

BIRD-BANDING

A JOURNAL OF ORNITHOLOGICAL INVESTIGATION

VOL. XXXVI

APRIL, 1965

No. 2

THE INCIDENCE OF ALBINISM IN NORTH AMERICAN BIRDS

by ALFRED O. GROSS

Over eighty years ago Ruthven Deane (1876, 1879 and 1880) compiled about a hundred cases of albinism, all that were known to him. Since that time many more records have appeared in the literature and numerous albinistic specimens have been accumulated in museums and private collections of birds. I have also obtained records from personal observations and many others through correspondence. I am indebted to C. Chandler Ross (1962) for records of several species contained in his recent report. Altogether there are 304 albinistic species represented by 1847 individuals. There are records of albinism in each of the 20 orders and 54 of the 75 families of North American birds. This list is adequate to reveal the approximate incidence of albinism in the different orders, families and species. I know of no better way to answer the important question of incidence. It is of course well known that certain species are more susceptible than others to abnormal plumages such as albinism but to what extent has been merely a guess based on a too limited number of observations.

The 54 families in which albinism have occurred are listed in Table I. In Table II there are 28 species in which there are 15 or more records each. There are among the 28 species a total of 952 records of albinism comprising 51.54 per cent of the 1847 compiled. The remainder of the 276 species are represented by 895 cases of albinism. Of the latter there were 99 species with only one instance of albinism each, 46 with 2, 41 with 3, 27 with 4, 45 with 5, 12 with 6, 8 with 7, 8 with 8, 3 with 9, 4 with 10, 4 with 11, 3 with 13, 1 with 13 and 2 with 14 records each.

The Robin (*Turdus migratorius*) with 152 records of albinism representing 8.22% and the House Sparrow (*Passer domesticus*) with 104 records of 5.53% stand out above all others as the two species with the greatest incidence of albinism. However, the large number of records may be due in part to the close association of these two birds with the habitat of man where any abnormal plumage is likely to be seen and reported. Likewise the large number of albinos among the game birds Anatidae, in which there were 155 records, is due in part to sportsmen who bag albinos and usually call attention to what they consider as valuable records as well as unique curiosities.

Albinos may be classified into four groups: 1. total or pure, 2. incomplete, 3. imperfect, 4. partial. In the case of total or pure

TABLE I. FIFTY-FOUR FAMILIES OF NORTH AMERICAN BIRDS IN WHICH ALBINISM OCCURRED IN THE 1847 RECORDS COMPILED. COLUMN 1 THE NUMBER OF SPECIES, COLUMN 2 THE NUMBER OF INDIVIDUALS.

Families	Number of species	Number of individuals
Gaviidae: Loons	2	5
Podicipedidae: Grebes	5	11
Procellariidae: Shearwaters, Fulmars	3	7
Sulidae: Boobies and Gannets	1	1
Phalacrocoracidae: Cormorants	2	4
Ardeidae: Herons and Bitterns	6	12
Threskiornithidae: Ibises and Spoonbills	2	5
Anatidae: Swans, Geese and Ducks	35	155
Cathartidae: American Vultures	2	12
Accipitridae: Hawks, Old World Vultures and Harriers	10	48
Falconidae: Caracaras and Falcons	4	5
Tetraonidae: Grouse and Ptarmigan	6	32
Phasianidae: Quail, Pheasants, and Peacocks	8	99
Meleagrididae: Turkeys	1	8
Gruidae: Cranes	1	2
Rallidae: Rails, Gallinules and Coots	5	19
Haematopodidae: Oystercatchers	1	1
Charadriidae: Plovers, Turnstones and Surfbirds	2	4
Scolopacidae: Woodcock, Snipe, and Sandpipers	17	39
Recurvirostridae: Avocets and Stilts	2	2
Phalaropodidae: Phalaropes	1	1
Stercorariidae: Jaegers and Skuas	1	3
Laridae: Gulls and Terns	10	33
Alcidae: Auks, Murres, and Puffins	7	27
Columbidae: Pigeons and Doves	2	5
Psittacidae: Lories, Parrots, and Macaws	1	1
Cuculidae: Cuckoos, Roadrunners, and Anis	3	9
Strigidae: Typical Owls	5	9
Caprimulgidae: Goatsuckers	2	5
Apodidae: Swifts	1	6
Trochilidae: Hummingbirds	4	16
Trogonidae: Trogons	1	1
Alcedinidae: Kingfishers	1	3
Picidae: Woodpeckers	10	48
Tyrannidae: Tyrant Flycatchers	11	30
Alaudidae: Larks	2	5
Hirundinidae: Swallows	8	67
Corvidae: Jays, Magpies and Crows	11	116
Paridae: Titmice, Verdins, and Bushtits	3	16
Sittidae: Nuthatches	2	6
Troglodytidae: Wrens	3	6
Mimidae: Mockingbirds and Thrashers	4	73
Turdidae: Thrushes, Solitaires, and Bluebirds	14	214
Sylviidae: Old World Warblers, Gnatcatchers and Kinglets	1	6
Motacillidae: Wagtails and Pipts	3	9
Bombcnyllidae: Waxwings	2	8
Laniidae: Shrikes	1	1
Sturnidae: Starlings	1	12
Vireonidae: Vireos	1	1
Parulidae: Wood Warblers	11	31
Ploceidae: Weaver Finches	2	109
Icteridae: Meadowlarks, Blackbirds and Troupials	16	188
Thraupidae: Tanagers	2	15
Fringillidae: Grosbeaks, Finches, Sparrows and Buntings	42	296

TABLE II. INCIDENCE OF ALBINISM IN 28 SPECIES OF NORTH AMERICAN BIRDS WITH 15 OR MORE OF THE 1847 RECORDS COMPILED.

Robin	(<i>Turdus migratorius</i>)	152	8.22%
House Sparrow	(<i>Passer domesticus</i>)	104	5.53%
Common Crow	(<i>Corvus brachyrhynchos</i>)	58	3.13%
Redwinged Blackbird	(<i>Agelaius phoeniceus</i>)	58	3.13%
Bobwhite	(<i>Colinus virginianus</i>)	48	2.59%
Mallard	(<i>Anas platyrhynchos</i>)	41	2.22%
Sharp-tailed Sparrow	(<i>Ammospiza caudacuta</i>)	35	1.84%
Mockingbird	(<i>Mimus polyglottos</i>)	33	1.79%
Catbird	(<i>Dumetella carolinensis</i>)	31	1.68%
Brown-headed Cowbird	(<i>Molothrus ater</i>)	28	1.46%
Ring-necked Pheasant	(<i>Phasianus colchicus</i>)	25	1.35%
Barn Swallow	(<i>Hirundo rustica</i>)	25	1.35%
Brewer's Blackbird	(<i>Euphagus cyanocephalus</i>)	25	1.35%
Slate-colored Junco	(<i>Junco hyemalis</i>)	24	1.29%
Common Grackle	(<i>Quiscalus quiscula</i>)	23	1.24%
Blue Jay	(<i>Cyanocitta cristata</i>)	22	1.19%
Evening Grosbeak	(<i>Hesperiphona vespertina</i>)	22	1.19%
Eastern Bluebird	(<i>Sialia sialis</i>)	21	1.13%
Red-tailed Hawk	(<i>Buteo jamaicensis</i>)	20	1.08%
Canada Goose	(<i>Branta canadensis</i>)	19	1.02%
Ruffed Grouse	(<i>Bonasa umbellus</i>)	19	1.02%
Field Sparrow	(<i>Spizella pusilla</i>)	19	1.02%
Yellow-shafted Flicker	(<i>Colaptes auratus</i>)	18	0.97%
Song Sparrow	(<i>Melospiza melodia</i>)	18	0.97%
Heermann's Gull	(<i>Larus heermanni</i>)	17	0.92%
Fox Sparrow	(<i>Passerella iliaca</i>)	17	0.92%
California Quail	(<i>Lophortyx californicus</i>)	15	0.81%
White-throated Sparrow	(<i>Zonotrichia albicollis</i>)	15	0.81%
28 species	Total	952	51.54%

there is a complete absence of pigment or melalin; when incomplete the pigment is absent from the plumage, eyes or naked parts but not all three, when imperfect the pigment is reduced or diluted in any or all three areas but never completely absent and finally partial when the pigment is absent from localized areas. The latter may involve only a few feathers and the white areas may be asymmetrical or symmetrical.

In the 1847 cases of albinism only about 7 percent were reported as pure albinos. The vast majority were in the other groups. It is impossible to accurately compute the percentage of the various classes of albinism since many, especially the sight and earlier records do not state the extent of albinism and others may be wrongly classified.

A most important paper on incidence of albinism is that of Bryan L. Sage (1963) who compiled 3134 records of albinism in British birds. He found "a mere 19 families, of 42 families in which albinism was recorded, were responsible for 93 per cent of the total observations. The great bulk of the records (67%) have occurred in the Turdididae, Corvidae, Hirundinidae, Passeridae, Sturnidae and Fringillidae, in that order."

Why the incidence of albinism is so much greater in certain families than others is not clearly understood. Sage states: "the highest

incidence of albinism appears to be in species that are both social in their breeding habits and also fairly sedentary."

In certain species there have been mass plumage aberrations in isolated populations where a recessive gene may obtain greater opportunity of expression. For examples Nero (1954) found over 300 Red-winged Blackbirds (*Agelaius phoeniceus*) with plumage aberrations and of 219 males collected near Madison, Wisconsin 75 showed traits of albinism. Similar conditions prevailed among Red-wings collected near Regina, Saskatchewan, Canada, Nero (1960); Price and Danforth (1941) report a persistent mutation of the California Quail (*Lophortyx californicus*); Stoddard (1931) states that whole covies of Bobwhites (*Colinus virginianus*) observed near Thomasville, Georgia were albinistic; Edson (1928) states that in a flock of about 500 Brewer's Blackbirds (*Euphagus cyanocephalus*) 40 per cent were partially albinistic and Wayne (1921) reported that a strain of Sharp-tailed Sparrows (*Ammospiza caudacuta*) was uninterrupted year after year in a small area of a few acres at Mount Pleasant, South Carolina.

Total albinism is known to have a genetic basis but there are certain types of albinism that do not have a genetic origin. The following cases of spontaneous occurrence of albinism serve to illustrate the point: Frazier (1952) reports a case of a Robin which was in a completely normal plumage when trapped on April 14, 1949, two years later when again trapped the banded bird showed extensive areas of white plumage; Koch (1877) reported a case of a Robin of normal plumage turning into a partial albino; Root (1944) banded an Eastern Song Sparrow (*Melospiza melodia*) but when re-trapped it had extensive white areas including head, nape and upper tail coverts.

The cause of albinism has been given a great deal of attention and speculation. Phillips (1954) in his examination of a partially albinistic Boat-tailed Grackle (*Cassidix mexicanus*) found that a white patch on the side of the head was underlaid by a yellow cyst in which no nuclei were present. This suggests that a pathological condition may have been responsible for the abnormal coloration.

Sage (1962) has presented the various causes of albinism in great detail. He includes in addition to hereditary albinism, albinism arising as a result of inbreeding, diet, senility, shock, disease and injury.

LITERATURE CITED

- American Ornithologists' Union. 1957. Check-list of North American Birds.
- DEANE, R. 1876. Albinism and melanism among North American birds. *Bull. Nuttall Ornith. Club*, **1**: 20-24.
1879. Additional cases of albinism and melanism in North American birds. *Bull. Nuttall Ornith. Club*, **4**: 27-30.
1880. Additional cases of albinism and melanism in North American birds. *Bull. Nuttall Ornith. Club*, **5**: 25-30.
- EDSON, J. M. 1928. An epidemic of albinism. *Auk*, **45**: 377-378.
- FRAZIER, F. P. 1952. Depigmentation of a robin. *Bird-Banding*, **23**: 114.
- KOCH, E. G. 1877. Case of a robin turning partly albino. *Forest and Stream*, **10**: 483.

- NERO, R. W. 1954. Plumage aberrations of the Redwing *Agelaius phoeniceus*. *Auk*, **71**: 137-155.
1960. Additional notes on the plumage of the Red-winged blackbird. *Auk*, **77**: 298-305.
- PHILLIPS, A. R. 1954. The cause of partial albinism in a Great-tailed Grackle. *Wilson Bull.*, **66**: 66.
- PRICE, J. B. and Danforth, C. H. 1941. A persistent mutation in the California quail. *Condor*, **43**: 253-256.
- ROOT, O. M. 1944. Song sparrow turning white within a month. *Auk*, **61**: 295.
- ROSS, C. C. 1963. Albinism among North American birds. *Cassinia*, **47**: 2-21.
- SAGE, B. L. 1962. Albinism and melanism in Birds. *British Birds*, **55**: 201-225.
1963. The incidence of albinism and melanism in British birds. *British Birds*, **56**: 409-416.
- STODDARD, H. 1931. The Bobwhite Quail. Charles Scribner's Sons, New York, 1-559.
- WAYNE, A. T. 1921. Albinism in the Sharp-tailed sparrow (*Passerherbulus caudacutus*). *Auk*, **38**: 604-605.

11 Boody St., Brunswick, Maine

Received July, 1964

MOVEMENTS OF BLACK-CAPPED CHICKADEES AT LONG POINT, ONTARIO DURING THE SPRING OF 1962¹

By D. J. T. HUSSELL AND R. W. STAMP

In October 1961 an invasion of Black-capped Chickadees, *Parus atricapillus*, occurred in southern Ontario (Woodford and Lunn, 1962a). During the winter numbers were well above normal both in southern Ontario (Woodford and Lunn, 1962b) and elsewhere throughout the southern part of their range (James, 1962). In the spring of 1962 a sizeable return movement was noted.

At Long Point the number of Chickadees was one of the outstanding features of the 1962 spring migration. During the period from 20 April to 3 June, 505 were banded, the second most numerous species taken. More remarkable, however, was the large number of retraps obtained, a total of 81 birds being retrapped one or more days after they were first trapped. This paper is based on an analysis of these retrappings together with other available data on numbers and movements of Chickadees.

LOCATION AND METHODS

The Long Point Bird Observatory maintained observations at three areas on Long Point, on the north shore of Lake Erie, during the period from 20 April to 3 June, 1962. The areas are indicated on the sketch map in Figure 1.

¹A publication of the Long Point Bird Observatory of the Ontario Bird Banding Association.