

Florida Scrub-Jay
Aphelocoma coerulescens

This profile is a short summary of information to introduce the species and does not summarize all available information on the species.

Listing status: USFWS = Threatened
FWC = Threatened

Trend: The population has declined by an estimated 90% since pre-settlement times (Hipes et al. 2000) and is experiencing a continued decline.

Threats: Habitat loss, degradation and fragmentation are predominant threats to this species. Urban development and conversion of scrub habitat to citrus has contributed significantly to the decline of the species. Other threats include loss/reduction in suitable scrub habitat due to fire suppression, as well as mortality from vehicles and feral cats.

Notes: Currently, a number of working groups have been formed to aid in recovery of this species. The Nature Conservancy has developed Jay Watch which makes use of volunteers to aid in monitoring this species. The FWC currently (spring 2008) has a scrub-jay coordinator in the Species Conservation Planning Section.

Prioritization information:

PLCP PVA proportion of pops modeled to persist on public lands = **0.02**

PLCP PVA probability of a 50% decline on public lands = **0.30**

Millsap updated biological score = **36.6**

Millsap updated supplemental score = **19**

Legacy population trend = **Declining**

Legacy population status = **Low**

Summary: This species triggers 6 of the 6 parameters, making this species a high priority.

Life History: The Florida scrub-jay is a habitat specialist that can be found in scrub and scrubby flatwoods. In some cases they are found in urban areas with remnant scrub or vegetation that mimics the vegetative structure of scrub (e.g., unmanaged citrus groves). Florida scrub-jays are found in both coastal and ancient scrub habitats in peninsular Florida, and rely heavily on fire to maintain optimal scrub conditions for foraging and breeding. Florida scrub-jays are non-migratory and tend to be relatively sedentary.

Florida scrub-jays live in groups, in which non-breeders assist with feeding young and predator detection. Groups consist of the breeding pair and up to 8 adults and 1-4 juveniles. Large groups are rare; average group size is 3. Average territory size per group is approximately 25 acres (Fitzpatrick et al. 1991). Eggs are laid from March to June into a small nest located at low to mid height in a dense shrub. Clutch size is 3-4 eggs (Fitzpatrick et al. 1991).

Incubation lasts for 18 days, after which nestlings are cared for by the parents and group members. Young fledge at 18 days (range 12-25d) and typically remain concealed until confident enough to fly and follow parents (Woolfenden and Fitzpatrick, 1996).

Diet of Florida scrub-jays includes small invertebrates, arthropods, and acorns. Acorns comprise the majority of the diet during certain times of the year. Florida scrub-jays cache acorns by hammering them into sand, or stuffing them into tufts of pine needles or palmetto fronds. From August to December, each Florida scrub-jay caches 6,500-8,000 acorns within its territory (Woolfenden and Fitzpatrick, 1996). Open patches of sand within the territory are important for this behavior.

Ideal scrub-jay habitat consists of mostly treeless open expanses of low shrubs interspersed with bare sandy patches. Oaks and other shrubs are generally low enough that a person approximately 6 feet tall can see over most of the landscape. The vegetation characteristics outlined in the Habitat Parameters Table (below) benefit the maximum number of scrub-endemic plant and animal species, as well as many widespread species. Increased pine densities will decrease habitat suitability for scrub-jays by providing cover and perches for predators, as will a shorter distance to forest edges. Small patches of taller scrub (6-9 feet) cumulatively comprising no more than an acre per territory provide habitat heterogeneity. Large patches of open sand are important for Florida scrub-jays, and for other scrub species, such as the sand skink and some endemic scrub plants.

Fire is an important component of the natural history of the Florida scrub-jay and should be used as a management tool as needed to achieve the desired habitat structure. In general, scrub should burn at a fire frequency of 7-20 years and scrubby flatwoods at a frequency of 5-10 years. Shorter fire frequencies (2-3 years) in scrub will prevent acorn production in oaks and longer fire frequencies will allow overgrowth of sand patches and invasion of pine species that are detrimental to survival of Florida scrub-jays.

Habitat Parameters for Florida Scrub-Jay:

Vegetation height	At least 10% of each potential scrub-jay territory (25 acre unit) should have shrubs that average 4 to 5.5 feet high to provide cover and produce acorns. The rest of the vegetation should be shorter, with no more 1 acre of vegetation taller than 5.5 feet per unit.
Tree (>15 foot tall) overstory	If present at all, less than 1 tree per acre.
Distance to forest edge	Maintain a 1,000 foot non-forested (<1 tree per acre) buffer between a scrub-jay territory and forest
Open ground	10-50% bare sand or sparse herbaceous vegetation

Minimum Habitat Requirement:

From PVA: NA.

From Literature: 25 acres suitable habitat per scrub-jay territory.

Demographically connected populations of 0-10 territories have high extinction risks if isolated; 10-20 territories are marginally protected from demographic extinction; 20-40 are marginally protected, and; populations with > 40 territories are more likely to persist (Fitzpatrick et al. 1991). Populations of > 100 breeding pairs are likely required for long-term persistence (USFWS, 1999).

Best Management Practices:

- Manage land following the FWC's Scrub Management Guidelines (http://myfwc.com/docs/AboutFWC/Issues/Issues_ScrubMgmtGuidelinesforPeninsularFlorida_June2009.pdf).
- Suitable habitat can be restored / maintained through use of prescribed fire on a return interval of 5-20 years, depending on type of scrub. Growing season burning is recommended whenever possible. Care should be taken when burning during the nesting season. It is recommended that scrub burns be smaller in size to promote a mosaic of habitat across the landscape, and to avoid burning all acreage within a given jay territory. Florida scrub-jays will re-nest throughout the breeding season if fire destroys a nest site, and it is thought that the long-term benefit of burning for the species outweighs the loss of an individual nest (Fitzpatrick et al. 1991).
- Mechanical treatment prior to fire can be used to reduce vegetation heights. Fossorial lizards, such as the sand skink, as well as many plant species are sensitive to disturbance by heavy equipment, so care should be taken in type of mechanical treatment applied to scrub habitat, particularly ancient scrub. Mechanical treatment alone is not enough, and should be followed with prescribed fire to create optimal scrub-jay habitat. When possible, apply a "sloppy chop" that will leave some heterogeneity to the stand post-treatment. The goal should be to improve the stand to a point that fire alone maintains the stand without a need for mechanical assistance.
- High densities of pine trees makes habitat unsuitable for Florida scrub-jays. Prescribed fire can be an effective means of removing these trees, but will likely create additional perches for predators. If fire is used to reduce pine densities, it may need to be followed with chainsaw work to bring down standing dead trees. Timber harvest can also be an effective means of reducing pine overstory in scrubby habitats, but only if followed with prescribed fire to remove logging slash. Equipment and practices should be used that minimize soil disturbance and associated impacts.
- Where possible, habitat management activities should avoid manipulation of about one quarter of any occupied territory. These unmanaged portions of territories will provide refuge and food resources as the remainder of the habitat within the territory recovers from management applications. This is particularly important in areas where suitable, unoccupied habitat does not exist adjacent to territories to be managed.

Monitoring Protocol:

- Monitoring should be initiated in areas where the species is present currently, or is believed to be in decline. The best method utilizes high-quality jay recordings played systematically along transect routes. Clear examples of all scrub-jay calls should be included in the playback. Surveys should be conducted during the spring (March), fall (September and October) and mid-summer (mid-June-mid-July). During summer surveys, juveniles are distinguishable from adults by plumage (Fitzpatrick et al. 1991).
- Banding of scrub-jays provides for the individual identification of birds and is essential for evaluating reproduction, survival, and dispersal. Where permitted banders are available and are likely to continue efforts in the future, banding of scrub-jays should be included in a regular monitoring program.
- A habitat monitoring program should be established to evaluate suitability for Florida scrub-jays, and also to monitor need for management actions such as prescribed fire.

For more information on monitoring, see Fitzpatrick et al. 1991.

PLCP PVA Summary: The Wildlife Habitat Conservation Needs in Florida project created a PVA (http://research.myfwc.com/features/view_article.asp?id=29815) for scrub-jays that assumed populations to be distinct if they were separated by at least 5 km. This model presumed that all modeled potential habitat was occupied and of equal value, and assumed a carrying capacity of 1 female per 9 hectares, with the initial population estimated at 75% carrying capacity. This model resulted in 76 populations when viewing all potential habitat, and 48 populations when viewing only potential habitat on conservation lands. Only 3 of 75 population when looking at all habitat and 1 of 48 populations looking at conservation lands only were modeled to persist for 80 years. Despite this, the summary of the model admits it is based on demographic data from high quality scrub which likely makes the model optimistic. Breeder survival and fecundity were the most influential parameters in the model. One issue with the potential habitat maps created for this species and used in the PVA is the fact that scrubby flatwoods are included as part of the “pinelands” landcover and therefore were not included in the model of potential habitat.

2003 Landcover used for model:

Xeric oak scrub	Sand pine scrub
Dry prairie (included because of potential for misclassification of scrub habitats in central Florida)	

FNAI Natural Communities used:

Scrub	Scrubby Flatwoods
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FNAI field guide description of habitat: Inhabits fire-dominated, low-growing, oak scrub habitat found on well-drained sandy soils. May persist in areas with sparser oaks or scrub areas that are overgrown, but at much lower densities and with reduced survivorship.

Important Links:

USFWS reference material, including the most recent scrub-jay 5 year review and survey guidelines:

<http://www.fws.gov/northflorida/Scrub-Jays/scrubjays.htm#Reviews>

Nature Serve: <http://www.natureserve.org/explorer/>

National Audubon Society – Watch List – Florida Scrub-Jay:

<http://audubon2.org/watchlist/viewSpecies.jsp?id=84>

The Birds of North America Online:

<http://bna.birds.cornell.edu/bna/species/228>

Pertinent Documents/Literature:

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