

EDITORIAL

The Place of Long-term Studies in Ornithology

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Over the past several decades, a tradition of short-term research has developed in North American ornithology, in which studies are customarily completed in a few days, weeks, months, or, at most, 1–3 years. Rarely is the same sort of information gathered over a period as long as a decade. Rather, attention is focused on seemingly simple questions that yield quick answers.

There are several reasons for this. Students undertaking dissertation research are required to conduct an original study within a relatively short time. Financial support is generally of limited duration and is not available for gathering the same sort of information for very long. Employment and advancement decisions increasingly are based on publication as an index of scientific progress and productivity, placing a premium on studies that will lead to quick publications. Whatever the causes, an excessive preoccupation with short-term studies can lead to short-term insights. By restricting the duration of investigations, we adopt a snapshot approach to studying nature. We can only hope that the glimpses of patterns and processes that we obtain depict reality accurately and that something critical has not been missed because we looked at the system too briefly.

For some situations this may not be a major problem, and short-term studies are justifiable. Thus, while often time-consuming, descriptive studies of essentially static patterns (e.g. morphology, fossil assemblages, genetic characteristics of species), of processes at an individual level (e.g. growth, physiological responses, behavior), or of evolutionary patterns or systematic relationships do not necessarily require long-term investigation. These are phenomena whose dynamics occur on time frames that are either very short or very long relative to the normal duration of a short-term study. However, for many phenomena, such as social structure, the operation of mating systems, the demographic composition and dynamics of populations, or the patterns of interactions in communities, change occurs often enough so that we cannot consider the system to be static. If we wish to study how the age-structure of a population influences social systems, for example, or whether or not a community is in equilibrium, a short-term approach is likely to produce incomplete or incorrect perceptions of a complex reality. For such studies a long-term approach that spans the periodicity of the normal dynamics of the system is essential. Moreover, such an approach is more likely than a short-term focus to reveal unexpected patterns or to show the impact of rare but important events.

Conducting long-term studies is not without problems. One must first determine how long is long enough—the termination of such a study should be determined by logic and analysis, not by an ending of funding or by boredom. Studies involving demography might be delimited by the normal generation length of the population, and, for other phenomena, procedures such as spectral analysis or autocorrelation might be valuable in determining the phasing of normal dynamics of the system. Long-term studies, of necessity, must focus on one or two specific situations and thereby sacrifice the breadth of a series of short-term studies for increased detail and intensity. This reduces the potential for generalizing from such studies (even though the knowledge gained will be more firm). Among birds, long-term investigations will be most profitable if they document the details of individual behavior and survivorship and measure the dynamics of their critical resources. Such information is becoming critical with the growing synthesis of ecological, behavioral, and evolutionary studies. In order to obtain such information, however, use of marked individuals is absolutely essential. Such investigations must usually be restricted to a single species. Moreover, studies of resident populations are likely to generate more insight into the causal factors underlying observed dynamics than are those of migrants, because such individuals spend so much of their lives elsewhere that population dynamics are caused by factors integrated over a spatial scale too large to be studied with sufficient intensity.

Thus, while it is well and good to call for more long-term studies in ornithology, they are not essential to all areas of investigation, and they are likely to be successful only in restricted situations. Such studies, however, can make tremendous contributions to our understanding of nature and must be encouraged. This requires that granting and funding agencies recognize the need for long-term, relatively low-level support of such ongoing investigations and adjust their award structure accordingly (as NSF has recently begun to do). It requires that academic institutions recognize that valuable, “original” graduate research need not start from scratch but may build upon a base established by previous investigations, so that a long-term perspective is obtained by a sequence of dissertation investigations. The studies of Acorn Woodpecker populations on the Hastings Reservation in California or of Scrub Jays in Florida provide good examples of the success of this approach. If carefully designed, such studies, once established, may foster explorations along many avenues and may produce a steady stream of significant publications. Unless the current emphasis on rapid publication of incomplete or preliminary findings is

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reduced, however, the more deliberate pace and ultimate value of long-term studies is not likely to be recognized and rewarded. Without some changes in how scientific progress and professional stature are currently perceived, bright young ornithologists will be compelled to avoid investigations of the inter-

mediate-scale phenomena that require 5 or 10 or more years to understand or they will investigate such phenomena on a short-term basis, perhaps obtaining results that are superficial and quite possibly incorrect.

100 Years Ago in The Auk



WITH this issue, *The Auk* begins its second century of publication. This milestone provides the opportunity to look back on what was being published in *The Auk* 100 years ago, as the journal began. Ornithology was a different sort of discipline then, with much that we now accept as common knowledge yet to be discovered. In some respects, however, ornithologists of a century ago had as much understanding of natural phenomena as we do today, although they expressed themselves using more eloquent prose, less jargon, and far less quantitative detail. Reading the writings of a century ago reveals a good deal about how our current thinking was anticipated, how far we have come, how little has changed, how ornithologists approached the study of birds then, and the like. Accordingly, this and each following issue of *The Auk* will contain a selected excerpt from the counterpart issue of a century ago. The following note, from Volume 1, Number 1, was selected because it conveys a sense of the excitement of fieldwork and of discovery that, while still present, is not often expressed in contemporary scientific writing.—J.A.W.

“The Nest of the Saw-whet Owl,” by F. H. Carpenter. *Auk* 1: 94 (1884):

In April, 1881, I was camped near the base of Mt. Katahdin [Maine], while on a trip in that section in search of the eggs of our Birds of Prey. The weather at that time being quite cold, it was necessary to frequently replenish the fire. About 3 o'clock in the morning I arose for that purpose, and noticed a small object moving around amongst the remains of our last meal. Further investigation proved it to be some kind of small Owl, gleaning among the bones for stray morsels of meat. On my near approach it flew into a tall fir, and was hid from sight. During breakfast I again saw it, coming

down to within a few feet of us, when, apparently seeing us for the first time, it again retreated to the fir. I then saw it was a Saw-whet Owl, and it seemed to be in no wise affected by the light. At night one of my companions informed me he had seen a pair of small Owls sitting together in an immense birch, but no nest could be found.

The next morning we struck camp, and moved toward the summit of the mountain. In about a week we returned over the same route and again camped at the place just mentioned. On the second night I was surprised to see the little Owl come as before. We concluded he must have a nest near, and the next day, April 30, we commenced to search for the nest. In the afternoon one of my guides was so fortunate as to discover the Owl going into a hole made by a Woodpecker, in a large birch. He looked in but could see nothing, and had stopped up the entrance with moss, so that I might see it just as he had found it. On going back to it and removing the moss I found the entrance quite large, having been slit by some animal trying to effect an entrance. Carefully cutting away the bark below the hole exposed the nest, which was merely a mixture of fine chips and small feathers of the Grouse. It contained the old Owl and three young ones.

I was disappointed at not securing any eggs, but felt amply repaid in viewing one page in the life-history of this little Owl, who sometimes visits me in my more southern home.

The young Owls were wonderfully droll-looking little fellows, and as they gazed at me with upturned eyes from down in the heart of that canoe birch, in the middle of that immense forest, stretching away for miles, remote from any human habitation, I thought that single look was worth hours of gazing at prepared specimens, inclosed in mahogany cases, in our scientific museums. The formation of a collection does not constitute all there is in the study of ornithology; and around the memory of the scene in that old Maine forest are clustered affections which time cannot destroy.