

requirements and necessities. It is a trite aphorism that the enjoyment of a subject increases as our knowledge of it increases. So let us not think of requirements, but take the steps that will bring us the greatest possible enjoyment. One of the greatest advantages of field ornithology is that the more we know about it, the more we enjoy it, and the more we can benefit others. Its true student need never worry about criticism or incredulity.

American Museum of Natural History, New York

A CALENDAR OF BIRD MIGRATION.

BY NORMAN CRIDDLE.

In presenting the tables on bird migration given below a few explanations are necessary. To begin with, it must be realized that while all reasonable efforts have been made towards accuracy there are times when even the most careful observers fail to differentiate between closely allied species, and since collecting on a sufficiently wide scale is out of the question the determinations must be chiefly by sight. I believe there are very few errors in these records as a result of this method, but I wish to draw attention to the fact that very little attempt has been made to distinguish between geographical races excepting in a few cases when the habits of the birds involved can also be taken into account, but I have given the racial name when the evidence at hand indicates that it most probably applies to the bird reported. As an example all Meadowlarks, whether in song or not, are assumed to be *neglecta*, that being the dominant and probably the only race found in Manitoba, but the racial name must not be taken too literally.

These observations were made in the country at a place called Aweme in Manitoba, Lat. 49° 42'; Long. 99° 33'; they were commenced during the spring of 1895 and terminated in the fall of 1920, thus covering a period of 25 years. The country is semi-wooded but lacks surface water other than that supplied by the Assiniboine River some three miles away. The lack of water nea

at hand makes the calendar essentially one of land birds and this should be kept in mind when comparing records.

Observations of less than ten years show that the species is either rare or irregular in its appearance.

All species noted in less than five years have been omitted from the list.

The names given are those in use in the A. O. U. 'Check-List' of 1910 and since the list is mostly of local interest, the scientific names have been omitted to save space.

In conclusion I desire to acknowledge an indebtedness to my brothers Evelyn, Stuart and Talbot for furnishing me with many of the records from which these tables have been compiled.

SPRING MIGRATION 1895-1920

No. of years observed	Name of bird	Average date of first arrival	Earliest date of first arrival
25	Prairie Horned Lark	Feb. 21	Feb. 9, 1918
25	Crow	Mar. 22	Feb. 25, 1911
25	Red-tailed Hawk (also Western)	Mar. 23	Mar. 11, 1902
25	Tree Sparrow	Mar. 24	Mar. 12, 1914
18	Canada Goose	Mar. 26	Mar. 16, 1915
25	Marsh Hawk	Mar. 26	Mar. 11, 1902
8	Saskatchewan Horned Lark	Mar. 28	Mar. 17, 1914
25	Lapland Longspur	Mar. 29	Feb. 24, 1918
25	Slate-colored Junco	Mar. 30	Mar. 17, 1910
25	Western Meadowlark	Apr. 1	Mar. 21, 1911
21	Killdeer	Apr. 3	Mar. 23, 1910
18	Mallard	Apr. 3	Mar. 23, 1910
23	Rough-legged Hawk (sp.?)	Apr. 4	Mar. 11, 1910
20	Rusty Blackbird	Apr. 4	Mar. 23, 1910
25	Robin	Apr. 6	Mar. 23, 1907
5	Shufeldt's Junco	Apr. 6	Mar. 24, 1910
13	Scaup Duck (Lesser?)	Apr. 8	Apr. 2, 1906
24	Sparrow Hawk	Apr. 8	Mar. 17, 1905
24	Red-winged Blackbird	Apr. 9	Mar. 23, 1910
13	Long-eared Owl	Apr. 10	Mar. 28, 1920
11	Golden-eye	Apr. 10	Mar. 28, 1910
22	Sandhill Crane	Apr. 10	Apr. 6, 1905
25	Herring Gull	Apr. 11	Apr. 2, 1906
23	Chestnut-collared Longspur	Apr. 11	Mar. 24, 1911
11	Brewer's Blackbird	Apr. 11	Mar. 28, 1910

No. of years observed	Name of bird	Average date of first arrival	Earliest date of first arrival
12	Huchins' Goose?	Apr. 12	Apr. 2, 1906
10	Green-winged Teal	Apr. 13	Apr. 8, 1908
20	Sharp-shinned Hawk	Apr. 13	Mar. 28, 1911
25	Northern Flicker	Apr. 13	Mar. 30, 1918
25	Song Sparrow	Apr. 14	Apr. 5, 1910
8	Whooping Crane	Apr. 15	Apr. 9, 1901
10	Merganser	Apr. 16	Apr. 8, 1901
20	Bronzed Grackle	Apr. 16	Apr. 7, 1910
25	Western Vesper Sparrow	Apr. 18	Apr. 12, 1918
7	Bluebird	Apr. 18	Mar. 27, 1918
21	Fox Sparrow	Apr. 19	Apr. 9, 1919
20	Mourning Dove	Apr. 19	Apr. 9, 1910
22	Swainson's Hawk	Apr. 21	Apr. 5, 1913
8	Blue-winged Teal	Apr. 22	Apr. 10, 1911
20	White-fronted Goose	Apr. 22	Apr. 5, 1918
7	Shoveller	Apr. 22	Apr. 11, 1903
20	Snow Goose (i. e. Lesser)	Apr. 22	Apr. 5, 1913
6	Phoebe	Apr. 22	Apr. 17, 1916
19	Purple Finch	Apr. 23	Apr. 14, 1918
18	Sprague's Pipit	Apr. 23	Apr. 8, 1910
22	Myrtle Warbler	Apr. 24	Apr. 16, 1917
21	Ruby-crowned Kinglet	Apr. 25	Apr. 16, 1915
15	Greater Yellow-legs	Apr. 25	Apr. 10, 1903
21	Yellow-bellied Sapsucker	Apr. 25	Apr. 16, 1911
22	Franklin's Gull	Apr. 25	Apr. 21, 1903
17	Pipit	Apr. 26	Apr. 15, 1908
7	Long-billed Curlew	Apr. 26	Apr. 9, 1902
9	Bittern	Apr. 27	Apr. 14, 1915
5	Mountain Bluebird	Apr. 27	Apr. 14, 1920
18	Wilson's Snipe	Apr. 27	Apr. 14, 1915
25	Tree Swallow	Apr. 27	Apr. 21, 1911
22	White-throated Sparrow	Apr. 28	Apr. 18, 1915
22	Savanna Sparrow (Western?)	Apr. 28	Apr. 21, 1915
16	Belted Kingfisher	Apr. 28	Apr. 5, 1910
7	White Pelican	Apr. 29	Apr. 9, 1912
14	White-rumped Shrike	Apr. 30	Apr. 8, 1913
9	Blue Goose	May 1	Apr. 9, 1908
11	Swamp Sparrow	May 1	Apr. 9, 1912
20	Yellow-headed Blackbird	May 2	Apr. 21, 1903
19	Hermit Thrush	May 2	Apr. 19, 1917
10	Broad-winged Hawk	May 3	Apr. 8, 1906
24	Clay-colored Sparrow	May 4	Apr. 24, 1901
18	Golden Plover	May 4	Apr. 28, 1911

No. of year observed	Name of bird	Average date of first arrival	Earliest date of first arrival
22	Upland Plover	May 5	Apr. 30, 1901
23	Cowbird	May 5	Apr. 23, 1908
5	Smith's Longspur	May 6	Apr. 30, 1913
15	Chipping Sparrow	May 7	May 2, 1911
20	Palm Warbler	May 8	Apr. 30, 1915
21	Orange-crowned Warbler	May 8	Apr. 30, 1903
19	Black and White Warbler	May 8	Apr. 30, 1901
17	White-crowned Sparrow	May 8	Apr. 29, 1913
25	Harris's Sparrow	May 8	May 3, 1915
10	Spotted Sandpiper	May 9	Apr. 25, 1915
9	Black-throated Green Warbler	May 9	Apr. 30, 1915
24	Brown Thrasher	May 9	May 2, 1901
12	Lincoln's Sparrow	May 9	Apr. 25, 1911
15	Sora	May 10	May 1, 1901
21	Least Flycatcher	May 10	May 1, 1901
17	Barn Swallow	May 12	May 2, 1912
18	Gray-checked Thrush	May 13	May 5, 1914
7	Olive-backed Thrush	May 13	May 8, 1902
25	Whip-poor-will	May 13	May 1, 1901
24	Western House Wren	May 13	May 3, 1911
8	Cliff Swallow	May 13	May 2, 1912
21	Black-poll Warbler	May 14	May 9, 1902
11	Purple Martin	May 14	May 8, 1910
23	Bank Swallow	May 14	Apr. 28, 1911
16	Grinnell's Water-Thrush	May 14	May 4, 1914
23	Ovenbird	May 14	May 8, 1914
19	Tennessee Warbler	May 14	May 9, 1920
23	Yellow Warbler	May 14	Apr. 30, 1897
20	Blue-headed Vireo	May 14	May 5, 1914
21	Towhee	May 14	Apr. 30, 1903
19	Lark Sparrow (race?)	May 14	May 6, 1920
22	Bobolink	May 15	May 3, 1902
24	Redstart	May 15	May 11, 1903
7	Pine Warbler	May 15	Apr. 15, 1901
15	Pine Siskin	May 16	May 2, 1911
14	Rose-breasted Grosbeak	May 16	May 12, 1902
25	Black Tern	May 16	May 13, 1902
21	Kingbird	May 16	May 10, 1903
21	Willow Thrush	May 17	May 11, 1903
23	Baltimore Oriole	May 18	May 11, 1911
21	Wilson's Warbler	May 18	May 11, 1903
20	Magnolia Warbler	May 18	May 11, 1913
11	Olive-sided Flycatcher	May 18	May 9, 1910

No. of years observed	Name of bird	Average date of first arrival	Earliest date of first arrival
6	Cape-May Warbler	May 19	May 16, 1913
25	Nighthawk	May 19	May 15, 1915
25	Goldfinch	May 19	May 10, 1910
5	Philadelphia Vireo	May 19	May 14, 1913
15	Warbling Vireo	May 20	May 15, 1911
25	Catbird	May 20	May 12, 1912
25	Red-eyed Vireo	May 21	May 15, 1901
10	Crested Flycatcher	May 22	May 14, 1912
13	Ruby-throated Hummingbird	May 24	May 17, 1915
20	Northern Yellow-throat	May 24	May 19, 1909
9	Chestnut-sided Warbler	May 25	May 18, 1914
9	Bay-breasted Warbler	May 26	May 16, 1911
8	Wood Pewee	May 26	May 20, 1909
6	Lark Bunting	May 26	May 18, 1911
5	Connecticut Warbler	May 27	May 18, 1903
9	Canada Warbler	May 28	May 18, 1903
25	Cedar Waxwing	May 29	May 21, 1901
15	Western Wood Pewee	May 30	May 25, 1901
20	Black-billed Cuckoo	May 30	May 21, 1901
11	Mourning Warbler	June 3	May 20, 1904

FALL MIGRATION

No. of years observed	Name of bird	Average date of last observed	Latest date of last observed
15	Black Tern	Aug. 9	Aug. 17, 1920
22	Franklin's Gull	Aug. 10	Aug. 19, 1907
23	Bank Swallow	Aug. 24	Aug. 29, 1913
9	Cliff Swallow	Aug. 28	Sep. 14, 1920
11	Canada Warbler	Aug. 28	Sep. 4, 1914
11	Mourning Warbler	Aug. 29	Sep. 5, 1909
8	Cape May Warbler	Aug. 30	Sep. 12, 1915
8	Connecticut Warbler	Aug. 30	Sep. 3, 1913
21	Baltimore Oriole	Aug. 30	Sep. 5, 1917
10	Olive-sided Flycatcher	Aug. 30	Sep. 20, 1908
14	Warbling Vireo	Aug. 31	Sep. 19, 1910
9	Chestnut-sided Warbler	Sep. 1	Sep. 20, 1911
19	Black-billed Cuckoo	Sep. 2	Sep. 14, 1907
7	Western Wood Pewee	Sep. 2	Sep. 13, 1902
17	Ruby-throated Hummingbird	Sep. 3	Sep. 11, 1910
12	Bay-breasted Warbler	Sep. 3	Sep. 16, 1907
17	Willow Thrush	Sep. 3	Sep. 12, 1915

No. of years observed	Name of bird	Average date of last observed	Latest date of last observed
22	Yellow Warbler	Sep. 4	Sep. 9, 1907
16	Magnolia Warbler	Sep. 4	Sep. 17, 1907
5	Black-throated Green Warb.	Sep. 5	Sep. 13, 1917
23	Rose-breasted Grosbeak	Sep. 5	Sep. 19, 1907
19	Wilson's Warbler	Sep. 6	Sep. 21, 1911
21	Upland Plover	Sep. 6	Sep. 18, 1907
16	Crested Flycatcher	Sep. 7	Sep. 20, 1908
23	Kingbird	Sep. 8	Sep. 17, 1917
16	Tree Swallow	Sep. 9	Oct. 7, 1920
19	Black and White Warbler	Sep. 9	Sep. 19, 1918
15	Black-poll Warbler	Sep. 9	Sep. 15, 1912
24	Nighthawk	Sep. 10	Sep. 24, 1917
12	Sora	Sep. 11	Oct. 3, 1907
13	Pine Warbler	Sep. 11	Sep. 25, 1907
16	Grinnell's Water-Thrush	Sep. 12	Sep. 29, 1918
17	Spotted Sandpiper	Sep. 14	Oct. 7, 1908
20	Gray-cheeked Thrush	Sep. 14	Sep. 27, 1915
11	Bobolink	Sep. 14	Sep. 20, 1910
21	Red-eyed Vireo	Sep. 14	Sep. 23, 1913
21	Ovenbird	Sep. 15	Sep. 28, 1912
21	Least Flycatcher	Sep. 15	Sep. 25, 1918
14	Barn Swallow	Sep. 16	Sep. 27, 1920
17	Northern Yellow-throat	Sep. 17	Sep. 26, 1913
23	Brown Thrasher	Sep. 17	Sep. 24, 1909
19	Redstart	Sep. 18	Sep. 28, 1920
12	Towhee	Sep. 18	Sep. 29, 1920
22	Catbird	Sep. 19	Sep. 29, 1908
7	Yellow-headed Blackbird	Sep. 21	Oct. 20, 1911
20	Duck Hawk	Sep. 21	Oct. 18, 1915
14	Chipping Sparrow	Sep. 22	Oct. 4, 1920
23	Clay-colored Sparrow	Sep. 22	Oct. 1, 1918
17	Tennessee Warbler	Sep. 24	Oct. 3, 1914
23	House Wren (Western?)	Sep. 24	Oct. 1, 1913
18	Swainson's Hawk	Sep. 25	Oct. 3, 1920
16	Orange-crowned Warbler	Sep. 27	Oct. 10, 1918
20	Killdeer	Sep. 29	Oct. 9, 1911
19	Yellow-bellied Sapsucker	Sep. 30	Oct. 10, 1910
21	Purple Finch	Oct. 2	Oct. 10, 1909
13	Sprague's Pipit	Oct. 2	Oct. 4, 1920
24	Chestnut-collared Longspur	Oct. 3	Oct. 12, 1914
18	Swamp Sparrow	Oct. 4	Oct. 10, 1911
12	Belted Kingfisher	Oct. 5	Oct. 12, 1911
17	Hermit Thrush	Oct. 6	Oct. 15, 1917

No. of years observed	Name of bird	Average date of last observed	Latest date of last observed
9	Mountain Bluebird	Oct. 7	Oct. 16, 1900
10	Savannah Sparrow (Western?)	Oct. 8	Oct. 14, 1911
10	Bluebird	Oct. 10	Nov. 1, 1911
19	Sparrow Hawk	Oct. 10	Oct. 20, 1908
23	Western Vesper Sparrow	Oct. 10	Oct. 15, 1909
23	Northern Flicker	Oct. 10	Oct. 18, 1907
23	White-throated Sparrow	Oct. 11	Oct. 23, 1907
19	Sharp-shinned Hawk	Oct. 11	Oct. 19, 1910
21	Mourning Dove	Oct. 12	Nov. 12, 1913
15	Sandhill Crane	Oct. 13	Oct. 31, 1900
22	Song Sparrow	Oct. 15	Oct. 22, 1907
22	Goldfinch	Oct. 16	Nov. 7, 1909
11	Lincoln's Sparrow	Oct. 17	Oct. 27, 1913
24	Crow	Oct. 18	Nov.
18	Wilson's Snipe	Oct. 20	Nov. 15, 1912
20	Red-tailed Hawk	Oct. 23	Oct. 30, 1901
23	Western Meadowlark	Oct. 24	Nov. 6, 1900
19	Red-winged Blackbird	Oct. 24	Oct. 28, 1908
15	Bronzed Grackle	Oct. 25	Nov. 8, 1901
7	Bittern	Oct. 25	Nov. 6, 1918
14	Pine Siskin	Oct. 26	Nov. 10, 1909
18	Rough-legged Hawk (sp.?)	Oct. 28	Nov. 5, 1904
23	Robin	Oct. 29	Nov. 13, 1910
21	Marsh Hawk	Oct. 30	Nov. 8, 1911
24	Slate-colored Junco	Nov. 4	Nov. 12, 1914
5	Green-winged Teal	Nov. 5	Nov. 9, 1915
5	Golden-eye	Nov. 5	Nov. 10, 1905
5	Blue-winged Teal	Nov. 6	Nov. 11, 1908
21	Rusty Blackbird	Nov. 7	Nov. 14, 1914
19	Scaup Duck (Lesser?)	Nov. 9	Nov. 17, 1912
23	Canada Goose	Nov. 13	Nov. 25, 1904
21	Mallard	Nov. 13	Nov. 21, 1901
24	Prairie Horned Lark	Nov. 14	Nov. 23, 1917

ARRIVALS FROM THE NORTH

No. of years observed	Name of bird	Average date first observed	Earliest date observed	No. of years observed	Average date last observed	Latest date observed
10	Great Yellow-legs	Aug. 8	July 27, 1900	6	Sep. 26	Nov. 5, 1909
9	Red-breasted Nuthatch	Aug. 24	Aug. 12, 1910	9	Oct. 7	Oct. 17, 1907
12	Blue-headed Vireo	Aug. 26	Aug. 21, 1908	12	Sep. 8	Sep. 20, 1905
14	Golden Plover	Aug. 30	Aug. 6, 1901	12	Oct. 5	Oct. 16, 1897
15	Ruby-crowned Kinglet	Sep. 5	Aug. 24, 1915	15	Oct. 7	Oct. 14, 1904
22	Lapland Longspur	Sep. 6	Aug. 24, 1907	21	Nov. 16	Dec. 31, 1913
22	Myrtle Warbler	Sep. 12	Aug. 24, 1915	22	Oct. 10	Oct. 20, 1909
21	Pipit	Sep. 11	Sep. 2, 1905	20	Oct. 15	Oct. 28, 1914
14	Palm Warbler	Sep. 17	Sep. 2, 1913	13	Oct. 5	Oct. 7, 1908
22	Harris's Sparrow	Sep. 19	Sep. 10, 1912	22	Oct. 9	Oct. 20, 1917
9	White-crowned Sparrow	Sep. 22	Sep. 10, 1911	8	Oct. 2	Oct. 17, 1912
11	Fox Sparrow	Sep. 23	Sep. 12, 1914	8	Oct. 9	Oct. 20, 1917
21	Tree Sparrow	Sep. 26	Sep. 9, 1901	20	Nov. 6	Nov. 15, 1900
14	White-fronted Goose	Oct. 2	Sep. 7, 1902	14	Oct. 18	Nov. 1, 1920
18	Huchins' Goose	Oct. 4	Sep. 13, 1914	16	Oct. 16	Nov. 20, 1912
12	Golden-crowned Kinglet	Oct. 10	Sep. 25, 1912			
21	Snow Bunting	Oct. 11	Sep. 24, 1914	19	Apr. 30	May 23, 1918
18	Red-poll	Oct. 11	Oct. 2, 1913	13	Apr. 21	May 27, 1907
19	Northern Shrike	Oct. 12	Sep. 27, 1898			
21	Lesser Snow Goose	Oct. 13	Sep. 24, 1901	19	Oct. 20	Oct. 31, 1900
9	Blue Goose	Oct. 13	Sep. 12, 1902	8	Oct. 19	Oct. 24, 1908
14	Snowy Owl	Oct. 20	Sep. 26, 1896	2	Apr. 26	May 2, 1917
13	Evening Grosbeak	Oct. 27	Oct. 12, 1913			
17	Pine Grosbeak	Oct. 30	Oct. 10, 1902	3	Mar. 17	Mar. 30
9	Bohemian Waxwing	Nov. 4	Oct. 20, 1903	3	Apr. 3	Apr. 19, 1920

NOTES

HUCHINS' GOOSE.—Following Macoun's 'Catalogue of Canadian Birds' I have applied the above name to the small goose, superficially resembling *canadensis*, which is met with during migration in Manitoba. It averages five and a half pounds in weight as against ten pounds in the Canada Goose and measures about 28 inches in length. Its notes are much shriller than those of *canadensis*.

SANDHILL CRANE.—Doubtless records of the Little Brown Crane are mixed with these but specimens collected all appear to belong to the larger species as they weighed twelve or more pounds.

RED-TAILED HAWK.—Two races occur in Manitoba but I have not been able to distinguish them in flight.

ROUGH-LEGGED HAWK.—I have included both *lagopus sancti-johannis* and *ferrugineus* under this name being unable to accurately separate them in migration. The latter breeds in the vicinity.

Prairie Horned Larks and Lapland Longspurs occasionally remain throughout the winter. There are two distinct migratory periods of the latter, indicating that two races are involved.

In the fall migration records birds known to be, or suspected of being belated due to lack of migratory instinct have been omitted.

Treesbank, Manitoba

SEXUAL SELECTION AND BIRD SONG.

BY CHAUNCEY J. HAWKINS.

IN an article I wrote for 'The Auk' for October, 1918, on 'Sexual Selection and Bird Song,' the objection was raised against my position that, while my argument made "it seem very probable that bird-song had its origin—its first cause—in the 'maleness' of the males," I failed to show how "the multiplicity of songs of the various species of birds, the extremely elaborate songs of some, could have acquired their present forms except by some continuous selective process." The criticism was perfectly just and my only reply to it is that in the article I was not dealing with this phase of the question. If I succeeded in establishing the fact that bird-song had its origin in the maleness of the males, I feel confident that I laid the foundation for a more reasonable theory of how bird-songs, with their great variety, acquired their present forms than is found in the commonly accepted sexual selection theory.