

## Suggested general bird survey methodology

These suggested guidelines were adapted from a series of common methodologies used for various bird surveys and modified for presence/absence objectives. These guidelines may be adapted to fit individual survey needs in all habitat types. It is recommended the final methodology used be documented in text, table, and map formats. These methods may be used to determine where conservation areas are best designated, how large wetland buffers may be appropriate, monitoring of applied management practices, or for pre-clearing surveys of a development or other land alteration activity.

Many bird species nest in new areas each year. While the FWC has a wading bird locator and a bald eagle nesting locator database, these are only intended to be used as reference. Field verification of all sites is recommended to be conducted through species-specific survey protocols. The methods below may be applied to colonial nesting birds and passerines or for other species when an established survey protocol is not available.

Recommended experience level: It is recommended that the surveyor(s) is able to properly identify and distinguish bird species, have a working knowledge of breeding plumage and juvenile plumage variation, range of habitat usage including usage of non-native habitat, have recently observed the species to be surveyed in variable habitat conditions, and have knowledge in the ecology specific to Florida.

At least 10 documented observation hours of nesting ecology, breeding pair identification and breeding behavior for each of the species surveyed or group of species surveyed. Experience of biological field design and survey may be substituted for direct observation of specific species. Documented hours may include biologist name, location and contact of property where hours were acquired, dates, times, and habitat classification (FNAI/FWAP).

Survey period and habitat: At least 100% of suitable habitat is recommended to be covered at least three times with minimum of 2-3 weeks interval between April to June (peak season May – June) for colonial wading birds and nesting season for other birds. It is recommended that 1-3 surveys are conducted per month throughout the breeding/nesting season or other appropriate active season.

If nesting is observed, then surveys may be discontinued in that area and a [set-back distance](#) (wading birds) are applied for all activities until the conclusion of nesting season. Surveys should be conducted again in the breeding season immediately preceding any disturbance activities to the habitat. Habitats are very different between survey areas. Variances in nesting of wading birds occur from South Florida to Central Florida to North Florida and to a lesser extent from east to west. Therefore, variations in survey time may be applied.

Weather: Record general climatic conditions: wind speed, temperature (Fahrenheit), and estimate percent of cloud cover (e.g., 50 % cloud cover). Avoid counting birds if it is raining or if winds greater than 10mph. Surveys should not be conducted during inclement weather to avoid stressing or flushing birds from a site. Never visit a site with aerial predators (such as fish crows) because they may depredate a nest or colony after birds flush.

Suggested Equipment: Use a spotting scope with 15x magnification and/or professional set of binoculars. Use a rangefinder and GPS to record nest sites, nests, bird roosting, transects, and observation points. It may be beneficial to mark the trees to identify nesting trees and in order to protect the trees from being cut down if vegetation clearing or other land alterations may be pursued in the area.

Survey time: Crepuscular times are preferred and can range but usually apply within 1-3 hours after sunrise and 1-3 hours before sunset. Survey start and end times should be recorded on a field data sheet.

### Colonial birds

Aerial Surveys – Helicopter or fixed-wing (no greater than 500- 600 feet interval between transects for smaller project sites (under 1000 acres) or 0.5km width visual transect). At least 3 flights are recommended: cross-cross pattern (first pass conduct north-south transects then east-west). Dark colored species may be difficult to identify and accuracy is limited. Therefore, all aerial surveys need to be ground-truthed to verify; and also a consult with local birders may be beneficial.

### Passerines or song birds:

Transects: Transects should be randomized and plotted on an aerial map. Transects may be between 15-30 m in width and 15-30m apart depending on the density of habitat and visibility. For example, transects in grassland habitats may be larger than transects in pine flatwoods with 5 foot high saw palmetto understory. The length of transects will need to be determined within the study area and documented. Survey routes may be driven and observers should walk transects in suitable and moderate habitats as well as ecotones of nesting habitats.

Observation Points: An observation point consists of standing in a specific location and observing birds. Both auditory and visual observations should be recorded\*. At every 5m - 10 m, stop for a minimum of 3 minutes and establish an observation point with a 75m radius with unlimited distance. The radius of observation points should be as large as possible to maximize information gathering, but not so large that birds cannot be seen or heard throughout the survey area. A range finder may be used to estimate or measure the distance to the bird calling or bird visually located. Regarding visibility and non-homogeneous sites, the point origin of the observation point should be a minimum of 75m between roads and the edge of the perimeter of the observation point. For species with large home ranges and elusive species, auditory surveys and large transects may be applied.

Within each observation point circle, listen and observe for 5 minutes then call-broadcast for 5 minutes. If no call- broadcast is available or applicable for a certain species, then listen for 5-7 minutes. Three visits with a minimum of 1 week intervals throughout the nesting season for the bird species. Broadcast calls should be at least 90dB sound. In dense habitats, approach from varied angles to view colonies from an edge to view.