



Feeding Wild Birds: Should People Feed Birds and What's Best to Feed Birds?

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Introduction

Whether conducted year-round or only seasonally, feeding wild birds has become a popular pastime for many individuals here in the United States. Conservative estimates of the number of participants range from 50 to 57 million individuals nationwide (U.S. Department of Interior 2018), who collectively distribute more than 1 million tons of seeds each year (Greig 2017). The popularity of this pursuit and the dedication of participants to this pastime have given rise to several thriving industries that support the feeding of wild birds (\$4 billion spent annually in the U.S. on bird food and feeders) and bird watching in general (approximately \$1.8 million spent annually on binoculars, spotting scopes, field guides, etc.) (U.S. Department of Interior 2018). For many, bird feeding represents the primary means by which people interact with wildlife and from which people derive great emotional satisfaction. In fact, a recent study suggests those who feed birds often display better overall health and mental well-being when participating in feeding activities (Dayer et al. 2024). Many who feed birds also believe that their feeding efforts generate positive outcomes for birds (e.g., greater survival, improved health, increased nesting success), but many overlook certain aspects of feeding that potentially can negatively affect the very birds of their interest (e.g., increased spread of disease from poor feeder maintenance, enhanced potential for predation). Given the prominence of feeding activity, and the sheer volume of supplemental food dispensed into the environment, it is worthy to examine the impacts of feeding on nature and to improve one's understanding of the proper care and responsibilities that come with feeding wild birds.

Some Realities about Bird Feeding

Many myths abound regarding bird feeding, some of which have helped increase market opportunities for merchants of bird feeding supplies. Prominent among these myths is the notion that birds need our help to survive — this is not true. Birds have survived quite well on their own for centuries without supplementation from humans. However, this doesn't mean that birds haven't benefited from the readily available and easily accessible supplemental food being placed into the environment. Another myth is that bird feeding has no downside, yet meaningful discussions of potential drawbacks associated with feeding appear much less frequently than reports of purported benefits. Let's look briefly at what the literature says about bird feeding and its effects.

Birds that typically migrate from their breeding grounds to wintering areas often do so in response to a combination of factors, including the seasonal decline in food abundance and availability, and to avoid harsh winter conditions. Interestingly, of the approximately 10,000 bird species that exist across the globe, only about 20% perform some type of seasonal migration (Kirby et al. 2008). For the remaining 80%, these species live in areas where seasonal events do not impact food resources or, through adaptation, they have found ways to remain and survive in an environment with reduced resource availability.

There is circumstantial evidence that bird feeding has changed the population dynamics of some species. A species frequently cited as demonstrating northward range expansion due to abundant supplemental feeding is the Northern Cardinal (*Cardinalis cardinalis*); this species was viewed

traditionally as a southeastern bird, but, since the 1960s, has appeared consistently more frequently in annual Christmas Bird Counts farther north and now is a common resident throughout all the East except northern Maine (Robb et al. 2008). A similar trend of range enlargement due to feeding has been observed with the American Goldfinch (*Spinus tristis*) (Morneau et al. 1999).

A common presumption relative to bird feeding is that access to an abundance of readily available food through supplemental feeding, especially during the harsh winter months, instills in birds a dependency on feeders. Some argue that this dependency will improve survival and therefore enhances reproductive potential the following spring. However, in a comparative study conducted in Wisconsin of Black-capped Chickadees (*Parus atricapillus*) with and without access to feeders, researchers found no difference in survival between birds given regular access to feeders and those who lacked access to supplemental food and instead relied entirely on naturally occurring food resources (Brittingham and Temple 1992). Further, even where feeders were available, chickadees garnered only 21% of their daily energy needs from the supplemental food resources, relying instead on natural foods for the rest (Brittingham and Temple 1992). Thus, for some birds, feeding appears to be more an opportunistic supplement, rather than a staple.

The effects of supplemental feeding on other physiological aspects of bird life are less clear and often conflicting, depending upon the species of bird being examined. Researchers have investigated implications of feeding vs. not feeding on a number of attributes, such as the size or number of eggs produced, date of onset of egg laying, chick weight and survival, and whether a second brood is produced. The results are mixed and highly variable across species, with no definitive positive benefits or negative impacts — in some cases, positive outcomes in one attribute led to a negative overall outcome (e.g., an increase in fledging success led ultimately to lower chick survival post-fledging due to greater competition for resources) (Robb et al. 2008).

There is much less uncertainty regarding several downsides to feeding, especially where large feeding efforts occur. Unless operators of feeding stations maintain strict sanitation protocols for their feeders,

the likelihood of enhanced spread of disease and its associated negative health issues among birds visiting a feeding site will increase, especially where tube-type perch feeders are used. Regular cleaning and disinfecting of feeders are necessary to minimize the transmission of infectious diseases brought into the station by infected individuals — uninfected birds who subsequently use that same feeder can become infected via foot contact with a contaminated perch or when pushing their head through the seed portal. Compromised health issues also can arise from providing poor quality foods or not removing old, often moldy, seeds from the feeders. Birds can be sickened from eating foods contaminated with fungus or inhaling the spores from fungus and developing respiratory problems. Another part of a good station sanitation protocol is the need to regularly clean up and remove the accumulation of spent or spilled seeds beneath one's feeders. This accumulation can and often will attract other animals, such as rodents and skunks, as well as the predators that feed on these animals (such as snakes) that then can become problematic when they enter one's home or other storage buildings in the vicinity of the feeding station.

Another reality, especially with large feeding stations that attract a lot of birds, is the likelihood for increased predation. With the increase in the number of feeding stations in our neighborhoods today, several common accipiter hawks (e.g., Cooper's Hawk [*Accipiter cooperii*] and Sharp-shinned Hawk [*Accipiter striatus*]) are taking advantage of the abundance of potential prey available in an area and will survive the winter feeding on birds taken from feeding stations. Although this is a normal and expected predator-prey behavioral response, many operators of these feeding stations express anger or disgust at what they witness instead of embracing the example of Mother Nature in action.

Finally, another potential liability associated with feeding comes from improper placement or location of the feeders relative to their proximity to windows. In the drive to see birds up close, people commonly place feeders on or immediately adjacent to windows, often those looking out on a deck attached to one's home. Birds often mistakenly fly into windows when fleeing a potential or perceived threat, thinking that the reflected image of landscape in that window is a useful escape route. Although some birds do survive an encounter with a window, many don't. Bird mortalities associated with window

collisions have been rising steadily in recent decades, and some researchers attribute a part of this increase to the gaining popularity of feeding birds. Responsible feeders will attach silhouettes of birds of prey to windows and sliding glass doors or hang reflective devices in front of these windows to ward fleeing birds from the potential threat they pose.

Understanding How to Feed

Feeder Selection and Placement

The type of feeder provided and where a feeder is placed typically defines which birds will use the feeder. Behaviorally, many birds naturally feed on or near the ground, scavenging for seeds and insects amongst the litter at the ground surface. Examples of common ground feeding birds here in the East include many of the sparrow species, doves, juncos, and towhees. These species show little attention to hanging feeders unless constructed as a large open tray or platform (fig. 1). In general, food for ground-feeding species can be dispersed directly on the ground, but it should be distributed only in quantities that birds will consume within the day; unconsumed food that accumulates and lingers overnight often will draw other animals, such as rodents (and potentially the predators that feed on them).



Figure 1. Example of a platform feeder ("[Backyard Bird Feeders](#)" by [Tony Alter](#) is licensed under [CC BY 2.0](#).)

Birds that normally feed from or on trees respond differently than ground-feeders and are more likely to feed from hanging food resources. Tube feeders (fig. 2) and hopper-style feeders (fig. 3) are designed

to allow birds to extract seeds while perching on or clinging to the feeder. The size of the portals through which seeds are made accessible typically will dictate the type of seed or food best provided; dispensing small seeds in a feeder having large openings will be wasteful as the seeds often simply pour out on the ground as the feeder is jostled by visiting birds. In contrast, attempting to dispense large food items from feeders designed for small seeds will not work, so selecting the proper type of feeder based on what you intend to provide is essential.



Figure 2. Example of a common style of tube feeder ("[Dove and another bird on my bird feeder](#)" by Don Debold is licensed under [CC BY 2.0](#).)

Other birds show little preference regarding feeder type and, as opportunists, they will forage wherever food is most available, whether that is from a hanging feeder or on the ground. Blue Jays (*Cyanocitta cristata*), blackbirds (including Common Grackle [*Quiscalus quiscula*]), and Northern Cardinals readily visit hanging feeders that are large enough to support them, but also will frequently drop to the ground directly below a hanging feeder where seeds have fallen out of the device.



Figure 3. Example of a hopper-style of feeder ("[Bird Feeder](#)" by [Kurayba](#) is licensed under [CC BY-SA 2.0](#).)

Birds with unique feeding habits or physical features typically require special feeders adapted to efficiently make food available. To dispense sources of fat (such as suet or peanut butter), special mesh basket-like feeders that will hold the food in place (fig. 4) or devices with multiple crevices into which the food is jammed are required to make it accessible to birds. Similarly, the needs of fruit-eating birds can be met by using feeders that hold fruit (fig. 5). Finally, to accommodate the need of nectar feeders, liquid dispensing devices with special portals designed to replicate nature's tube flowers satisfy the needs of birds like hummingbirds and orioles (fig 6).



Figure 4. Example of several types of suet feeders ("[Bird on the feeder on the wire](#)" by [Serge Melki](#) is licensed under [CC BY 2.0](#).)

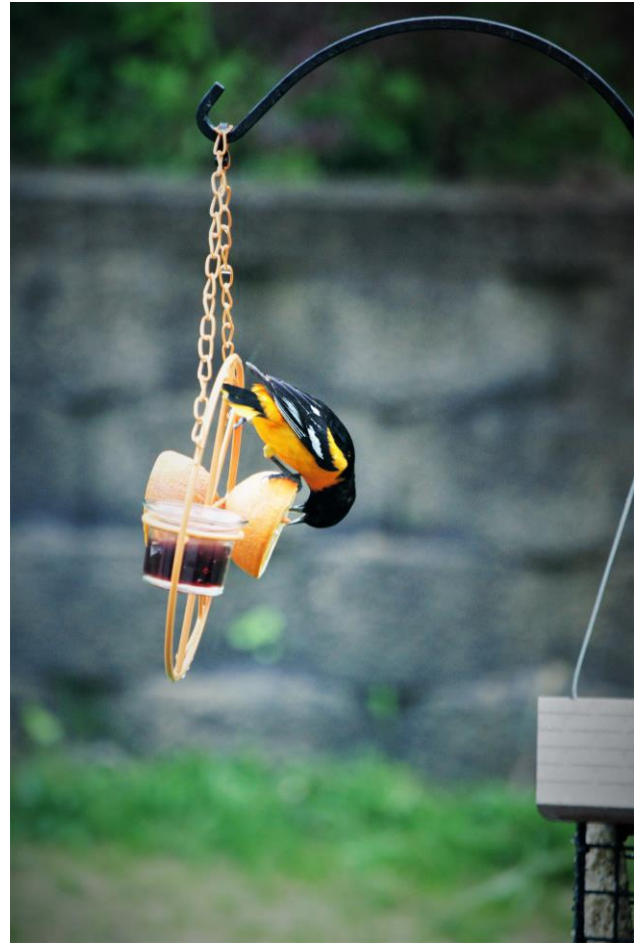


Figure 5. Feeder designed to dispense fruit and jelly ("[Feeding Oriole](#)" by Tom Shockey is licensed under [CC BY 2.0](#).)



Figure 6. Typical hummingbird feeder ("[Hummingbird Feeder at the Great Sand Dunes Lodge Alamosa County \(CO\) August 5, 2013](#)" by [Ron Cogswell](#) is licensed under [CC BY 2.0](#).)

Food Selection

As is true for the type of feeder you choose the selection of food you offer also will define the type of bird you will attract. Birds often display distinct preferences for certain foods based on several physical and behavioral factors. Primary among the physical characteristics is the type of bill a bird possess, as this largely determines the kind of foods an individual actually can handle and properly process. Birds with stout, thick bills (e.g., Northern Cardinal or Evening Grosbeak [*Coccothraustes vespertinus*]) typically have the physical strength to crush or crack open the tough hulls or shells of large seeds and nuts, whereas birds with small, thin beaks (e.g., Eastern Bluebird [*Sialia sialis*]) often feed on soft, pliable foods, such as insects, grubs, and small fruits or berries. Birds with long, narrow chisel-like bills (e.g., White-breasted Nuthatch [*Sitta carolinensis*] or Hairy Woodpecker [*Dryobates villosus*]) are capable of hammering and cracking open shells or large seeds and reaching deep into crevices to get at hard-to-reach food items.

Beyond the physical aspects, many birds exhibit fairly strong preferences when making selections from among an array of different food items being offered to them (table 1). Without question, the majority of common birds that visit feeding stations show a clear preference for black oil sunflower seeds over all other options. Black oil sunflower seeds are smaller than other sunflower types (e.g., black striped or grey striped) and thus are more easily handled and processed by more species of birds. Black oil sunflower also has a higher fat content than striped sunflowers, so birds get a bigger benefit per seed consumed. Second to black oil sunflower is hulled sunflower, where the hard outer shell of the seed has been removed and only the inner kernel is presented. Hulled sunflower kernels may come from a variety of sunflower types, so the benefits to birds can be slightly lower than dispensing only black oil sunflower; economically speaking, hulled sunflower typically costs more than non-hulled black oil sunflower.

After these two items, choice or preference quickly is dictated by the species to be attracted. Among ground feeders, millet (especially the White Proso variety) ranks high for many species, followed by cracked corn, peanut hearts or kernels, and milo. Millet seed generally is small, nutritious, and can be

easily processed by numerous species. Cracked corn has a reputation for attracting birds some people find undesirable, such as Common Grackles, European Starlings (*Sturnus vulgaris*), and other blackbirds; to alleviate such concerns, simply refrain from distributing or using prepared seed mixes that contain cracked corn. Milo, being a larger and more robust seed than millet, can be difficult for small birds to process and it often will be left unused unless nothing else is available. As noted in table 1, a fair number of species will use safflower, when available; however, safflower often is much more expensive than other seed choices and fewer species show interest in it when compared to black oil sunflower.

Other food options become targeted to the preferences of certain bird species and typically require unique or modified feeders for distribution. Nyjer seed (also referred to as thistle seed) is highly prized by American Goldfinches, House Finches (*Haemorhorus mexicanus*), Pine Siskins (*Spinus pinus*), and Purple Finches (*Haemorhorus purpureus*), but, because nyjer is such a small seed (and often quite costly), it demands special feeders with very small portals to prevent the seed from simply falling out and becoming wasted. Tube feeders with narrow slits or fine mesh bags typically are used to dispense nyjer (fig. 7).



Figure 7. Specialized bird feeder for dispensing small nyjer seed ("[Female Common Redpolls on Nyjer Feeder](#)" by Connie Smith [[grandmapearl](#)] is licensed under [CC BY-SA 2.0](#).)

For those interested in providing food to insect eaters, a common resource many consider is dispensing mealworms, but several cautions and recommendations related to doing so must be addressed. To maximize the benefits to birds, live mealworms, rather than dried worms, should be provided.

Table 1. A compilation of bird species common to Virginia, and the type of bird feeders and preferred foods suitable for those species.

Common Name	Scientific Name	Feeder Type Used ¹	Preferred Foods ²
American Goldfinch	<i>Spinus tristis</i>	TB, HP, PL, GR	BOS, HS, NJ
Black-capped Chickadee	<i>Poecile atricapillus</i>	TB, HP, PL, SU	BOS, HS, PH, SU, SF
Blue Jay	<i>Cyanocitta cristata</i>	TB, HP, PL, GR	BOS, HS, PH, CC, SU, ML
Carolina Chickadee	<i>Poecile carolinensis</i>	TB, HP, PL, SU	BOS, HS, PH, SU, SF
Carolina Wren	<i>Thryothorus ludovicianus</i>	TB, HP, PL, SU, GR	HS, PH, SU, MW
Common Grackle	<i>Quiscalus quiscula</i>	HP, PL, GR	BOS, CC, HS, SF, PH, SU, OT
Dark-eyed Junco	<i>Junco hyemalis</i>	GR, PL, HP	ML, HS, NJ, CC, PH
Downy Woodpecker	<i>Dryobates pubescens</i>	SU, PL, HP, TB	SU, BOS, HS, PH, MW
Eastern Bluebird	<i>Sialia sialis</i>	PL, GR, SU	MW, FR, SU, PH
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	GR, PL	ML, MI, HS, CC, PH
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	GR, PL	ML, HS, BOS, CC, PH, OT
Fox Sparrow	<i>Passerella iliaca</i>	GR, PL	ML, MI, HS, SF, NJ, CC
Hairy Woodpecker	<i>Dryobates villosus</i>	SU, HP, PL, TB	SU, BOS, HS, PH, SF, MW
House Finch	<i>Haemorhous mexicanus</i>	TB, HP, PL	BOS, HS, NJ, SF
Mourning Dove	<i>Zenaida macroura</i>	GR, PL	ML, HS, BOS, CC, MI, PH, SF
Northern Cardinal	<i>Cardinalis cardinalis</i>	HP, PL, GR, TB	BOS, HS, SF, PH, CC
Northern Flicker	<i>Colaptes auratus</i>	SU, PL, HP, GR	SU, BOS, HS, PH
Northern Mockingbird	<i>Mimus polyglottos</i>	PL, GR, SU	MW, FR, SU, PH, HS
Pileated Woodpecker	<i>Dryocopus pileatus</i>	SU, PL	SU, BOS, HS, PH, MW
Pine Siskin	<i>Spinus pinus</i>	TB, HP, PL, GR	BOS, HS, NJ
Purple Finch	<i>Haemorhous purpureus</i>	TB, HP, PL	BOS, HS, PH, NJ, ML
Red-Bellied Woodpecker	<i>Melanerpes carolinus</i>	SU, HP, PL, TB	SU, BOS, HS, PH, MW
Red-Breasted Nuthatch	<i>Sitta canadensis</i>	TB, HP, PL, SU	BOS, HS, PH, SU
Song Sparrow	<i>Melospiza melodia</i>	GR, PL	ML, HS, PH, MI
Tufted Titmouse	<i>Baeolophus bicolor</i>	TB, HP, PL, SU	BOS, HS, PH, SU, SF
White-Breasted Nuthatch	<i>Sitta carolinensis</i>	TB, HP, PL, SU	BOS, HS, PH, SU, SF, MW
White-Crowned Sparrow	<i>Zonotrichia leucophrys</i>	GR, PL	ML, HS, BOS, CC, MI
White-Throated Sparrow	<i>Zonotrichia albicollis</i>	GR, PL	ML, HS, BOS, CC, MI
Yellow-Bellied Sapsucker	<i>Sphyrapicus varius</i>	SU, PL	SU, MW

¹ TB = tube feeder; HP = hopper feeder; PL = platform feeder, GR = ground; SU = suet cage

² BOS = black-oil sunflower; HS = hulled sunflower; NJ = nyjer seed; PH = peanut hearts/kernels; CC = cracked corn; SU = suet; SF = safflower; ML = millet; MI = milo; OT = oats; MW = mealworms; FR = fruit

Dried worms provide less nutritional value and contain little to no moisture, which can be injurious when fed to newly hatched nestlings; all the moisture they acquire comes from the food supplied to them by the adults, so moisture-rich foods are essential early in their lives. Also, because many adult birds are attracted to the movement of their prey, they won't recognize stationary dried worms as a potential food unless trained to do so. That said, providing live worms requires special means to contain them so they don't escape. Steep-sided containers made of glass or slippery plastic prevent the worms from gaining traction and climbing out. Also, live mealworms must be cared for properly (i.e., fed, kept cool, free of mold) to enhance the attractiveness and avoid making birds sick. Providing live mealworms often becomes pricey, when done correctly. It simply may be easier and more beneficial to engage in developing backyard habitats that provide a diversity of vegetation types attractive to native insects and from which the birds of interest can forage on their own.

Care and Maintenance of Feeders

When deciding to participate in bird feeding, you also must acknowledge and accept the responsibilities that come with that decision, primarily to protect the birds you hope to attract and to limit your own exposure to potential threats. Primary among this list is the need to provide regular and thorough sanitation of the feeders used to dispense food. At a minimum, all feeders should be taken down, emptied of all contents, and cleaned at least once every two weeks. In this case, "cleaning" means each feeder should be washed in warm to hot soapy water, rinsed thoroughly, and then allowed to soak in a disinfecting solution (1 part bleach to 10 parts water) for about 3-5 minutes, then allowed to air dry before restocking. With hummingbird feeders, this process should be performed sooner, typically at least once a week or less.

With most types of feeders, cleaning and disinfecting is not a complicated process, but some feeders pose challenges in one's ability to fully disinfect the device, due to the type of material from which the feeder is made. Feeders constructed of glass, plastic, porcelain, and metal generally are the easiest to clean and sanitize, given their smooth, unblemished surfaces. Feeders made from wood or

other porous materials can allow potential contaminants or infectious agents to hide out in small pocks in the surface or in the seams and joints, spots where cleaning and disinfecting solutions may not reach, leaving opportunities for contamination to remain. A longer period in the disinfecting bath may be required with such devices to allow the solution to penetrate sufficiently into deep spaces to properly treat potential areas of contamination; however, this can and sometimes will affect the appearance or quality of the feeder (e.g., painted or stained surfaces may become discolored or peel).

It also is important to select and distribute high quality food, seeds that are free from any evidence of mold or bacterial odor suggesting possible contamination; if you detect any signs of discoloration or mold, do not use the seed — dispose of or compost the seed right away and clean the storage container thoroughly. Keep all food items sealed in air-tight containers to limit exposure to moisture and to prevent animals and insects from gaining access. When feeding hummingbirds, the nectar should be replaced on average every 3-4 days to prevent bacterial growth that can make birds sick. Evidence of cloudy fluid, stringy strands, or black staining are indicators of contamination. In such cases, the entire contents of the feeder should be dumped, and the feeder should be thoroughly washed and disinfected rather than simply refilled.

A final consideration for those participating in bird feeding is thinking carefully about the larger landscape scale of where you set up a feeding station in relation to how birds forage. Birds prefer using feeders from which they have a clear line of sight and can monitor potential predation risks. That said, they also prefer having some form of protective vegetative cover in close proximity that allows for quick escape from perceived threats. An additional and significant concern relates to the placement of feeders with respect to proximity to windows. Although many people opt to place a feeder close to windows or even on a window sill to maximize viewing opportunities, doing so increases the risk to birds of striking the window and injuring themselves. In the rush to flee from a threat or impending predation situation, birds mistakenly interpret the reflected image of vegetation on the window as a viable escape route and will fly directly into the window, resulting in a stunning blow at the least or a broken neck or wing at the worst. If feeders are placed anywhere in proximity to

windows, you should place something on those windows to gain the attention of birds and ward off undesirable impact injuries. Hawk Mountain Sanctuary (1998) offers suggestions and instructions for using a variety of stick-on, cut-out, or hanging devices (e.g., images of aerial falcon and hawk silhouettes) that are available and can be used to help reduce the potential for window strikes.

Finally, consider the behavioral aspects of how particular birds forage. For example, chickadees, titmice, nuthatches, and woodpeckers typically forage by taking seeds one by one and going to a secure spot to handle and process each seed. Placing feeders in close proximity to shrubs or trees that display horizontal branches that serve as useful perches where seed-cracking can take place often will increase overall use of feeders for these species.

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