IS WINTER BIRD FEEDING GOOD FOR BIRDS?

by Erica H. Dunn

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Every person who feeds birds on a regular basis wonders occasionally about possible negative effects. Might birds become dependent on feeders and lose their natural foraging skills? Do feeders lure bird to areas where predation and disease are more likely? Alternatively, bird feeding might be too much of a good thing. Some authors have suggested that some species, such as Blue Jays and Brown-headed Cowbirds, benefit so much from bird feeding that their nest-robbing and nest-parasitic habits are putting increased pressure on other, less common species.

Despite the incredible food bonanza provided to birds by the estimated fifty million North Americans who purchase bird food annually, remarkably little research has been carried out on the impact of feeding birds (Shaw and Mangun 1984; Filion et al. 1985). One of the best North American studies was done by Margaret Brittingham, then a graduate student at the University of Wisconsin (Brittingham and Temple 1988). She followed Black-capped Chickadees wintering in woodlots with similar characteristics except for differing availability of feeders.

Chickadee flocks without feeder access had lower overwinter survival than did chickadees with supplemental food. However, the effect was seen only in winters with prolonged, severe cold snaps. This suggests that feeding in areas with a milder winter climate would have no effect. Moreover, the density of breeding birds did not differ between Brittingham's study areas. If the "extra" birds that survived because of bird feeding bred at all, it must have been through dispersal to other, perhaps less suitable, areas. Overall, then, the impact of bird feeding on chickadees remains obscure.

Other studies also have generated equivocal results (van Balen 1980; Desrochers et al. 1988; Kallender 1981; Orell 1989). Each research project takes intensive effort over a period of years, and results accumulate slowly. Even when we have solid and clear results, any effect of bird feeding that is documented might apply only to the species studied or to a particular geographic location.

We can get around the limitations of single-species studies by looking at continent wide population trends in feeder birds. If feeder species have increased or decreased as a group in directions that differ from trends in other bird populations, we would have strong suggestive evidence that feeders play a role. I recently carried out this very analysis.

For a definition of a "feeder species," I turned to Project FeederWatch,

Table 1. Population trends of feeder species: 1966-1989.

Percent of Feeders Visited	Number of Species	Percent Species Increasing	Percent Species Decreasing
greater than 25%	48	40%	56%
greater than 50%	29	31%	70%

Based on the Breeding Bird Survey. Data from S. Droege, U.S.Fish and Wildlife Service, Laurel, MD, unpublished.

which compiles information from participants throughout North America about birds appearing at their feeders (see biography below). Any bird that was reported by at least twenty-five percent of FeederWatchers within its winter range during a winter was considered to be a feeder bird. I then mined the U.S. Fish and Wildlife Service's Breeding Bird Survey (BBS) for information on population trends during the period 1966-1989. The BBS consists of over two thousand roadside counts of birds conducted annually during the breeding season, and has been running since 1966. BBS is not infallible, but it is the best source of data we have on continent wide trends in bird populations over the past twenty-five years.

If nothing in particular is happening to bird populations, we expect about fifty percent of species to have increasing trends and fifty percent to be declining, simply by chance. It is quite rare for a population trend to show no change at all. Of the forty-eight feeder species in my analysis, forty percent were increasing, and fifty-six percent declined over the past twenty-five years, according to BBS (Table 1). These figures did not differ in a statistical sense from the fifty:fifty ratio expected by chance. But when the analysis was restricted to the most widespread species, those visiting at least fifty percent of feeders in a region, the results showed that significantly more feeder species declined than increased (seventy percent versus thirty-one percent, respectively). When I considered only population changes that were so large or persistent over the twenty-five-year period that the trends could be considered biologically important (as opposed to chance events), I got the same results. Only among the most widespread species was there a difference from the fifty:fifty ratio. Of the thirteen widespread species with important population changes, twenty-one percent increased, while seventy-seven percent declined.

All the feeder species with significant population trends are listed in Table 2. It is apparent that the more woodland-dependent birds, such as nuthatches, woodpeckers, and chickadees, are on the increase side of the ledger, while the

Table 2. Feeder species with statistically significant population changes: 1966-1989.

Percent of Feeders Visited	Increasing Populations	Decreasing Populations
> 75%	Black-capped Chickadee	Blue Jay
		European Starling
		American Goldfinch
		House Sparrow
50-75%	Hairy Woodpecker	Northern Flicker
	White-breasted Nuthatch	Northern Mockingbird
		Rufous-sided Towhee
		Song Sparrow
		Common Grackle
		Pine Grosbeak
25-50%	Scrub Jay	Black-billed Magpie
	Red-breasted Nuthatch	Brown Thrasher
	Varied Thrush	White-crowned Sparrow

Data from S. Droege, U.S. Fish and Wildlife Service, Laurel, MD, unpublished.

declines include more open-country and suburban species. Moreover, most of the "pest" species are among the decliners, including nest-robbers (Blue Jay, grackle, magpie) and nest-site competitors (House Sparrow, European Starling). One of the more serious pests in terms of its impact on other species is the Brown-headed Cowbird. This bird is not included in the table, because its declining trend was not significant in statistical terms.

If we assume that the population changes shown in Table 2 resulted from winter bird feeding, we might conclude that feeding is a bad thing. But when we put the data in a broader context, this seems less a concern. Compilations of BBS data for all species show that ninety-two percent of grassland-nesting birds have declined since 1966, along with sixty-two percent of scrub-nesters (Droege unpublished). Many of the declining species in Table 2 (e.g., grackle, sparrows, thrashers) are members of these groups that are decreasing across the board, whether or not the constituent species visit feeders.

Further evidence that bird feeding does not cause excess mortality came from a special inquiry undertaken by Project FeederWatch. Participants recorded any deaths observed in their yards over one winter, providing details on causes and surrounding circumstances. The aim was to discover whether

feeding exposed birds to unusual danger from window collisions, disease, and predation.

Window strikes accounted for more deaths near feeders than any other factor (close to half of the more than two thousand deaths reported). A full analysis of this data set (to be published in the *Journal of Field Ornithology*) suggested that between one and ten birds might be killed annually by striking windows at every building in North America. As high as this number sounds, it probably represents less than one or two percent of all birds alive each fall.

Predation came a fairly close second in the Project FeederWatch study, causing about one-third of reported deaths. Sharp-shinned and Cooper's hawks were the culprits in about fifty-one percent of kills witnessed, and cats in twenty-nine percent. Bird-eating hawks make about one to three prey captures daily (Palmer 1988), but most FeederWatchers who witnessed predation at all saw only one or two cases over the whole winter. We conclude that the majority of hawks use feeders opportunistically and not as a primary food source. In one European study, bird-eating hawks were estimated to kill about ten percent of all finches passing through a particular migratory stopover site in autumn (Lindstrom 1989). Compared to this level of risk, bird feeders are positively safe havens!

Relatively few of the deaths observed in the FeederWatch study were attributed to disease. Most of these were probably the result of salmonella infection, in which birds appear lethargic, fluff up their feathers, and have difficulty breathing for a few days prior to death (Terres 1981). Passed through the feces, the disease can spread readily through contaminated bird seed. It is seen most often in flocking species when stressed by severe weather or food shortages.

Summing up all the sources of mortality reported in this FeederWatch study, we found that only one bird death was reported over the winter for every two feeder sites. There is no doubt, of course, that many dead birds were not found or reported. Nonetheless, natural mortality rates in songbirds of thirty-five to fifty percent annually would lead us to predict at least four to five bird deaths over a winter at each FeederWatch home. Actual figures were one-tenth of that prediction. Even if under-reporting was a severe problem, therefore, it appears that feeders do not draw birds into an environment that is far more dangerous than the one they face in the wild.

These analyses suggest that bird feeding has not had blanket effects on populations of all feeder species. More subtle effects may exist, perhaps varying among species (positive for some, negative for others). It will take detailed studies on individual species, however, to demonstrate such effects. In the meantime, you can continue to feed birds with a clear conscience. All current evidence suggests you are not unduly upsetting natural ecological systems.

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ERICA H. DUNN is the coordinator of Project FeederWatch, which generated most of the data in the accompanying article. Project FeederWatch is a continent wide survey of birds at feeders. Each winter over seven thousand participants from throughout North America record feeder activity for one or two days, every second week from November to April. Observations are submitted to the Cornell Laboratory of Ornithology for analysis. Participants receive two newsletters annually. The newsletters discuss up-to-date FeederWatch results and contain articles on bird feeding and on the winter ecology of species that commonly visit feeders. Special inquiries into subjects such as food preferences and effects of weather on use of feeders provide data for further articles. Over two hundred bird species have been recorded taking food from feeders, along with more than seventy mammals.

FeederWatch can generate summaries for any region, giving a profile of the prospects for local feeder-owners. Year-to-year comparisons document range changes and show how populations fluctuate over time. FeederWatch needs more participants everywhere, and you are invited to join. Participants do not need to be expert birders and can conduct their "field work" while relaxing in a warm living room. To subscribe, send $14 to Project FeederWatch, Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, NY 14850.

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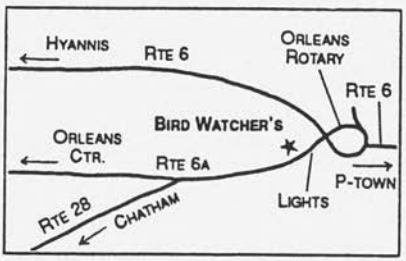

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