C.F.O. Journal

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C.F.O. JOURNAL

A quarterly publication of the Colorado Field Ornithologists, c/o Kate Kittleman, 903 East Moorhead Circle, #2L, Boulder, Colorado 80303.

CFO JOURNAL is devoted to the field study of birds in Colorado. Articles and notes of scientific or general interest, and reports of unusual observations are solicited. Send manuscripts with photos and drawings to: Ann Hodgson and Steve Bissell, 6060 Broadway, Denver. Send rare bird reports to: CFO Official Records Committee, c/o Zoological Collections, Denver Museum of Natural History, City Park, Denver, Colorado 80205.

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Artwork: Richard Ostergaard

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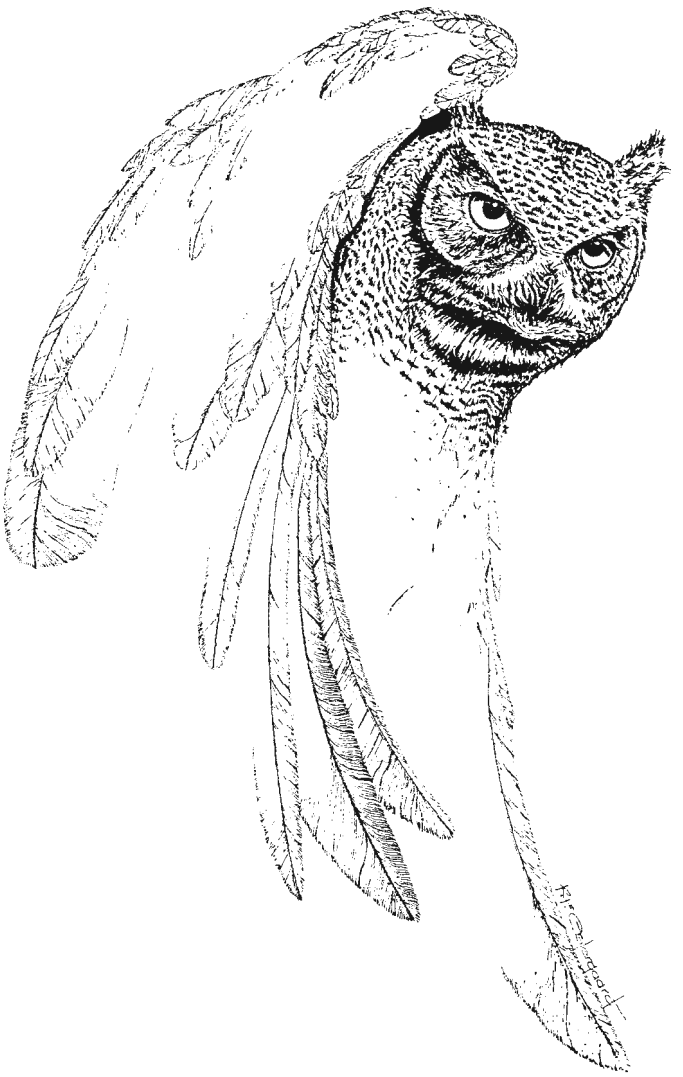
The cover photo on this issue was taken at the Bonaventure Ile National Park on Gaspe Peninsula in Quebec, Canada this August while Ann was making a grand tour of the Gaspe, Prince Edward Island and the eastern Maine coast. These Northern Gannets (Sula bassanus) nest colonially by the thousands on the sheer cliffs of the island. Bonaventure Island has been profiled in many of the guide books - we were there the 16th of August, which was too late for the Razorbills and Common Murres, but we were pleased to see Great Cormorants and a half-dozen Atlantic Puffins, besides many species we were more familiar with.

Also, although we do not pay for illustrations, we have been pleased to feature a series of drawings by a different artist in each issue. This month showcases the works of Richard Ostergaard.

Richard is a Forest Landscape Architect for the San Juan National Forest in Durango, Colorado. He has worked for the past fifteen years on eight National Forests which has afforded many opportunities to observe wildlife and their behavior in natoral habitats. Born and raised in a rural area in central Utah, he developed a love for wildlife at an early age. While pursuing his degree at Utah State University he became interested in wildlife art and subsequently changed his minor to art. He is striving to develop his art career currently and spend many enjoyable hours capturing wildlife in selected media. He lives in Durango with his wife and four daughters.

Ann Hodgson and Steve Bissell



Volume 18, Number 3 C.F.O. JOURNAL Fall, 1984

RELATIVE ATTRACTIVENESS OF SEED TYPES TO WINTERING BIRDS IN NORTHEASTERN DENVER, COLORADO

Thomas C. Lankenau, Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins 80523

Maintaining feeding stations to attract birds is a popular hobby in the United States. Payne and DeGraaf (1974) estimated that 20% of all American households annually feed birds while expending $170 million in the process. Cross (1973) and Massachusetts Audubon Society (1974) reported that one-third of all households in Maine and Massachusetts, respectively, participate in bird feeding. In Colorado, a poll conducted for the Colorado Division of Wildlife showed that 49% of the residents feed and observe wildlife in their own yard (Colorado Division of Wildlife 1977). Numerous books have been published on the subject of attracting and feeding birds in urban environments (Laycock 1976).

Furthermore, conservation magazines and bird watcher's journals contain advertisements referring to the palatability of certain seeds. However, these claims are based on little research, as only within the last 5 years have data been collected which quantify food preferences of birds (Geis 1980).

Food preference tests have recently been conducted throughout the United States but primarily in the Northeast and California, by the National Institute for Urban Wildlife. Results have generally shown that seeds which comprise high percentages of the volume of commercial seed mixes are selected for less than seeds which comprise lower percentages of the volume (Grey 1976, Geis 1980). A need exists for more research to test relative attractiveness of seeds, especially in the Rocky Mountain and Great Plains areas. The objectives of this study were to quantify food preferences of urban birds wintering in Denver, Colorado, and to express seed attractability in a cost per visit figure.

STUDY AREA AND METHODS

I conducted feeding observations in a backyard less than 1km east of City Park in Denver, Colorado. Vegetation within 20m of feeders consisted of ornamental trees and shrubs including apple (*Malus* spp.), plains cottonwood (*Populus deltoides*), elm (*Ulmus americana*) plum (*Prunus americana*), Colorado blue spruce (*Picea pungens*), honeysuckle (*Lonicera* spp.), and raspberry (*Rubus strigosus*). Kentucky blue-grass (*Poa pratensis*) comprised the understory.

I set out 2 platforms in locations recommended by Schutz (1970) to attract birds. Each platform was divided into 4 15 x 15cm sections, which were separated by 15cm high plexiglass dividers, and set 1.5m above the ground.

I conducted pre-observation feeding for 1 week from 28 December 1979, to 3 January 1980, to become familiar with data recording and habituate birds to the feeders. I tested the 4 most abundant seed types in 5 commercial mixes (Table 1). I rotated seed types between compartments after 3 days to eliminate location bias in the observations. When seed types were rotated I collected and weighed each seed type. This amount was subtracted from the amount set out during testing to calculate food actually taken by the birds (Adams 1979, Geis 1980). I reduced the amount of seed spilled by constructing a 4cm high wooden barrier along the rim of the platform.

I recorded visits throughout the day when birds were actively feeding from 4-13 January 1980. Most observations were recorded between 0800 and 0900, and in the late afternoon. During the first 30 seconds of each minute of the observation period the number of each species in each compartment was recorded. Only birds feeding within the compartment or arriving to feed within the compartment during the 30 second interval were tallied. I did not count birds sitting on dividers between compartments, on top of feeders, or passing through a compartment in transit to another location. No attempt was made to identify individual birds nor record repeat visitors.

I calculated feeding preferences by each bird species for seed types such that

$$D = O_n/O_t,$$

where D is the percent of observations for seed n, O_n is the number of observations for seed n, and O_t is the total number of observations for all seeds. A standard for comparing attractiveness of the 4 seed types is provided by using milo (Sorghum bicolor). Relative attractiveness is expressed as total visits to each seed type divided by total visits to milo. Milo was chosen because it was the most abundant seed variety in the 5 commercial mixes sampled.

I calculated cost per visit using the following equation as derived from Grey (1976):

$$V = (TV/TC) - 100,$$

where V is the number of visits per penny, TV is the total number of visits, and TC is the total of each seed type (amount consumed times cost/kg). Chi square tests were then performed to test for significant preferences for seed types.

RESULTS

I recorded 1,390 feeding observations of 7 species during the 10 day span. House Finch (Carpodacus mexicanus) and Cassin's Finch (C. cassinii) comprised approximately 66% of all observations (Table 2). Sunflower (Helianthus annuus) and proso millet (Panicum miliaceum) were preferred over milo and wheat (Triticum vulgare) (P 0.05). Sunflower was the seed type selected most often by House Finch, Cassin's Finch and Evening Grosbeak (Coccothraustes vespertinus) (P 0.05). Proso millet was preferred by Dark-eyed Junco (Junco hyemalis) and Black-capped Chickadee (Parus atricapillus) (P 0.05). No preferences were noted for European Starling (Sturnus vulgaris) or American Goldfinch (Cardeulis tristis). No birds showed any preferences for milo.

Table 1. Percent weight of seed varieties in 5 different commercial bird seed mixes sampled.

	Commercial Mix[1]				
	A	B	C	D	E
Cost/kg ($)	0.41	1.50	1.03	0.87	2.00
Seed Type			% Weight		
Milo	63	36	52	44	31
Proso Millet	18	37	29	23	27
Sunflower	11	17	8	12	9
Wheat	6	6	3	11	20
Other[2]	2	4	3	11	20

1 Commercial mixes are not identified so as not to mislead consumers nor endorse specific products.

2 Included peanut hearts, oats, canary seed, buckwheat, cracked corn, and German and Japanese millet.

Proso millet was the most cost efficient seed type with 7.2 visits per penny expended. Wheat was next at 6.3 visits per penny expended. Sunflower and milo were the least cost efficient with 4.9 and 2.6 visits per penny expended respectively (Table 3).

DISCUSSION

Other feeding trials conducted have shown similar results. Grey (1976) also found proso millet and wheat to be more cost efficient than milo and sunflower. She reported just 2.1 visits per penny expended for sunflower. This low value was due to the higher total cost of sunflower seed relative to the other seeds tested. Coulson (1977) compiled data on feeding preferences for 64 species. He found preferences for sunflower by Evening Grosbeak, House Finch, American Goldfinch, and Black-capped Chickadee, and preferences for proso millet by Dark-eyed Junco. Geis (1980) compared attractiveness of various food materials to black-striped sunflower and white proso millet. He tested different combinations of seeds and presented 2, 3, or 4 different foods simultaneously. He reported preferences by Evening Grosbeak, House Finch, and American Goldfinch for sunflower varieties, and preferences by Dark-eyed Junco for millet varieties. Peanut hearts and hulled oats were preferred by European Starling.

Several factors including weather, proximity to other feeders, dominance by individual birds at feeders, and availability of natural food may have influenced feeding preferences. Average daily high temperature during the observation period was 6.8°C, ranging from 2.8-16.1°C, while average daily low was -7.6°C, ranging from -14.4 - 3.3°C.

Table 2. Seed selection for wintering birds at feeders in northeastern Denver, Colorado, from 4-13 January, 1980.

	No. Obs.	% Seed			
Species		Proso Millet	Milo	Sunflower	Wheat
Black-capped Chickadee	93	70	1	24	5
European Starling	37	55	0	8	37
Evening Grosbeak	114	8	0	91	2
Cassin's Finch	417	16	1	82	1
House Finch	497	22	3	72	3
American Goldfinch	11	54	0	45	0
Dark-eyed Junco	221	80	4	15	1

Table 3. Cost efficiency of seeds tested based on the number of bird visits per penny expended. (RA = Total visits/visits to milo. See text for explanation).

Seed	Food Consumed (kg)	Cost kg ($)	Total Cost ($)	Total Visits	Visits/ Penny	Relative Attractiveness
Proso Millet	2.1	0.3	0.63	454	7.2	15
Milo	0.3	0.4	0.12	31	2.6	1
Sunflower	2.2	0.8	1.76	867	4.9	28
Wheat	0.2	0.3	0.06	38	6.3	1.2

Snow depth was 12.5cm at day 1 of feeding and 0.0cm at day 9. Grey (1976) reported that the greatest number of individual birds in regard to foraging time and intensity were observed at feeders immediately preceeding or during inclement weather. She hypothesized that during warmer weather birds were in search of their natural food and were less dependent upon artificial food. I did observe on day 4 when the daily maximum declined from 17.6 to -6.6C that European starlings were much more abundant and seemed to be very agressive. They dominated 1 feeder and fed from all of its compartments.

Although wheat was more cost efficient than sunflower, it had only 1/23rd as many visits as sunflower. Thus, cost efficiency is not a reliable index of seed attractability. Milo and wheat are inexpensive and comprised from 42-69% of the commercial seed mixes sampled. Yet I found that they have low preference values. Also they attract fewer species of birds. Conversely, all 7 species observed fed on sunflower, and sunflower totaled more than 60% of all observations. However, it is twice as expensive as milo and comprised only 8-17% of commercial seed mixes sampled.

Persons who buy commercial seed mixes will have much seed wasted. Birds will select the preferred sunflower and proso millet and leave much of the other seed. Thus one should purchase bags of individual seed types and make their own mixture in order to attract the most species and reduce amount of seed wasted. Further research is needed to determine relative attractiveness of other seed types used in commercial mixes and to test different combinations of seeds. The optimal mix should be one that attracts the most species of birds with the least amount of uneaten seed. Also, additional research is needed to determine the relationship between weather and feeding preferences, and how intraspecific and interspecific competition affects feeding preferences.

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SPRING COUNT BOULDER 1984

Louise Hering
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Boulder, Colorado 80302

Thanks to the hard work of 60 participants, this year's spring count was rather productive, with 156 species and 8,675 individuals reported.

With temperatures climbing into the 80's, May 12th was a good day for sunworshippers and sparrows. Of the latter, 13 species were sighted, including 1 Baird's (Sawhill Ponds), 2 Swamp (S. Mesa Trail), 1 White-throated (Boulder Valley Ranch), and 70 Savannahs. Other interesting sightings included a Winter Wren (N. Boulder), 2 Magnolia Warblers (Flagstaff), and a Green-backed Heron (Boulder Creek).

It is interesting to compare this year's results with last year's, when the count was held in a snowstorm. Warblers were down slightly, from 14 to 13 species, but surprisingly, ducks and shorebirds were up. This may just go to show that it's not wise to make hasty generalizations about the effects of weather on birding!

Here is the complete list:

1984 SPRING BIRD COUNT BOULDER
May 12, 1984

60 Participants Weather: Clear and Mild

17 Teams--covered the area

156 Species found, 8,675 individuals

Previous high counts: 160 in 1975; 155 in 1982; 154 in 1979; 152 in 1967; 149 in 1973; 148 in 1972.

Pied-billed Grebe	16	Spotted Sandpiper	6
Horned Grebe	1	Least Sandpiper	3
Eared Grebe	4	Long-billed Dowitcher	16
Western Grebe	14	Common Snipe	3
American Bittern	3	Ring-billed Gull	8
Great Blue Heron	64	Great Horned Owl	10
Great Egret	2	Burrowing Owl	3
Snowy Egret	1	Common Poorwill	1
Green-backed Heron	1	Chimney Swift	16
Black-crowned Night-Heron	47	White-throated Swift	34
White-faced Ibis	4	Broad-tailed Hummingbird	47
Canada Goose	197	Belted Kingfisher	4
Green-winged Teal	14	Lewis' Woodpecker	2
Mallard	109	Red-headed Woodpecker	1
Blue-winged Teal	81	Williamson's Sapsucker	1
Cinnamon Teal	26	Downy Woodpecker	6
Northern Shoveler	76	Hairy Woodpecker	4
Gadwall	109	Northern Flicker	64
American Wigeon	35	Western Wood-Pewee	5
Canvasback	2	Least Flycatcher	1
Redhead	26	Hammond's Flycatcher	2
Ring-necked Duck	36	Dusky Flycatcher	9
Lesser Scaup	63	Western Flycatcher	1
Bufflehead	11	Empidonax species	17
Ruddy Duck	21	Say's Phoebe	2
Golden Eagle (6 mat. 3 nestl.)	9	Western Kingbird	17
Prairie Falcon	2	Eastern Kingbird	1
Peregrine Falcon	2	Horned Lark	3
Ring-necked Pheasant	3	Tree Swallow	63
Blue Grouse	3	Violet-green Swallow	35
Virginia Rail	4	Northern Rough-winged Swallow	32
Sora	1	Cliff Swallow	187
Killdeer	50	Barn Swallow	154
American Avocet	16	Steller's Jay	91
Lesser Yellowlegs	1	Blue Jay	21
Willet	1	Scrub Jay	6
		Black-billed Magpie	138

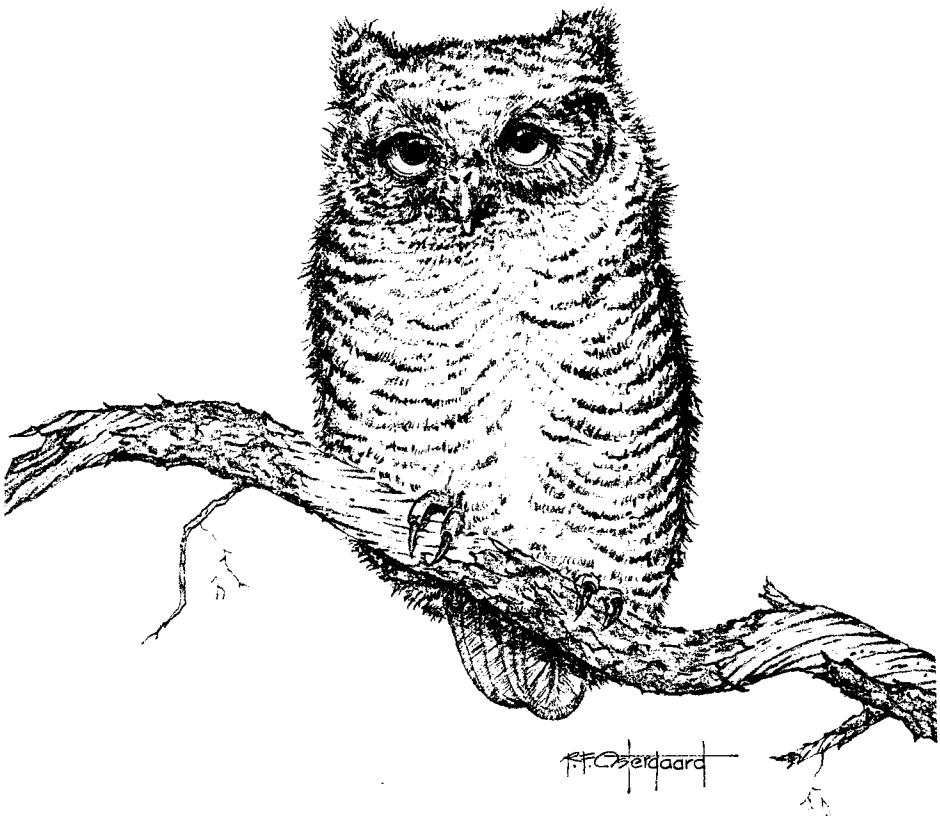
American Crow	37	Wilson's Warbler	17
Common Raven	8	Yellow-breasted Chat	7
Black-capped Chickadee	18	Western Tanager	18
Mountain Chickadee	72	Rose-breasted Grosbeak	1
Red-breasted Nuthatch	18	Black-headed Grosbeak	19
White-breasted Nuthatch	10	Lazuli Bunting	11
Pygmy Nuthatch	56	Green-tailed Towhee	124
Rock Wren	16	Rufous-sided Towhee	125
Canyon Wren	2	Chipping Sparrow	444
House Wren	48	Clay-colored Sparrow	21
Winter Wren	1	Brewer's Sparrow	78
American Dipper	3	Vesper Sparrow	35
Ruby-crowned Kinglet	6	Lark Sparrow	38
Western Bluebird	3	Savannah Sparrow	70
Mountain Bluebird	28	Baird's Sparrow	1
Townsend's Solitaire	13	Song Sparrow	38
Swainson's Thrush	2	Lincoln's Sparrow	5
American Robin	336	Swamp Sparrow	2
Gray Catbird	1	White-throated Sparrow	1
Water Pipit	1	White-crowned Sparrow	93
Cedar Waxwing	6	Dark-eyed Junco	3
Loggerhead Shrike	1	Gray-headed Junco	50
European Starling	540	Red-winged Blackbird	784
Solitary Vireo	21	Western Meadowlark	307
Tennessee Warbler	1	Yellow-headed Blackbird	191
Orange-crowned Warbler	5	Brewer's Blackbird	116
Nashville Warbler	3	Common Grackle	269
Virginia's Warbler	87	Brown-headed Cowbird	76
Yellow Warbler	49	Northern Oriole	25
Magnolia Warbler	2	Cassin's Finch	16
Yellow-rumped Warbler	169	House Finch	149
Audubon's Warbler	80	Red Crossbill	19
Myrtle Warbler	38	Pine Siskin	534
Black-and-white Warbler	1	Lesser Goldfinch	6
Northern Waterthrush	2	American Goldfinch	59
MacGillivray's Warbler	22	Evening Grosbeak	78
Common Yellowthroat	32	House Sparrow	116

156 Species 8,675 Individuals

Seen in 1984 but not 1983: Horned Grebe, Eared Grebe, Great Egret, Snowy Egret, Green-backed Heron, Green-winged Teal, Canvasback, Bufflehead, Ruddy Duck, Swainson's Hawk, Blue Grouse, Virginia Gull, Poorwill, White-throated Swift, Lewis' Woodpecker, Red-headed Woodpecker, Williamson's Sapsucker, Scrub Jay, Winter Wren, Gray Catbird, Cedar Waxwing, Loggerhead Shrike, Magnolia Warbler, Black-and-white Warbler, Swamp Sparrow, White-throated Sparrow, Red Crossbill.

Seen in 1983 but not 1984: Red-necked Grebe, Wood Duck, Osprey, Franklin's Gull, Band-tailed Pigeon, Common Nighthawk, Bank Swallow, Brown Thrasher, Sage Thrasher, Hermit Thrush, Veery, Blue-grey Gnatcatcher, Warbling Vireo, Black-throated Gray Warbler, Blackpoll Warbler, Kentucky Warbler, Indigo Bunting, Blue Grosbeak.

Participants: Debbie Amerman, Harold Anderson, Betsy and Bill Aspinwall, Audrey Ayers, Ann Bellman, Ruth and Art Besemer, Alan and Inger Bell, Alex Brown, Diane Brown, Terry Brownell, Rebecca Burns, Lee Cable, Pilk Carter, Ruth Carol Cushman, Mike Edgington, John Emerick, Vera Everson, Mike Figgs, Nancy Fitzgerald, Marje Foland, Freeman Hall, Ivan Getting, Dave Hallock, Julie Hammerstrom, Ruby Mammond, Dee Dee Harrison, Louise Hering, Elaine Hill, Jim Hill, Steve Jones (co-compiler), Bill Kaempfer, Rita Klees, Rich Koopman, Barry Knapp, Lena Kolberg, Joe Krieg, Steve and Diane Larson, Nan Lederer, Eleanor MacDonald, Mike Middleton, Frances Myrick, Karen and Joe Prescott, David Perry, Lori Rowe, Pam and Mark Severence, Jeri Stodala, Emily Weller, Johnny Weller (co-compiler), Pat Wheat, John Van Huele, Tom Van Zandt, Ed Zipser, Andreas Zetteberg.


R.F. Oberdaard

A Pygmy Owl on Mount Shavano

by Peter R. Gent
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Mount Shavano is the southern-most fourteener in the Saguache Mountain Range of Colorado being approximately 15 miles northwest of Poncha Springs in Chaffee County. On Sunday, September 2, 1984, I climbed Mt. Shavano approaching the Summit at 14,229' (4337m) from the South shortly before 10 a.m. I had been climbing through some clouds and the visibility at the top was a few hundred yards. On reaching the summit and putting my pack against the summit cairn, I noticed a bird standing on a rock about 15 yards away to the north. I did not have a pair of binoculars with me, but I could clearly see a small brown bird with a round head standing with its long tail in a cocked position characteristic of a wren. My immediate identification was of a Pygmy Owl (Glaucidium groma), and subsequently I am about 98 percent sure that this is correct. The bird remained for only about 15 seconds during which time I think I saw it was spotted and had light eyes. The bird then flew with a strong, undulating flight to another rock about 100 yards away.

My confidence in the identification is based primarily on the length of the tail and the round, earless head. This eliminates all the other possible small owls that occur in this part of Colorado; Western Screech-Owl, Flammulated Owl, Northern Saw-whet Owl and Boreal Owl, although I have not seen most of these owls very often and I wish I had a better, longer look. The fact that it was midmorning and about 1.5 miles and 2,500 feet in elevation from any trees make me think it was most likely a Pygmy Owl. I was certainly surprised, and upon reflection, the only reason I can think of for it being there is it was stalking a Pika (Ochotona princeps). This is a small mammal about the same size as the owl that is very common on rocky slopes in the Colorado mountains. There were several near the summit, but there were many others further down the mountain much nearer trees! Perhaps it just wanted to climb a fourteener and sign in on the summit register!

A MELANISTIC WESTERN KINGBIRD

Bart Bantol
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Mrs. Bantol and I identified a melanistic Western Kingbird (Tyrannus verticalis) on Milne Road 15 miles southeast of Colorado Springs on the afternoon of 15 June 1984. We studied the bird from about 25-30 feet as it chased insects and returned to the roadside barbed wire fence. The bird appeared to be traveling alone although several normally-colored Western Kingbirds were seen in the general area before and after the sighting.

The photo was taken with a Leicaflex 35mm SLR with 400mm Telefoto Lens using Kodachrome ASA 64 color film. The shot was taken from the passenger window of the car.

(*NOTE: This photo and note was sent by Peter Gent, CFO Records Committee Chairman).

THE CFO LATILONG BREEDING BIRD TRIP, 1984

by Peter Gent
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The Latilong breeding bird trip this year was held the weekend of June 15-17 in Latilong 17, Gunnison. The trip had only limited success, four Latilong changes, because of limited advertising, attendance and success finding many birds and their nests. The trip met at Cottonwood Lake Campground, west of Buena Vista, where Great-gray Owls had been reported in 1982. Despite strenuous efforts on two evenings, no Great-gray Owls were located.

The highlight of the trip was the documentation of at least three pairs of Great-tailed Grackles nesting at Ice Pond in northwest Buena Vista. We visited this location both mornings, and observed the parents repeatedly searching for food and then carrying it back to the nest sites. Two of the sites were in the cattails, and one in nearby willows, in the private part of the pond. The males were also displaying around the nests. This is the most northerly documented nest site of Great-tailed Grackles in Colorado, being just north of the 1982 nesting site near Fountain on the eastern slope. The Grackles have returned there in 1984, and are continuing their northward spread into the state.

A young Double-crested Cormorant, not in breeding plumage, and three Ring-necked Ducks in breeding plumage were also observed on Ice Pond changing their Latilong status from migrant to non-breeder (summer) and likely breeder respectively. The trip remained in the Arkansas Valley part of Latilong 17, and the only other Latilong change documented was when we found the nest of a pair of Canyon Wrens in a steep rock face.

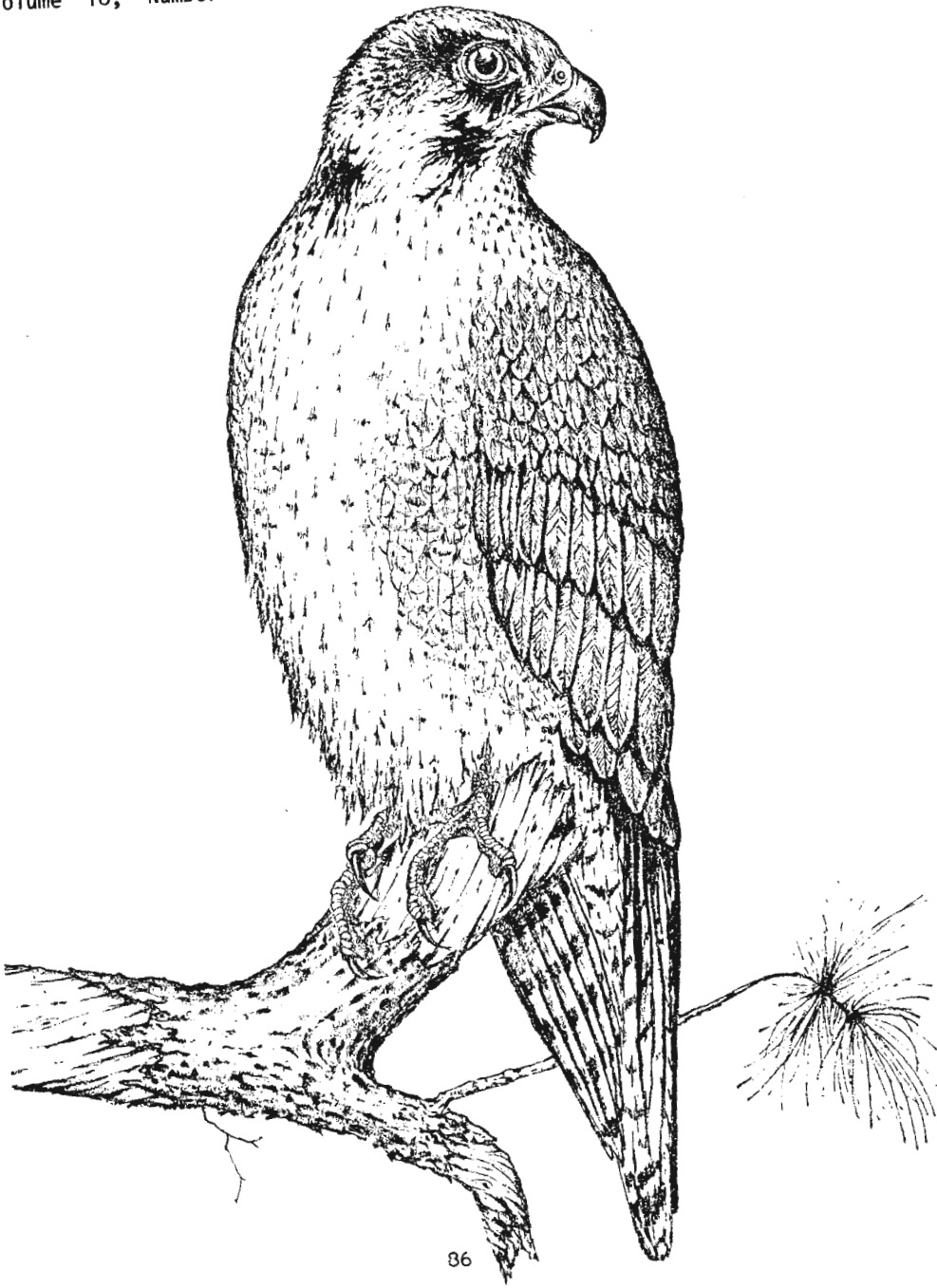
Participants - Toni and Bill Brevillier, Peter Gent, Bill Gillespie, Susan and Thompson Marsh.

Species Seen - "N" means nest found.

Pied-billed Grebe
Double-crested Cormorant
Canada Goose
Mallard N
Cinnamon Teal
Redhead
Ring-necked Duck
Ruddy Duck
Three-toed Woodpecker
Northern Flicker
Western Wood-pewee
Hammond's Flycatcher
Dusky Flycatcher
Say's Phoebe
Horned Lark
Tree Swallow
Violet-green Swallow N
Northern Rough-winged Swallow
Cliff Swallow
Barn Swallow
Steller's Jay
Scrub Jay
Pinyon Jay
Clark's Nutcracker
Black-billed Magpie N
American Crow
Turkey Vulture
Red-tailed Hawk N
Golden Eagle
American Kestrel
Prairie Falcon
Sora
American Coot
Spotted Sandpiper
Common Raven
Mountain Chickadee
Bushtit
Red-breasted Nuthatch
Pygmy Nuthatch N
Rock Wren
Canyon Wren N
House Wren
Mountain Bluebird
Townsend's Solitaire
Hermit Thrush
American Robin N
Solitary Vireo
Warbling Vireo
Yellow Warbler
Yellow-rumped Warbler
Common Yellowthroat
Wilson's Warbler
Black-headed Grosbeak
Common Snipe
Wilson's Phalarope
California Gull
Mourning Dove
Yellow-billed Cuckoo
Common Nighthawk
White-throated Swift
Broad-tailed Hummingbird
Green-tailed Towhee
Rufous-sided Towhee
Vesper Sparrow
Fox Sparrow
Song Sparrow
Lincoln's Sparrow
White-crowned Sparrow
Dark-eyed Junco N
Red-winged Blackbird
Western Meadowlark
Yellow-headed Blackbird
Brewer's Blackbird
Great-tailed Grackle N
Common Grackle
Brown-headed Cowbird
Northern Oriole
Red Crossbill
Pine Siskin
American Goldfinch

Introduced Species

European Starling N
House Sparrow



BUILD A BIRD FEEDER FOR ABOUT A BUCK; HOUSEHOLD TRASH CAN BE TURNED INTO WINTER FEEDING STATIONS

Americans spend over $54 million each year on backyard birdfeeding stations and more than $500 million on bird seed.

Now the Fish and Wildlife Service has a way for you to build your own winter feeding station for next to nothing.

In fact, the Interior Department agency's two new novel birdfeeding designs can help make a big dent in your load of trash, as well as supply you with quick and easy crafts ideas for schoolchildren.

Where the price of many commercial bird feeders often starts at $10, these two designs can be built for about a dollar, depending upon the household materials and simple tools you might already have at hand. Both feeders can be built in about an hour.

The first, a sunflower feeder, will draw chickadees, nuthatches, cardinals, and other winter residents, according to Fish and Wildlife biologists Alex Knight and Willard M. Spaulding, Jr., who created the designs. The other, a smaller, thistle seed feeder, is popular with goldfinches, wild canaries, pine siskins, and redpolls.

"A person doesn't have to be rich to enjoy the wealth of America's wildlife," says Fish and Wildlife Service Director Robert A. Jantzen. "With a little ingenuity, anyone can bring wildlife to the back doorstep, opening a whole new world for adults as well as children. These two birdfeeders provide a window on that world that's quick and inexpensive. It even helps solve the dilemma of what to do with those throwaway bottles."

Directions for each feeder follow, illustrated with step-by-step instructions on the attached pages.

Sunflower Seed Feeder

Materials needed: Three 2-liter plastic soft-drink bottles, a 7-inch dessert topping lid, a baby food jar lid, a coping saw, a single-edged razor blade or "X-acto" knife, all-weather rubber sealant, 8 inches of wire or monofilament fishing line, a small nail or 7/16-inch bit and hand drill, a metal or wood screw.

Soak a 2-liter bottle in warm, soapy water to clean inside and remove label. Pull off the colored plastic base, but save it for use as a measuring device when cutting the feeding holes.

Step 1: Using a second 2-liter bottle, make a perpendicular cut with the coping saw at the bottle's mouth down to the point at which the neck collar begins. Make a second cut at, and slightly above, the collar perpendicular to the first cut. Discard the cut piece. Cut the remaining section of the neck and collar away from the bottle, leaving at least a 1-inch flange of plastic beneath the collar. Using a third 2-liter bottle, repeat these same steps. The two spouts that result will be used as feeding holes, with their neck pieces preventing seed spill-out.

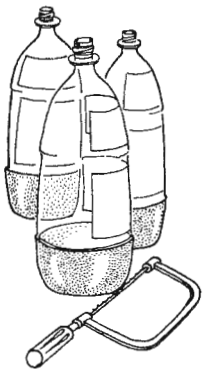
Step 2: Cut two 1-inch circular holes across from each other in the sides of the first bottle. The top of the plastic base that was removed earlier will serve as a guide -- the top of each cut should be made at the same point as the top of the plastic base.

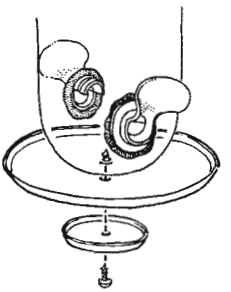
Step 3: Apply sealant around the outside of each feeding hole. Insert the spouts into the bottle, flange end outward. The collar on each spout and the sealant will form a watertight "gasket." Secure with a rubber band until dry.

Step 4: Using the drill or small nail, make small holes in the bottom of the bottle and the dessert topping and baby food lids. Attach the two lids, with the baby food lid on the bottom, to the bottom of the bottle with the metal or wood screw. The topping lid will form the perch that the baby food lid will stabilize.

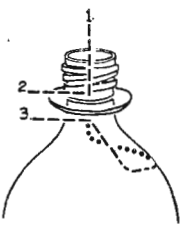
Step 5: Drill or punch two small, parallel holes in the bottle top. String wire or monofilament line through the holes and tie. Once the bottle is filled with sunflower seeds, screw the top onto the bottle.

SUNFLOWER SEED FEEDER



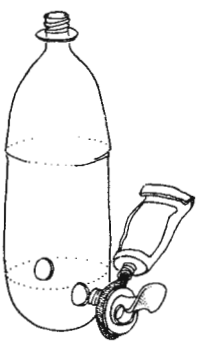


Step 4

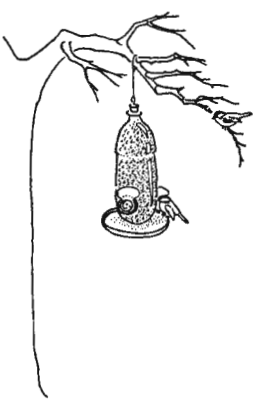


Step 1

Step 5



Steps 2, 3



Thistle Seed Feeder

Materials needed: 1-liter plastic soft-drink bottle; three or four 3/16-inch wide, 5-inch long wooden dowels (straight, hardwood sticks will do): a single-edged razor blade or "X-acto" knife; 8 inches of wire or monofilament fishing line, a metal eye screw, a hand drill and small bit.

Soak the bottle in warm, soapy water to clean inside and remove label. Pull off the colored plastic base and discard.

Step 1: Make small parallel cuts in each side of the bottle with the razor blade, "X-acto" knife, or hand drill. Insert the dowels as perches. Alternate the radial alignment of each perch so that all sides of the bottle can be used.

Step 2: At points about 1-inch below each dowel, make small 1/4-inch long, 1/8-inch wide incisions through the bottle for feeding holes. don't make the cuts too large -- the correct size will allow birds to pick out individual seeds yet prevent spillage. (A wood-burning needle will also make the right-sized feeding holes.)

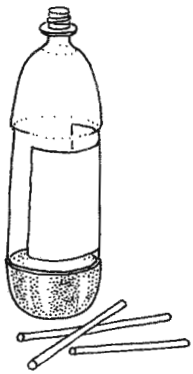
Step 3: Bore a 7/16-inch hole in the bottom of the bottle and insert the eye screw. When suspended, the bottom becomes the top of the feeder. Affix wire or monofilament lime to the eye screw and tie.

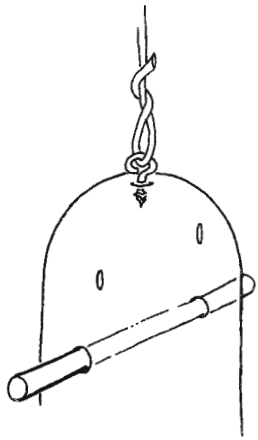
Gas line antifreeze plastic bottles provide an easy way to fill both feeders with seed. Cut a funnel from a 12-ounce bottle with a coping saw about half-way up. The necks of this funnel and both feeder bottles will mate, providing a convenient way to fill them without spillage.

Now that you've built your bird feeders, what should you feed backyard birds? In some cases, not the birdseed you commonly find at the grocery store. The Fish and Wildlife Service's report, "Relative Attractiveness of Different Foods at Wild Bird Feeders," will tell you what seed mixtures draw the most sought-after species where you live. For a copy, send a check or money order for $2.75 to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (specify the report by title and by stock number 024-010-00587-4).

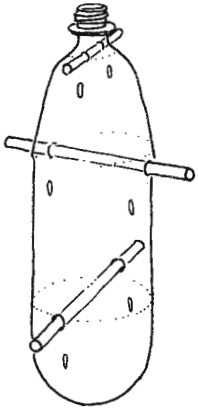
A U.S. Fish and Wildlife Service News Release 31 August 1984.

THISTLE SEED FEEDER

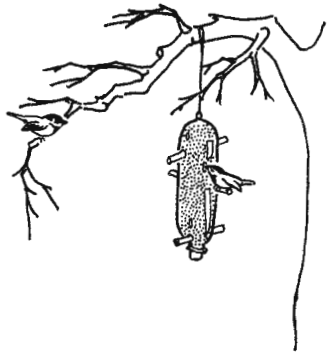




Steps 2, 3



Step 1



BOOK REVIEW

A Guide to Bird Behavior, Volume II. By Donald W. Stokes and Lillian Q. Stokes. Little, Brown & Company, 1983.

Last year the Journal carried my review of Volume I of this title. Stokes has produced Volume II, to which almost all my comments on Volume I also apply. The book provides fascinating information, and it also provides lessons for study to us as field ornithologists. This volume covers 25 species: 20 perching birds and 5 others (Killdeer, Spotted Sandpiper, Mourning Dove, Kingfisher, and Downy Woodpecker). Unfortunately for us, only 14 of the 25 species occur commonly in Colorado.

Like the first volume, this does not lend itself to reading straight through; rather it serves as a reference and field guide on how to study bird behavior. For each species, the account presents a behavior display guide and calendar, brief plumage description and sex identification, and descriptions of behavior related to territory, courtship, nest building, flocking, feeders, and seasonal movement.

Odd tidbits I learned in perusing the volume: Killdeer start making an audible chip from inside the egg 18-48 hours before hatching, and start pipping 18-36 hours before hatching. . . A polyandrous species, the female Spotted Sandpiper, once she lays the eggs, may leave to court another male while her first mate stays to incubate and raise young. . . . The familiar "coo ah oo oo oo" of the Mourning Dove does not necessarily constitute a territorial song. Stokes reports that it is given throughout the breeding season, especially by unmated males, to attract a female. . . One can identify individual Downy Woodpeckers, such as those patronizing a feeder, by sketching the head patterns. . Cowbirds are territorial in eastern deciduous woods but not in the midwestern farmlands. The dominant male guards the territory with the "Topple Over" display. A female cowbird searches in the early morning for nests--alone. She lays about 40 eggs per season.

Hugh Kingery
869 Milwaukee St.
Denver, Colorado 80206

Yves Thonnerieux wishes to collect bird observations in Upper Volta (Burkina, Africa since August 1984) in order to write an ornithological synthesis for this occidentalis Africa country. Names of observers will be noted in the published text.

Contact: Yves Thonnerieux, Centre Ornithologique Rhone-Alpes, Biologie Animale et Zoologie, Universite' LYON 1, 43 Bd du 11 novembre 1918, 69 622 VILLEURBANNE, FRANE

RAPTOR RESEARCH FOUNDATION CONFERENCE--NOVEMBER 1985

ANNOUNCEMENT AND FIRST CALL FOR PAPERS

The 1985 Raptor Reserach Foundation (RRF) International Meeting and Symposium on the Management of Birds of Prey will be held at the Capitol Plaza Holiday Inn in Sacramento, California, November 2-20, 1985. Highlights of the meeting will include 1) the Second RRF Conference on Raptor Conservation Techniques--Twelve Years of Progress, 1973-1985; 2) a Western Hemisphere Meeting of the World Working Group on Birds of Prey (ICBP); 3) the Second International Vulture Symposium; 4) a Western North America Osprey Symposium; 5) a Workshop on North American Candidate Endangered Raptors; 6) an International Symposium on Raptor Reintroduction and 7) a Symposium on Raptor Rehabilitation, Captive Breeding, and Public Education. For more information or if you are interested in presenting a paper, please contact Dr. Richard R. Olendorff, U.S. Bureau of Land Management, 2800 Cottage Way, Sacramento, California 95825, or Nancy Venizelos, San Francisco Zoological Society, Sloat Blvd. at the Pacific Ocean, San Francisco, California 94132.

RAPTOR IDENTIFICATION CLINIC

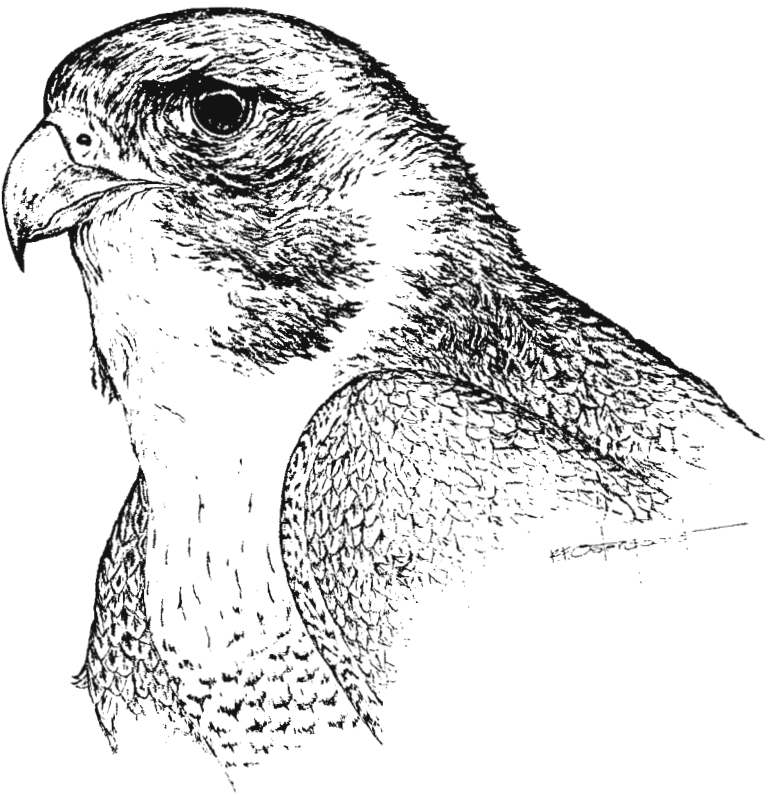
PLACE: Denver Museum of Natural History

DATE: February 9th and 10th, 1985

TIME: Saturday Feb. 9th 12:00 (Noon) until 4:00pm
Sunday Feb. 10th 8:00am to 4:00pm

FEE: $10.00

CONTACT: Charlie Chase 370-6353



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