

Guidance for Locating Pinyon Jay Nests and Confirming Breeding

Pinyon Jay Working Group

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Audience and Purpose: This document is intended primarily for agency biologists, contractors, managers, and researchers interested in finding Pinyon Jay nests or otherwise confirming Pinyon Jay breeding activity. The guidance presented in this document is based on the combined experience of multiple biologists from the Pinyon Jay Working Group who have conducted many years of research on this species.

Applicability: Breeding confirmation and nest finding are critical elements of clearance surveys that are conducted before planned vegetation treatments or potential disturbances. Confirmation of breeding during clearance surveys may be a basis for postponing or re-siting projects to avoid direct impacts on Pinyon Jay nesting habitat or disturbances to nesting colonies. Finding Pinyon Jay nests may also be necessary for research or monitoring activities intended to characterize Pinyon Jay breeding habitat or study other aspects of Pinyon Jay breeding biology. This document provides guidance for finding nests and confirming breeding efficiently and with minimum disturbance to Pinyon Jays.

Exclusions: This document focuses only on nest finding and other elements of breeding confirmation. Related topics that are not covered, or are incompletely covered in this document include the following:

- 1) *Pinyon Jay status, biology, conservation:* These topics are covered in the “Pinyon Jay Conservation Strategy” (<https://partnersinflight.org/resources/pinyon-jay-working-group/>).
- 2) *Pinyon Jay management considerations:* This topic – including considerations for minimizing the impact of vegetation management activities on Pinyon Jays – is presented in the “Pinyon Jay Conservation Strategy” (see above link). This document will be periodically revised to incorporate information and guidance derived from new research.
- 3) *Minimizing the impacts of research and nest searching activities on Pinyon Jays:* More complete guidance on this topic is provided in the Pinyon Jay Working Group document entitled “Guidelines to Minimize Impacts of Data-Gathering Activities on Pinyon Jays” (see above link).
- 4) *Data standards and survey protocols for Pinyon Jays:* A Pinyon Jay Working Group document includes a more comprehensive set of recommendations for Pinyon Jay survey protocols to inform spatial distribution models, impact monitoring, habitat studies, and other applications (see link above).

Guidance for Finding Pinyon Jay Nests and Other Indicators of Breeding

Background information: Most Pinyon Jays nest between March 1 and May 30, often in traditional nest colony sites. Multiple nests occur in distinct clusters (but not in the same tree), which may vary from 5-60 nests. Typical size of these clusters appears to be smaller in New Mexico than in the Great Basin based on currently available data. Pinyon Jays sometimes nest cooperatively with immature, non-breeding jays helping to raise broods. Most males do not breed until they are two years old (their third calendar year) but second-calendar-year (one-year-old) females occasionally breed. In some locations, nests from previous years have been found interspersed with active nests, suggesting that jays will use the same nest colony site over a period of sequential years. However, in other locations, shifts of up to 500 m (550 yards) in nest colony location for a given flock

have been documented from year to year. Collectively, the information currently available suggests that Pinyon Jays have moderate to high nest colony site fidelity and prefer to nest in or near previously established locations when possible, but will not reuse old nests.

Survey Protocol: Surveys to determine whether Pinyon Jays are present and breeding in a specific area of interest (i.e., clearance surveys) must be conducted during the prime nesting season March 1 – May 30. However, unoccupied nests can be found outside the breeding season, and this approach may be appropriate for more detailed quantification of nest microhabitat and colony size and extent in some situations (see below).

Surveys to find nests or other breeding evidence are conceptually a two-stage process. First, the area of interest must be fully surveyed to determine whether Pinyon Jay flocks are present. If flocks are present, more spatially-focused searches will often be needed to find clear evidence of breeding and/or the locations of their nesting colonies.

Survey Stage 1: To determine whether Pinyon Jays are present in the area of interest, three full area searches should be conducted during the breeding season, at least 7-10 days apart. Surveys should only be conducted when there is little to no rain/snow falling, and when winds are below 25 km / hr or when it becomes difficult to detect bird calls. The goal of these area searches should be to cover the area of interest sufficiently well that no point within the area lies more than 500 m from the surveyor's track. If three area searches are conducted without detecting Pinyon Jays, it is likely that Pinyon Jays are not nesting within the area, and further nest searching efforts may not need to be conducted. Note that this Survey Stage 1 protocol can be replaced by the more general Pinyon Jay presence / absence survey protocol that is presented in the aforementioned document entitled, "Data standards and survey protocols for Pinyon Jays."

Survey Stage 2: If Pinyon Jays are detected during these Stage 1 searches, the next step is to attempt to confirm breeding activity. For some applications, behaviors such as courtship chases, pairs moving separately from the flock, rattle, piping rattle, and begging (by females) calls may provide sufficient evidence of breeding. See "Additional Information and Assistance" section below for link to webinar with examples of jay calls. In other cases, finding one or more active nests may represent the minimum acceptable level of breeding "proof". Both may require further observation of the flock in question, which should adhere to the impact-minimizing guidelines presented below and further discussed in the aforementioned document entitled "Guidelines to Minimize Impacts of Data-Gathering Activities on Pinyon Jays."

One clue for locating nesting colony sites is to observe a Pinyon Jay flock at dusk when it goes to roost. Because nest colony sites are often close (i.e., <1,000 m) to traditional communal roost sites, identifying the roost site location of birds that are not incubating can be a good way to narrow down the area within which a nesting colony is located. Other clues to identify general colony sites can be obtained by observing the destinations of flying birds carrying nest material (thin sticks) or food (large insects). Once a general location for a nesting colony is determined, nest searching can commence if it is required. Nest searching is potentially disruptive to Pinyon Jays, and can further provide nest predators with clues about Pinyon Jay nest locations, so it is critical for surveyors to follow the safety guidelines presented below.

Nest searching consists of methodical observations of potential nest trees in the likely colony location, i.e., walking a grid pattern to allow survey of the area. In the Great Basin, Pinyon Jay nests are typically about 12-18" in diameter and 10-12" tall, but they tend to be smaller (approximately robin-sized nests) in other parts of the Pinyon Jay's geographical range. Nests are made mostly from thin sticks (see photos below) but the outside of the nest cup can also be constructed of juniper bark. In the Great Basin, Pinyon Jay nest trees are usually mid-sized and large piñon pines or junipers (about 12-30' tree height), but elsewhere, Pinyon Jays appear to nest in trees of nearly any size. Once an initial nest is found, further search effort should be concentrated in the immediate vicinity (up to 75 m radius). If more active nests are found, it is very likely a Pinyon Jay colony site. It is not necessary to locate more than a few nests to confirm breeding and determine the approximate nesting colony location.

Survey Stage 3: Assuming Pinyon Jay breeding activity has been confirmed in Survey Stage 2, further effort to find nests (for quantifying microhabitat, or to definitively delineate the extent of the breeding colony, for instance) can be important for project planning, NEPA review, inventory and monitoring, etc. However, the intensive search effort required to find multiple nests increases the chance of causing nest abandonment or predation (see below), and is best conducted after the conclusion of the breeding season (i.e., late summer or fall).



Minimizing surveyor impacts: Several recommendations to minimize the potential negative effects of nest searching during the Pinyon Jay breeding season are summarized below. More detailed guidance to minimize these impacts is provided in the aforementioned document entitled “Guidelines to Minimize Impacts of Data-Gathering Activities on Pinyon Jays.”

- 1) For clearance surveys during the breeding season, limit survey and search activity to the minimum amount of effort needed to obtain required level of evidence for breeding. For example, finding a small number of active nests is sufficient to confirm the presence of a breeding colony. Continuing searches to find more nests greatly increases the chances of nest abandonment or human-facilitated nest predation, and should be avoided if possible.
- 2) If finding more nests within the colony (beyond those needed to initially confirm breeding and approximate colony location) is desired for any reason, it is preferable to conduct most of this nest searching activity after the breeding season has concluded.

- 3) When nest searching is conducted during the breeding season, the following guidelines will help to minimize any unintended impacts on Pinyon Jays:
- a) Surveyors should walk quietly and at an even pace while conducting nest searches, without ever stopping to record data, examine nests closely, point at nests, or directly observe nests any longer than necessary. Doing any of these things can provide clues to observant nest predators.
 - b) If a nest is detected, a handheld GPS should be used to mark a waypoint as the surveyor walks past, and all waypoint processing, and data recording should be done at a minimum of 50 m away from the nest, while facing away from the nest.
 - c) Nests should never be approached more closely than necessary to confirm their presence. Nest contents should only be checked if absolutely required for a specific research question.
 - d) Surveyors should immediately vacate the area if ravens or other nest predators are present.
 - e) Any necessary monitoring or observation of nests should be conducted from a distance, preferably 50 m or more if on foot. Nest activities that can be observed from a road can be monitored using a vehicle as a blind, with little impact to nesting Pinyon Jays.
 - f) To obtain precise nest coordinates or measurements, or to make habitat assessments within the colony, return to the site after nesting is complete in late summer or fall.

Surveyor qualifications: The reliability of information gathered during Pinyon Jay surveys depend substantially on surveyor skills and experience. Using inexperienced or insufficiently trained surveyors substantially increases the risk of drawing inappropriate conclusions from the survey effort. Consequently, surveys should ideally be conducted by personnel who are familiar with Pinyon Jays, experienced at interpreting their calls and behaviors, and familiar with regionally-specific characteristics of Pinyon Jay biology. Where this is not possible, individuals conducting surveys should attempt to obtain appropriate training and advice, using one or more of the resources mentioned in the section below.

Additional Information and Assistance

The following webinar provides an overview of Pinyon Jay survey methods. As referenced above, examples of Pinyon Jay calls begin about minute 16: <https://www.youtube.com/watch?v=4dc6W-SLiGQ>

The individuals listed below are experienced Pinyon Jay biologists who can provide additional information and clarification about nest searching.

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