

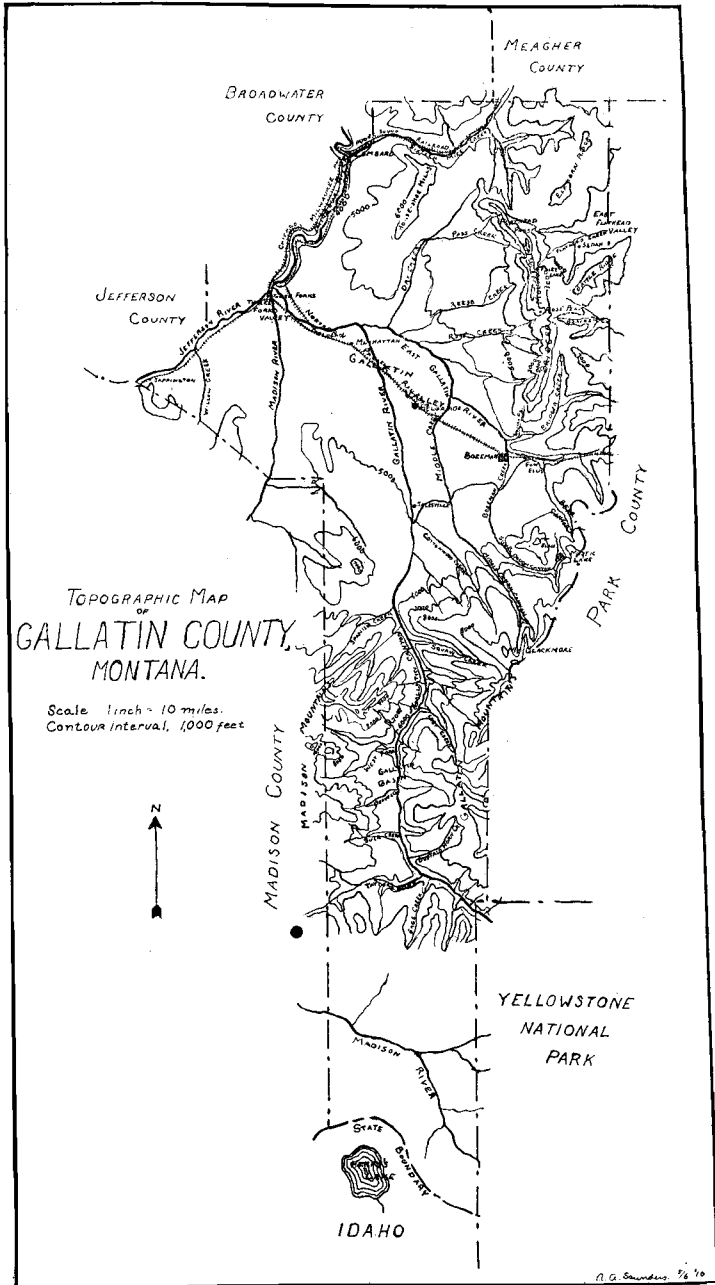
## A PRELIMINARY LIST OF THE BIRDS OF GALLATIN COUNTY, MONTANA.

BY ARETAS A. SAUNDERS.

GALLATIN COUNTY lies in what has been termed south-central Montana. Its southern extremity is formed by the juncture of the Montana-Idaho State line with the western border of the Yellowstone National Park. From here it extends north to Lombard on the upper Missouri River, including practically the entire drainage of the Gallatin River, the lower portions of the Madison and Jefferson Rivers and a small portion of the upper Missouri River. The eastern boundary of the county practically coincides with the main divide between the Yellowstone and Missouri River drainages, except in the northeastern part of the county where it includes, in Brackett and Flathead Creeks, a small part of the Yellowstone drainage.

This territory extends from an elevation of 4,000 feet on the Missouri River to nearly 11,000 feet in some of the higher peaks of the Gallatin and Madison ranges. It includes many types of country but in the main may be divided into two large divisions, the valleys and the mountains. There are three main valleys in the county, the Gallatin and Three Forks Valleys in the north-western part and what is known as the East Flathead Valley in the northeastern part.

The Gallatin Valley extends from the northern and western mountain slopes, north along the Gallatin River and its tributaries to about the vicinity of Logan. It is the most productive grain-growing region of Montana and consists principally of broad wheat fields crossed by many irrigating ditches. The common breeding birds of these fields are the Killdeer, Western Meadowlark, Bobolink, and Western Vesper and Savannah Sparrows. About the clusters of buildings other species such as the Arkansas Kingbird, Barn and Cliff Swallows, Western House Wren and Mountain Bluebird are abundant. Along the larger streams are cottonwood groves which attract such species as the Kingbird, Western Wood Pewee, Least Flycatcher, Cassin's Purple Finch,



Pine Siskin, Western Chipping Sparrow, Western Warbling Vireo, Yellow Warbler and Western Robin. Most of these species are abundant in the cottonwood shade trees in the streets of Bozeman. In many places along the streams there are extensive thickets of willow and alder, often swampy in character. These thickets attract a larger number of species than any other type of country. The commoner species are Wilson's Snipe, Mourning Dove, Marsh Hawk, Western Crow, Magpie, Brewer's Blackbird, Western Goldfinch, White-crowned Sparrow, Mountain Song Sparrow, Slate-colored Fox Sparrow, Arctic Towhee, Black-headed Grosbeak, Yellow Warbler, MacGillivray's Warbler, Western Yellowthroat, Redstart, Catbird, Long-tailed Chickadee, Willow Thrush and Western Robin.

The Three Forks Valley lies at the head of the Missouri River and along the lower Madison and Jefferson Rivers. It is much lower than the Gallatin Valley, the average elevation being little over 4,000 feet. Only a small part of this valley is under cultivation. The soil averages much coarser and less fertile than the Gallatin Valley and there is a larger percentage of rolling grass land more suitable for grazing than agriculture. For this reason and also probably partially because of the elevation, there are several species quite common here, which occur rarely, locally or not at all in the Gallatin valley. Some of these are the Long-billed Curlew, Mountain Plover, Desert Horned Lark, Yellow-headed Blackbird, Western Grasshopper Sparrow and Lark Bunting. Water and shore birds are more abundant here, particularly in migrations, than in other parts of the county. I have had but few opportunities to visit this valley and believe that many additional facts and species will be found here later.

The East Flathead Valley is of higher elevation than either of the others, averaging about 5,600 feet. A large part of this valley consists of broad flat sagebrush land and because of this, it is the only part of the county where such species as the Sage Grouse, Sage and Brewer's Sparrows and Sage Thrasher are at all common.

The mountainous portions of Gallatin County consist principally of three main ranges. These are the Gallatin and Madison Mountains on the east and west sides of the Gallatin River in the southern part of the county, and the Bridger Mountains, west of the

Gallatin Valley, in the northeastern part of the county. Beside these there are the Horse-shoe Hills, of much lower elevation, just north of the Gallatin Valley. The elevation of the mountains extends from 5,000 feet in the lower foothills to nearly 11,000 feet in the higher peaks. They consist of long slopes clothed with dense evergreen forests, dotted by mountain meadows and small lakes and broken by high rocky ridges and deep cañons, the latter containing many swift streams and waterfalls.

The foothills, lying along the lower slopes next to the valleys, are grown with groves of aspen, thickets of thorn, service berry and wild rose, sagebrush and scattered clumps of Douglas fir. The commoner breeding birds of the foothills are the Canadian Ruffed Grouse, Lewis's Woodpecker, Red-shafted Flicker, Red-naped Sapsucker, Wright's Flycatcher, Magpie, Cassin's Purple Finch, White-crowned Sparrow, Arctic Towhee, Green-tailed Towhee, Lazuli Bunting, Western Yellowthroat, MacGillivray's Warbler and Catbird.

The cottonwoods, willows and alders of the valleys extend into the lower mountain cañons and form groves and thickets, the latter often as high as 7,500 feet, where such birds as the Desert Sparrow Hawk, Rufous Hummingbird, Hammond's Flycatcher, Pine Siskin, White-crowned Sparrow, Mountain Song Sparrow, Lincoln's Sparrow, Pileolated Warbler, Redstart, Long-tailed Chickadee and Western Robin are breeding birds. Along the mountain streams the Dipper and Spotted Sandpiper are common, while in the limestone cliffs forming the cañon walls such species as the Duck Hawk, Violet-green Swallow and Rock Wren breed.

The mountain forests are composed principally of lodgepole pine (*Pinus murreyana*), Douglas's fir (*Pseudotsuga taxifolia*), and Engelmann's spruce (*Picea engelmanni*) with other species such as limber pine (*Pinus flexilis*) and alpine fir (*Abies lasiocarpa*) forming alpine forests near timber line. The common breeding birds of the mountain forests are Dusky Grouse, Canadian Ruffed Grouse, Western Red-tailed Hawk, Rocky Mountain Hairy Woodpecker, Batchelder's Woodpecker, Alpine Three-toed Woodpecker, Black-headed Jay, Rocky Mountain Jay, Clark's Nutcracker, Rocky Mountain Pine Grosbeak, Cassin's Purple Finch, Pine Siskin, Western Chipping Sparrow, Pink-sided Junco, Western Tanager,

Western Warbling Vireo, Audubon's Warbler, Rocky Mountain Creeper, Mountain Chickadee, Ruby-crowned Kinglet, Western Golden-crowned Kinglet, Townsend's Solitaire, Olive-backed Thrush, Audubon's Hermit Thrush, and Western Robin. Most of these species are more abundant about the edges of mountain parks than in the forests themselves. The Pine Grosbeak occurs, in the breeding season, only in the alpine forests and the Nutcracker is more abundant here than elsewhere. The Cassin's Purple Finch, Western Tanager, and Ruby-crowned Kinglet show a decided preference for forests of Douglas fir to that of any other species, while the Golden-crowned Kinglet and Rocky Mountain Creeper are most abundant in tall spruces along the cañon bottoms.

In compiling this list I have consulted, I believe, all the previously published records from this region. The earliest records are contained in government publications. One of these<sup>1</sup> contains records of several species of shore birds from the vicinity of Fort Ellis, of the occurrence of which there are at present no other records, though the species are probably not uncommon in the region. The most complete and most important work on the birds of this region which has hitherto been published is 'The Birds of South-Central Montana,' by C. W. Richmond and F. H. Knowlton.<sup>2</sup> This list consists of 111 species, nearly all of which were recorded from Gallatin County. The observations were made in 1888 and 1890 and reveal a number of interesting and important changes in the bird life of the region since that time. In addition to this, two short articles on birds in the vicinity of Salesville, by A. M. Pyfer, appeared in 'The Oölogist.'<sup>3</sup> One of these contains the only present record of the Snow Bunting in this region.

A number of valuable records in this list were obtained from an examination of the collection of birds at the Montana Agricultural College at Bozeman, most of which was made in Gallatin County.

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<sup>1</sup> Report of a Reconnaissance from Carroll, Montana, to the Yellowstone National Park and return. Gov't. Printing Office, 1876. Zoölogy, by George Bird Grinnell.

<sup>2</sup> Auk, Vol. IX, 1894, pp. 298-308.

<sup>3</sup> The Nesting of Clark's Nutcracker. The Oölogist, Vol. XIV, 1897, pp. 100-110, and Birds of Montana. The Oölogist, Vol. XV, 1898, pp. 14, 15.

The remaining data were obtained from various sources but principally from the observations of Mr. Gerald B. Thomas and myself. Mr. Thomas was in this region from the fall of 1908 to August, 1909, while my own stay lasted from July, 1908, to August, 1909, with a few short visits since that date. During that time I was assigned to work on the Gallatin National Forest and had a good opportunity to cover nearly all parts of the county.

The migration data given in this list are taken largely from my own notes in the fall of 1908 and spring of 1909. Observations this spring (1910), somewhat further west in Montana, seem to indicate that the 1909 dates were unusually late. For this reason most of the species will probably be found to arrive a week or two earlier, in ordinary years, than the dates indicated in the list.

The accompanying map shows all the localities mentioned in the list. Since elevation is an important factor in the bird life of the region, I have shown this on the map by contour lines at an interval of 1,000 feet, obtaining the data for this from the U. S. Geological Survey sheets, except in the extreme southern part of the county where no data are yet available.

The problem of subspecies in this region is in many cases rather difficult. For this reason I have marked with an asterisk all forms whose subspecific identities have been determined by the examination of specimens from the region. In all other cases the subspecies are assumed.

I wish to acknowledge my indebtedness to the following persons: to Dr. L. B. Bishop for the identification of subspecies and for the use of his library in preparing this list; to Prof. R. A. Cooley and Mr. Wyatt Jones of the Montana Agricultural College for permission to examine the collection of birds there and for much help and information from their observations; to Mr. Gerald B. Thomas for the use of his many notes and observations; and to the Forest Officers of the Gallatin National Forest for information, help and encouragement given me whenever possible.

#### *List of Species.*

1. **Colymbus holboëllii.** HOLBØELL'S GREBE.—I obtained a specimen of this bird which was shot on the Madison River, near Three Forks, on Oct. 17, 1909, by Mr. J. B. Pitts.

2. **Colymbus nigricollis californicus.** EARED GREBE.—I noted a bird of this species on Mystic Lake, Aug. 3, 1909.
3. **Podilymbus podiceps.** PIED-BILLED GREBE.—I saw two of these birds on a small pond near the lower end of Middle Creek Cañon on Aug. 29, 1908.
4. **Gavia immer.** LOON.—Prof. R. A. Cooley told me of a young bird of this species, which was captured alive in the Gallatin Valley.
5. **Larus californicus.** CALIFORNIA GULL.—Seen by Richmond and Knowlton on the Jefferson River in September, 1888.
6. **Larus delawarensis.** RING-BILLED GULL.—Mr. G. B. Thomas noted gulls of this species at Three Forks in June, 1909.
7. **Hydrochelidon nigra surinamensis.** BLACK TERN.—A specimen of this bird, taken just south of Bozeman in the Gallatin Valley, is in the collection at the Montana Agricultural College.
8. **Phalacrocorax auritus.** DOUBLE-CRESTED CORMORANT.—I saw several birds of this species on the Missouri River near Lombard on April 22 and 23, 1909.
9. **Pelecanus erythrorhynchos.**—WHITE PELICAN.—Mr. Chas. Smith of Bozeman told me that he remembered seeing a bird of this species that was shot on a small pond near Fort Ellis about thirty years ago.
10. **Mergus americanus.** AMERICAN MERGANSER.—Two birds of this species, taken on the East Gallatin River, were mounted and on exhibition for a short time, in a store window in Bozeman.
11. **Mergus serrator.** RED-BREADED MERGANSER.—Richmond and Knowlton recorded this species as noted several times during August and September. I noted it but once, on the Missouri River near Lombard, April 22, 1909.
12. **Lophodytes cucullatus.** HOODED MERGANSER.—Several persons have described this species to me as occurring in pairs throughout the summer on the larger mountain streams. It is probably a regular summer resident in these localities. There is a young bird of this species, taken on Fairy Lake in the Bridger Mountains, in the collection at the Montana Agricultural College.
13. **Anas platyrhynchos.** MALLARD.—An abundant summer resident, breeding commonly in all suitable localities. It appears first in the latter part of March and is abundant until November. It winters occasionally, wherever the streams remain open. I noted it near Sappington on the Jefferson River on Feb. 12, 1910.
14. **Mareca americana.** BALDPATE.—Abundant migrant and occasional summer resident. I noted this species commonly from April 25 to May 14, 1909. Mr. Thomas found a nest of this species on the East Gallatin River, near Bozeman.
15. **Nettion carolinense.** GREEN-WINGED TEAL.—Abundant migrant and probably common as a summer resident, as I have noted it in large numbers as early as Aug. 17, 1909. It arrives early in April and leaves in October.

16. **Querquedula discors.** BLUE-WINGED TEAL.—Common summer resident. More abundant in summer than any other species of duck.

17. **Querquedula cyanoptera.** CINNAMON TEAL.—I noted a male of this species near Fort Ellis on May 14, 1909. Mr. H. A. Cleaveland of Bozeman has shot this species on the Madison River just south of the Gallatin County boundary. It is probably a regular but not common migrant.

18. **Spatula clypeata.** SHOVELLER.—An abundant migrant. On April 22 and 23, 1909, I found this species more abundant than any other duck along the upper Missouri River.

19. **Dafila acuta.** PINTAIL.—I have not met this species, but it is reported by all hunters to be a common migrant. It is said to breed in this region occasionally.

20. **Aix sponsa.** WOOD DUCK.—This species has been taken by local hunters on the East Gallatin River, during migrations. Prof. Cooley saw a pair that were evidently breeding in one of the mountain cañons south of Bozeman.

21. **Marila americana.** REDHEAD.—Reported rather commonly by local hunters. I noted this species on the Gallatin River in the Lower Basin about the West Fork and Beaver Creek on June 29 and 30, 1909.

22. **Marila vallisineria.** CANVAS-BACK.—Mr. H. A. Cleaveland has shot this species on the Madison River in Gallatin County.

23. **Marila affinis.** LESSER SCAUP DUCK.—Regular migrant. I noted this species near Fort Ellis several times during May, 1909.

24. **Clangula clangula americana.** GOLDEN-EYE.—A regular winter resident on the Missouri and Jefferson Rivers wherever the swifter parts of the streams remain open. It remains in spring until late in April.

25. **Charitonetta albeola.** BUFFLE-HEAD.—I have not met this species but it is reported quite commonly by local hunters.

26. **Chen rossi.** ROSS'S GOOSE.—Mr. Thomas saw a photograph of a bag of game shot at Three Forks by a local hunter in which a bird of this species showed plainly. The bird was said to be one of a flock of eight.

27. **Branta canadensis.** CANADA GOOSE.—An abundant migrant. Said to breed along the Madison River.

28. **Olor columbianus.** WHISTLING SWANS.—Swans are regular migrants on the Madison and Jefferson Rivers. Owing to the recent rarity of the Trumpeter Swan, *O. buccinator*, I have assumed that these birds are of the other species although I have examined none of them. It is probable that both species have occurred in the county and the Trumpeter may even have bred on some of the small lakes. Mr. H. A. Cleaveland told me that in August, 1885, he saw a number of swans with young not yet able to fly on Henrys' Lake, Idaho, just over the divide from Gallatin County.

29. **Botaurus lentiginosus.** BITTERN.—Recorded by Richmond and Knowlton. I have not noted this species.



30. **Ardea herodias.** GREAT BLUE HERON.—Summer resident. I found this species very abundant about Lombard and Three Forks in April, 1909. A small colony breeds in the cottonwoods along the upper Missouri River.

31. **Grus mexicana.** SANDHILL CRANE.—Mr. Wyatt Jones told me that this species formerly bred in aspen groves in the East Flathead Valley near Sedan.

32. **Porzana carolina.** CAROLINA RAIL.—I noted a pair of these birds in a swamp near Sedan on June 4, 1909.

33. **Fulica americana.** COOT.—I noted a bird of this species on Middle Creek, May 26, 1909.

34. **Lobipes lobatus.** NORTHERN PHALAROPE.—Richmond and Knowlton took this species at a mountain pool in September.

35. **Steganopus tricolor.** WILSON'S PHALAROPE.—I noted a pair of these birds near Sedan on several occasions in June, 1909. They were evidently breeding but I was unable to locate the nest.

36. **Recurvirostra americana.** AMERICAN AVOCET.—A regular migrant. Quite common in the Gallatin Valley in August.

37. **Gallinago delicata.** WILSON'S SNIPE.—Summer resident. These birds breed rather commonly in willow swamps in the valleys. During May and June the males may be seen commonly circling through the air and performing their curious wing-notes. Mr. Lea Marston showed me a nest of this species near Sedan. Mr. Thomas saw these birds throughout the winter of 1908-9 in a warm willow swamp near Bozeman.

38. **Pisobia bairdi.** BAIRD'S SANDPIPER.—Recorded from Fort Ellis in the summer of 1875 by Mr. George Bird Grinnell.

39. **Pisobia minutilla.** LEAST SANDPIPER.—Recorded with the above species from Fort Ellis by Mr. Grinnell.

40. **Totanus melanoleucus.** GREATER YELLOW-LEGS.—Richmond and Knowlton recorded this species as common in September.

41. **Totanus flavipes.** YELLOW-LEGS.—Recorded from Fort Ellis in 1875 by Mr. Grinnell.

42. **Helodromas solitarius cinnamomeus.** WESTERN SOLITARY SANDPIPER.—Common migrant in August. I have not noted it in spring.

43. **Catoptrophorus semipalmatus inornatus.** WESTERN WILLET.—A pair noted by Richmond and Knowlton at Moreland, now known as Manhattan, Aug. 19, 1888.

44. **Bartramia longicauda.** UPLAND PLOVER.—Rather rare summer resident. I noted this species near Sedan July 30, 1908, and in the Gallatin Valley, north of Bozeman, July 22, 1909. In the latter case the bird evidently had young near.

45. **Actitis macularia.** SPOTTED SANDPIPER.—Common summer resident. Breeds both in the valleys and along mountain streams to at least 7500 feet. This species arrives about the middle of May and leaves in August or early September.

46. **Numenius americanus.** LONG-BILLED CURLEW.— Summer resident. Breeds abundantly in the Three Forks Valley but occurs rarely and only in migrations in the Gallatin Valley.

47. **Oxyechus vociferus.** KILLDEER.— Common summer resident in the valleys. Prefers cultivated lands about plowed fields and irrigating ditches.

48. **Podasocys montanus.** MOUNTAIN PLOVER.— Mr. Thomas noted this species at Three Forks in June, 1909 when it was evidently breeding.

\*49. **Dendragapus obscurus obscurus.** DUSKY GROUSE.

\*50. **Dendragapus obscurus richardsoni.** RICHARDSON'S GROUSE.— Gallatin County lies where the range of these two forms meet. Most of the birds are intergrades and not typical of either form. I believe that the larger part of the Gallatin County birds are nearer *obscurus* than *richardsoni*, while further north and west in Montana the reverse is true.

\*51. **Bonasa umbellus togata.** CANADA RUFFED GROUSE.— Permanent resident. Abundant in the foothills and in willow and spruce swamps high into the mountains.

\*52. **Pediocetes phasianellus campestris.** PRAIRIE SHARP-TAILED GROUSE.— Resident in the valleys. Richmond and Knowlton found it very common. It is seldom seen now in the Gallatin Valley but occurs in fair numbers in the Three Forks and East Flathead Valleys. A specimen taken near Sedan was considered nearer to this form than to *columbianus* by Dr. Bishop.

53. **Centrocercus urophasianus.** SAGE GROUSE.— Richmond and Knowlton found this species common in the valleys. To-day it occurs, to my knowledge, only in the East Flathead Valley.

54. **Zenaidura macroura carolinensis.** MOURNING DOVE.— Abundant summer resident in the valleys. This bird appears about May 10 and leaves in September. It nests commonly in willow thickets and on the ground in sagebrush land.

55. **Cathartes aura septentrionalis.** TURKEY VULTURE.— Rare summer resident. Seen a few times from April to September. Richmond and Knowlton found it common but it does not appear to be so now.

56. **Circus hudsonius.** MARSH HAWK.— Abundant summer resident in the valleys. The males arrive in the latter part of March and the females a week or two later. They usually breed in willow thickets. In August and September they are very abundant in the Gallatin Valley and leave early in October. I believe this species will be found to be of considerable value to the farmers of the Gallatin Valley because of its destruction of gophers and other small rodents.

57. **Accipiter velox.** SHARP-SHINNED HAWK.— Summer resident in the mountains but much more abundant in the valleys and foothills during migrations. I noted them commonly from Sept. 15 to Oct. 6, 1908, and from May 13-29, 1909.

58. **Accipiter cooperi.** COOPER'S HAWK.— Summer resident in the mountains. I noted this species but twice in the West Gallatin Cañon in July.

\*59. **Astur atricapillus.** GOSHAWK.—Rare summer resident in the mountains where Mr. Ginn, a taxidermist in Bozeman, found a nest on Spanish Creek. Common fall migrant and occasional throughout the winter in both valleys and mountains.

\*60. **Buteo borealis calurus.** WESTERN RED-TAIL.—Common summer resident, breeding in tall firs in the mountains and foothills. It arrives about the first of April and leaves in the middle of October.

61. **Buteo swainsoni.** SWAINSON'S HAWK.—Summer resident in the valleys, nesting in cottonwood groves. This species appears to be much commoner at lower elevations in the northern part of the county.

62. **Archibuteo lagopus sancti-johannis.**—ROUGH-LEGGED HAWK.—Common winter resident in the valleys. This is the only abundant winter hawk. It appears about Oct. 10 and remains until the middle of April. It feeds largely on gophers and will probably prove to be of value for this reason.

63. **Archibuteo ferrugineus.** FERRUGINOUS ROUGH-LEG.—Summer resident. Not common in the Gallatin Valley but common in the Three Forks and East Flathead Valleys. Mr. Thomas found a nest in a cottonwood grove near Three Forks in June, 1909.

64. **Aquila chrysaetos.** GOLDEN EAGLE.—Permanent resident. A few pairs breed in the West Gallatin Cañon, and Mr. Thomas found a nest of the species in Bridger Cañon.

65. **Haliaeetus leucocephalus.** BALD EAGLE.—I saw a bird of this species in Middle Creek Cañon Nov. 10, 1908. Mr. Thomas reported another which was captured alive on Maine St., Bozeman, in July, 1909.

66. **Falco mexicanus.** PRAIRIE FALCON.—Summer resident. I have seen this species only at Three Forks but there is a specimen at the Agricultural College which was found dead in the Gallatin Valley near Bozeman.

67. **Falco peregrinus anatum.** DUCK HAWK.—Summer resident. Fairly common from the middle of April until the last of October. Mr. Rhesis Fransham showed me a nest of this species on a limestone cliff on Squaw Creek, in the West Gallatin Cañon.

68. **Falco columbarius richardsoni.** RICHARDSON'S PIGEON HAWK.—Taken on the Madison River by Richmond and Knowlton, Sept. 23, 1888. Mr. Thomas noted this species twice during the summer of 1909 in the mountain cañons south of Bozeman.

\*69. **Falco sparverius phalæna.** DESERT SPARROW HAWK.—Abundant summer resident in the valleys and lower mountain cañons. It appears in the latter part of April and leaves in October.

70. **Pandion haliaëtus carolinensis.** OSPREY.—I have seen this species but once, June 13, 1909, near Bozeman. Richmond and Knowlton recorded it as rather common and it is probably more abundant along the larger rivers.

71. **Asio wilsonianus.** LONG-EARED OWL.—Richmond and Knowlton noted this species along the Jefferson River. Mr. Thomas saw some

young birds which some boys had taken from an old crow's nest in a willow thicket near Bozeman.

72. **Asio flammeus.** SHORT-EARED OWL.—Permanent resident in the valleys. This species was particularly abundant in the Gallatin Valley during April, 1909, when it was to be seen on dark days and toward evening, sitting on fence posts along the roads. A farmer in the Gallatin Valley described a nest, evidently of this species, to Mr. Thomas.

73. **Strix varia.** BARRED OWL.—I noted this species in Sour Dough Cañon, Aug. 5, 1909.

74. **Otus asio maxwelliæ.** ROCKY MOUNTAIN SCREECH OWL.—Mr. Thomas heard this species in Bridger Cañon, July 20, 1909.

75. **Bubo virginianus pallescens.** WESTERN HORNED OWL.—Permanent resident in both valleys and mountains.

76. **Nyctea nyctea.** SNOWY OWL.—Seen occasionally in the Gallatin Valley in winter. Said to occur in large numbers some winters.

77. **Glaucidium gnoma.** PYGMY OWL.—Permanent resident in the mountains. I noted this species near Flathead Pass in September, 1908, and in Sour Dough Cañon in January, 1909. Mr. Thomas found a nest containing young in Bridger Cañon in June, 1909.

78. **Ceryle alcyon.** BELTED KINGFISHER.—Common summer resident. This species arrives early in April and leaves in the first part of October. It probably winters occasionally as I noted an individual at Three Forks, Feb. 12, 1910.

79. **Dryobates villosus monticola.** ROCKY MOUNTAIN HAIRY WOODPECKER.—Permanent resident, occurring in the mountains in summer and in cottonwood groves in the valleys in winter. In June, 1909, I located several nests containing young.

80. **Dryobates pubescens homorus.** BATCHELDER'S WOODPECKER.—Permanent resident, occurring in similar places to the above species but much less common.

81. **Picoides arcticus.** ARCTIC THREE-TOED WOODPECKER.—Taken by F. H. Knowlton in the Gallatin Basin, Aug. 29, 1890.

82. **Picoides americanus americanus.** THREE-TOED WOODPECKER.

83. **Picoides americanus dorsalis.** ALPINE THREE-TOED WOODPECKER.—This species is a permanent resident in the mountains. I believe that birds referable to both forms may be found. A male bird in the collection at the Agricultural College, taken in Bear Cañon has very little white on the back while the birds I have observed have so much white that it is difficult to distinguish the female from Batchelder's Woodpecker in the field. In June, 1909, I watched a pair of these birds excavating their nest on Middle Creek. The male bird did most of the work of excavation. This nest was deserted before the eggs were laid.

84. **Sphyrapicus varius nuchalis.** RED-NAPED SAPSUCKER.—A common summer resident in the foothills and mountains breeding in aspen groves. In July, 1909, I found a nest of this species containing young on the West Fork. About two feet below the entrance to this nest was an older hole which was occupied by a family of red squirrels.

85. **Sphyrapicus thyroideus.** WILLIAMSON'S SAPSUCKER.— Taken by F. H. Knowlton in the Gallatin Basin. Thomas found a nest of this species in Bridger Cañon.

86. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.— A male of this species, taken in the mountains south of Bozeman, is in the collection at the Agricultural College.

87. **Asyndesmus lewisi.**— LEWIS'S WOODPECKER.— Common summer resident in the foothills and valleys arriving early in May. I found two nests of this species in dead cottonwoods near Salesville.

88. **Colaptes auratus luteus.** NORTHERN FLICKER.

89. **Colaptes cafer collaris.** RED-SHAFTED FLICKER.— Birds referable to both of these species occurs but the large majority of birds are hybrids. They arrive early in April and leave about November 1. A few winter in the vicinity of Lombard.

90. **Phalænoptila nuttalli.** POOR-WILL.— I found this species in the foothills near Lyman Creek July 20 and 21, 1909, and secured a specimen on July 21.

91. **Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.— Abundant summer resident, arriving about the second week in June and leaving late in August. During July, 1909, I found young on several occasions in sagebrush land.

92. **Selasphorus rufus.** RUFIOUS HUMMINGBIRD.— Summer resident. Mr. Rheesis Fransham showed me a nest of this species on Squaw Creek.

93. **Stellula calliope.** CALLIOPE HUMMINGBIRD.— An immature bird was taken by F. H. Knowlton, Aug. 12, 1890. An adult male from Squaw Creek is in the collection at the Agricultural College. I have not met this species in Gallatin County but secured an adult male nearokedale, Park County, on May 29, 1909.

94. **Tyrannus tyrannus.** KINGBIRD.— Common summer resident in the valleys. This bird nests abundantly in the cottonwood trees in Bozeman. It arrives about May 20, and leaves the last of August.

95. **Tyrannus verticalis.** ARKANSAS KINGBIRD.— Summer resident in the valleys but less common than the above species. This species arrives about a week later than the common Kingbird and departs somewhat earlier.

96. **Sayornis sayus.** SAY'S PHOEBE.— Two specimens taken by Richmond and Knowlton. I know of no other records of this species. It is probably rare in most parts of the county.

97. **Nuttallornis borealis.** OLIVE-SIDED FLYCATCHER.— Summer resident in the mountains. This species is well distributed but not common. It frequents open fir forests and appears to prefer trees that are spike topped and partially dead. It is occasionally seen in the valleys during migrations.

98. **Myiochanes richardsoni.** WESTERN WOOD PEWEE.— Summer

<sup>1</sup> See The Condor, Vol. XI, pp. 197.

resident in cottonwood groves in the valleys. Very abundant in Bozeman. This species arrives about June 10, and leaves early in September.

99. ***Empidonax trailli trailli***. TRAILL'S FLYCATCHER.

\*100. ***Empidonax trailli alnorum***. ALDER FLYCATCHER.— This species is a rather rare summer resident in willow and alder thickets along mountain streams. I believe that specimens referable to both of the above forms will be found to occur. A specimen taken on Brackett Creek on May 21, 1909, proved rather puzzling as it is almost an exact intergrade, but was finally referred to *alnorum* by Dr. Bishop.

101. ***Empidonax minimus***. LEAST FLYCATCHER.— Summer resident in the valleys. So far I have only met this species in the cottonwood trees in Bozeman where it is quite abundant. It appears in the latter part of May and leaves again in August.

102. ***Empidonax hammondi***. HAMMOND'S FLYCATCHER.— Summer resident in the mountains, frequenting willow and alder thickets along streams and the edges of mountain parks. I found a nest of this species in Sour Dough Cañon, July 2, 1909.

103. ***Empidonax wrighti***. WRIGHT'S FLYCATCHER.— Common summer resident in the foothills, frequenting aspen groves and clumps of young fir. It arrives in the latter part of May.

104. ***Otocoris alpestris leucolæma***.— DESERT HORNED LARK.— Abundant summer resident in the Three Forks Valley but only locally common during the breeding season in the Gallatin Valley. This bird prefers grazing land and rolling grassy hills, rather than agricultural districts. This species arrives very early in March and its flocks are usually the first sign of the spring migration. It leaves in late November and a few remain about Three Forks, in company with the next form, throughout the winter.

\*105. ***Otocoris alpestris arcticola***. PALLID HORNED LARK.— Common winter resident in the valleys, arriving in December and leaving in February or early March.

106. ***Pica pica hudsonia***. MAGPIE.— Abundant permanent resident, nesting in willow thickets in the valleys and in thorn-bushes and aspen groves in the foothills. They begin nesting in April or May and the first young are to be seen by the last of May. In the fall they may often be seen in the mountains as high as 8,000 feet.

\*107. ***Cyanocitta stelleri annectens***. BLACK-HEADED JAY.— Permanent resident in the mountains, being usually more common in fir than in pine forests. In the winter they stay about cabins and lumber camps in company with Rocky Mountain Jays and Nutcrackers. In October I have occasionally seen them in the valleys in willow thickets.

\*108. ***Perisoreus canadensis capitalis***. ROCKY MOUNTAIN JAY.— Permanent resident in the mountains, and seen most commonly about lumber camps and cabins when they are quite tame.

109. ***Corvus corax sinuatus***. WESTERN RAVEN.— I saw a raven about Ramshorn Peak in the Gallatin Range at an elevation of 9,000 feet on Oct. 29, 1908.

\*110. **Corvus brachyrhynchos hesperis.** WESTERN CROW.— Common summer resident, nesting in willow thickets in the valleys. Richmond and Knowlton noted a crow roost in the mountains south of Fort Ellis. So far as I know, this roost does not exist at present, perhaps because a large amount of timber has been removed from this vicinity since then. Crows are among the earliest migrants, arriving in late March and leaving in October. A few remain in the vicinity of Bozeman throughout the winter.

111. **Nucifraga columbiana.** CLARK'S NUTCRACKER.— Permanent resident in the mountains, occurring most commonly in the alpine forests but not uncommon as low as 6,000 feet in open stands of Douglas fir. Mr. A. M. Pyfer found this species nesting near Salesville in March.

112. **Dolichonyx oryzivorus.** BOBOLINK.— Common summer resident in the valleys. Richmond and Knowlton found it in but one place in the Gallatin Valley, which shows a recent increase in the species, since it is now found in many places throughout this valley. It arrives about the middle of May and leaves in late August.

113. **Molothrus ater.** COWBIRD.— Common summer resident, arriving in the second week in May. I have found their eggs more often in the nest of Brewer's Blackbird than any other species. Mr. Thomas found the eggs and young quite commonly in the nest of the Slate-colored Sparrow.

114. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.— Common summer resident about Three Forks but, so far as I know, not found in the Gallatin Valley, probably because of the lack of suitable breeding grounds.

\*115. **Agelaius phoeniceus fortis.** THICK-BILLED RED-WING.— Summer resident, but not common because of the lack of suitable localities. A small colony nests just south of Bozeman and another in the East Flathead Valley, the latter in willow bushes with a company of Brewer's Blackbirds. This species arrives in April and leaves in October or later. I secured two birds on Dec. 9, 1908, in the East Flathead Valley about on the border line of Park and Gallatin counties.

116. **Sturnella neglecta.** WESTERN MEADOWLARK.— Abundant summer resident in the valleys. This species appears about the middle of March and leaves in November. A few spend the winter in the grain-fields of the Gallatin Valley.

117. **Icterus bullocki.** BULLOCK'S ORIOLE.— Rare summer resident. Mr. Thomas saw one of these birds in Bozeman in August, 1909. There is an adult female, taken in the Gallatin Valley, in the collection at the Agricultural College. It will perhaps be found to be more common along the upper Missouri as I noted several old nests at Lombard in February, 1910.

118. **Euphagus cyanocephalus.** BREWER'S BLACKBIRD.— Common summer resident in the valleys, nesting in colonies in the willow thickets and wild-rose bushes. They arrive in April and leave in October. A large percentage of their nests contains Cowbird's eggs.

119. **Quiscalus quiscula æneus.** BRONZED GRACKLE.— Rare summer resident. There is a mounted specimen of this bird in the collection at the Agricultural College which was taken on the college grounds in Bozeman. Mr. Thomas found a pair evidently nesting in a willow thicket near Bozeman, and Mr. Wyatt Jones told me that they were fairly common in the vicinity of Belgrade.

\*120. **Hesperiphona vespertina montana.** WESTERN EVENING GROSBEAK.— Regular migrant. Flocks of these birds may be seen in cottonwood groves and willow thickets in spring and fall. They appear in March and are common until April 10. I saw a single male as late as May 8, 1909. The fall migration occurs in October and November, when they are sometimes seen in Bozeman feeding on Box Elder seeds.

\*121. **Pinicola enucleator montana.** ROCKY MOUNTAIN GROSBEAK.— Summer resident in the higher mountains and migrant in the valleys. It appears in the valleys about the middle of October and is fairly abundant in the willow thickets for a time. It is most abundant in spring in April and a few remain until early May. A few may winter but I believe that most if not all of the winter birds belong to the next form. The type specimens, from which this form was first described by Ridgway, came from this region.

\*122. **Pinicola enucleator alascensis.** ALASKAN PINE GROSBEAK.— Two birds taken Dec. 21, 1908, were referred to this form by Dr. Bishop. I have noticed a break in the abundance of Pine Grosbeaks in the first part of November and the last part of March which leads me to believe that this is the common winter form and that this break occurs when the summer form is leaving and the winter birds have not yet arrived and *visa-versa*.

123. **Carpodacus cassini.** CASSIN'S PURPLE FINCH.— Summer resident, arriving early in May and breeding in the fir forests in the mountains and occasionally in cottonwood groves in the valleys. It is not uncommon in Bozeman throughout the breeding season.

124. **Loxia curvirostra minor.** CROSSBILL.— Migrant in the mountains. I saw flocks of this species from Sept. 23 to Oct. 24, 1908, and on May 19, 1909. I have not noted it during the breeding season.

\*125. **Leucosticte tephrocotis.** GRAY-CROWNED ROSY FINCH.— Migrant and winter resident. This bird appears to be very irregular in its occurrence. I noted it in the Gallatin Mountains in October. During the winter it was usually quite rare but became very common in the Gallatin Valley for a short time during April and early May. Though seldom seen in this region, when it is observed it is always in large flocks.

\*126. **Leucosticte tephrocotis littoralis.** HEPBURN'S ROSY FINCH.— I found several Gallatin County specimens of this form in the collection at the Agricultural College. It undoubtedly occurs with flocks of the above form.

127. **Acanthis linaria.** REDPOLL.— Abundant winter resident. This bird first appears in September, becomes quite common by the middle



of October and in winter is probably the most abundant of all species. In spring I noted it in small numbers up to May 20, 1909.

\*128. **Astragalinus tristis**. GOLDFINCH.—Common summer resident in willow thickets in the valleys. It occasionally winters in small flocks. A bird secured at Three Forks in February, 1910, was identified as *A. t. tristis* by Dr. Bishop although *A. t. pallidus* should occur and perhaps will be found to be the common breeding form in this region.

129. **Spinus pinus**. PINE SISKIN.—Abundant summer resident. This species arrives in May and breeds in cottonwood groves in the valleys and lower mountain cañons and in the mountain forests as high as 8,000 feet. I found a nest of this species in middle Creek Cañon placed in a willow three feet from the ground. This nest was partially completed on June 21, and contained three eggs by June 26. Mr. Thomas found several nests in cottonwood trees and young firs in Bozeman. One of these contained four fully fledged young on Aug. 20, 1909. This species leaves in the middle of September.

130. **Passer domesticus**. ENGLISH SPARROW.—This bird is now quite common in all towns and settlements along the railroads. It arrived some time in the last ten years but I have been unable to get exact data.

131. **Plectrophenax nivalis**. SNOW BUNTING.—Mentioned as occurring in winter at Salesville, by Mr. A. M. Pyfer.

132. **Calcarius lapponicus**. LAPLAND LONGSPUR.—I noticed large flocks of this species on March 30 and April 1 and 17, 1909. It probably occurs regularly in migrations and perhaps in winter.

133. **Poœcetes gramineus confinis**. WESTERN VESPER SPARROW.—Common summer resident. This species arrives late in April and leaves the last of September. It is a very common bird in the cultivated parts of the Gallatin Valley and even commoner in the sagebrush land of the East Flathead Valley. I found young of this species out of the nest and barely able to fly on July 22, and probably a second brood nest, containing fresh eggs on July 27.

\*134. **Passerculus sandwichensis alaudinus**. WESTERN SAVANNAH SPARROW.—Common summer resident in the valleys, arriving about the middle of May.

135. **Ammodramus savannarum bimaculatus**. WESTERN GRASSHOPPER SPARROW.—Summer resident in the valleys. Quite rare in the Gallatin Valley but fairly common about Three Forks.

\*136. **Chondestes grammacus strigatus**. WESTERN LARK SPARROW.—Richmond and Knowlton obtained specimens of this bird. I have observed it but once, on July 7, 1909, in a thicket of tall sage-brush and greasewood near Lombard.

137. **Zonotrichia leucophrys**. WHITE-CROWNED SPARROW.—Common summer resident. This species breeds in willow thickets, both in the valleys about Bozeman and in the mountain cañons up to 8,000 feet. It arrives early in May, in company with the next form, and leaves about

the middle of October. Mr. Thomas found a nest of this species near Bozeman in June and I discovered one on June 25 on Middle Creek, at an elevation of 7,100 feet.

\*138. **Zonotrichia leucophrys gambeli.** INTERMEDIATE SPARROW.— Abundant migrant in May and in September and October. Richmond and Knowlton stated that this form breeds in the mountains. They did not state that any summer birds were taken, and since they did not record the above form, I believe they must have mistaken it for this one. I have never taken the form *leucophrys*, but have examined many birds closely in the field and have never found *gambeli* in either valleys or mountains in summer. At the Middle Creek nest mentioned above I was able to examine the sitting female from a few feet distance and feel certain of her identity.

\*139. **Spizella monticola ochracea.** WESTERN TREE SPARROW.— Common winter resident in the valleys, particularly in willow thickets. It arrives late in September and leaves late in April.

140. **Spizella passerina arizonæ.** WESTERN CHIPPING SPARROW.— Common summer resident. This species occurs in the valleys in cottonwood groves and in the mountains, about the edges of mountain parks, as high as 8,000 feet. It is quite common in Bozeman and arrives about the middle of May and leaves in September.

141. **Spizella breweri.** BREWER'S SPARROW.— Richmond and Knowlton found this species commonly. I noted it but once, in the East Flathead Valley on July 28, 1909, when I saw both adults and a young bird just out of the nest.

\*142. **Junco hyemalis.** SLATE-COLORED JUNCO.— Abundant migrant from the middle of September till November and from the middle of April to the middle of May. I estimated that about 10 to 20 % of the flocks of migrant Juncos were of this form.

\*143. **Junco hyemalis shufeldti.** SHUFELDT'S JUNCO.— Abundant migrant. This is usually the first Junco to arrive in spring, appearing about April 1 and remaining till early in May. It is also later than the other subspecies in fall, occurring from early October to the middle of November. It usually forms 30 to 40 % of the migrant flocks but occasionally flocks are almost entirely of this form.

\*144. **Junco hyemalis montanus.** MONTANA JUNCO.— A regular migrant in flocks with the other Juncos. Since it is more difficult to distinguish in the field than the other forms I have few notes as to its relative abundance.

\*145. **Junco hyemalis mearnsi.** PINK-SIDED JUNCO.— Common summer resident in the mountains and usually the most abundant of the migrant Juncos, forming from 50 to 100 % of the flocks. This form arrives in April and leaves in late October. In summer it occurs from 6,000 to 8,000 feet in open woods and about the edges of mountain parks. I found a nest in the Bridger Mountains, containing partially incubated eggs, on July 19, 1908.

146. **Amphispiza nevadensis.** SAGE SPARROW.—An abundant summer resident in the East Flathead Valley. The only other place that I have found it is in the Gallatin Basin where I heard several birds singing in July.

\*147. **Melospiza melodia montana.** MOUNTAIN SONG SPARROW.—Abundant summer resident in willow thickets in the valleys and along mountain streams to at least 7,500 feet. It is also quite a common winter resident as high as 6,500 feet. The spring song period begins very early so that it is impossible to distinguish migrants from winter residents with certainty. The spring migrants, however, evidently arrive by April 1, if not sooner.

148. **Melospiza lincolni.** LINCOLN'S SPARROW.—An abundant summer resident in willow thickets in the mountains, above 6,500 feet. It arrives early in June, occurring in the valleys, in small numbers, for a few days. The fall migration apparently begins early, for I have found it in the valleys again by July 30. It remains until early September.

\*149. **Passerella iliaca schistacea.** SLATE-COLORED FOX SPARROW.—Abundant summer resident in willow thickets in the valleys, arriving early in April. It prefers the thickest and most impenetrable of the willow thickets. For this reason it is more often heard than seen, and I have no records of its occurrence after July 10, when the song period ceases.

150. **Pipilo maculatus arcticus.** ARCTIC TOWHEE.—Abundant summer resident in thickets of willow, wild-rose and thorn in the valleys and foothills. It arrives in the middle of May and leaves by the middle of September.

151. **Oreospiza chlorura.** GREEN-TAILED TOWHEE.—Summer resident in the foothills in wild-rose and thorn thickets. It arrives in the latter part of May. It is much less common than the above species, though usually found in company with it.

152. **Zamelodia ludoviciana.** ROSE-BREADED GROSBEEK.—Mr. Thomas observed a male of this species on Church St., Bozeman, on two different occasions in June and July, 1909. On the first occasion it was in company with a male of the next species.

153. **Zamelodia melanocephala.** BLACK-HEADED GROSBEEK.—Summer resident in the valleys, inhabiting the willow thickets. I have not seen this species in the East Flathead Valley nor in the other valleys above 5,000 feet. It arrives late in May.

154. **Passerina amoena.** LAZULI BUNTING.—Common summer resident, inhabiting wild-rose thickets in the valleys and foothills. Arrives in the latter part of May and leaves in August.

155. **Calamospiza melanocorys.** LARK BUNTING.—Summer resident. I noted only a few individuals of this species during the spring migration from May 24 to June 13, 1909. Mr. Thomas found it breeding commonly at Three Forks and Prof. Cooley told me that in 1907 it appeared in large numbers and bred throughout the Gallatin Valley, but that he had not seen it since then.

156. **Piranga ludoviciana.** WESTERN Tanager.— Summer resident in the mountains, appearing to have a decided preference for fir forests, as I have only noted it in this type. It arrives early in June and occurs for a short time in cottonwood groves in the valleys. I have not noted it later than Aug. 3.

157. **Progne subis.** PURPLE MARTIN.— Both Mr. Thomas and I noted this species in Bozeman during June and July. I believe that they were breeding somewhere in the northwestern quarter of the town, but we were unable to locate the spot.

158. **Petrochelidon lunifrons.** CLIFF SWALLOW.— Common summer resident. Very abundant in the Gallatin Valley, nesting under the eaves of buildings. A few large colonies breed on cliffs along the Missouri and Gallatin Rivers near Logan and Lombard. Arrives early in June and leaves in August.

159. **Hirundo erythrogastra.** BARN SWALLOW.— Common summer resident. Abundant in the Gallatin Valley, where I found it breeding under low bridges over irrigating ditches about as commonly as in barns. This species arrives in the latter part of May and leaves late in August.

160. **Iridoprocne bicolor.** TREE SWALLOW.— Summer resident, but more common in migrations. Richmond and Knowlton found a colony breeding in a clump of cottonwood trees. I have noted it in the breeding season but once, when a single pair had a nest in a building in the busiest part of Main St., Bozeman. The birds were not there in 1909 and the site was occupied by English Sparrows. This species arrives early in May and leaves in September.

161. **Tachycineta thalassina lepida.** NORTHERN VIOLET-GREEN SWALLOW.— Common summer resident, breeding in limestone cliffs in the lower mountain cañons, below 6,000 feet. Colonies occur in the cañons of Sixteen Mile and Bridger Creeks and the Gallatin River. This species arrives about the middle of May and leaves late in August.

162. **Riparia riparia.** BANK SWALLOW.— Summer resident, but not common. There are breeding colonies in banks along the East Gallatin River and Bridger Creek.

163. **Stelgidopteryx serripennis.** ROUGH-WINGED SWALLOW.— Common summer resident. This species breeds commonly throughout the valleys, usually with but a single pair in a locality. They arrive about May 20 and leave late in August.

164. **Bombycilla garrula.** BOHEMIAN WAXWING.— Common winter resident. This species arrives in the mountains in the last of October and is seen in the valleys a few weeks later. Flocks occur all winter both in valleys and in the mountains as high as 7,000 feet. In midwinter they often visit Bozeman in large numbers and strip the mountain ash trees of their berries. In the mountains they feed on cedar, juniper and bearberry. They leave in spring about the last of April.

165. **Bombycilla cedrorum.** CEDAR WAXWING.— Summer resident. This species arrives later than most others, being noted first on

June 18, 1909. I saw it but once in 1908, but it was very common in 1909, when I found two nests in the shade trees of Bozeman in August. I believe that this difference in abundance was due to the relative abundance of service-berries, which form a large portion of the food of the young.

166. **Lanius borealis.** NORTHERN SHRIKE.— Common winter resident in the valleys. This species arrives early in October and leaves by the last of March. I have seen it in mountain parks as high as 7,000 feet in November. An adult male, taken at Three Forks in February, 1910, had the typical measurements and markings of the form described as *L. b. invictus*. Should this form be accepted as a subspecies it should be included in the list of Gallatin County birds.

167. **Lanius ludovicianus excubitorides.** WHITE-RUMPED SHRIKE.— Summer resident. Richmond and Knowlton recorded it as common in the valleys. I have not seen it in summer but noted it quite commonly from May 2-15, 1909.

168. **Vireosylva olivacea.** RED-EYED VIREO.— Summer resident in cottonwood groves in the valleys. Not common. I have noted it near Logan and on a small island in the Gallatin River near Salesville. During migrations in late August I have occasionally seen it in Bozeman.

169. **Vireosylva gilva swainsoni.** WESTERN WARBLING VIREO.— Common summer resident in cottonwood groves in the valleys and about the edges of mountain parks to 7,500 feet. It arrives in the latter part of May and leaves late in August. It is quite common in the shade trees of Bozeman, where it builds beautiful nests, using cottonwood down largely in the construction.

170. **Vermivora celata lutescens.** LUTESCENT WARBLER.— Migrant. This bird was quite common in the valleys and foothills from May 8 to June 2, 1909.

171. **Dendroica aestiva.** YELLOW WARBLER.— Common summer resident in willow thickets in the valleys. This species arrives about May 20 and leaves late in August.

172. **Dendroica auduboni.** AUDUBON'S WARBLER.— Common summer resident in the mountains. This species is abundant in the foothills during migrations. It first appears early in May and leaves about the middle of October.

173. **Seiurus noveboracensis notabilis.** GRINNELL'S WATER-THRUSH.— Summer resident. Not common. A few of these birds may be found throughout the summer in the willow swamps near Bozeman. They arrive about the end of May.

174. **Oporornis tolmiei.** MACGILLIVRAY'S WARBLER.— Common summer resident in willow and wild-rose thickets in the valleys and foothills. It arrives late in May.

175. **Geothlypis trichas occidentalis.** WESTERN YELLOW-THROAT.— Common summer resident in similar places to the above species but somewhat more abundant. Arrives about May 20.

176. **Wilsonia pusilla pileolata.** PILEOLATED WARBLER.— Common

summer resident in willow thickets in the mountains above 7,000 feet. This species arrives early in June and departs in September. During migrations it is quite abundant for a short time in the valleys.

177. **Setophaga ruticilla.** REDSTART.—Summer resident in cottonwoods, willows and alders in the valleys and in the lower mountain cañons. It arrives late in May and is not common.

178. **Anthus rubescens.** PIPIT.—Common fall migrant, appearing in the valleys about the middle of September and remaining until the latter part of October. It is often in company with Horned Larks. I have not seen this species in spring.

179. **Cinclus mexicanus unicolor.** DIPPER.—Permanent resident in the mountain cañons. In winter I have occasionally seen these birds near Bozeman on Bozeman Creek and the East Gallatin River, but only in places where the water runs swiftly. Most of them remain in the mountain cañons all winter where they sing better and more frequently in February and March than at any other time of year. In 1909 I found four nests of this species placed on beams of bridges, and this seems to be a very common location for them in this region. Out of eight nests found, only one was placed in the traditional location, beside a waterfall where the spray kept the moss fresh. The rest were on bridges, on rocks above the water, and one in the beams of a splash dam. In the latter case the dam was in use when the birds were building and was opened and closed twice a day so that the water sometimes flowed over the top and sometimes through at the bottom. The birds attempted to build as close to the water as possible and thus had two locations for their nest. The water, however, kept removing the material from the lower site so that the upper nest was finally completed and occupied.

180. **Oreoscoptes montanus.** SAGE THRASHER.—I found this bird in the East Flathead Valley on June 8, 1909. Richmond and Knowlton noted it in the Gallatin Valley and secured a specimen. Like the other sagebrush species it has probably entirely disappeared from the Gallatin Valley since then.

181. **Dumetella carolinensis.** CATBIRD.—Common summer resident in the willow thickets in the valleys. It arrives late in May and leaves about the 10th of September.

182. **Salpinctes obsoletus.** ROCK WREN.—Summer resident. This bird is quite common in the limestone rocks of the northern part of the county, occurring along the Missouri River and on Sixteen Mile Creek and its branches. I have not found it in other parts of the county. I believe that the reason for this is the character of the country rather than the elevation, because it occurs at much higher elevations in neighboring counties.

183. **Troglodytes aëdon parkmani.** WESTERN HOUSE WREN.—Summer resident but not common. This species arrives about May 20 and nests about buildings in the valleys.

184. **Cistothorus stellaris.** SHORT-BILLED MARSH WREN.—I ob-

served a bird of this species in a clump of tall grass along the Missouri River at Lombard on April 22, 1909.

\*185. ***Certhia familiaris montana***. ROCKY MOUNTAIN CREEPER.—A rare summer resident in spruce forests in the mountains. Seen more often during migrations but by no means common then. The migrating birds were noted from Sept. 11 to Nov. 10, 1908, and from March 25 to April 16, 1909. I observed it once in winter near Ross's Peak, Feb. 17, 1909.

186. ***Sitta carolinensis nelsoni***. ROCKY MOUNTAIN NUTHATCH.—Rare but probably permanent resident. Richmond and Knowlton found it breeding. I noted it but twice, Sept. 28, 1908, and Feb. 27, 1909.

187. ***Sitta canadensis***. RED-BREASTED NUTHATCH.—Migrant. Quite common in fall. Noted from Sept. 7 to Oct. 24, 1908, and from April 16 to May 25, 1909.

\*188. ***Penthestes atricapillus***. CHICKADEE.—A Chickadee, taken at Bozeman, Nov. 26, 1908, was identified as *P. a. atricapillus* by Dr. Bishop. This bird had the breast stained dark gray, a common occurrence among winter Chickadees in this region and said to be caused by living in burned timber. Since there are no large bodies of burned timber in this region it is apparent that they migrate from elsewhere. Thinking that all the dark-breasted birds might belong to this form I secured another at Three Forks in February, 1910. This bird, however, proved to be the usual form, *P. a. septentrionalis*.

\*189. ***Penthestes atricapillus septentrionalis***. LONG-TAILED CHICKADEE.—Abundant permanent resident in willow thickets in the valleys and mountain cañons to about 6,500 feet.

190. ***Penthestes gambeli***. MOUNTAIN CHICKADEE.—Permanent resident in the mountains. In October it may be seen occasionally in the valleys with the above species.

\*191. ***Regulus satrapa olivaceus***. WESTERN GOLDEN-CROWNED KINGLET.—Abundant migrant and rather uncommon summer resident in spruce forests in the mountains. Occasional as a winter resident in company with Mountain Chickadees.

192. ***Regulus calendula***. RUBY-CROWNED KINGLET.—Common summer resident in the mountains. In migrations this species occurs in willows in the valleys but in the breeding season is found only in forests of Douglas fir. The song of this species in this region is quite different from that of eastern Kinglets. The first two parts are much alike but in the last part, in place of the triplets of the eastern bird, there are a series of double notes on the same pitch, the first note of each double accented. When only the last part of the song is rendered, as is frequently the case, it closely resembles a common call of the Tufted Titmouse.

193. ***Myadestes townsendi***. TOWNSEND'S SOLITAIRE.—Summer resident in the mountains but more common during migrations. It does not breed below 7,000 feet to my knowledge, but during migrations is common in the foothills and lower forests. It appears to sing better and more

frequently during the fall than at any other time. It winters rarely in the mountains and quite commonly among the rocky cliffs about Lombard.

194. **Hylocichla fuscescens salicicola**. WILLOW THRUSH.—Common summer resident in willow thickets in the valleys. It arrives late in May and leaves in August.

\*195. **Hylocichla ustulata swainsoni**. OLIVE-BACKED THRUSH.—Common summer resident in the mountains, arriving about June 1 and leaving early in September. Occurs regularly in the valleys during migrations.

196. **Hylocichla guttata auduboni**. AUDUBON'S HERMIT THRUSH.—Summer resident in the mountains. Quite rare and usually above 7,000 feet.

\*197. **Planesticus migratoria propinqua**. WESTERN ROBIN.—Common summer resident, occurring in valleys and mountains up to 8,000 feet. This species arrives in the middle of March and leaves late in October. It winters rarely. I observed one at Three Forks, Feb. 12, 1910.

198. **Sialia currucoides**. MOUNTAIN BLUEBIRD.—Common summer resident in the valleys and lower mountain peaks below 6,500 feet. This species arrives early in March and leaves in November.

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## THE PASSENGER PIGEON INVESTIGATION.<sup>1</sup>

BY C. F. HODGE.

AT THE meeting of this Union a year ago a plan was projected and has since been developed to secure adequate search of the American continent for this lost species. If any consider this a "fool's errand," I may add that at that time I put the question fairly to the Union as a body and to a number of you personally: "Do you think that scientifically adequate search has been made for *Ectopistes migratorius*?" Not a decisive affirmative answer was offered, and, among others, Dr. C. Hart Merriam replied distinctly that he did not.

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<sup>1</sup> Read at the meeting of the American Ornithologists' Union held in Washington, D. C., Nov. 14-17, 1910.