, habitat is limited and fragmented. No incidental take permits have been issued in the action area. However, as a measure to minimize adverse effects to scrub-jays for a project on Airport property submitted under section 7 of the Act, a 120-acre conservation easement was established northeast of the Airport. The Airport is tasked with the maintenance of the habitat contained within the conservation easement, 56 acres of which is in scrub.

EFFECTS OF THE ACTION

Factors to be considered

The Project occurs within habitat occupied by the scrub-jay. Critical habitat has not been designated for this species. Scrub-jays may be found within and adjacent to the proposed construction footprint year round. The timing of land clearing for this project will be outside the nesting season to reduce the risk of take. Given the prevailing uncertain economic conditions, the length of time required to complete construction of the project is not known, but the Applicant anticipates all land clearing associated with the development will be completed in 6 months. The project will result in permanent loss and alteration of 1.0 acre of native upland vegetation currently occupied by scrub-jays within the ± 2.92-acre project site.

Analyses for effects of the action

Direct Effects: Because of their mobility, fledgling and adult scrub-jays are unlikely to be killed during land clearing. Since the Applicant has agreed land clearing in preparation for construction is to be conducted outside of the nesting season (March 1 to June 30), impacts to nesting scrub-jays, their eggs, or dependent chicks should be avoided or minimized.

About 1.0 acre of habitat occupied by one family of scrub-jays will be permanently altered because of the construction of the commercial structures and associated infrastructure. Given that the habitat requirement of a scrub-jay family is estimated to be 25 acres of scrub habitat, and only 4 percent of the territory will be altered, the resident scrub-jays may persist for an undefined time.

The extent to which the Project will affect the resident scrub-jays is not known because the configuration and size of their territory has not been determined. If the subject parcels are critical to these scrub-jays, there is the possibility that the resident scrub-jays may abandon their territory or be forced to compete with other scrub-jay families known to have established territories in the vicinity. However, the affected scrub-jay territory includes other undeveloped parcels that could provide alternative areas suitable for nesting, foraging, and sheltering.

Indirect Effects: Following development, the immediate area will experience an increase in human use, fire suppression, vegetation overgrowth, and predators (*i.e.*, feral and domestic cats). Fire suppression in xeric uplands results in vegetative overgrowth, which will lead to further degradation of scrub-jay habitat in areas near the Project. Development also puts human activities in close proximity to scrub-jay territories, thus effective management practices for the benefit of the species (*i.e.*, prescribed burns) is less likely to occur. Increasing urbanization also leads to more vehicular traffic and higher numbers of free-roaming cats, both of which are hazards to bird populations. The domestic cat is the most widespread terrestrial carnivore on earth, and the fact that cats negatively affect a vast array of wildlife species, especially birds and small mammals, is well documented (Churcher and Lawton 1989).

The indirect effects of alterations of the landscape matrix are difficult to quantify. Low to moderate levels of urban development within occupied scrub-jay habitat may result in a temporary increase in adult scrub-jay survival, but any increase may be off-set by increased mortality at other life stages (Bowman 1998). Encroaching urbanization within occupied scrub-jay habitat is likely to result in the decline and extirpation of scrub-jays (Thaxton and Hingtgen 1996). Construction of the proposed Project, resulting from issuance of this Permit, will probably lead to many of these indirect effects. The Service expects that urban encroachment will alter behavioral patterns and expose scrub-jays to increased mortality. For example, fragmentation of habitat may cause the scrub-jays to go outside their territory in order to find adequate forage, thus causing them to expend more energy searching for food, put them in competition with other scrub-jay families in the area, and increase the chances that they could be hit by vehicles or eaten by predators.

Interrelated and Interdependent Effects: Much of the infrastructure required for continued development to take place in the action area is already in place; however, St. Lucie County is planning to widen St. Lucie Boulevard to better handle the increased traffic loads expected to occur as development continues in this portion of the action area. Although the road widening could permanently alter more occupied scrub-jay habitat, it will be addressed through separate section 7 consultation. Because the proposed Project affects only 4 percent of one of the nine scrub-jay territories in the action area, interrelated and interdependent effects as defined under section 7 appear insignificant.

Beneficial Effects: The Applicant will provide funding of \$82,904 to a Service-approved scrub-jay conservation fund to acquire and manage large tracts of scrub habitat for scrub-jays. The contribution of funds will reduce the risk of future loss of habitat and increase the amount of habitat under perpetual management species wide.

Species' response to a proposed action

The permanent alteration of occupied habitat is likely to have adverse effects to the scrub-jays that inhabit the Project area and adjacent land. The reduction in sheltering and nesting habitat could reduce adult survivorship, reproductive success, and juvenile survival and possibly lead to abandonment of the territory. The permanent alteration of this habitat may also limit dispersal opportunities for other scrub-jays in this metapopulation. Scrub-jays are not strong flyers and cannot sustain long-distance flights. Instead they typically stop periodically in patches of scrub or similar habitats while seeking new territories or exploring adjacent habitat. The loss of these particular patches of habitat has the potential to limit dispersals because the Project would replace xeric uplands with urban structures not suitable for use by scrub-jays.

With proper habitat restoration and adequate resources, scrub-jays can increase in numbers (Thaxton and Hingtgen 1996). The rate of recovery depends on the size of the habitat preserved and availability of new recruits from surrounding territories. The loss of habitat from the proposed construction may reduce the fitness of the scrub-jay group occupying the Project area and reduce the recovery rate for the southern portion of M13. However, since this portion of the metapopulation is either at or below the quasi-extinction level of 10 families, and they are functionally isolated from the remainder of M13, the scrub-jays in the southern portion of M13 may ultimately be extirpated. The proposed mitigation will be used to benefit the covered species by increasing the amount of suitable, protected scrub-jay habitat in another metapopulation.

CUMULATIVE EFFECTS

Cumulative effects include those 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 Act.

The action area is expected to experience continued urban growth. Patches of xeric uplands that are not currently under public ownership are expected to be lost or further degraded. At present, all development occupied by federally-listed species requires Service review before building permits are approved by St. Lucie County.

The Service anticipates that unoccupied, overgrown scrub that may occasionally be used by scrub-jays will be lost to urban uses in the future. The extent and timing of these losses cannot be determined because of changes in urban growth patterns over time. Cumulatively, these impacts may result in take.

St. Lucie County has been implementing an Environmentally Significant Lands Program for several years, but budget constraints have limited the amount of land acquisition and management accomplished. The County has acquired Sheraton Scrub to the southwest of the target property, the Indrio Savannahs Natural Area north-northeast of the Airport, and the Airport is responsible for the management of 56 acres of scrub habitat to the northeast. Commitments by the state of Florida to continue land acquisition and management into the 21st century may provide other opportunities to protect additional xeric uplands in southeastern Florida through its land acquisition program (Florida Forever); however, the amount of lands reasonably certain to be acquired cannot be determined. St. Lucie and Indian River Counties have recently been granted funds through section 6 of the Act for the first phase of a study to investigate the feasibility of a regional HCP covering both counties. The information gathered under this study should help St. Lucie County determine the number and locations of scrub-jays in the county, and can be useful in planning future conservation and development areas even if they decide not to implement the regional HCP.

CONCLUSION

After reviewing the current status of the scrub-jay, the environmental baseline for the action area, the effects of the proposed Project and the cumulative effects, it is the Service's biological opinion that the Project, as proposed, is not likely to jeopardize the continued existence of the scrub-jay for the following reasons:

The proposed action and resulting commercial construction will permanently alter 1.0 acre of occupied scrub-jay habitat in St. Lucie County. The conversion of scrub-jay habitat is expected to result in adverse affects to the scrub-jay. However, effects of this loss will be minimized through timing of construction activities to avoid scrub-jay nesting season, and use of landscaping vegetation that will be less than 30 feet tall when mature. The contribution of funds to a Service-approved scrub-jay conservation fund used to acquire and manage scrub-jay habitat will reduce the risk of future loss of habitat and increase the amount of habitat under perpetual conservation management. Cumulatively, we anticipate benefits to the security and viability of the covered species as a result of implementation of the mitigation and minimization measures in the ITP.

No critical habitat has been designated for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without a special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided such taking is in compliance with the terms and conditions of this incidental take statement.

In our effects analysis, we have identified the following adverse effects would result in take:

1. Permanent alteration of 1.0 acre of occupied scrub-jay habitat;
2. Increased habitat fragmentation because of continuing development;
3. Increased human use of the area;
4. Continued suppression of a natural fire regime;
5. Continued overgrowth of vegetation; and
6. Increase of urban-adapted predators of scrub-jays.

The Applicant's HCP and its associated documents identify the following measures that are necessary and proper to minimize and mitigate for some of the impacts:

1. All land clearing will be conducted outside of the scrub-jay nesting season, which extends from March 1 through June 30;
2. The Applicant also will avoid landscaping with trees that will grow taller than 30 feet, thus potentially reducing the perching opportunities for avian predators of scrub-jays;
3. The Applicant will provide mitigation by contributing \$82,904.00 to a Service-approved scrub-jay conservation fund within 180 days of ITP issuance, or before the commencement of clearing and construction activities, whichever is sooner.

Such measures are nondiscretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the Applicant fails to implement the measures outlined in the HCP and its accompanying section 10(a)(1)(B) permit, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take expected under the HCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the HCP and its accompanying section 10(a)(1)(B) permit.

Amount or extent of take

The Service anticipates that 1.0 acre of habitat occupied by one family of scrub-jays will be lost due to construction of the proposed project. Depending on availability of unoccupied habitat in the vicinity of the project site, these birds may:

1. Alter their territory to include adjacent, suitable habitat to compensate for the loss;
2. Persist in their reduced territory; or
3. Abandon their territory.

In all three cases, scrub-jays will be adversely affected by the loss of habitat and the reduction in the amount and/or quality of habitat that remains. These factors will likely affect feeding, breeding, or sheltering habitat for scrub-jays.

Effect of take

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to result in jeopardy to the scrub-jay. Since no critical habitat has been designated for this species, none will be affected. The proposed Project will permanently alter 4 percent of one of the nine scrub-jay territories in the action area; however, the adverse effects of the habitat alteration will be reduced by the implementation of the minimization measures. The adverse impacts, when added to the baseline conditions in the action area, are not likely to result in significant adverse effects to either the southern portion of metapopulation M13 or throughout the scrub-jay's range. Also, the mitigation offered by the Applicant is expected to help in the acquisition, protection and management of additional scrub habitat elsewhere in the species' range.

REASONABLE AND PRUDENT MEASURES

The Applicant's HCP prescribes methods to minimize on-site habitat disturbances and deal with unforeseen future circumstances. These actions represent actions to minimize and mitigate adverse impacts to the scrub-jay to the maximum extent practicable. Based on the conservation actions in the HCP and the biology of the scrub-jay, the Service does not have any reasonable and prudent measures to add to the proposed action.

TERMS AND CONDITIONS

Since there are no "Reasonable and Prudent Measures," there are no "Terms and Conditions" for their implementation.

In order to be exempt from the prohibitions of the Act, the Service must issue an ITP with the conservation measures as identified in the HCP and any standard special conditions necessary. The proposed Project and conditions of the section 10(a)(1)(B) permit are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that no more than 1.0 acres of scrub habitat will be destroyed. If, during the course of

this action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the project design and special conditions of the incidental take permit. The Service must immediately provide an explanation of the causes of the taking and review the need for possible modification of the project.

Upon locating a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the Service's Law Enforcement Office (20501 Independence Boulevard; Groveland, Florida 34736; 352-429-1037). Additional notification must be made to the Service's South Florida Ecological Services Office (1339 20th Street; Vero Beach, Florida 32960-3559; 772-562-3909). Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to further minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We do not have any conservation recommendations to add at this time.

REINITIATION NOTICE

This concludes formal consultation on the proposed issuance of the ITPs by the Service. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Service involvement or control over the action has been retained (or is authorized by law) and if:

1. The amount or extent of incidental take is exceeded;
2. New information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion;
3. The Service's action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or
4. A new species is listed or critical habitat designated that may be affected by the action.

In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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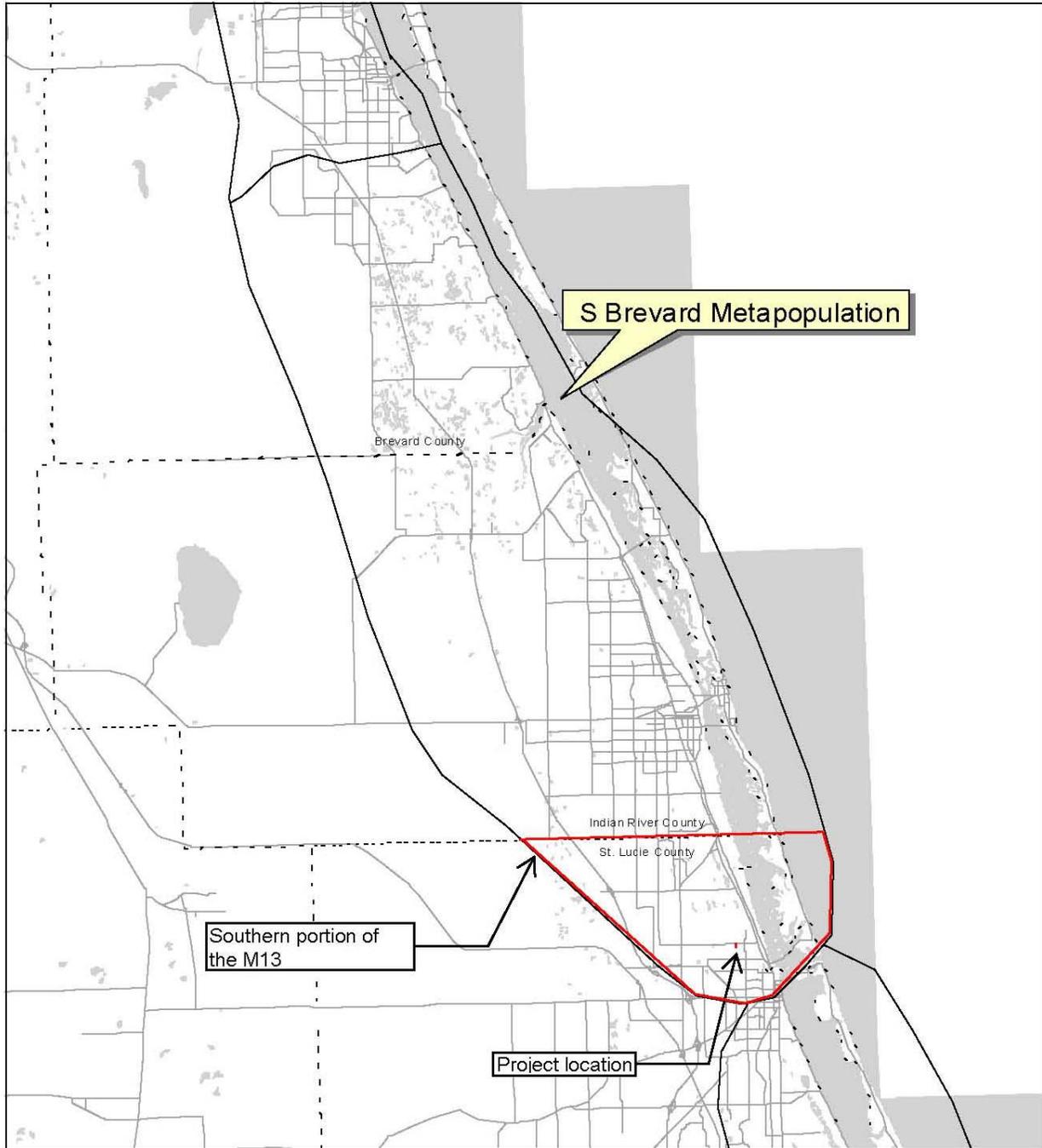
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Figure 1. Location of Project site.



- - - County Boundary
 — Metapopulation Boundary
 — Roads

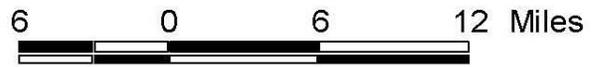


Figure 2. The South Brevard-Indian River-North St. Lucie metapopulation (M13).



United States Department of the Interior

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



July 16, 2010

Set of Findings and Recommendations on an Application Submitted by V. P. Properties, LLC, for Incidental Take of the Florida scrub-jay in St. Lucie County, Florida.

I. DESCRIPTION OF PROPOSAL

V. P. Properties, LLC, [International Airport Business Park] (Applicant) is seeking an incidental take permit (Permit) from the U.S. Fish and Wildlife Service (Service) pursuant to section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended (Act) (87 Stat.884; 16 U.S.C. 1531 *et seq.*). The Permit, if issued, would authorize take of the threatened Florida scrub-jay (*Aphelocoma coerulescens*) (scrub-jay) incidental to construction of a commercial facility comprised of a petroleum station, adjoining convenience store, light industrial warehouse condominiums, paved parking area, and associated infrastructure (Project) for 5 years on about 2.92 acres located at 27.4825 N latitude and -80.3576 longitude, St. Lucie County, Florida.

II. SECTION 10(a)(2)(A) HCP CRITERIA - ANALYSIS AND FINDINGS

1. The impact to result from such taking.

Scrub-jays using the Project site are part of the southern subpopulation of the South Brevard-Indian River-St. Lucie Metapopulation (M13) that occurs in the vicinity of the St. Lucie County International Airport, St. Lucie County, Florida.

Scrub-jay use of the Project site and adjacent lands was documented on July 3, 2008. Observations made by an environmental consultant indicate that one family of two scrub-jays occupies the southern one-third of the Project site (about 1 acre), as part of a larger territory. The actual extent of this family's territory is unknown; however, territory sizes between 12 and 25 acres are known to occur in other counties in south Florida with similar levels and types of development.

The proposed Project will permanently alter 1 acre of occupied scrub-jay habitat within the 2.92-acre Project site. The habitat is primarily composed of scattered oaks (*Quercus* sp.) and Slash pine (*Pinus elliottii*) of varying sizes, heavily overgrown with grape vine (*Vitis* sp.), old world climbing fern (*Lygodium microphyllum*), smilax (*Smilax* sp.), and love vine (*Cassythia filiformis*). The Project site is located in an area that is currently experiencing moderate commercial growth.



Land clearing in preparation for construction of the Project will permanently alter occupied scrub-jay habitat and could result in death of, or injury to, the two scrub-jays occupying the site, incidental to the carrying out of these otherwise lawful activities.

Habitat alteration associated with the proposed development will adversely affect feeding, breeding, and sheltering behavioral patterns of these scrub-jays.

Regardless of whether the breeding territory is in an urbanized area or more pristine natural area, the success of a breeding pair is highly dependent on the quality of habitat within the territory. In most instances, scrub-jay habitat in urban settings is degraded due to long-term fire suppression and there is no indication that habitat in these settings will be managed differently in the future. Thus, we generally believe, and existing research supports, that in most urban settings, scrub-jays occupy less than optimal habitat and are therefore less demographically viable than birds occupying habitat in areas that are actively managed for scrub conservation. Consequently, scrub-jays living within urban and suburban areas of St. Lucie County, including the family of scrub-jays affected by issuance of the ITP, appear to be demographically doomed over the long term and the only potential biological value these birds currently have is in providing a source of breeders for other nearby lands that are actively managed for conservation purposes. However, this benefit may not be realized since there are limited opportunities for dispersal to more suitable habitats.

Based on the above information, we believe that scrub-jays in the vicinity of the Applicant's parcels in St. Lucie County, currently have little long-term demographic value to the metapopulation overall. Consequently, we feel that the loss of 1.0 acre of occupied habitat is likely to result in only minor or negligible impacts on the species.

2. The steps taken to minimize and mitigate such impacts and the funding that will be available to implement such steps.

The continued survival and recovery of scrub-jays in this area may be dependent on the maintenance of suitable habitat, restoration of unsuitable habitat, and land acquisition. The Applicant's Habitat Conservation Plan (HCP) describes the following minimization and mitigation strategy to be employed by the Applicant to offset the impacts of the Project to the scrub-jay:

- a. Land clearing for Project construction and associated infrastructure will occur outside the scrub-jay nesting season (March 1 through June 30) to reduce the chance of nest destruction.
- b. Landscaping will not include trees that will grow taller than 30 feet, thus potentially reducing the perching opportunities for avian predators of scrub-jays.

- c. Mitigation for the unavoidable impacts associated with the alteration of 1 acre of occupied scrub-jay habitat will be accomplished by the contribution of \$82,904.00 to the Florida Scrub-jay Conservation Program Fund, or purchase of the equivalent amount of credits in an appropriate Service-approved scrub-jay conservation bank within 180 days of ITP issuance, or before the commencement of clearing and construction activities in the occupied area, whichever is sooner. Specifically, contribution payments will be transmitted in the following increments: \$27,634 due at permit issuance, \$27, 635 due within 90 days after permit issuance, and the balance (\$27,635) due within 91 to 180 days after permit issuance.

3. Alternative actions to the take that were considered by the Applicant and reasons why such alternatives are not being utilized.

In the HCP, the Applicant describes three alternatives to the proposed action. The first alternative, the “no action” alternative, consisted of no vegetation clearing, no Project construction, no HCP, and no contribution of funds for scrub-jay conservation. This alternative was considered but rejected because it is neither economically desirable for the Applicant, nor biologically sound for the long-term persistence of scrub-jays in this part of the metapopulation. The Project is in an area that St. Lucie County has identified for continuing commercial development rather than conservation. The lack of active land management on the Project site combined with fire suppression activities because of the parcel’s proximity to the airport and existing commercial and residential structures has resulted in overgrowth of the habitat. Under the no action alternative, there is the expectation that this overgrowth would continue, ultimately resulting in habitat conditions that would no longer support scrub-jays. Additionally, as surrounding parcels are developed the Project site will become increasingly isolated from other parcels with suitable habitat, eventually becoming so isolated that the scrub-jay family will no longer be able to support itself on such a small area of undeveloped land.

The second alternative involved avoidance and perpetual conservation of the 1 acre of occupied scrub-jay habitat. The Applicant considered modifying the project such that clearing and construction would only take place on the northern two-thirds of the Project site, and conserving the southern one-third. This option was discarded because the size of the conservation area as it relates to optimal scrub-jay territory size is inadequate, and because of the potential of cumulative impacts from the development of surrounding parcels is the same as in the no action alternative.

The third alternative, the preferred alternative, is for the Applicant to contribute \$82,904.00 to the Florida Scrub-jay Conservation Program Fund. In this instance, we believe this alternative is best for the long-term survival of the scrub-jay. Since St. Lucie has identified this area for commercial development rather than conservation, and because the area is already about 50 percent developed, it does not make biological sense to try and achieve what could at best be a patchwork of conserved fragments of parcels

surrounded by developed parcels and the increased threat of mortality from the heavier traffic that will accompany the development. The Florida Scrub-jay Conservation Program Fund uses contributed funds to acquire, restore, and manage land for the conservation of scrub-jays in Florida. However, the funds are usually employed to conserve the most imperiled metapopulation first (from a species-wide perspective), so there is no guarantee that the funds will be used to specifically benefit the South Brevard metapopulation. Currently there is no instrument to allow the funds to be administered specifically in either St. Lucie County or the South Brevard metapopulation, and attempts by the Applicant to find willing sellers with parcels either adjacent to or near existing scrub-jay conservation areas in the South Brevard metapopulation were not successful.

4. Other measures the Secretary may require as being necessary or appropriate for the purposes of the HCP.

No measures beyond those outlined in section II.2. above are required for implementation of this HCP as it pertains to the covered species.

III. ENVIRONMENTAL ASSESSMENT AND PUBLIC COMMENT - ANALYSIS AND FINDINGS

The Service prepared a Low-effect Screening Form for this Permit request. A Notice of Availability for public comment was published in the *Federal Register* on the HCP and Low-effect Screening Form from January 29, 2010, through March 1, 2010. During the public comment period, the Service received one comment on this Permit application and a request for a copy of the HCP.

The commenter expressed concern about the adequacy of the mitigation site. The Applicant did not offer a specific site as mitigation, but proposed instead to make a contribution to a Service approved scrub-jay conservation fund that will help acquire, protect, and manage additional lands for scrub-jays. The Service believes that the Applicant's mitigation proposal is practicable and commensurate with the impact, and adequately addresses our section 10 issuance criteria.

To address the request we received, a copy of the Applicant's HCP was emailed to the requester on January 29, 2010.

IV. SECTION 10(A)(2)(B) PERMIT ISSUANCE CRITERIA - ANALYSIS AND FINDINGS

1. Criterion - The taking will be incidental.

Findings - The take will be incidental to the otherwise lawful activity that would occur as a result of clearing and construction activities related to the proposed Project.

2. Criterion - The Applicant will, to the maximum extent practicable, minimize and mitigate the impacts of the taking.

Findings - The Applicant, in consultation with the Service, has developed an adequate HCP pursuant to the Permit requirements provided in the Act and implementing regulations. The HCP provides for measures to minimize project impacts on site as explained in items II.2.a. and b. above. Unavoidable impacts will be mitigated to the maximum extent practical as described in item II.2.c. The Service believes the proposed mitigation measures are sufficient for the following reasons:

In July of 1999, the Service promulgated guidance to be used during the development of mitigation strategies for scrub-jays during the preparation of HCPs. The guidance specifies priorities for scrub-jay mitigation and indicates that an applicant must reasonably exhaust all opportunities for obtaining mitigation from a higher priority mitigation strategy before opting for a lower priority mitigation strategy. Based on the Applicant's coordination with the Service over the past 1.5 years, we believe that the contribution to a Service-approved scrub-jay conservation fund would be most beneficial to the scrub-jay.

By increasing the amount of scrub habitat under conservation, most scrub dependent species (including the scrub-jay) will benefit due to greater protection and management of habitat.

3. Criterion - The Applicant will ensure that adequate funding for the HCP and procedures to deal with unforeseen circumstances will be provided.

Findings - The Applicant will contribute funds to a Service-approved scrub-jay conservation fund as described in item II.2.c. above.

The Applicant has also committed to coordinate with the Service in the event unforeseen circumstances occur.

4. Criterion - The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

Findings - The wording of this criterion is identical to the "jeopardy" definition under section 7 regulations (50 CFR 402.02), which defined the term "jeopardize the continued existence of" as "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." As a result, issuance of this section 10(a)(1)(B) permit was reviewed by the Service under section 7 of the Act. In the biological opinion, which is attached hereto, and incorporated herein by reference, the Service concluded that issuance of the incidental take permit is not likely to jeopardize the continued existence of the scrub-jay.

5. Criterion - Additional measures as required by the Director of the Service will be implemented.

Findings – The following measures have been included in the Permit terms and conditions:

- a. Mitigation for the covered species will be accomplished by the contribution of \$82,904.00 to The Nature Conservancy’s Florida Scrub-jay Conservation Program Fund within 180 days of ITP issuance, or before the commencement of clearing and construction activities, whichever is sooner. Specifically, payment will be transmitted in the following increments: \$27,634.00 due at permit issuance, \$27,635.00 due at 90 days after permit issuance, and the balance (\$27,635.00) due within 91 to 180 days after permit issuance.
 - b. The Permittee shall avoid undertaking ground-disturbing activities or removal or alteration of vegetation that could result in the taking of the covered species within the 1 acre of occupied habitat during the scrub-jay nesting season (March 1 through June 30).
 - c. The Permittee also will avoid landscaping with trees that will grow taller than 30 feet, thus potentially reducing the perching opportunities for avian predators of scrub-jays.
 - d. All other measures outlined in the Habitat Conservation Plan will be implemented.
6. Criterion - The Director of the Service has received the necessary assurances that the plan will be implemented.

Findings - The Permit will only be effective when the mitigation measures have been carried out in accordance with the special conditions of the Permit. Failure to perform the obligations outlined by the conditions of the section 10(a)(1)(B) permit may be grounds for suspension or revocation of the Permit. It is the Applicant’s responsibility to provide evidence to the Service that all payments, in an amount totaling \$82,904.00, were made to the TNC fund prior to breaking ground in the occupied habitat.

V. General Criteria and Disqualifying Factors - Analysis and Findings

The Service has no evidence that the Permit application should be denied on the basis of criteria and conditions set forth in 50 CFR 13.21(b)-(c).

VI. National Environmental Policy Act Analysis

As determined in the Screening Form prepared for this action:

The effects of the HCP on Federally listed, proposed, or candidate species and their habitat covered under the HCP are minor or negligible prior to implementation of the mitigation plans.

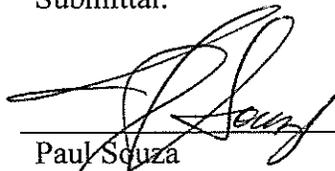
The effects of the HCP on other environmental values or resources (e.g., air quality, geology, soils, water quality, socio-economic, cultural resources, recreation, visual resources, etc.) are minor or negligible prior to implementation of the mitigation plans.

The impact of this HCP, considered together with the impacts of other past, present, and reasonably foreseeable, similarly situated projects will not result, over time, in cumulative effects to environmental values or resources which would be considered significant.

VII. Recommendations on Issuance of ITP

Based on our findings with respect to the Permit application, HCP, Screening Form, and section 7 biological opinion, issuance of a section 10(a)(1)(B) incidental take permit number TE214678-0, to V. P. Properties, LLC, for the construction of the International Airport Business Park is recommended. Within the spirit and intent of the Council of Environmental Quality's regulations for the implementation of the National Environmental Policy Act of 1969 (as amended) and other statutes, orders, and policies that protect fish and wildlife resources, I have determined Permit application number TE214678-0, for V. P. Properties, LLC, is a categorical exclusion as provided by 516 DM8.5 C(2). I have also determined that this application meets the issuance criteria found in section 10(a)(1)(B) of the Act.

Submittal:



Paul Souza
Field Supervisor
South Florida Ecological Services Office

7-16-10
Date