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Feeding
Birds in your
Backyard

... a great way to attract wildlife

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Supplemental feeding of wild birds is fast becoming a popular pastime in Wyoming. Birds bring beauty, music, and life to the backyard, especially during the snowy winter months. This type of entertainment is also a good way to introduce a family to the joys of learning about wildlife behavior while providing a reliable source of food for birds throughout the winter.

Bird feeding allows a family to observe bird behavior up close, take photographs, and sharpens bird identification skills. A variety of species may appear at different times of the year. Some bird species move south for the winter; others move in from farther north to join other year-round residents.

Birds visit feeders more during the fall, winter, and early spring when natural foods are scarce. During late spring and summer, feeders are less popular because birds become territorial, chasing competitors away. Also, natural foods such as seeds, berries, nuts, and insects are more desirable than supplemental foods. During this time of year, insects, which are a major protein source, become a preferred food. In Wyoming, feeders are very important for providing food over the long, cold, winter months.

Feeding birds can be an art. To attract a variety of species, feed various foods at different heights and locations. Birds are easy to attract. Once a few birds find the feeder, others follow.

Selecting Food Types

Wild birds are finicky eaters, especially when many different food types are available. Some species prefer seeds; others select fruits or suet, and a few species select sugar-water mixtures (Table 1).

As an example, mourning doves are generally ground feeders that prefer sunflower seeds, cracked corn, and peanut hearts. House finches love mixed seeds, especially millet and sunflower. They feed on the ground, at an elevated tray, or from a hanging seed dispenser. Goldfinches and pine siskins relish sunflower or thistle (niger) seed. Chickadees and titmice select sunflower seeds but prefer suet and peanut butter mixed with cornmeal. Woodpeckers primarily look for suet as a supplemental food, especially in the fall and winter. Hummingbirds and orioles prefer sugar-water mixtures. To attract the greatest variety of bird species, offer many different foods including seeds, fruits, suet, and sugar water.

Birdseed

Seeds are very nutritious, providing high levels of protein and energy required for strenuous activities such as flying. The oil in seeds enables birds to maintain bodyfat deposits required during cold winter weather and provides calories for continual physical activities. Once a feeding program is started, particularly during the winter, continue feeding until birds start foraging on native foods in the spring. If feeding must be discontinued, gradually taper off the food supply rather than stopping abruptly. This gives birds time to locate alternate food sources.

Sunflower seeds are generally accepted by most bird species. However, some kinds of seed are more popular among different species than others (Table 2). To determine which seeds are most preferred by a particular group of birds, experiment with small amounts of different seeds and note which disappears the fastest.

Mixed birdseed is usually available at grocery stores and pet shops. However, it is usually more economical to buy separate kinds of seed in bulk from feed stores and lawn and garden shops. Following are descriptions of various favorite seeds popular with most bird species.

Black oil sunflower seed. This is the best all-around food and is attractive to many bird species. The tiny size and thin hulls are easy for small birds to crack. Rich in oil, these seeds are high in protein and fat content. A wide variety of birds are attracted to this seed.

Hulled sunflower seed. Small-sized seed eaters prefer hulled sunflower seeds. Hulled sunflower seed has the advantage of leaving no mess to clean up under feeders. However, the seeds may rot in wet weather. When feeding hulled sunflower seed, use feeders that discourage large birds.

Striped sunflower seed. Before the discovery of black oil sunflower seed, this seed was commonly fed to wild birds. The thick, heavy hull of striped sunflower seed is preferred by birds with heavy bills. It is also a popular, nutritionally rich food that should be offered separately.

White proso millet. Both red and white proso millet are available, but birds generally prefer white millet. Millet is less prone to swelling and rotting than other birdseeds because of its hard seed coat. This seed works well for ground feeding and hopper feeders. The major drawback of white proso millet is its attractiveness to house sparrows and starlings. These two birds are highly competitive and chase away other more desirable bird species.



Cracked corn attracts smaller ground-feeding birds such as sparrows. However, it rots quickly when wet and attracts undesirable feeders such as squirrels, pigeons, and blackbirds.

Safflower seed. Although this seed is most popular for feeding cardinals in the East, it does appeal to finches, grosbeaks, jays, titmice, chickadees, and mourning doves. High in protein and fat, this seed is a good choice where squirrels commonly rob feeders or grackles and blackbirds cause competition problems. Safflower seed is not eaten by squirrels, grackles, or blackbirds. When first introducing safflower seed to feeding birds, mix it with other seed offerings until birds become familiar with this food type. Gradually increase the amount of safflower seed in relation to the other seeds in the feeder until filled exclusively with safflower seed.

Fresh and dried corn. Cracked corn attracts small ground-feeding birds. However, it rots quickly when wet and attracts squirrels, pigeons, blackbirds, and house sparrows. Whole corn kernels, fresh or dried, are attractive to larger birds such as pheasants, ducks, and geese.

Niger (thistle) seed. Niger seed, imported from Africa and Asia, is very expensive but is also highly preferred by goldfinches and pine siskins. Niger seed was nicknamed “thistle seed” because goldfinches love to eat natural thistle seeds. Niger seed is commercially sterilized to avoid weed problems from waste seeds. These tiny black seeds are high in protein and fat. Additionally, they do not attract squirrels or larger competitive birds such as blackbirds and starlings when fed from specialized feeders that release only one seed at a time. To prevent waste, use a hanging tube feeder or special mesh sock that dispenses only single seeds.

Shelled peanuts and peanut hearts. Shelled peanuts and peanut hearts, extracted from peanuts when making peanut butter, are attractive to many bird species including sparrows, finches, towhees, grosbeaks, juncos, jays, chickadees, titmice, mourning doves, and pine siskins. The major disadvantage of this food is that it attracts starlings.

Unshelled peanuts. Larger birds with heavy bills, such as woodpeckers and jays, are attracted to unshelled peanuts. This food is loaded with protein and fat, which makes it especially attractive in winter. A common way to offer unshelled peanuts is to string them on a wire or string, and hang them from a tree limb.

Birdseed mixes. Commercial birdseed mixes vary widely in seed composition and likewise vary in nutritional quality and attractiveness to birds. Most commercial mixes contain unappealing and inexpensive seed fillers such as milo (grain sorghum), buckwheat, rice, oats, or wheat. White proso millet, commonly found in these mixes, attract highly competitive house sparrows and starlings. Avoid buying mixes with a reddish hue, which indicates a high content of milo. Select mixes having a pale yellow color (indicating more corn content) or those containing adequate amounts of sunflower seeds. If possible, buy separate preferred seeds in bulk and mix them. This will save money in the long run and provide a more attractive seed mix.

Fruits

Fresh fruit will attract grosbeaks and waxwings in the winter. In spring and summer, orioles, robins, brown thrashers, mockingbirds, and tanagers are attracted to fruits and insects commonly feeding on the offered fruits.

To offer fruits, hammer a nail an inch or two into a thick board that can be hung on a tree trunk. Then impale parts of an orange, apple, or banana on the nail. Grapes, cherries, and any dried fruits can be placed on ground-level trays or in halved grapefruit, orange, or coconut shells.

Orioles commonly eat sliced oranges nailed to branches or wooden posts. Robins are attracted to apples on the ground or on low-lying platform feeders. Waxwings, grosbeaks, and brown thrashers prefer raisins and grapes.

Suet

Suet cakes are a favorite treat that provide an important source of high energy (fat) for birds in winter. Avoid offering suet in the summer when out-



Suet is a favorite winter treat that provides a source of high energy. Offer suet in plastic-coated metal baskets during winter to prevent birds' flesh from sticking to bare metal in freezing temperatures.

door temperatures are warm enough to turn it rancid or soft enough to mat feathers, resulting in exposure and possible death. Rendered suet reduces spoilage problems in warm weather but can still cause exposure problems unless a high-melting-point suet dough is used.

Suet is hard beef fat commonly found on kidneys. However, beef fat from steaks or roasts can also be used. Suet is commonly offered to birds by cutting it into 2-inch square chunks and placing it in a mesh bag or wire container. Metal baskets holding suet should have a plastic coating in freezing temperatures to avoid injury to feet, tongues, or eyes from flesh sticking to the cold metal or getting cut on rough edges.

Suet cakes can be made by melting beef fat and pouring it into a small mold such as an empty tuna can or small muffin cup liner. Adding peanut butter, honey, corn syrup, cornmeal, oatmeal, any chopped table scraps, dried fruits, or various birdseeds offers variety. To provide grit and calcium, mix in one or two well-crushed eggshells. Refrigerate the cakes until hardened and remove them from the mold prior to setting them on a feeding table or hanging them in a mesh bag or metal basket. Some people pour melted suet over a pine cone and hang it as a feeder after cooling.

Sugar Water

A sugar-water solution of four parts boiled water (80 percent) to one part white refined sugar (20 percent) is especially attractive to hummingbirds and orioles. This ratio of sugar to water most closely approximates the sugar concentration found in the nectar of many flowers. Never use a stronger sugar-to-water mix because it can damage a bird's kidneys, cause liver dysfunction, and is harder to digest. Also, never use honey in place of sugar as it may produce a fungal disease that infects hummingbird tongues, which may cause death. Likewise, avoid artificial sweeteners because they do not provide the required calories for metabolic functions or offer any other food value.

To encourage more hummingbird use, place sugar-water feeders near plants with brightly colored red flowers. Commercial "nectar" mixes are usually red colored to enhance attracting hummingbirds. It may be necessary to initially use a red-colored commercial mix or add red food coloring to the sugar solution to attract hummingbirds into a new feeding area before gradually switching to a clear sugar solution.

Unique offerings

Prepared treats can offer a variety in the diets of feeding birds as well as an intriguing adventure in the kitchen. The following recipes are some unique offerings to try on backyard birds.

Peanut butter mixtures. Peanut butter is popular with birds all year round but especially in winter when extra fat and protein are needed to maintain body condition. During the spring and summer, peanut butter mixtures provide additional energy for the stressful demands of breeding and raising young birds. However, avoid locating peanut butter mixtures in hot, direct summer sun where it is likely to melt.

Birds can choke on pure peanut butter so mix it with another food to break up the sticky texture. A good recipe is to mix $\frac{1}{2}$ cup of smooth or crunchy-style peanut butter with $2\frac{1}{2}$ cups of yellow cornmeal or uncooked oatmeal. Then add $\frac{1}{4}$ cup of finely chopped meat, dried fruit, or nutmeats. Apply this mixture to a log feeder with a rubber spatula and hang it from a tree limb.

Corn pudding. Very popular in winter, corn pudding is actually a rich version of suet cake. Mix together four cups of water and two cups of sugar. Melt two cups of suet, cooling it slightly and then stirring it into the sugar-

water mixture along with four cups of yellow cornmeal until a soft dough forms. To this, gradually stir in four cups of all-purpose flour to make stiff dough. This dough can be stuffed into pine cone crevices or log feeders and hung from tree limbs.

Bird cakes. Mix a cup of flour with a cup of cornmeal, oatmeal, or bread crumbs (or a combination of all three). Moisten with $\frac{1}{2}$ cup milk and blend in a cup of raisins and peanuts. Also add $\frac{1}{2}$ cup of rendered suet, fat, or peanut butter, and bake the mixture in paper-lined muffin cups at 350 degrees Fahrenheit for 45 to 60 minutes or until firm and brown. Cool the cakes, cut them in sections, and hang them from a mesh sack or present them on a feeder tray.

Coconut morsels. Using an ice pick, pierce the top of a fresh coconut and drain the milk. Bake the whole coconut in a 350-degree-Fahrenheit oven for 15 minutes or until the shell starts to crack. Cool it briefly, and then break the coconut by striking it with a hammer. Fill the largest piece with fruit, nutmeats, day-old bread, or stale doughnuts and hang it from a tree limb or nail it to a fence post. Do not feed packaged coconut flakes as they can swell inside bird digestive tracts, causing injury and possible death.

Popcorn strings. With heavy-duty thread and a sharp needle, thread unbuttered and unsalted popcorn kernels to form a string, and drape them across trees.

Cranberry and grape strings. Using the same technique as with popcorn, string packaged cranberries and fresh grapes on heavy-duty thread, and hang them on tree limbs. Pieces of fresh apple and dried fruits can be added for variety.

Orange and grapefruit. Oranges and grapefruit, cut in quarter sections, can be tied to tree branches fruit side up to provide treats for fruit-eating birds.

Corn on the cob. Uncooked dried or fresh corn on the cob can be tied with heavy string to inner tree branches.

Whole peanuts. Using heavy-duty thread and a sharp needle, thread whole peanuts to make a long garland, and hang it from a tree branch.

Stuffed pine cones. Pine cones dipped in rendered suet or stuffed with peanut butter mixtures can be hung in nearby trees.

Winter supplements

In severe winters, birds may not be able to obtain supplemental minerals, nutrients, and grit needed for proper nourishment. Supplemental offerings of gravel, fireplace ash, crushed eggshells, and salt provide these dietary requirements.

Mourning doves and finches, for example, require grit (tiny bits of stone, coarse sand, or crushed oyster shells) to crush seeds in their digestive tracts. Fireplace ash or crushed eggshells can substitute for natural grit and can replenish minerals lacking in birds during the winter. Coarse salt provides the sodium needs of some birds.

Gravel, ash, and salt can be placed in covered feeding trays or on the ground. Crushed eggshells can be mixed with seed or suet cakes.

Feeders

Feeders, handmade or purchased commercially, should blend with the landscape to provide maximum aesthetic appeal. They need not be expensive or elaborate. In fact, simple and more natural looking feeders are better for birds and the surrounding landscape. Protection from climbing predators is desired to provide security to feeding birds. This can be accomplished by suspending feeders from a tree branch or attaching them to a post with an inverted metal shield.

Several weeks may pass before birds start using new feeders regularly. The first birds to show up will probably be species most common to the area. Black oil sunflower seed, attractive to most bird species, should be initially offered to attract birds to a new feeder. Once birds become accustomed to visiting the feeder in winter, they often will use it during other seasons if it is frequently stocked.

Types of feeders

Different types of feeders will attract a diversity of bird species depending on their feeding behavior preferences. For example, woodpeckers and nuthatches like suet in wire cages, finches prefer open trays of seed, and orioles and mockingbirds select dried fruits impaled on nails. Scattering food on the ground will attract ground feeders such as towhees, sparrows, and juncos. Following is a brief description of the various types of feeders available:



The gravity feeder, with a roof to protect seed from rain and snow, is commonly used in Wyoming. Black oil sunflower seed flows easily through gravity feeders and attracts a variety of birds.

Gravity feeders. Gravity feeders permit a continuous flow of feed and are usually used for offering seeds. Most have a roof to keep rain and snow from contacting the seed. Glass or plastic sides are common for attracting birds and determining when feeders need refilling.

Open-shelf feeders. These feeders may or may not have roofs and usually do not have sides except for an edge to keep seeds from falling out or blowing away. Open-shelf feeders allow birds to see approaching predators and permit viewing enjoyment.

Ground feeders. Ground feeders are small, shallow troughs placed on the ground or on a cleared patch of ground for feeding. This feeder commonly attracts birds that do not prefer other types of feeders.

Suet or specialty feeders. These feeders can be small wire baskets or large mesh bags, such as onion or citrus bags, to offer suet. They are usually suspended but can be attached to a tree trunk. Pine cones dipped in melted suet and rolled in seeds are another example of a specialty feeder. Log feeders are simple pieces of tree branches of various lengths with 1-inch diameter holes drilled in various spots for placement of suet or peanut butter mixes. They can be hung in trees with wire or heavy line. For feeding niger seed, use a special hanging tube feeder or mesh sock that dispenses only single seeds. Hummingbird feeders of various designs are another example of specialty feeders.



Log feeders are made by drilling several 1-inch diameter holes in various lengths of tree branches and filling them with suet or peanut butter mixes.

Feeder placement

Place feeders where they offer birds the most protection from predators and inclement weather. Feeders located within 5 feet of a protective cover such as trees, shrubs, or brush piles are very desirable. Also consider placing feeders within visual distance from a house for maximum viewing enjoyment. This will provide hours of bird watching and will make it easy to conduct feeder maintenance.

To attract a variety of species, place different types of feeders in varying locations and at different heights in the backyard. This strategy will closely mimic foraging opportunities that birds find in their natural environment.

Post and hanging feeders. Woodland species, naturally feeding in low-level tree canopies, prefer feeders 5-8 feet above the ground. Chickadees, cardinals, finches, nuthatches, titmice, woodpeckers, and pine siskins are common users of this type of feeder. Foods for this type of feeder include thistle and sunflower seeds, millet, wild birdseed mixes, and peanut pieces and hearts.



Niger seed feeders dispense one seed at a time to prevent waste. Plastic tube feeders with perches are common. More elaborate feeders are wood framed with wire mesh inside to dispense single seeds.



Post-mounted feeders placed 5 to 8 feet above the ground attract birds, such as chickadees, finches, nuthatches, titmice, and pine siskin, that commonly feed in low-level tree canopies. Foods for post-mounted gravity feeders commonly include sunflower seeds, millet, wild birdseed mixes, and peanut pieces.

Elevated trays above ground level. Table-top feeders can be mounted on poles, stands, or picnic table tops. Cardinals, chickadees, finches, nuthatches, titmice, jays, bluebirds, woodpeckers, red polls, and pine siskins will use these trays. Sunflower seeds, millet, peanut pieces, wild birdseed mixes, raisins, and currants are favorite foods for tray feeders.

Feeders attached to tree trunks. Chickadees, nuthatches, woodpeckers, grosbeaks, red polls, and mockingbirds naturally feed near or on trees. Feeders attached to tree trunks mimic these birds' natural feeding areas. Types of food for these feeders include suet, seeds, peanut butter, and cornmeal mixtures smeared on the tree trunk, log feeders (stuffed), and wire mesh holders or citrus and onion bags stuffed with suet.

Ground feeders. Jays, sparrows, doves, thrashers, house finches, juncos, and towhees commonly use ground feeders. They prefer sunflower seeds, millet, wild bird mix, and peanut pieces and hearts offered at ground level.

Feeder Maintenance

To help reduce the chances of spreading avian diseases, feeders should be maintained and cleaned on a regular basis. Food supplies should always be fresh to avoid mold and bacterial contamination. Follow these few simple guidelines to maintain disease-free feeders:

- Clean feeders thoroughly with mild soap and hot water before setting them out for the season and at least every two weeks thereafter.
- Clean seed feeders whenever seeds become wet to avoid mold and bacterial infections, which can be poisonous to birds.
- Store bulk seeds in a galvanized or plastic trash can with a tight-fitting lid to avoid spoilage or damage from rodents and insects.
- Clean feeders when the food is suspected to be spoiled.
- Clean suet feeders often when the weather is warm enough to melt suet or suet cakes.
- Change hummingbird nectar at least once a week in cool weather and twice a week in warm weather. When refilling, wash the feeder in a mild detergent and rinse thoroughly. If mold is present, use a little vinegar in hot water for cleaning.

To avoid sprouting weeds from stray birdseed commonly found under feeders, bake the birdseed in an oven to sterilize the seeds. Simply spread the birdseed in a layer about ¼-inch thick on a cookie sheet and bake for 8 minutes at 300 degrees Fahrenheit. Cool completely before refilling feeders. This process will not affect the nutritional value of seeds but will prohibit germination.

Additional Guidelines for Successful Feeding

Winter feeding

Supplemental feeding is mostly needed during the winter when birds are enduring a stressful period in their life cycle. Follow these suggestions to ensure a successful feeding program:

- Locate feeders on the south side of a house, if possible, to absorb winter sun. Moistened food will dry faster in sunlight and wind velocities are generally lower.
- Begin a feeding program in September or October so birds can select winter feeding territories before harsh weather occurs.
- In bitter cold periods, make sure feeders have seed in the afternoon and first thing at dawn. Birds survive cold nights best with a full stomach and a readily available breakfast.
- If feeding is not planned for the whole winter, reduce seed availability gradually each week over a period of several weeks until the birds are less dependent on the feeder.
- If feeding is not planned for the summer, gradually reduce the seed in late winter and remove feeders between March and early May before birds establish spring territories.
- If an unseasonable hard freeze occurs after feeding has been stopped, refill feeders until natural food sources are again available for the birds.
- Provide ice-free water during the winter using a heated birdbath.

Avoiding Food Supply Problems

The following suggestions will help avoid common problems that often plague feeding stations:

- Determine the amount of food to dispense each day within a budget because birds will consume as much as is provided.
- Feed early in the morning when birds are most active and hungry for high-energy food.
- Use seed mixes having high sunflower and corn content. Avoid commercial mixes containing undesirable fillers.
- Use peanut butter mixes with cornmeal, uncooked oatmeal, or similar cereals in a ration of one part peanut butter to a minimum of four parts cereal. This will prevent birds from choking on pure peanut butter due to its stickiness.
- To avoid food waste, use the correct feeders for the specific food type such as thistle feeders for niger seed and suet feeders for suet and suet cakes.
- Choose feeders for small birds that will discourage invasion by larger birds and pests.
- Avoid overfeeding because leftovers may attract squirrels, mice, rats, and undesirable bird species.
- To avoid spoilage problems in raw suet, offer only as much suet as birds can consume in a few days.
- Clean up seed scattered on the ground. Rotting seed can cause disease and result in sprouting weeds.
- For hummingbird feeders, avoid ant problems by hanging feeders with nylon fishing line. To avoid honey bee problems, coat feeder openings with cooking oil, place in the shade, and keep the outside surfaces of the feeder clean.

Preventing Toxic Poisoning

To protect birds from toxic chemical poisoning, do not use insecticides, pesticides, fungicides, or herbicides near feeding stations. If chemical spraying must be used, stop feeding at least one week before using toxic chemicals. Use only biodegradable products and spray late in the day. Wait until the recommended contamination period is over before resuming the feeding program. If rain does not occur before feeding activities resume, water the treated area well before feeding.

Homemade bird feeders should not be treated with any toxic stains, paints, or wood preservatives. Allow feeders to weather naturally to prevent poisoning risks. Besides, naturally weathered wood can be more aesthetically pleasing.

Water Sources

Water may attract a greater variety of birds than food offerings. Birds need water for bathing and drinking throughout the year. A shallow pan or commercial birdbath provides the best conditions for birds. Wash birdbaths with a mild detergent every two to three weeks to prevent bacterial growth that causes disease problems.

Moving water is especially alluring to birds. Drape a garden hose over a tree branch located above a birdbath, and adjust the flow to a constant drip. Birdbaths should have gently sloping sides, an average depth of less than 1½



A commercial birdbath or shallow pan provides water needed by birds for bathing and drinking. Rocks placed in a birdbath provide preening sites for birds after bathing. In winter, use an immersion water heater designed for outdoor use to keep water from freezing.

inches, and rough-textured finishes for adequate footing. Place rocks at the edge of the birdbath to provide preening sites for birds after bathing. Do not use items like a bucket or large bowl with steep sides because birds have difficulty climbing out after a bath.

The water needs of birds are just as great in winter for cleaning feathers to provide proper insulation. Interlocking feather webs called barbules must be free of body oils to provide adequate insulation. In winter, use an immersion water heater designed for outdoor use.

Discouraging Pests and Predators

Once backyard feeders start to attract birds, pests and predators can also appear on the scene to cause problems. Aggressive birds such as pigeons, jays, starlings, house sparrows, and blackbirds often compete with desirable birds for food. Likewise, predators such as domestic house cats and hawks prey on vulnerable feeding birds. Federal and state laws prohibit killing, trapping, or harassing migratory birds and birds of prey. However, steps can be taken to reduce these problems in backyard feeders.

Birds of Prey

When aerial birds of prey such as American kestrels or sharp-shinned hawks start preying on vulnerable victims using backyard feeders, move the feeders near areas of dense cover where birds can quickly escape to protective cover. Feeders should be placed within 20 feet of low shrubs and ground cover to provide security for feeding birds. If aerial predators continue to harass feeding birds, restrict feeding to the early morning hours before predators become active.

Domestic House Cats

Cats are the most lethal of all predators to ground-feeding birds. For the best protection, attach a small bell on a cat's collar to warn feeding birds of its presence. Chain-link fencing, although expensive, can be erected around the yard to restrict neighboring cats. Another alternative is to erect low fencing in the immediate vicinity of ground-feeding birds. Cats trying to jump over the low fencing will give feeding birds enough warning to escape.

Overhanging tree branches around a feeder should be removed to eliminate access routes for cats. In backyards with dense shrubs, clear the existing veg-



Squirrels are difficult to discourage from using bird feeding sites. However, there are a variety of techniques described in the bulletin that can be tried.

etation to a distance of 20 feet from feeders and birdbaths. Thorny shrubs should be left because cats avoid this type of vegetation. Preventing cat predation can be a difficult challenge but is not totally hopeless.

Squirrels

Squirrels are also difficult to discourage from using bird feeders. Usually, a variety of preventative measures must be used to discourage them.

Some times it helps to provide squirrels with their own feeding station, offering peanuts, corn, and sunflower seeds. For feeders attached to poles or posts, inverted collars of flared metal or plastic facing toward the ground often block access from below. Feeders placed too close to trees, power lines, or fences may still be within reach of a jumping squirrel. The following suggestions have proven effective for a number of avid backyard bird feeders:

- Hang the feeder with heavy monofilament fishing line to make it difficult for squirrels to navigate down the line.
- Using a clothesline between two poles, suspend the feeder from the line and encase the line on both sides of the feeder with several plastic pipe segments about 2 inches long. When a squirrel tries to walk the clothesline, the pieces of pipe will spin, making navigation difficult.

- Feed birds early in the day with limited portions of food. Birds will tend to consume the food quickly, leaving nothing for the squirrels.
- For feeders with a protective roof, drive several nails from the bottom of the roof so the protruding nails on the roof surface serve as spikes. Squirrels trying to jump on feeders from surrounding trees will be discouraged.

Aggressive Birds

Pigeons, jays, starlings, house sparrows, and blackbirds are very aggressive birds that commonly dominate feeders when desirable foods are available. Generally, the best way to eliminate these species is to offer unattractive foods. Reduce the total amount of food offered to force them to forage elsewhere. Also, small openings on the feeder, designed for smaller birds, will discourage invasion by the large bird pests.

Pigeons can be discouraged by eliminating their favorite foods such as cracked corn, grains, and bread crumbs. Also, keep the ground under feeders clean because pigeons prefer ground-feeding activities. For jays, provide their own feeding station a good distance away, offering peanuts, nutmeats, and sunflower seeds. When starlings and blackbirds invade in large numbers, the only solution may be to temporarily stop feeding until they disperse. When resuming the feeding, put out limited portions in smaller feeders.

Summary

The supplemental feeding of wild birds can be a very rewarding experience, especially during the winter months in Wyoming. There are proper techniques to use for attracting a variety of bird species. Once these techniques are mastered, backyard bird feeders will provide a lifetime of enjoyable wild-life viewing.

Acknowledgements

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Dorn, J. L., and R. D. Dorn. 1990. Wyoming Birds. Cheyenne: Mountain West Publishing.

Skinner, S. 1992. "Feed the Birds." Wyoming Wildlife, 56 (1) :34-35.

Soil Conservation Service. 1975. Invite Birds to Your Home: Conservation Plantings for the Northwest. Washington, D. C.: Soil Conservation Service, Program Aid 1094, U.S.D.A.

Warton, S., (ed.). 1990. "A Wild Banquet." An Illustrated Guide to Attracting Birds. Menlo Park, California: Sunset Publishing Corporation.

Wyoming Game and Fish Department. 1992. Wyoming Bird and Mammal Atlas. Cheyenne: Wyoming Game and Fish Department.

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Table 1. Primary Food Categories and Birds that are Attracted to Each Category.

Seeds	Fruits	Suet	Sugar Water
Sparrows	Mockingbirds	Woodpeckers	Hummingbirds
Finches	Orioles	Nuthatches	Orioles
Cardinal	Robin	Chickadees	
Towhees	Tanagers	Titmice	
Grosbeaks	Cardinal	Brown creeper	
Buntings	Grosbeaks	Wrens	
Juncos	Waxwings	Clark's nutcracker	
Blackbirds		Black-billed magpie	
Grackles			
Starling			
Jays			
Chickadees			
Titmice			
Ring-necked pheasant			
Mourning dove			
Pigeons			
Crossbills			
Redpolls			
Pine siskin			

Table 2. Preferred Foods for Some Selected Seed-Eating Birds Occurring in Wyoming.

Mourning dove	Black-oil type sunflower seed, red and white proso millet, German millet, niger seed, cracked corn, garden flower seed, weed seed, safflower seed.
Stellar's jay	Peanut hearts, black-striped, gray-striped, or black oil-type sunflower seeds
Black-capped and mountain chickadees	Black oil-type and black-striped sunflower seed, peanut hearts, insects, and larvae
Rufous-sided and green-tailed towhees	Sunflower seeds of all types, red and white proso millet, garden flower seed, and grass and weed seed
Song sparrow	Red and white proso millet, sunflower seed
White-crowned sparrow	Black oil-type sunflower seed, sunflower kernels and pieces, niger seed
Dark-eyed junco	Red and white proso millet, canary seed, finely cracked corn
Pine siskin	Niger seed, black oil-type sunflower seed
American goldfinch	Niger seed, black oil-type sunflower seed, garden flower seed, weed seed, conifer seed
Brown creeper	Peanut butter/hearts, insects, and larvae
White-breasted nuthatch	All types of sunflower seeds
