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: Cover art and illustrations in this issue are by Dana Bradley of Fort Collins.

EDITOR'S MESSAGE

The feature article in this issue is in the way of being an experiment. It is much more technical than our usual articles, but we felt the content to be very valuable to CFO members. Please let us know if you would like to see our occasional "hard core" article.

The errata to the membership list is everything Kate and Frank have received to date. If other errors are still in the list, please let them know.

We are still in need of articles and artwork for up-coming issues, we strongly urge everyone to contribute.

Errata to the 1983 Directory of Members

The following two long time paid members were omitted;

Margaret Ewing, 815 Cheyenne Blvd., Colorado Springs, CO 80906 634-1145

Bob Jickling, ('83 - '84 contrib.) 319 Skylark Way, Boulder, CO 80303, 499-4977

The following changes should be made in the Directory;

Peggy Abbott - telephone #455-2353

Marc Bosch - 3 Chicory Ct., Pueblo, CO 81001

Eugene Boulware - Area Code (818)

Toni Brevillier - 1440 Wood Avenue, Colorado Springs, CO 80907

Richard Bunn - 2727 Main, Colorado Springs, CO 80907

Jerry Cairo - 7509 W. 72nd Avenue, Arvada, CO 80003, 420-9691

Charles Campbell - 1624 N. Tejon Street, Colorado Springs, CO 80907

Elizabeth Daniels - Zip 80906

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Fran Enright - 83 Long View, Evergreen, CO 80439

Lynn Fisher - telephone #642-7301

Mrs. Marjorie Foland - St. No. 6738

Ken Gieson - Zip 80526

Lorna Gustafson - Vista Grande Rd.

Geoffrey Hammerson - St. No. 7018, Zip 80221

Harold R. Holt - 92nd Avenue

Mark Hovezak - 1st Name - Mark

Albert & Jane Koewing - Zip 80122

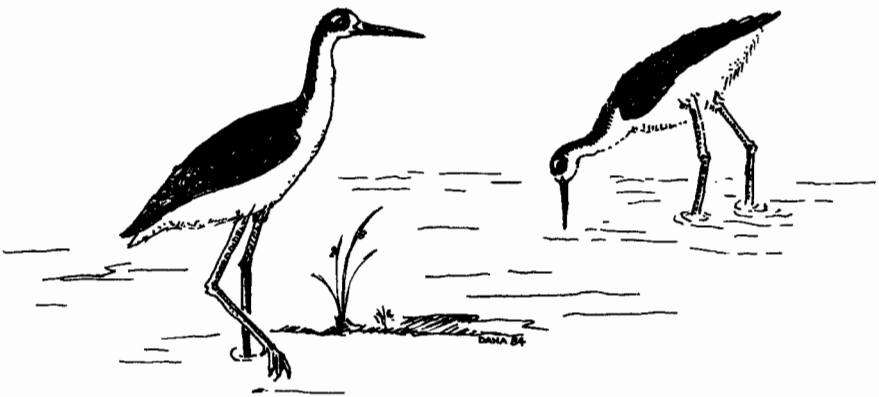
Ron Lestina - Zip 80030

Sophia C. Mery - Zip 74006

D. Weir Nelson - 1132 Old Marion R., NE

Susan Werner - Zip 81401

Ruth Wheeler - St. No. 3340



THE INVISIBLE BIRDS[1]

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Abstract. In a search for birds in the bush or other objects of natural history, geology, and many other things, two observers in a unit of time, or one observer in two units of time will, in most cases, see more than one observer in one unit. This has been known for many decades, presumably for ages. Some recently available data from the late David Lack and from Milton B. Trautman make it possible to state the matter quantitatively, treating the observations as a matter of chance sighting. Both Lack and Trautman were dealing with birds, but the theory is applicable to many other objects of search. In this paper I shall use the term "birds" to cover asteroids, mineral deposits, caterpillars, or other objects of search. We are concerned to discover how many observers can usefully be employed in a search (this depends on the efficiency of skill of the searchers), or conversely, to estimate, given the number of observers, how many objects will be missed. Reasonably skilled observers will miss 50% of the objects when observing along, but miss only 13% of the objects when observing in 3-person census parties. The fraction of species missed similarly drops from 15% to less than 5% as the party size increases from one to three.

INTRODUCTION

Lack (1976) comments that a single observer does not spot as many birds in the montane forest of Jamaica as two or more observers, and gives the following figures:

Number of observers (n)	1	2	3	4
Birds seen per hour	14.7	20.6	24.1	28.0

These figures are striking, because the birds seen increase very nearly as the square root of the number of observers. Nonetheless, this cannot be a general law, for if the law were N is proportional to n, where N is the number of birds and n the number of observers, the number of birds seen would increase without limit as the number of observers in the party increased. And we know the number of birds is finite. So the square-root law must break down sooner or later.

Suppose the birds are very conspicuous (in Lack's count they were not). Then the first observer will see them all and a second observer will have nothing to add. The bird count will be independent of the number of observers. There is little to be gained by having more than one observer at a feeding station.

[1] This article appeared in a slightly different form in; Ecology, 60(3), 1979 pp. 451-454. Reprinted here by permission of the Ecological Society of America.

Now suppose that the birds are very numerous, but very inconspicuous, and the observers all equally sharp-eyed and lucky. The first observer sees one bird in 100. A second observer also sees one, and is most unlikely to be the same one. This will be true of a third and a fourth observer. Then the number of birds seen, N, will be proportional to the number of observers, not to the square root thereof. But even so, the number of birds must be finite, and 1000 observers looking for them will probably do no good.

Thus it seems that for a small number of observers, N is proportional to n^k, where k can vary from zero (for conspicuous birds, such as ducks on a quiet sheet of water) to unity for very inconspicuous birds in thick grass, bush, or forest. Lack (1976) simply hit on an intermediate value of $k = 1/2$.

We can now approach the subject from a different angle.

BIRD-SPOTTING AS A MATTER OF CHANCE

Lack thought that whether an observer sees a bird in the forest, or does not see it, is a matter of chance; whether he is looking in the right direction at the right instant, for example. Or perhaps it depends on the lighting, or the degree of screening by foliage or other obstacles, or on the bird making a movement that attracts attention.

Let us assume that all observers are equally competent, or that they average a competence, p, where p is the probability that an observer sees a particular bird. In accordance with usual probability notation, let q be the probability that the observer misses seeing the bird, where $q = 1 - p$.

Before any observer puts in an appearance, there is an unknown number, N, of birds available for observation, but unobserved. They are an amorphous, homogeneous population. When the first observer comes, they are divided into two groups; pN are observed bird; qN are unseen.

The second observer, acting independently of the first, also sees pN birds, but some of these will have been seen by the first observer, viz. p(pN) or p^2N of them, while p(qN) were not observed by the first man. Similarly, of the birds the second man misses, q(pN) were observed by the first and q^2N were not observed by him. The birds are now divided into three categories:

p^2N were seen by both observers,
$2pqN$ were seen by one or the other,
q^2N were seen by neither,

the total population being $(p + q)^2N$ (= N, since $p + q = 1$).

More generally, if there are no observers, the birds are divided into (n + 1) groups, whose numbers are given by the binomial expansion of $(p + q)^n \cdot N$, that is

$$N\,p^n + nC_1\,p^{n-1}q + nC_2\,p^{n-2}q^2 + \ldots + q^n \qquad (1)$$

and the terms in this order represent the number of birds seen by all observers, all but one, all but two, and so on until Nq^n is the number of birds that no one has seen.

We know n, the number of observers present, and we know the terms Np^n, $N(nC_1\,p^{n-1}q)$, and in fact all the terms of the series except the last, Nq^n. Theoretically, however, we can find q and hence Nq^n, if we know the number of birds seen by one observer, and the number seen jointly by two, provided that they are equally competent, i.e., p is the same for both.

COMPUTATION OF THE CONSTANTS

Let the first observer see m_1 birds, where $m_1 = pN$, and let the second observer add m_2 birds where $m_2 = p(qN)$. The quotient, additional birds seen by second observer - birds seen by first observer, is

$$\frac{m_2}{m_1} = paN/pN = q \qquad (2)$$

Thus q can be calculated, and also p, since

$$p = 1 - q \qquad (2a)$$

Also N can be calculated, since

$$N = m_1/p \qquad (3)$$

or, if you prefer,

$$N = M_1\ 2\ /(m_1 - m_2) \qquad (3a)$$

which can be calculated without first calculating p.

STATISTICAL ERRORS

If we have data on how many birds were seen per hour by not only one and two observers, but also by three or four as in Lack's case, we have theoretically redundant data, but in view of statistical errors these data may be useful. We can calculate several values of p and strike an average.

Lack gives no details as to how these figures were obtained, but the presence of decimal points indicates that something was averaged. His data agree fairly well with the assumption that $p = 0.5$ and $N = 29$, as follows:

Observers (n)	1	2	3	4
Birds seen (calculated)	14.5	22	25	27
Birds seen (Lack's observation)	14.7	21	24	28

when rounded to the nearest whole number in most cases.

If Lack's data were compared to a theoretical curve, they would lie near the curve, some on one side, some on the other, the errors being presumably statistical fluctuations. It is possible that if Lack had "permuted" his observers, giving each observer in turn the designation "number one", "number two", etc., and had permuted them in all possible ways (there are 24 ways) and then struck an average, a value of p could have been found that would cause the observed points to lie still close to the curve. But in any case, the figures are reasonably close, warranting Lack's hypothesis that there is a strong element of chance in whether a bird is seen or not, and according to our assumption ($p = 0.5$) that a single observer in the montane forest of Jamaica sees only about one-half of the birds and misses the other half. It also suggests that an observing part in that forest might well consist of four observers, but apparently little would be gained by having five or six.

DESIRABLE SIZE OF OBSERVING PARTIES

Table 1 indicates the size of parties, composed of observers of substantially equal competence, p, in the particular environment. It would seem that if the observers are fairly skilled and reasonably lucky (p 0.5) there is little to be gained in having more than three or at most four observers in a single party in those Jamaican forest. In other terrains, or with less skilled observers, as in many of the Audubon Christmas Bird Counts (reported each year in the April issue of American Birds), we sometimes have parties of half a dozen; but even here, it has become more usual to split up the groups into parties of two or three. This is more efficient, but perhaps less fun.

POSSIBLY IRRELEVANT QUESTIONS AND USEFUL ONES

To the extent that the assumptions of this paper are valid, we are in a position to answer such questions as, "If there are five

people in a party, what percentage of the birds present will be seen by two observers, neither more nor less?" But the question is not likely to be asked. We are more likely to ask, "How many birds were actually present, and available to be seen?" or "What is the optimum size of the party to be reasonably sure of seeing 95% of them?" or simply, "How many birds did we miss?" The answer to this last question depends on both the number of observers and their efficiency.

TABLE 1. Precentage of birds missed by parties of different sizes (n), when efficiency of a single observer, p, ranges from 0.1 to 0.9.

	Percent missed altogether*									
p n =	1	2	3	4	5	6	7	8	9	10
0.1	90	81	73	66	59	53	48	44	39	35
0.2	80	64	51	41	33	26	21	17	13	11
0.3	70	49	34	24	17	12	8	6	4	3
0.4	60	36	22	13	8	5	3	2	1	1
0.5	50	25	13	6	3	2	1	0	0	0
0.6	40	16	6	3	1	0	0	0	0	0
0.7	30	9	3	1	0	0	0	0	0	0
0.8	20	4	1	0	0	0	0	0	0	0
0.9	10	1	0	0	0	0	0	0	0	0

*Percent missed = $100(1 - p)^n$.

A TEST OF THE HYPOTHESIS

Some 50 years ago, Dr. Milton Trautman frequently tried to census the birds in the Buckeye Lake region of Ohio, and in the winter, he went, alone, three times a week. He was astonished at the variation in the counts from trip to trip. Late, he added another competent observer. They tried to watch in different directions. The count of individual birds did not double, but several hundred were added to Troutman's own count, and the number of species typically increased by about 10.

Now we know that the present-day Buckeye Lake counts plot quite well to a truncated lognormal distribution, so the hypothetical "universe" of birds there, sampled in this way, should be a (non-truncated) lognormal. When this is the case, then we know from Preston (1962) that the number of species increases approximately as the fourth root of the number of individuals in the sample. So if the number of individuals doubles, the number of species increases in the ratio of $\sqrt[4]{2}:1 = 1.19:1$, and the number of species added by

the second observer is 0.19 times the number seen by the first observer. This addition to the count, Trautman reports to be approximately 10. So the first observer sees 10/(0.19) = 53 species, and the two together see 53. There are some species that neither of them sees, but in most recent year, a large number of observers tend to run up a count averaging from about 80. Probably as many species were present 40 or 50 years ago.

But Trautman stated that he and his first companion did not double the number of individuals, though they did increase the count. Dr. Trautman (personal communication) no longer has the written data giving the exact percent increase. So let us test three assumptions: (1) that the increase was 25%, (2) that it was 50%, and (3) that it was 75%.

We have $\sqrt[4]{1.25} = 1.057$, $\sqrt[4]{1.50} = 1.107$, $\sqrt[4]{1.75} = 1.150$. The excess of those values over unity (the count of the first observer) is

$x = 0.057$, or 0.107, or 0.150,

and this value corresponds, according to Trautman, to approximately 10 additional species. Therefore, the first observer saw

$10/0.057 = 175$
or $10/0.107 = 93$
or $10/0.150 = 67$ species.

It is clear that the first two figures (175 and 93) do not correspond to reality; the third is getting somewhere near, though it may still be a bit high.

Let us try an 80% addition to the individuals; this gives us 0.159 as the fraction added to the species count, and since this is approximately 10, we get as before

$10/0.159 = 63$ species

Thus we may suspect that the species count of a single observer is somewhere between the 53 mentioned earlier and the 63 just mentioned.

We can now estimate the "efficiency" of the Ohio observers in spotting individual birds.

We have $pN = 10$, $pqN = 8$, so $q = 0.8$ and $p = 1 - q = 0.2$. That is, under the conditions obtaining where two observers were present, Trautman saw only one-fifth of the birds that were theoretically to be seen, and the two observers together saw only 0.36 of the available birds. The birds they both missed were 0.65, say 2/3 of the total present. (Note that birds not seen by anyone amount to $q^2 = (0.8)^2 = 0.64$, agreeing with the above.)

This result did not surprise Dr. Trautman. He said that on one Christmas foray, when many observers were in the field, he and his companion saw a line of blackbirds extending from horizon to horizon, and accounting for more than half the birds seen by the whole group of observers; yet only he and his companion saw this flock. The others jointly ran up a count of only 40 blackbirds.

We also estimate the number of species in the theoretical universe.

The two observers saw something like 0.36 of the total of individual birds. So the total number of species ought to be roughly $\sqrt[4]{}$ (1.00/0.36 x 60 (approx.) = 1.29 x 60 = 78 species. The average number seen by many observers (the whole group in the recent years was 79. The theoretical universe ought to be somewhat greater, perhaps 89. The agreement is fairly good. We cannot expect much close agreement except for the fortuitous one, because Trautman did not say that a second observer added exactly 10 species, only that he added roughly 10 species. Also the fourth-root law is only an approximation and we have no right to assume that the average count of three recent years is like to be exactly the same as the average of the years half a century earlier.

If all these approximations or rough estimates were in fact exactly correct, we should still have the general "noise" or statistical fluctuations. Therefore, I suspect the theory here outlined is reasonably close to the facts.

NOTES ON THE FOURTH-POWER LAW

If an observer sees 10% of the individual birds that are theoretically present, he will see approximately 100^4 0.1 = 56% of the species that are present. If he sees 20% of the individuals, he will see 67% of the species. If he sees 40% of the individuals, he will see 80% of the species. If he sees 75% of the individuals, he will see 93% of the species. Superficially, this approximation depends on all species being equally conspicuous. But it remains true even if they are not, provided that genuine rarity is not correlated with simple inconspicuousness. By inverting the calculations, we find that:

To see 50% of the species, we must see 6.3% of the individuals theoretically present.

To see 75% of the species, we must see 31.5% of the individuals theoretically present.

To see 85% of the species, we must see 52% of the individuals theoretically present.

To see 90% of the species, we must see 73% of the individuals theoretically present.

To see 95% of the species, we must see 81% of the individuals theoretically present.

This is not 81% of all the birds in the assigned count area, but 81% of the birds that were theoretically observable to the counters in view of their limitations of coverage.

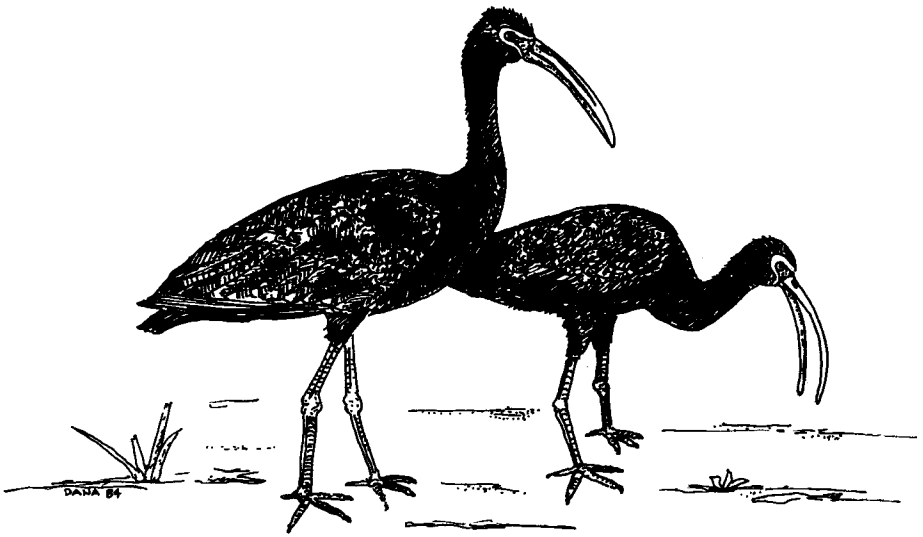
ACKNOWLEDGMENTS

I thank Mr. M. B. Trautman for sharing his unpublished material on bird counts at Buckeye Lake, Ohio.

LITERATURE CITED

Lack, David, 1976. Island Biology. University of California Press, Berkeley, California, USA.

Preston, F. W., 1962. The Canonical Distribution of Commoness and Rarity. Ecology 43:186-215, 410-432.



The CFO Records Committee Report for 1982

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This report contains records received by the Committee in 1982, plus a few old records, and four changes to the state list published by Andrews (1980), that are reflected in the new CFO Checklist of Colorado Birds. This CFO Checklist has been printed recently, and copies are available from Records Committee members, officers, and directors. Three of these changes (Glossy Ibis, Black Rail, and Arctic Tern) are decisions taken under the chairmanship of Charles Chase, and the fourth (Mottled Duck) is the result of past confusion. There are 431 indigenous and 5 introduced species on the new CFO Checklist, although two are provisional, awaiting Records Committee decisions on these new state records.

The six members of the Records Committee in 1984 are Richard Bunn (Colorado Springs), Mark Holmgren (Lawrence, Kansas), Mark Janos (Delta), Ron Lambeth (Grand Junction), Steve Larson (Boulder), and Richard Stransky (Durango); Daniel Casey (Montana), and Kevin Cook (Fort Collins), who rotated off the Committee this year, also reviewed the records discussed in this report.

Part 1. Species added to the CFO State List.

Yellow-billed Loon (Gavia adamsii). 1/82/2. One observed on the Denver Christmas Count, 12/19/81, at Chatfield State Park, southwest of Denver in Jefferson County. This bird was in winter plumage, was with Common and Arctic Loons and was observed for about four hours. Comprehensive reports ensued from Robert Andrews, Mark Holmgren, and Jack Reddall. There are no specimens for this species from Colorado, and the Records Committee has no photographs of this bird!

Mottled Duck (Anas fulvigula). There has been some confusion over the status of this species, but the AOU (revised checklist 1983) recognizes it as a bona fide species. There are two records for Colorado: the first is an adult, #353, collected near Loveland, Larimer County, on 11/6/1907 by W. Blaney. The second is a male, #33794, collected by Ron Ryder at Timnath Reservoir, Larimer County, on 9/18/1962, (see Ryder, 1963).

Black Rail (Laterallus jaimaicensis) A tape recording of an unseen bird was made by H. J. Griese 1.5 miles east-northeast of Fort Lyon, Bent County on 5/11, 18 & 25/1975. The Records Committee decided the recording clearly indicated a Black Rail, and that it be added to the CFO state list.

Arctic Tern (Sterna paradisaea) Jeanne Conry and Bruce Webb (1982) describe a specimen of an immature Arctic Tern which is in the University of Colorado Museum at Boulder. The specimen number is 8108, and it was previously identified as a Common Tern. It was one of two terns collected from a flock of a dozen or more feeding at a small lake near Windsor, Weld County on 9/16/1912 by Osterhout (1913). There is a second record for this species; a sight report from Union Reservoir, Weld County in 1979, see Chase (1981).

Part 2. Species deleted from the CFO State List.

Glossy Ibis (Plegadis flacinellus) There is one specimen for Colorado, which was collected in El Paso County on 5/22/1916, and is in the C.U. Museum at Boulder. The specimen was examined and measured by Mark Holmgren and Joe Strauch, and found to be a White-faced Ibis (Plegadis chihi).

Part 3. Reported Species not added to the CFO State List.

Black Vulture (Coragyps atratis) 9/82/53. One seen near Brown's Park National Wildlife Refuge, Moffat County on 10/3/82. Most members felt that several characteristics of this species such as its flight profile and wing flapping technique were not described and that the possibility of an immature Turkey Vulture was not eliminated.

Iceland Gull (Larus glaucoides) 23/82/8. This bird was seen at Cherry Creek Reservoir, southeast of Denver in Arapahoe County, on 4/11 & 13/82. One record names it an Iceland, two records a possible Iceland, and the fourth a Glaucous Gull. Most Committee members thought this was probably a 2nd year immature Glaucous Gull because it was the same size as, not smaller than, a Herring Gull and the head and bill were quite large compared to the body size.

Great Gray Owl (Strix rebulosa) 28-82-34/35. One seen in the first drainage west of Cottonwood Lake Campground, near Buena Vista, Chaffee County on 7/30/82 and 8/4/82. The Committee thought that these records did not adequately eliminate Great Horned Owl or

possibly the other Strix species. This record is frustrating as one person stated "I could have taken a photograph, but it was not going to be excellent", but it would have been diagnostic!

Acorn Woodpecker (Melanerpes formicivorus) 33-82-1. One seen in Rocky Mountain National Park, Larimer County on 6/1/79. The Committee thought that the brief details in this record did not adequately describe this species or eliminate other woodpecker or sapsucker species.

Black-tailed Gnatcatcher (Polioptila melanura) 45-82-46. One male seen near Naturita, San Miguel County on 9/14/82. The brief sighting and subsequent brief details meant that the committee thought that this record did not adequately support this species or eliminate Blue-gray Gnatcatcher.

Part 4. Category A Records. (Submitted documentation supports the stated identification).

Red-throated Loon (Gavia stellata) 1-82-37. One in winter plumage on Julesburg Reservoir, Logan County on 11/29/80. (Dorothy and Richard Rosche).

Red-necked Grebe (Podiceps grisegera) 2-82-6. One in transition plumage seen on Big Johnson Reservoir, El Paso County on 4/19/82. (Richard Bunn)

Black Rail (Laterallus jamaicensis) 17-82-11. One briefly, but well seen at the Flatiron Open Space Area in Fort Collins, Larimer County on 4/30/82. This is the second record for Colorado, and the first sight record. (David Palmer).

Hudsonian Godwit (Limosa haemastica) 19-82-12. One breeding plumage seen at Lake Meredith, Crowley County on 5/1/82. (Richard Bunn, Rose and James Watts).

Pectoral Sandpiper (Calidris melanotos) 19-82-14. One seen on the Barr Lake Christmas Count, Adams County on 12/26/81. This is a very late record. (Robert Andrews).

Red Phalarope (Phalaropus fulicaria) 21-82-38. One seen at Chatfield State Park, Jefferson County on 9/20/80. (Robert Andrews).

Red Phalarope (Phalaropus fulicaria) 21-82-42. One at Prewitt Reservoir, Washington County on 9/5/81. (Robert Andrews).

Laughing Gull (Larus atricilla) 23-82-23. One in breeding plumage at Chatfield State Park, southwest of Denver in Jefferson County on 5/16/82. (Frank Justice).

Little Gull (Larus minutus) 23-82-39. One in fall plumage at Barr Lake State Park, Adams County on 9/13/80. (Robert Andrews).

Mew Gull (Larus canus) 23-81-7. One in adult plumage at Union Reservoir, northeast of Longmont, Weld County on 4/28/81. This is the third record for Colorado. (Timms Fowler, Mark Holmgren and Mike Middleton).

Black-legged Kittiwake (Rissa tridactyla) 23-82-70. One immature at Cherry Creek Reservoir, Arapahoe County on 12/5/82. (Judy and Doug Ward).

Caspian Tern (Sterna caspia) 23-82-51. One in fall plumage at Union Reservoir, near Longmont, in Weld County on 9/21/82. (Barbara Hyde).

Boreal Owl (Aegolius funereus) 28-82-33. Five seen in Corral Park, Larimer County between 6/5/82 and 7/30/82. This record is the first documented hatching and fledging of young Boreal Owls in Colorado. The nest was in a dead Lodgepole Pine at 10,000', and of the three young, two were males and one a female. (David Palmer).

Whip-poor-will (Caprimulgus vociferus) 29-82-16. One adult at Hanna Ranch, near Fountain in El Paso County on 5/13/82. (Rose and James Watts).

Whip-poor-will (Caprimulgus vociferus) 29-82-66. One adult east of LeMay and South of Mulberry on the Cache La Poudre River, Larimer County on 5/13/82. (Kevin Cook).

Eastern Wood-Pewee (Contopus virens) 34-82-14. One singing at Lake Henry, near Ordway, Crowley County on 5/12/82. (Van Truan).

Vermillion Flycatcher (Pyrocephalus rubinus) 32-82-13. One male in breeding plumage at Alamosa National Wildlife Refuge, Alamosa County on 5/2 & 3/82. (Jan Kauffeld).

Phainopepla (Phainopepla nitens) 48-82-17. One in breeding plumage in Boulder, Boulder County on 5/13/82. (Ridi Van Zandt).

Philadelphia Vireo (Vireo philadelphicus) 51-82-18. One in breeding plumage seen in Colorado Springs, El Paso County between 5/13/82 and 5/16/82. (Richard Bunn).

Blue-winged Warbler (Vermivora pinus) 52-82-26. One male seen in Boulder, Boulder County on 5/23/82. (Peter Ostrenko).

Blue-winged Warbler (Vermivora pinus) 52-82-55. One breeding plumage in Colorado Springs on 6/11/82. (William Maynard).

Northern Parula (Parula americana) 52-82-47. One seen in Hygiene, Boulder County during a snowfall on 12/1/82. This is an extremely late date for this species. (Virginia Dionigi).

Magnolia Warbler (Dendroica magnolia) 52-82-61. One singing male seen just south of Grand Lake Village, Grand County between 7/4/82 and 7/19/82. This is an unusual summer record of this species for which breeding has not been documented in Colorado. (David Jasper).

Yellow-throated Warbler (Dendroica dominica) 52-82-25. One in breeding plumage at Chatfield State Park, Jefferson County on 5/21/82. (Drew Grainger).

Prairie Warbler (Dendroica discolor) 52-82-36. One male seen in Lefthand Canyon, north of Boulder, Boulder County on 6/6/82. (Charles Aid).

Prothonotary Warbler (Protonotaria citrea) 52-82-56. One in winter plumage in Colorado Springs, El Paso County on 11/6/82. (John and William Maynard).

Mourning Warbler (Oporornis philadelphia) 52-82-27. One male in breeding plumage seen in Boulder, Boulder County on 5/28 & 30/82. This is the second record for Colorado. (Tim Manolis, Peter Ostrenko, Judy and Doug Ward).

Hooded Warbler (Wilsonia citrina) 52-82-58. One male in winter plumage seen in Lakewood, Jefferson County on 11/16 & 22/82. This is a late fall record for this species. (Joyce and John Cooper).

Hepatic Tanager (Piranga flava) 55-82-22. One male in transition plumage seen at Bonny Reservoir, Yuma County on 5/15/82. (Judy Ward).

Chipping Sparrow (Spizella passerina) 56-82-62. One in winter plumage at a feeder in Durango, La Plata County between 1/1/82 and 1/28/82. Well documented records in winter of this species are few and far between in Colorado. (Elva Fox).

Golden-crowned Sparrow (Zonotrichia atricapilla) 56-82-69. One immature seen on the Crook Christmas Count at Tamarack Ranch, Logan County on 1/2/ 82. (Robert Andrews).

Great-tailed Grackle (Quiscalus mexicanus) 54/82/15 and 31. At least one male and three females seen by Old Pueblo Road near Fountain, El Paso County between 5/13/82 and 6/19/82. This is the first documented breeding record of this species in Colorado not in the San Luis Valley (Richard Bunn, Rose and James Watts).

Purple Finch (Carpodacus purpureus) 56-82-44. One male and three females seen on the Christmas Count at Bonny Reservoir, Yuma County on 1/3/81. (Urling and Hugh Kingery).

Lesser Goldfinch (Carduelis psaltria) 56-82-43. One seen at Barr Lake State Park, Adams County on 12/26/81. There are very few well documented records for this species in this part of Colorado in winter. (Robert Andrews).

Part 5. Category B and C records. (Submitted documentation probably indicates a misidentification or is too brief or incomplete to support the stated identification).

Olivaceous Cormorant (Phalacrocorax olivaceus) 4-82-65. One adult at Terry Lake, Fort Collins, Larimer County on 9/11/82. Most Committee members thought that the large distance at which this bird was seen meant that the description was inadequate to positively identify the bird.

Hudsonian Godwit (Limosa haemastica) 19-82-10. A flock of 15-20 seen in Fruita, Mesa County on 4/26/82. Most members noted that several field marks were not well described and other possible shorebird species were not eliminated.

Black-legged Kittiwake (Rissa tridactyla) 23-82-45. One adult seen at Sawhill Ponds, Boulder, Boulder County on 11/9/82. Most members thought that several important characteristics were missing during the brief sighting.

Eastern Wood-pewee (Contopus virens) 33-82-24. One at Donath Lake, Loveland, Larimer County on 5/20/82. Members thought that the description and elimination of Western Wood-pewee were inadequate.

Phainopepla (Phainopepla nitens) 34-82-32. One adult seen near Bedrock, Montrose County on 6/13/82. Several members commented that two key field marks, the white wing patches and red eye, were not seen on this bird during the brief observation.

Pine Warbler (Dendroica pinus) 52-80-11. One seen in Lakewood, Jefferson County on 12/19/79. Committee members thought that the description was too brief and did not adequately eliminate other warbler species.

Pine Warbler (Dendroica pinus) 52-82-3. One seen in Boulder, Boulder County on 3/7/82. One member pointed out that Pine Warblers have streaked, not unstreaked, sides and other members thought the description inadequate for this variable and difficult species.

Painted Redstart (Myioborus pictus) 52-82-28. One on the Pawnee National Grasslands, Weld County on 5/29/82. Most members thought the description of this bird lacked key field marks and similar species, such as other warblers, were not eliminated.

Field Sparrow (Spizella pusilla) 56-82-48. One seen just north of Lyons, Boulder County on 11/6/82. Most members thought that the description lacked convincing details and several other sparrow species, such as Tree Sparrow, were not eliminated.

Baird's Sparrow (Ammodramus bairdii) 56-82-21. Five (5) individuals seen northeast of Union Reservoir, near Longmont, Weld County on 5/15/82. The three members who gave this record a C rating all thought that Savannah Sparrow, which can have a lot of yellow in the face and a median crown stripe, was not adequately eliminated.

Golden-crowned Sparrow (Zonotrichia atricapilla) 56-78-48. Two seen in the foothills near Colorado Springs on 5/12 & 13/78. Most Committee members thought the description was too brief and similar species were not eliminated.

References

American Ornithologist's Union, 1983. Checklist of North American Birds, 6th Edition.

Andrews, R. A., 1980. The CFO Checklist of Colorado Birds. CFO Journal 14(3): 82-87.

Chase, C. A., 1981. CFO Records Committee Report 1977-80: Part 2. CFO Journal 15(2): 54-59

Conry, J.A. and B. E. Webb, 1982. An Extant Specimen of Arctic Tern from Colorado. Western Birds 13:37-38.

Osterhaut, G. E., 1913. Two Rare Birds in Colorado. The Oologist 30:54.

Ryder, R. A., 1963. Mottled Duck and Knot in Colorado. Condor 65:333.

Some Notes on the CFO Records Committee

Peter Gent
55 S. 35th St., Boulder, CO 80303

As the chairman of the CFO Records Committee, I have been asked to provide some notes on filling out of the record forms. It is much easier and convenient for the Committee if the records are on a standard form. There is a CFO sight record form, which I will send upon request, or an American Birds, Mountain West Region form available from Hugh Kingery.

Another advantage of using a standard form is that no important questions about the sighting are left unanswered. As well as the obvious questions of time, date, location, and number of birds seen, other important information includes the duration and quality of the sighting (briefly seen for a few seconds or studied through a telescope for an hour), light conditions, and the distance from the observer. Also important is the sex and plumage of the bird, so that the Committee knows what is being described. Description of sex is needed for those species in which the sexes differ (e.g. some ducks, warblers, and tanagers), and plumage when it differs with time of year (e.g., spring or breeding, fall or winter for waders, gulls and warblers), or with age (e.g. juvenile for nearly all species), and ever more detail may be necessary (e.g. which year's plumage for immature gulls). A complete description of its behavior, habitat and song or call if heard. How similarly-appearing species were eliminated is also vital, and should be as complete as possible (i.e. include all similar species occurring in Colorado and maybe others).

Your prior experience with the species in question and the similar species should also be noted, as well as which field guides were consulted and whether you took notes in the field. This is important because a record written from notes taken at the time of observation carries more weight than one written using a field guide some time afterwards. Finally, if photographs or slides were obtained, and they should be whenever possible, please submit two copies as the records themselves are duplicated before the two sets are sent round to Committee members. The record and photographs should be submitted either to me at the above address, or to the Department of Zoological Collections, Denver Museum of Natural History, City Park, Denver, CO 80205. Ultimately, one copy of the records is kept in the CFO Records Committee files, and the other at the Denver Museum of Natural History, where it is availabe to anyone for subsequent use and study.

The rules of the CFO Records Committee are given in Andrews (1980), but I thought I should explain two procedural points. The permanent file number of each record consists of three numbers: the first is a code number from 1 to 56 for the bird family, the second is the year in which the record is received, and the third is the sequence number in which the record was received during that year. Recently, the American Ornithologists Union (1983) has published the Sixth Edition of its Checklist of North American Birds in which it has considerably revised the taxonomic order. The code numbers for the bird families described above are in the old taxonomic order, but this numbering system will be continued to avoid confusion (it would be an enormous task to change all the records to a new system based on the revised taxonomic order). The second point is that a single observer sight record cannot be used alone to add a species to the CFO state list. If put in category A (submitted documentation supports the stated identification), the record is retained awaiting another documented sighting of the same species. I will generally use the rule that a first state record requires six A votes, which is either a unanimous vote by the Committee members, or an A vote from the chairman if a member uses category D (own record or is unfamiliar with the species). Other records will generally require four A votes to be put in category A. Andrews (1980) states that the Records Committee exists "to promote a high degree of quality and integrity in Colorado ornithology", and therefore I think if anything, the Committee should err on the conservative side.

I note that in the accompanying report, a record from a Committee member was put in category C (submitted documentation is too brief or incomplete). This category does not mean that the species in question was not seen, but that, in the Committee's opinion, it was not documented well enough. Therefore, it is not something to take offense at, but to learn from. Anyone wishing to discuss their records at greater length than in the accompanying report should contact me or any Records Committee member.

References:

American Ornithologist's Union, 1983. Checklist of North American Birds, 6th Edition.

Andrews, R. A., 1980. Rules of the CFO Records Committee. CFO Journal 14(1): 14-22.

Proceedings of the Twenty-Second Annual Convention of the Colorado Field Ornithologists

Charles Chase III
Denver Museum of Natural History
Denver, Colorado

Thirty-five people overcame flooding and closing of Glenwood Canyon Memorial Day weekend, 25-27 May, to attend the Colorado Field Ornithologists Annual Convention at Mesa College in Grand Junction. For those who ventured forth, the payoff far exceeded the effort with beautiful sunny weather, great birds, an excellent paper session, and a most enjoyable banquet. Most members added several species to their life and/or state bird lists, including Thompson Marsh's 400th and 401st birds.

The trip started off with long waits of up to seven hours in Glenwood Canyon for some members while others took the short-cut through Steamboat-Craig to arrive in Grand Junction bright and early at 4:00 AM. What the thought of Scott's Orioles will drive some people to do!!

Saturday morning field trips went to the Utah border to observe desert birds such as Sage Sparrows and Scott's Orioles and to Colorado National Monument where Gray Vireos entertained members from ten feet, Gambel's Quail scurried underfoot and a pair of Scott's Orioles sung from a Juniper to everyone's delight.

Upon returning to the College, members were greeted with an art show of approximately one dozen beautiful bird paintings. This show was coordinated by Richard Bunn and Laura Hulbert. After lunch, the paper session began with papers of Whooping Crane surgery, herons, gulls, and Boreal Owls. The abstracts for these papers follow this introduction. Peter Gent, Chairman of the Records Committee, discussed the hypothetical species list for Colorado.

A most enjoyable banquet was prepared by the College Center featuring an enormous roast beef, virginia ham, and vegetarian lasagna. After dinner, President Charles Chase conducted the CFO Business Meeting including the election of new Board Members. Frank Justice presented the Treasurer's report. The CFO checklist was discussed and handed out to all members and the Bylaws were amended as recommended by the IRS so that CFO can finally achieve tax free status. Members voted that CFO should join the Colorado Wildife Federation and discussion took place as to what views CFO wanted presented. Members further voted that CFO, via the Federation, recommends to the Colorado Division of Wildlife and the legislature support of the nongame program as a whole, and the Boreal Owl study as a specific example.

After meeting members enjoyed two films from the Denver Museum of Natural History: "Goony Bird" and "A Legacy to the Loon". Participants then began preparations for the one and two day field trips that would take up the rest of the weekend.

The one day field trip went south of Grand Junction to observe the pinyon/juniper birds and move up into the mountains to look for small owls. Dave Galinats' excellent tapes brought many secretive birds to within a hands-breadth distance. The Northern trip went to the Utah Border for desert birds and then worked their way to Craig for an early morning view of Sharp-tailed Grouse. District Wildlife Manager Jim Haskins provided several views of the grouse as well as an interesting tour of the Hayden area. Our thanks, Jim.

The rest of the day was spent in a leisurely drive over Rabbit Ears Pass, with a stop for nesting Hammond's Flycatcher, into North Park and Walden Reservoir for grebes and terns with the final stop of the trip on Cameron Pass to see Boreal Owls. Dave Palmer tapped on a nest tree and the female popped her head out providing a magnificent view in bright sunlight amidst the clapping and cheering of all present. This allowed Thompson Marsh to add the 401st bird to his state list while it was a life bird for most people present. The final count for this very enjoyable and leisurely trip was 154 species. Our special thanks to Mary Fisher and Nyle Platter for local arrangements and Ron Lambeth and Victor Zerbi for field trip arrangements.

Whooping Crane Surgery

John Ross, DVM
All Pets Center
Grand Junction, Codlorado

An injured Whooping Crane (Grus americana) was found near Whitewater, Colorado with an infected open traumatic dislocation/fracture of the elbow joint. Presurgical treatment consisted of antibiotic wraps, systematic antibiotics, and force feedings for one week. Intravenous fluids were administered during the surgery. Anesthesia consisted of 1% halothane gas and oxygen. The wing was amputated 4 inches above the elbow joint. The open pneumatic bone was covered with 2 opposing muscle flaps and then skin. The bird recovered uneventfully and was transferred to the Pautuxent Wildife Research Center.

Pre- and Post-World War II Distribution and Mortality of Black-Crowned Night-Herons

R. A. Ryder, Colorado State University
Fort Collins, Colorado

From 1929 to 1937, 451 Black-crowned Night-Herons, (Nycticorax nycticorax) were banded at Barr Lake, north of Denver. From 1949 to 1979, 2017 Black-crowns were banded, mainly at Adams Lake and the Russell Lakes in the San Luis Valley. The pre-World War II bandings had a slightly higher recovery rate (9.5%) than those banded after World War II (2.7%). Recoveries from the earlier bandings were as far east as Missouri, Kansas, and Oklahoma whereas those from post-World War II bandings were more to the south, especially in Mexico and Texas, although single birds were taken in Idaho and

South Dakota. In spite of egg shell thinning and pesticide residues in eggs of post-World War II samples, life table analysis indicates pre-World War II banded Black-crowned Night-Herons had higher mortality rates.

Current Status of the Boreal Owl in Colorado

David A. Palmer
Fort Collins, Colorado

The boreal owl (Aegolius funereus) is now considered to be a rare resident in the high mountains of Colorado. Recent research in the Cameron Pass area of Larimer County indicates that the owls are more common than previously believed. Research, in past supported by the Colorado Division of Wildife, has been conducted in this area since 1980. Significant findings include nesting owls in 1981, 82, and 84, and high densities of the owls within 0.8 km of the paved highway. In addition to the owls found in Larimer County, several other counties have been found to have owls in similar habitat types. Habitat preferences of the owls seems to be mature, spruce-fir/lodgepole pine forest interspersed with medium to large size openings.

Gull Hybridization: California X Herring

Charles A. Chase III
Denver Museum of Natural History
Denver, Colorado

During a population study of California Gulls (Larus californicus) at Antero Reservoir, Park County, Colorado, an adult male Herring Gull (Larus argentatus) was located at the breeding colony. Subsequently, this bird mated with a female California Gull, who produced three eggs, all of which hatched. The three chicks were slightly darker than normal Californias. All three fledged and weighed within the normal upper range for California Gulls. In 1983, this pair bred again though only two chicks hatched from the three eggs. Both died in an accident.

Additionally, an adult male hybrid (banded as a chick in 1978) was located on the colony. It was intermediate in most characters: size, color of mantle, legs, eye ring, weight, and call. It attempted breeding but with poor success. One egg of three was a runt while another was infertile. After the third egg hatched, the male left and performed no parental care duties. When collected, the testes of this five year old bird were the size (approximately 30% adult size), shape and color of a two year old California Gull. Full testes growth and adult plumage are normally reached in the fourth year.

The hybridization of these two species apparently produces healthy but reproductively weak if not inviable offspring.

BOOK REVIEW

Private Lives of Garden Birds

Calvin Simonds
Rodale Press, Emmaus, Pennsylvania
$14.95, Hardbound

This is one of those personal narrative type books that one either likes very much or not at all. I liked this one alot.

The author is a professional bird behaviorist (Calvin Simonds is a pen name) who enjoys writing nontechnical books for very general audiences. This small (175 pages) book discusses in the simplest fashion the behavior of the most common birds one would see around their house. The book is divided by general bird groups; swallows, robins, crows, etc.; each section discusses a different aspect of behavior. There are general tips on bird identification, some of which were new to me, and observations anyone could duplicate on their front porch.

Throughout the sections are comments and observations on breeding systems, territoriality, aggression and social organizations. All of these or any one are difficult and technical topics. The author, however, treats them as casual observations and offers clear insight into complex issues with considerable literary style. The casual tone and good humor serve well to introduce the reader to all aspects of bird behavior.

I found the various stories about bird vocalizations fascinating because this is one aspect of birdwatching (among many) I've never mastered. Indeed, the entire book is really intended for those with a less than hardcore interest in birdwatching or for the beginner. The last chapter gives many sources for information and ideas on attracting, feeding, observing and identifying birds. Most CFO members will already be familiar with these, but they are useful nonetheless.

The book is very well put together and well edited. I found a few minor mistakes, but none worth mentioning. The printing is of a type seldom encountered, with unjustified right margins, which give the impression of reading someone's typed notes. I like that aspect very much. The overall quality and workmanship appear to be high. The illustrations, by J. David Umberger, are excellent. All in all, a nice little book.

I would not recommend, due to content, this book to the avid birdwatcher or, due to price, the casual reader. However, if you have an interest in good books on the personal interpretation of natural history, you should take a serious look at this one.

Steven J. Bissell, 6060 Broadway, Denver, CO 80216

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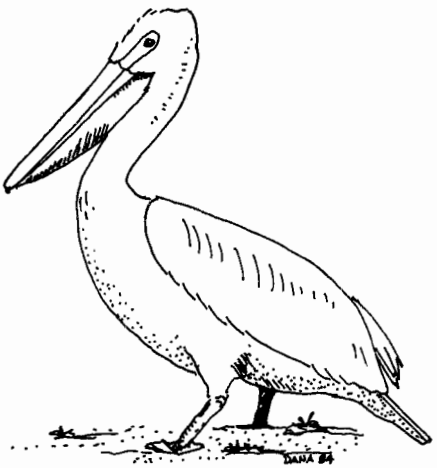
"If network television is today's measure of public acceptance, birdwatching finally has come of age. A new commercial for the instant coffee 'Brim' has an attractive young couple huddled in the woods with binoculars, spotting a great horned owl, and rushing to their cabin to celebrate with a steaming cup of decaf. Next: Billy Martin and George Steinbrenner in their favorite pub, clutching chilled bottles of lite beer and arguing over the identification of fall warblers." (November, 1983)



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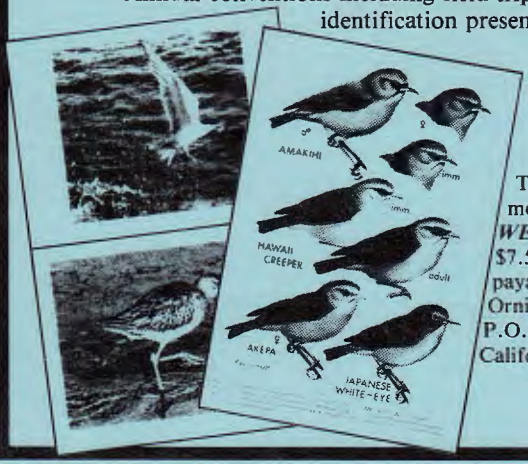

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