



USFWS SOUTH FLORIDA SURVEY PROTOCOL
FLORIDA SCRUB JAY
DRAFT*

The most effective method for surveying a site for Florida scrub-jays is to traverse the area systematically, using a high quality tape recording of Florida scrub-jay territorial scolding in an attempt to attract the scrub-jays. The recording should include clear examples of all typical territorial scolds, including the females “hiccup” call. Copies of taped vocalizations may be obtained from Archbold Biological Station, P.O. Box 2057, Lake Placid, FL 33852 or by calling 941-465-2571.

Map plant communities either on a 7.5 ft. U.S. Geological Survey (USGS) topographic map or an aerial photograph at a scale of no more than 400 feet per inch. The vegetation map must show all forms of existing development. On the vegetation map, establish parallel line transects with playback stations along each transect. Space transects and playback stations so that all different scrub types will be sampled for scrub-jays (i.e., so that the taped calls will be effectively broadcast across areas of concern). These scrub types should include not only the more “classic” xeric oak scrub, scrubby pine, flatwoods, scrubby coastal strand, and sand pine scrub, but should also include:

- improved, unimproved, and woodland pastures; citrus groves; rangeland; pine flatwoods; longleaf pine xeric oak; sand pine; sand pine plantations; forest regeneration areas; sand other than beaches; disturbed rural land in transition without positive indicators of intended activity; and disturbed burned areas.
- The presence of scrub oaks, no matter how sparsely distributed, is the key indicator of “scrub” habitat.

Distances between transects, and between stations along transects, depend on many factors, including power of the speaker used for broadcasting the calls, topography of the site, and the density of the surrounding vegetation. Adequate spacing between transects can be estimated roughly as the distance at which a person listening to the tape directly in front of the speaker perceives the "bird" to be no more than about 100 meters away. A distance of 100 to 200 meters between transects and between stations is generally adequate when using a good-quality, hand-held cassette player broadcasting at full volume. Use 100 meters for dense canopy scrub and 200 meters for open scrub.

Surveys should be carried out on calm, clear days about one hour after sunrise, and should terminate before midday heat or wind. Surveys should not be conducted in winds stronger than a moderate breeze (5-8 mph), in mist or fog, or in precipitation exceeding a light, intermittent drizzle. Heat and especially wind lowers the tendency for scrub-jays to respond to distant territorial scolds, and wind reduces the distance over which recordings can be heard. Scrub-jays are also reluctant to fly on windy days regardless of hour or season.

Surveys should be conducted during (1) spring (especially March), (2) fall (September and October), when territorial displays are most frequent and vigorous, and (3) midsummer (July) when young of the year are independent but still distinguishable by plumage. The poorest times of the year to survey are late winter, when scrub-jays are most likely to fly far for food, and late spring when the young are quiet and the adults are occupied with molt and feeding fledglings. Generally, consecutive surveys for a minimum of five days are sufficient to assess scrub-jay presence and territory size and distribution.

Transects may be driven or walked. If driven, step out or stand atop the vehicle at each playback station. Broadcast the calls at each station for at least one minute in all four directions around the playback station, emphasizing any directions in which low-growing oak scrub is the predominant vegetation. On the vegetation map, plot the locations and indicate group size of all Florida scrub-jays where they are first seen or heard. Note the directions from which they came. Distinguish adult-plumaged scrub-jays from juvenile-plumaged scrub-jays whenever possible.

At localities with car trails, large areas of scrub can be surveyed with a vehicle in 1 day. On foot, the process is more laborious because of the relatively large size of territories (often 10 to 40 acres). Once a group is located, stop broadcasting at the station. Remaining at the station briefly should result in the assembly of the entire group. This allows one to estimate group size and, if done during the midsummer, to distinguish young of the year from adults.

Sometimes two or more groups will be attracted to one station, usually from different directions. Observers should be careful, therefore, to plot each group where it was first spotted or heard. In rare circumstances, especially at sites where numerous groups congregate at artificial food or water sources, it may be difficult to differentiate groups. This is especially true where scrub-jays have become habituated and tame to human approach. Again, in such cases careful observation is extremely important. Studies of such congregations using color marked scrub-jays have confirmed that almost always they consist of members of different family groups. Often they may have crossed several territory boundaries to reach the neutral feeding or drinking areas. The result gives a false impression of extremely high scrub-jay density.

It is essential that the subject area be surveyed to establish an accurate count of scrub-jay groups and territorial boundaries. If more than 8 to 10 scrub-jays are encountered at a single playback station during a fall or spring survey period, the scrub-jays at this site should be monitored carefully over several visits and different times of day. Numbers will shift as groups arrive and depart. Often it is possible to watch where the scrub-jays come from or return to as a means of determining how many groups are represented.

Territory Boundary Determinations

In general, Florida scrub-jays have well-defined territories defended year-round by all group members. Territorial defense is most active immediately before nesting in the spring and after molt is complete in autumn. Territorial boundaries may be most accurately predicted through a combination of observing scrub-jays and listening for territorial behavior (in the case where several families of scrub-jays exist in contiguous habitat) or by including habitat suitable for occupation by scrub-jays within a territorial boundary (in the case where a family of scrub-jays is somewhat isolated from other groups). Territories typically occupy the same areas for many years, and ownership is passed on by mate replacement or inheritance by helpers. Mean territory size is about 9 hectares (25 acres), although the size may vary depending on group size and

suitability of habitat. To determine the territorial boundaries of the scrub-jay group, it is essential that the surveyor be familiar with different types of behavior exhibited by scrub-jays.

The boundaries of scrub-jay groups are determined from each of the playback stations as discussed above. At each station, record the direction the scrub-jays came from and any observed hostility to other scrub-jays that also approach the station, especially if from a different direction. Also note the number of scrub-jays that approach the station as a group.

These responses are mapped on the habitat vegetation map and are the basis for determining occupied territories, a schematic is provided below that gives an example of scrub-jay survey responses and territory boundary determinations. The survey grids are shown with the point counts for scrub-jays at each station, with direction of flight.

Territorial boundaries between adjacent groups are based on the point count locations of the first observed territorial defense displays between scrub-jays. Fringe boundaries are determined as the mid-point between the last point count location that attracted scrub-jays and adjacent no-response point count locations. The boundaries are determined by connecting the point count “dots”.

The key end products of this procedure are:

1. a complete count of all scrub-jay groups on site; and
2. an approximate territory map or home range center for each group.

Provide the Service with a final report. The final report should include the following, as applicable:

A. An information sheet including:

- a. Dates and starting and ending times of all surveys conducted;
- b. Weather conditions during all surveys, including average temperature, wind speed and direction, visibility, and precipitation;
- c. Total number of scrub-jay groups found, number of scrub-jays in each group, and number of juvenile-plumaged scrub-jays in each of these groups.

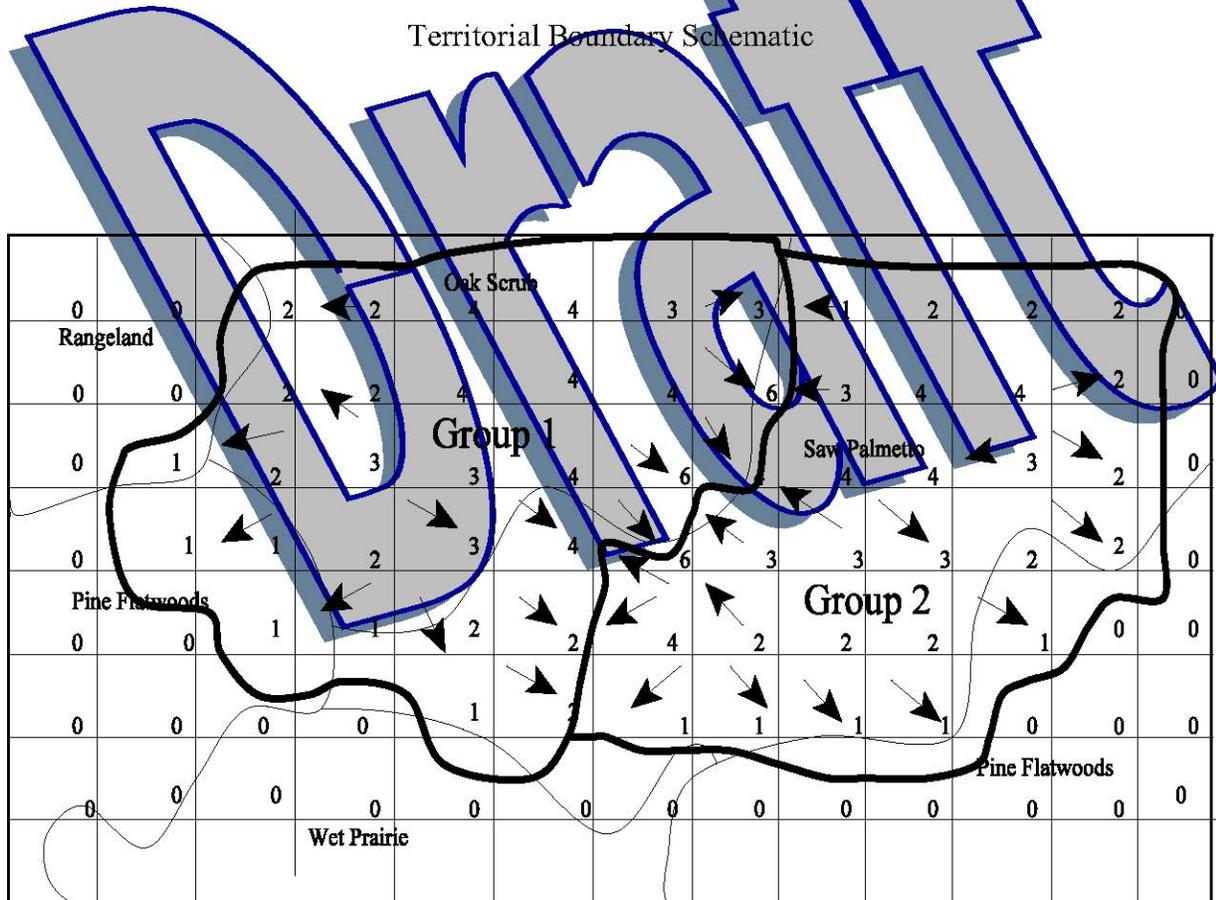
B. An aerial photograph or vegetation map depicting:

- a. The entire area of interest;
- b. Transect lines and playback stations;
- c. Territory boundaries of all scrub-jay groups.

C. Report

In general, the report should include a project introduction, proposed action, project habitat descriptions, species effects, recommendations to minimize species effects, and conclusions and commitments. The report should also include the survey protocol, survey data sheets, and territorial boundaries of the scrub-jays, if scrub-jays are present. If habitat preservation and enhancements are proposed, the report needs to include a habitat monitoring component and land preservation covenants. Refer to the Service’s

Outline Example for a Biological Assessment or a Biological Evaluation (2002) for a more detailed discussion of report requirements, format, explanations of common ESA questions, and level of detail needed in the report.



* All information presented here is directly from the USFWS. Although Florida USDA-NRCS is granted permission to use this information, it is still in draft form and will remain as such until further notice.