

Why do we collect data on bluebird nesting success?

By Dr. Peter Dunn

We often get asked questions about why we collect particular information on the annual nesting survey (Form 21), so I would like to explain the rationale and history of our data collection methods. Our current yearly summary form (Form 21) was last revised in 2008. It now asks for the number of eggs, hatchlings and fledglings from first, second and third nesting attempts by bluebirds. Nesting attempts are not separated for the other species we follow (swallows, wrens and chickadees, primarily). In the past BRAW collected information on nest-box type and spacing that allowed us to make some very successful changes in nest-box trail management. In particular, we recommended monitors not pair their boxes, because pairing often allows tree swallows to monopolize both boxes and that reduces their availability to bluebirds. Based on the percentage of boxes occupied, we also recommended certain box types that were generally successful (e.g., Peterson, NABS, K-Box). Box type and spacing was last reviewed in the Spring 2007 issue of Wisconsin Bluebird. Many monitors found it confusing to keep track of nesting success for different types of boxes and levels of spacing, so after 2007 we stopped asking for that information. In that year, we became aware that bluebird nesting success might be affected by renesting attempts, which would be indicated by a second or third attempt in a particular nest-

box. To understand the importance of these later attempts, we started to ask your help in 2008 to gather these data. This year's nesting summary shows that, in contrast to last year, there was a slight increase in the success of later (second and third) broods.

The current data that BRAW collects each year are only used as an index of broad changes in productivity. Even with these modest goals we need everyone to collect the data in the same way to avoid confounding factors. One of these confounding factors is the number of boxes presented each year. If there are more boxes presented (or more eggs laid), then there are likely to be more nests and fledglings. Thus, we need to look at fledgling production each year relative to both the number of boxes and the number of eggs laid. For the purposes of an annual index of productivity, we need all of this information from everyone who contributes. Adding someone's fledgling numbers without the number of eggs (or boxes) that they came from will artificially inflate the year's "productivity", as there will be more fledglings from the same number of eggs. Thus, we request that everyone complete all the lines on form 21 for it to be included in the yearly report. This is part of unbiased data collection and analysis, and it is fundamental to any sort of statistical analysis. Simply reporting the number of fledglings and boxes, without the number of eggs, will bias the analysis, because

the number of eggs can vary annually just like the number of boxes presented. Thus, it is not a viable option to just record the number of fledglings, if we want to have a valid index of productivity.

In any study, the first step should be to ask what is the question we want to answer? Currently, we want to know if and how bluebird production changes each year. If the number of fledglings goes up, as it has been in recent years, is it simply because there were more nest-boxes presented or did the birds actually have greater success producing offspring? To answer these questions, we need to keep track of the number of boxes presented and how many fledglings the birds produce from a given number of eggs or nestlings. The latter information allows us to determine if success (or failure) is occurring at the laying (number of eggs laid), incubation (hatching success) or nestling (fledging success) stages. We think this is potentially valuable information and worth the extra record-keeping involved. We are aware of the burdens of reporting nesting data each year and we try to maximize the amount of information gained with the least amount of work on the part of our monitors.

I hope that helps explain the rationale behind the current Form 21. If you have suggestions please let us know. You can reach me at: pdunn@uwm.edu.
