

## Ketterson / Nolan Research Group Collection

This document is part of a collection that serves two purposes. First it is a public archive for data and documents resulting from evolutionary, ecological, and behavioral research conducted by the Ketterson-Nolan research group. The focus of the research is an abundant North American songbird, the dark-eyed junco, *Junco hyemalis*, and the primary sources of support have been the National Science Foundation and Indiana University. The research was conducted in collaboration with numerous colleagues and students, and the objective of this site is to preserve not only the published products of the research, but also to document the organization and people that led to the published findings. Second it is a repository for the works of Val Nolan Jr., who studied songbirds in addition to the junco: in particular the prairie warbler, *Dendroica discolor*. This site was originally compiled and organized by Eric Snajdr, Nicole Gerlach, and Ellen Ketterson.

### Context Statement

This document was generated as part of a long-term biological research project on a songbird, the dark-eyed junco, conducted by the Ketterson/Nolan research group at Indiana University. For more information, please see IUScholarWorks (<https://scholarworks.iu.edu/dspace/handle/2022/7911>).

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## SO YOU FOUND A NEST.....

Congratulations! Each nest is special and so are the people who find them. [Please note that good people never tire of finding nests and never fail to appreciate the uniqueness and importance of each one.]

**Here's what to do after you find a nest and while you are still in the field: Note the stage of the nest and decide whether you need to do something right away. Identify the adults. Mark the location.**

### 1. Nest stage

Is the nest being built? Does it have eggs or young? How many eggs or young? How developed are the eggs; how old are the young? Who are the adults? Write careful notes in the field so you do not have to rely on your memory. Refer to the cheat sheets that Tracey made for cues.

#### *Building stage:*

If the nest is being built, note its stage: rootlets, moss, grass, deer hair, etc.? Then **back off slowly** and watch for awhile. It is very important that you (1) do not frighten the female away and (2) do find out who the adults are by identifying the bands.

#### *Empty nest:*

If the nest is complete but empty, there is always the chance that it was built last year or built this year but has already failed. A good test to determine whether a nest is active is to place a tiny leaf in it. If active, the female should have removed it by the next time you visit the nest (make a note to yourself that says you put in leaf; later transcribe it to the nestlog, that way if someone else is the next person to visit the nest they will know whether they should have expected a leaf to be present).

**Empty nests are particularly valuable this year!!!!** They are what we need to find in order to be able to determine how steroid concentration varies with laying order. Such nests need to be watched very closely for the appearance of egg 1 so it can be marked. Then such nests will need to be visited daily so that each day's egg can be marked with a number to indicate laying order.

#### *Nest with eggs:*

If the nest has eggs, note (1) how many, (2) whether they were laid by juncos or cowbirds, and (3) whether they are developed. If the clutch is complete, remove any cowbird eggs and return them to lab. If laying is still in progress, leave the cowbird egg in place.

If there are fewer than 3 or 4 eggs, then the female may still be laying. Note whether the eggs are warm by touching them lightly. Unincubated eggs feel stone cold, incubated eggs might feel cool if the female had been off for awhile but they will not feel stone cold.

Eggs found during the laying stage should be marked by rubbing with the side of the lead of a soft-lead pencil. Do not use the tip of the pencil point. **If you don't take great care, you might puncture the egg.** Mark as I for first, II for second, III for third, and IIII for fourth, and IIIII for fifth. If two eggs were already present, mark both as II. If three eggs are present mark all three as III, same if there are four, because early in the season there could be a fifth.

For nests found during the laying stage, we need to return on the day the last egg is laid and collect the eggs by placing each in a marked egg container (marked with nest ID and order of laying) and freeze them upon returning to the lab. Don't let eggs break during transport!!

If the clutch is complete, it is possible to distinguish very fresh eggs (which transmit light and are *translucent*) from eggs in which the embryos have begun to develop (which are *opaque*.) This transition occurs about 3-4 days after incubation has begun. It's useful to know whether eggs are fresh because it helps predict when they might hatch. Just before hatching, eggs will begin to look '*chalky*.' The day before hatching, the eggs will pip, which means the soon-to-be nestling has made a rough spot in the shell while attempting to break free. Such rough spots are detectable with fingertips (or lips).

To determine stage of development, you can hold an egg up to sunlight or shine a flashlight through it. **However, be careful when handling eggs.** You **don't** want to crack or drop one. Except for 'fresh' and 'chalky and pipped,' it is very difficult to age eggs in the field to predict when they will hatch. You just have to keep going back to check.

Note everything in the nest logs.

#### *Nest with young:*

If the nest has young, you need first to count how many and decide whether they are juncos or cowbirds. Juncos are smaller than cowbirds and have gray down rather than white.

To decide whether to weigh and measure the young you first decide how old you think they are. To prepare read the descriptions in the Protocol Book entitled *Instructions*. Look at the pictures in that notebook and look at the graphs of body mass and tarsus length in the reprint that is attached to the bulletin board in the lab. Compare with your cheat sheets.

If the young are less than day 6 (hatching day = day 0), you should weigh and measure them in order to establish their age. If they are day 6 (or 7), you should band and bleed them. If they are day 8 or older, **you don't want to touch them** or you might cause them to fledge prematurely (i.e., prior to day 12 early in the season, day 11 later on). Young that leave the nest early have a chance of surviving, but it is lower than if they stay in the nest for the full time.

If they **are** day 12 and ready to leave the nest, you may have to grab them now and band

and bleed them or you **won't get another chance**. However think carefully before you do this.

As a guide, on day 6, the birds have long sheathed feathers on their wings, but the vein has barely begun to break through. On day 7, they will look like little brushes and it is still okay to bleed them. By day 8 their bodies appear covered with feathers and you don't want to disturb them. They look quite similar between day 8 and 11 (most of the change is going on where you cannot see it, underneath the bird.) If they look to be fledging age (e.g., bright eyed and fidgety with short tails that look to be 15 mm long or longer), then you can grab them, **but do it all in one motion or they will run past you**. Again, you get only one chance and if you are a beginner it would be wise to get advice before acting.

### *Family of newly fledged young:*

Every once in awhile you will come upon a family of newly fledged, *unbanded* fledglings (adults calling loudly, instead of finding a nest you flush a fledgling that can barely fly). Now this is a challenge. If the fledglings are young enough to run down, then catch them and band and bleed them. Even if you are able to catch only one, it will allow us to get a DNA sample and follow the family. Use your ears to try and determine how many young there are.

If a young has left the nest today or yesterday, it will fly weakly and you may be able to grab it before it flies at all: move slowly and quietly, extend your hand until the bird is within reach a foot or so away, then strike like a snake and grab it. If it flies, try to run it down (it will weaken with each flight), Also try to direct it toward a goal where you will have an easier time getting at it. If it ascends out of your reach, you may be able to shake the tree, hit the branch with a stick, etc. Again, try to make it fly in a direction favorable to your catching it. Repeat with other siblings.

If the young are strong fliers it means they have been out of the nest for several days. In that case you will not be able to run them down. Nevertheless you will want to fill out a nest log for the family.

## **2. Identify the adults**

**Every time you find a nest (or visit one), try very hard to identify the adults!** The first thing we will have to determine when you get back to the lab is whether the adults have been bled and whether the male has been implanted, so you have to know who they are. Decide whether the adults you see are the "parents." Did either one carry nesting material (or food for nestlings). Did you see them deliver food or act defensively (including chipping)? Write it down (please!). We need to know *precisely* how sure we are about the identify of the birds that 'think' they are the parents of the young.

## **3. Mark the nest location**

Mark location with a flag on a nearby landmark, usually on the opposite side of the trail. Put a very tiny piece of flagging very near to the nest (a 'bow') Write a nest number on the big flag with a magic marker. If you are not certain what number should be next, then be sure to

write on the flag when you next go back to the nest (it is hard for me to state strongly enough how much time this will save in the long run). Articulate to yourself a description of how to get there. If it's a hard one to find, make a trail of flags from a place where people will see it from the road or trail.

Be careful around nest sites so that we don't attract predators. Restore the vegetation, try not to trample it, etc.

**4. What to do after you return to the lab** (see more complete instructions in document entitled, "ONCE A NEST HAS BEEN FOUND, HERE'S THE INFORMATION WE NEED TO GET FROM EACH ONE"):

1. Make a nest log sheet, indicating what you found, how certain you are, and the reasons underlying your level of certainty. Write a *really good* description of how to find the nest on the nest log. This is very important. Please fill in all the blanks on the nest log sheets. There are some little yellow post-its on the bulletin board to help you estimate hatching dates, fledging dates, etc. by backdating.

**For an example please see the SAMPLE nest log that Tracey made.**

2. Enter the nest on the blackboard so we know when to check status, when to expect hatching, weighing, etc. Write the nest ID under the lists of nests with eggs, unknown hatch dates, etc. People rely on this information to make up the daily lists, so it's important to remember to do this, and it is something that people seem to forget to do. Let's change that this year. Ask questions if you are not sure what to do.

*Especially important::* if you visit a nest and find that it has failed, be sure to remove the nest ID from the calendar and the side lists on the blackboard.

3. Determine whether the adults have been bled and whether the male has been implanted. If one of the adults is unbanded (and therefore unbled), put a post-it on the nest log and add it to the list of adults that need to be caught, banded, and bled. If it's been banded but not bled, add it to the list of birds that need to be bled.