

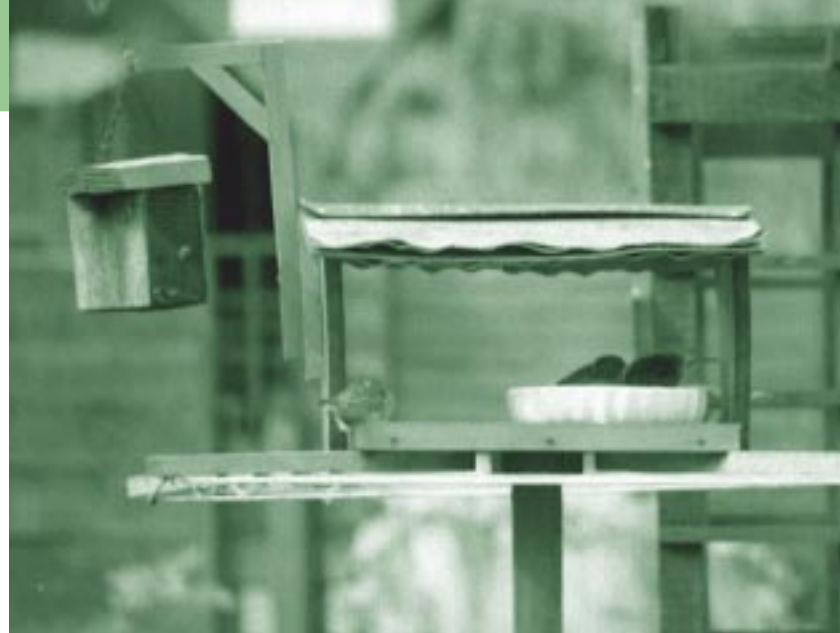
Are We Giving Songbirds Their Last Supper?

by Michael Simpson

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Frigid winds slice their way through leafless trees, water is like glass, and the earth is buried beneath a foot of frosted snow. This is the uncomfortable reality of the long Alberta winter. Faced with it, garden birds seem fragile and helpless. Compassion drives us to stock up our bird feeders. But this practice has become so widespread that some people are beginning to question it. According to the US Department of Interior's 2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation, Americans alone spend over US\$3.8 billion a year on bird seed, feeders, baths, houses and nest boxes. A recent *Wall Street Journal* article challenged the notion that birds must benefit from this bounty. Could it be too much of a good thing?

Bird conservation organizations and businesses trading in bird-feeding products argue that bird feeding gives people personal contact with nature. Encouraging citizens to record observations of birds at their feeders has also allowed conservationists to monitor bird habits and numbers. The British Trust for Ornithology's Garden BirdWatch collates data from millions of homes in the United Kingdom. The Canadian Nature Federation and Bird Studies Canada, in association with Cornell Laboratory of Ornithology and the National Audubon Society, co-ordinate countless North American contributions to Project FeederWatch and the Great Backyard Bird Count. On both sides of the Atlantic, these surveys have



highlighted declines in the populations of some wild bird species. Consequently, they have allowed the public to contribute directly to conservation policy.

But there is a downside. A study published in 1992 in the American periodical *Virginia Wildlife* concluded that the state's one million domestic and feral cats kill up to 26 million birds a year. Fifty-five million are killed annually by 8 million pet cats in Britain, says that country's Mammal Society. Feeders attract birds into the cat's domain. Thus, the argument goes, feeding cruelly exposes birds to the risk of an untimely death in the jaws of *Felis catus*.

Wherever birds of a feather flock together, disease is also likely to spread rapidly. Salmonella, trichomoniasis, aspergillosis and avian pox are all associated with garden birds. All are transmitted through close contact, or food and water contaminated with faeces or bodily fluids. Hence, feeders have been implicated in their spread. Another killer, mycoplasmal conjunctivitis, reached epidemic proportions in eastern North America's house finch population after it was identified in 1994. House finches visit feeders often.

Apparently, though, the biggest killer of garden birds is invisible. In a 1992 Cornell Laboratory study into garden bird mortality, 51 percent of deaths resulted from birds flying into windows. Garden birds startle easily, and in the city, glass is rarely far away. A 1993 report summarising public observations estimated between one and ten birds are killed annually for every building in North America. Many more deaths probably go unnoticed.

These figures have been used by critics to suggest there is a strong ecological case for discouraging feeding. Yet, evidence that bird populations are seriously depleted by deaths attributable to feeders is lacking. Indeed, research has suggested that the risk of death from predation and disease is no greater in the presence of feeders than it is elsewhere. Conservation organisations advocate placing blinds or curtains over windows close to feeders, or placing feeders away from buildings and roads. If limiting deaths from this cause is that easy, depriving birds might be counterproductive.

continued on page 5

continued from page 4

There is a general consensus among conservationists that natural food sources for many songbirds have diminished. Consequently, it seems unlikely that rejecting backyard birding would benefit even those species, such as the British house sparrow and the North American house finch, that might have declined as a result of deaths at feeders. A combination of ideas put forward by proponents and opponents of bird feeding seems more promising.

Birders themselves are pushing for a more considered approach to their pastime. They advocate cleaning feeders and bird boxes and replacing food and water often. Feeders should be shielded from above to prevent predation by hawks. And food must be kept off the ground so birds are not put in easy reach of cats.

The conflict between Sylvester and Tweety is challenging, though. Data suggest that on average a single feline kills, at most, one wild bird every two weeks. Given the number of daily visits by birds to feeders, the risk from any single cat seems small. But there are cats aplenty. Hence, if bird deaths must fall, it will require responsible cat ownership and policies that discourage the growth of cat populations.

Cat ownership licenses and statutory punishment for the owners of cats that kill wild birds are advocated by proponents of cat control. But they are difficult to enforce and unlikely to be effective. The Humane Society of the United States and the American Bird Conservancy are encouraging people to keep cats indoors. Many owners, though, feel it is cruel to inhibit a cat's roaming. Moreover, none of these approaches deal with feral cats. Euthanasia might save some urban wildlife, rats and mice included, but it is curtains for the cats. Adoption won't cut predation, though, unless both cat and bird lovers do their part. If there is a duty to protect birds, it rests not only with owners of predatory pets. Anyone that invites birds into a garden must do everything possible to keep them out of harm's way.

Death is not the only issue, though. There is evidence that songbird populations expand or migrate into new areas where feeders are abundant. This could result in declines in species that are valued in the invaded area. Individuals of some species may also change their feeding habits to preferentially forage at feeders, leading to dependency.

Until better information is forthcoming on the impacts of bird feeding, conscience must guide our actions. Undoubtedly feeders are culpable in the deaths of some birds, but without our help some might not be alive at all. It will be hard to say 'No' to them as winter closes in.



Documenting Biodiversity: The Importance of Natural History Collections

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Biodiversity has been a hot topic ever since the word was coined by entomologist E. O. Wilson in the late 1980s. Short for biological diversity, biodiversity can be broadly defined as the variety of living things on earth, encompassing genes, species and ecosystems. As the word has moved into the popular lexicon, there has been a growing awareness of the importance of understanding what the different kinds of life on earth are and where they occur.

The enormous task of cataloguing life on earth began in earnest about 250 years ago, when Carolus Linnaeus began naming organisms and developed his familiar system of hierarchical classification and binomial nomenclature. Indeed, many of the most common organisms that we encounter today bear the scientific names that Linnaeus gave them in the late 1700s, but the task of cataloguing and describing life on earth is nowhere near complete. Scientists around the world, known as taxonomists, continue to study the biodiversity with which we share our planet. Taxonomists strive to understand how species can

be differentiated from each other, the kinds of habitats that they live in, their geographic distributions and how they are related to other species. They compile the basic information that forms the fundamental foundation for our understanding of all the species in the world.

Much of our knowledge of the biodiversity on our planet has originated from the study of biological specimens that are stored in natural history collections throughout the world. Natural history collections are libraries of the living world, and they contain specimen-based records, collected through the centuries, that hold information about the biological history of the past and present. Typically, specimens include the actual biological organism, as well as additional information, including the collection date, the geographical location of the collection (today including detailed GPS data), the habitat in which the specimen was found, associated species and the name of the collector. Natural history collections thus provide the only permanent record of where and when a species has occurred through time and space.

Natural history collections are used widely in many different far-reaching capacities. When many individual specimens of a single species are studied, information on various biological attributes of the whole species begins to emerge. For example, in my own botanical taxonomic research, I use

continues on page 6

Visit the Virtual E. H. Strickland Entomological Museum at www.entomology.ualberta.ca.

continued from page 5

plant specimens from natural history collections to study the range of morphological variation within and between species, and I use that information to characterize species boundaries. I then determine the geographic distributions of species by plotting their collection localities on maps. Often, through careful observations of specimens, taxonomists discover new species previously unknown to science.

Collections hold important information useful in the study of global climate change, and they are used to track the expanding ranges of newly introduced alien species. Collections are invaluable resources in teaching, exposing both students and the public to the astounding diversity of life at universities and museums, and they serve as references to aid in the identification of newly collected specimens. Collections act as repositories where specimens from ecological and environmental studies are stored and made available for additional study. Paleontological collections are invaluable in the reconstruction of environmental conditions of the past.

With the molecular revolution that has occurred in biology in the last fifteen years, collections have garnered another important function, serving as repositories for specimens used in molecular studies. Such voucher specimens are the only physical entities linking the machine-generated DNA sequence to the species that it represents, and they allow future researchers to study the actual specimens from which the genetic information was obtained. Reciprocally, museum specimens serve as a priceless source of DNA that can often be extracted and studied, sometimes many decades after the specimen was first collected.

Alberta is home to a large number of natural history collections that are housed in various institutions, including the Royal Tyrrell Museum of Paleontology, The Provincial Museum of Alberta, several government departments and the various universities and colleges in the province. The University of Alberta alone maintains 21 diverse natural history collections that are curated by university professors, who use the collections in teaching and in their varied research programs. Together, these collections represent the biological heritage of Alberta and its neighbouring regions.

The Alberta Natural Science Collections Information Facility (ANSCIF) is a recently proposed initiative to create a comprehensive information resource that includes all of the specimen information currently stored in the many natural history collections in Alberta. If funded, this exciting multi-million dollar proposal to the Canada Foundation for Innovation will result in the digitization and databasing of all the collection information for 3.8 million objects. A fully searchable virtual museum will be created that will be accessible over the internet to researchers around the world. If this Albertan information is made available online, it will join the leagues of the many international institutions that have already made their data available, and will contribute to the answering of research questions of both local and global importance.

The E. H. Strickland Entomological Museum at the University of Alberta has already set the standard for how a virtual museum should be constructed. Among the growing number of web-based collection databases, the Strickland site is unique because it combines detailed specimen information with more general knowledge summaries of the species. Of the approximately 1 million specimens currently housed in the museum, collection information for 4300 specimens has been databased, and 1100 knowledge summaries (referred to as species pages) have been created.

Today, in an era of mass ecological destruction, natural history collections are helping to answer those crucial questions that are most important to the survival of all species on the planet, including our own. As the information age progresses, an increasing amount of collection data from around the world will become more easily accessible, and our comprehension of the astounding biodiversity on earth will continue to grow and be made freely available to the global community. As the new century moves forward, natural history collections will continue to play a central role in our understanding of life on earth, and it is important that we understand and appreciate their central role in this noble initiative.



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