

## 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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## PROCESSING JUVENILES (July 26, 1999)

**a. Net locations, net hours.--** Our nets are at their traditional sites, so we can compare captures across years. It is *essential* that we record net hours and trap hours in order to have an index of between-year differences in effort expended.

**b. Measurements to be taken.--** Please measure wing, tail, tarsus, mass, fat class, tail white, condition, molt, and pox. Note NM for no molt, NP for no pox so we can be sure you looked. Probably very few juveniles and no adults will be in molt until 20 July or later. We need to schedule a molt instruction session ASAP. If the bird has any molt or has pox, please turn to the separate sheets designed in 1996 by Steve Hudman and record details. Measurements of molt are MOST important on J/N birds because their exact age is known.

*Bleed each newly captured bird for DNA (i.e., 15-20 ul) so we can sex him or her.* (Same methods as nestlings).

Based on bird's bands determine its age as J/N (juvenile junco first banded as a nestling) or J (caught for first time as juvenile).

Based on bird's wing length and tail white, determine its sex as male or female. **Beware, juvenile wings are more easily injured than adult wings.** You still need to flatten them, but you also need to be gentle during handling. If flattened wing is 80 or greater, treat as male; if wing is 78 or less, treat as female. By this we mean, put the silver band on the right for males, left for females. For the 79s and 80s, look to the tail white. If the third rectrix from the outside has little to no white (0 or 0.1), treat as female, if it has white (0.2 or more), treat as male. Do the best you can. Indicate uncertainty on your banding sheet, e.g., 'female ?'

Note: these guidelines assume that your wings are as long as Val's. If they are not, then take this into consideration, e.g., if your wing measurements are short, then treat all 80s as male rather than all 81s and weigh the decision with 78s and 79s based on tail white, etc. If we mis-band a male as a female and it returns next year, we will be misled by the silver on the left foot.

You all should continue to make a conscious effort to confirm that your methods are identical to those of others, e.g. measure each other's birds, calibrate an object of known mass against one another's pesola balances, fat class the same bird independently, then compare. These calibration steps are very important; please do not overlook them and do repeat them periodically. Val should be considered the standard because he has contributed data for the longest time. The other person who has caught MANY juvenile juncos is Eric.

**c. Other things to note.--** Take *great* care not to repeat color combinations. Eric has prepared schedules.

If you do anything to harm a bird, thus altering the likelihood that it will be caught again (e.g., sprained wing or, worse yet, a broken heel) record this on the banding sheet!!

Please continue to follow the guidelines about putting new captures on separate banding sheets from recaptures and keeping juveniles on sheets from adults.

It is also important to continue to record all encounters with birds on the banding sheets, even if the encounter is recorded in some other way. That is, if a bird is bled, then that fact is noted on a bleeding sheet, but that does not relieve one from the responsibility of recording the encounter on a banding sheet.

**d. Entering data.--** Please enter all captures into Excel and please do so in timely way. If you do it as you go, it's not a burden. If you put it off, then it's tedious and there is competition for the computers. Entering the data is part of the job.

### Supplement, July 26, 1999

This sheet has four purposes (and may repeat some of the "Processing Juveniles" sheet); probably the most important is to establish a uniform system of bleeding juveniles in order to learn their sex and, with a good sample, to correlate sex with wing length. Once we have that correlation firmly established (e.g., of juveniles with 80 mm wings, 79% might be male), then we can estimate the sex ratio of birds measured before we had the ability to sex them using molecular methods. (This assumes – and demonstrates the importance of – learning to measure wing length accurately).

1. A problem in years of high production is that we catch more birds than we have time to bleed. This may not be a problem in 1999, but here's what to do if it happens. When a net contains no more juveniles than you can process within about 40-65 minutes (4 or 5 new birds, perhaps), bleed them all. *Always note on your banding sheet that you bled the bird.* When you bleed, use a pair of scissors to cut about 2-3 mm squarely off the tip of the central pair of rectrices; this will insure that the next person to capture the bird does not bleed it again. Bleed means: take one tube). Sometimes tail feathers are missing; in that case, snip off the tip of a feather nearest the central pair. If all are gone take the tip of the innermost primary.

Now suppose you have a net full of > 4 or 5 juveniles; we'll try to suggest how you might proceed. Please think of these as general guidelines and not as restrictions. All kinds of factors may cause you to relax or tighten them, among these weather, the fact that you are working alone or with others, the fact that the junco you catch is one that you also caught and measured yesterday so you needn't repeat measuring it, etc. The two indispensable data points are the bird's band number and location (plus its good health), so if necessary you can process pretty fast. With these thoughts (intended to be permissive) in mind, proceed.

First determine whether any birds have been bled before (look at tail) and set them aside for regular processing. (All will already be banded, so processing will be simple; you need only note their numbers, colors, location, mass, wing length, and state of molt. If you're short on time, omit tail white, mass, etc. If you see that you have more unbled juncos than you will have time to bleed (e.g., it's getting dark, or you have other open nets), then bleed as many as you can and process the others without bleeding. It may be helpful to estimate how much time you have available and how long it will take you to a) process and bleed the unbled birds and b) to process the already-bled birds. At dawn, just as it's getting light, the captured birds haven't had a chance to load up on food after the night's fasting, so none should be held longer than about 1 hour. That sets an outer limit on how much time you have. At dusk, the onset of darkness (i.e., you can't read band numbers anymore) sets an outer limit to releasing your birds; let each one go as you process it, and none should be held after darkness. [Or, if it does get dark, hold them until morning, put food in the container, and let them go early.]

2. The problem of sometimes having more juveniles to process than you think you'll have time for is not confined to the matter of bleeding; in some summers, you'd probably confront it even if you weren't taking blood. It arises when you have > 1 net open (as you usually do) and you find a lot of birds in one net. If you process them all immediately, the other nets might fill up and you could fall hopelessly behind. Do the following or some variant of it: Remove all the birds from the first net and put them in a container(s) labeled with net number; don't process them yet, and close the net; go to the other open net (s); if they have birds in them too, remove them and put them in a separate labeled container, closing the net(s) if you think you've reached your limit. (If you don't have time to tie the nets closed – do that later). Return to the first net, process the birds caught there, and let them go; go to the next net, etc. Open again if time permits. The trick in the procedure just described obviously is to try to operate at your maximum effective capacity (as many nets open as possible) without overextending yourself.
3. Net hours: What we are trying to do here is to standardize our annual estimates of the number of juveniles moving about on the study area. Nets are placed in approximately the same locations each year, but various factors (weather, number of people in the crew, etc.) cause the absolute size of the effort to vary annually. Therefore we standardize by counting number of birds caught per number of net hours. This means that it is absolutely essential that you keep notes at the time you open and close nets and that each day or so you enter the data on the net-hour forms (more or less self-explanatory when you examine them; see the following for an exception). The forms ask you when you opened and closed the nets. Since you probably opened more than one, you didn't open them simultaneously. The practical solution is to open the nets in any order you prefer and close them in the reverse order. If you worked three nets and opened them at 1300, 1315, and 1330, take 1315 as your opening time, etc, and calculate your hours accordingly. If you operated a group of nets from, say 1315 to 1530 and at 1400 decided to increase your effort by opening another group, make separate entries for the two groups in the net-hour log. **Please keep up to date and be careful about accuracy.**

Note: the entire net-hour effort assumes random catching (if catching at baited sites may be called random). Therefore, while it may be very productive and desirable to try and lure juveniles by playback of alarm calls, the result of that and any similar extraordinary efforts should not be entered in the net-hour logs. Do note on your banding sheets any juvenile caught by playback or other means.

4. Birds can generate heat in cold weather a lot better than they can unload it in hot weather, so be very careful to keep captive birds out of the sun. **On a normally sunny day in July, birds left in a car with its windows up will die within 4-5 minutes.** So when you're keeping your color bands cool, do it for the juncos too.