

ORNITH

QL

684

.C6

C62x

1897



Cornell University
Library

The original of this book is in
the Cornell University Library.

There are no known copyright restrictions in
the United States on the use of the text.

<http://www.archive.org/details/cu31924090193305>

CORNELL UNIVERSITY LIBRARY



3 1924 090 193 305

The State Agricultural College

THE AGRICULTURAL EXPERIMENT STATION

BULLETIN No. 37

TECHNICAL SERIES No. 2

The

Birds of Colorado

BY

W. W. COOKE

APPROVED BY THE STATION COUNCIL

ALSTON ELLIS, President

FORT COLLINS, COLORADO

MARCH, 1897



THE SMITH-BROOKS PRINTING COMPANY
DENVER

THE
Agricultural Experiment Station

ORWITH
QL
684
CG
CG2x
1897

FORT COLLINS, COLORADO

THE STATE BOARD OF AGRICULTURE

	Term Expires
HON. JOHN J. RYAN.....Fort Collins.....	1897
HON. E. H. SNYDER.....Highlands.....	1897
HON. J. E. DuBOIS.....Fort Collins.....	1899
HON. A. S. BENSON.....Loveland.....	1899
HON. JAMES L. CHATFIELD....Gypsum.....	1901
HON. A. LINDSLEY KELLOGG..Rocky Ford.....	1901
HON. B. F. ROCKAFELLOW.....Canon City.....	1903
MRS. ELIZA F. ROUTT.....Denver.....	1903
GOVERNOR ALVA ADAMS, } PRESIDENT ALSTON ELLIS, } <i>ex-officio</i>	

EXECUTIVE COMMITTEE IN CHARGE

A. L. KELLOGG, Chairman. JOHN. J. RYAN. J. E. DuBOIS.
ALSTON ELLIS. A. S. BENSON.

STATION COUNCIL

ALSTON ELLIS, A. M., Ph. D., LL. D..... President and Director
WELLS W. COOKE, B. S., A. M..... Agriculturist
C. S. CRANDALL, M. S..... Horticulturist and Botanist
WILLIAM P. HEADDEN, A. M., Ph. D..... Chemist
L. G. CARPENTER, M. S..... Meteorologist and Irrigation Engineer
C. P. GILLETTE, M. S..... Entomologist
DANIEL W. WORKING, B. S..... Secretary
LATHROP M. TAYLOR, B. S., Stenographer

ASSISTANTS

FRANK L. WATROUS..... Agriculturist
JACOB H. COWEN, B. S..... Horticulturist
CHARLES RYAN..... Chemist
EMMA A. GILLETTE..... Entomologist
ROBERT E. TRIMBLE, B. S..... Meteorologist and Irrigation Engineer

SUB-STATIONS

PHILO K. BLINN, B. S..... Superintendent
Arkansas Valley Station, Rocky Ford, Colorado
J. E. PAYNE, M. S..... Superintendent
Rain-Belt Station, Cheyenne Wells, Colorado

THE BIRDS OF COLORADO.

BY W. W. COOKE.

The following paper is designed to set forth our present knowledge of the distribution and migration of Colorado birds. There is also included a bibliography of the subject and an historical review of the progress of ornithological investigation in this State.

The total number of species and varieties of birds known to occur in Colorado is 360, of which 228 are known to breed. This is a larger number of species than has been taken in any state east of the Mississippi and is exceeded by only one state of the Union, that is by Nebraska with nearly four hundred species.

The reason for this great variety of bird life is found in the geographical position of the State and the physical characteristics of its surface.

From the Atlantic Ocean to western Iowa but slight changes occur in the avi-fauna. But with the decreased rainfall and the increase in altitude from there westward, a great number of new forms appear. The greatest change is at the eastern foothills of the Rocky Mountains, which is the natural dividing line between the eastern and middle provinces of the United States. But while many of the western forms extend as stragglers eastward into Kansas and Nebraska and especially into the Black Hills of South Dakota and northwestern Nebraska, a large number of eastern forms do not pass west of the semi-arid region of twenty inches of annual rainfall and are not found in Colorado. It is due to this fact that Nebraska exceeds Colorado in the number of species taken in the State. All of the eastern species reach Nebraska and nearly all the western forms extend into northwestern Nebraska. This is strikingly shown in the case of the Warblers. Nebraska has more than twenty Warblers that do not occur in Colorado, while Colorado has less than five that are not found in Nebraska.

The avi-fauna of Colorado is reinforced by species that belong more properly to the regions on all sides of it. The basis may be considered as the species that range over the whole of the United States and those that are most abundant

in the middle west. As additions to these, there come to the State from the east such distinctively eastern species as the Bobolink, Phoebe, Blue Bird, and Baltimore Oriole; from the west the Dwarf Hermit Thrush, Grace's Warbler, Golden-crowned Sparrow, and the Black Swift; from the north Holboell's Grebe, Arctic Tern, Harlequin Duck, and Barrow's Golden-eye; while something over twenty truly southern species have been taken as stragglers in southern Colorado.

Of accidental visitors we have our share. Three varieties of Surf Ducks have wandered to Colorado; a specimen of the English *Saxicola cyanus* was taken near Boulder, a Bendire's Thrasher at Colorado Springs, an Olivaceous Flycatcher at Fort Lyon, a White-winged Dove in Jefferson County, a White Ibis at Denver, a Roseate Spoonbill at Silverton, and most wonderful of all, a Scarlet Ibis near Pueblo.

The broken character of the surface of Colorado offers inducements for birds of all kinds. The eastern third of the State is a vast plain, rising from an altitude of 3,500 feet at its eastern edge to nearly 6,000 feet where it joins the foothills of the Rockies. This whole region is treeless, except a narrow fringe along the streams. Innumerable throngs of birds sweep across it during migration, especially water fowl and waders, but its attractions are too few to induce many to remain through the summer.

The center of the State is occupied by the Continental Divide. Range on range attaining a height of over 14,000 feet offers favorable conditions for even boreal species. The great mountain parks lie in this section, and at an altitude of 8,000 feet mark the limit of height reached by the great bulk of the species.

The western third of Colorado presents a wilderness of rolling hills from 5,000 to 8,000 feet in altitude, covered with a few trees and a very scanty vegetation. Bird life is present in small numbers but great variety and partakes largely of western characteristics.

The temperature of Colorado is much below that of corresponding latitudes in the Mississippi Valley. On the plains the average for the year is not far from 52° F., with extremes more marked and changes more sudden than in moister climates. At 7,000 feet among the mountains the average temperature is five degrees lower, and at 9,000 feet only a little colder.

Timber line is about 11,500 feet in Colorado and with an average temperature of two degrees below freezing is yet the home of some birds for the entire year, while during the short summer many species find here congenial nesting sites.

The rainfall on the plains is about fourteen inches per year, increasing to twenty inches at 8,000 feet in northern Colorado, but in the southern scarcely reaching that amount until nearly to timber line. This scarcity of rain has a direct influence on the vegetation and through that on the distribution of the birds. With the exception of a few species of sparrows, almost all the bird life of the State is confined to the vicinity of water or high enough on the mountains to reach timber.

The records given in this bulletin are based first of all on the printed matter that has appeared dealing with the birds of Colorado. This mass of material has been supplemented by much manuscript matter, and by the personal observations of the author during a four years' residence in the State.

There is no State in the Union that offers a more difficult field for thorough work, and a recapitulation of our present knowledge only serves to bring out more clearly the many points on which further information is needed.

The only claim for completeness made by the present list is that it is complete so far as work done up to this time is concerned. Experience in this State as well as in others teaches that additions will be made for many years to come. These will not be confined to any one part of the State nor to any particular class of birds. In addition to accidental visitants, it may be confidently expected that several more eastern species will be found to follow up the Arkansas and the Platte Rivers, and a still greater number of western species up the valley of the Grand into western Colorado.

Though much ornithological work has been done in Colorado, many parts of the State have never yet been visited by an ornithologist. The region along the eastern base of the foothills at the juncture of mountain and plain has been quite thoroughly studied. Fully four-fifths of all the records of Colorado pertain to this narrow strip, thirty miles wide and one hundred and fifty miles in length. As this constitutes less than one-twentieth of the area of the State, it can be seen how little attention has been paid to much of Colorado. In this strip, Beckham, Nash and Lowe have worked at Pueblo; Aiken at Pueblo, Cañon City and Colorado Springs; Allen at Colorado Springs; Henshaw, Anthony and H. G. Smith at Denver; Trippe at Idaho Springs; Gale at Gold Hill; W. G. Smith and Osburn at Loveland; Breninger at Fort Collins, and Dille at Greeley. In most cases this work has been continuous through the year, and has resulted in a pretty thorough knowledge of the main features of the ornithology of this region. About a dozen other ornithologists have given us results of short visits to various places in this belt.

Eastward lie the great plains, stretching 150 miles from Pueblo to the Kansas line and crossing the whole breadth of Colorado. Here is an extent of country four times as large as the State of Massachusetts, and in this whole region but two ornithologists have ever worked. Capt. P. M. Thorne was at Fort Lyon, on the Arkansas, and Mr. H. G. Hoskins at Burlington and vicinity, in Kit Carson County. There are fourteen counties in eastern Colorado that have not a single printed bird record to their credit.

The great parks of Colorado have received but little more attention. Coues crossed North Park; Stevenson, Middle Park, and Allen, South Park, and took hurried glimpses at the bird life. San Luis Park has fared somewhat better, thanks to the labors of Henshaw and Aiken. Stone spent several months between South Park and San Luis Park, in the vicinity of Hancock. In southwestern Colorado, Drew in San Juan County, and Morrison in La Plata County, have given us valuable notes on the birds of the higher portions of the region. The whole of northwestern Colorado remains unexplored. What a field for the ornithologist! As large as the whole of New England outside of Maine, and containing the whole valley of the Grand River and its tributaries, it will reward the zealous seeker with many Pacific forms not now known to Colorado. No other part of the State will probably show so large a return as the region around Grand Junction. Other specially favorable localities for new developments are the lower waters of the tributaries of the San Juan River in southwestern Colorado, the region around Trinidad in south central Colorado, the Arkansas River near the Kansas line, and especially the Cimarron River of southeastern Colorado and the Platte River near Julesburg in northeastern Colorado.

For increased knowledge of distribution with regard to altitude, and for range during the breeding season, so little is known compared with what remains to be discovered that any part of the mountain region of Colorado offers an inviting field to the ornithologist.

In addition to the mass of published data accessible to all, the present writer has received valuable assistance from many manuscript notes, and he wishes here to express his thanks to the correspondents who have put so much time, labor and care into their preparation. Much information on special points has been obtained in answer to direct inquiries and also the following lists have been received:

A. W. Anthony. List of 226 species known by him to have been taken in Colorado.

W. H. Bergtold. Notes on 20 species seen by him in Routt County and near Denver.

G. F. Breninger. List of 257 species known by him to have been taken in Larimer County.

R. A. Campbell. List of 40 species noted near Boulder.

E. B. Darnell. Notes on 68 species found in Routt County.

H. G. Hoskins. Notes on 58 species seen near Burlington, and dates of migration for four years.

Mortimer Jesurn, M. D. List, with annotations, of 161 species taken on the Platte River 150 miles north of Cheyenne.

W. P. Lowe. List of 188 species found at Pueblo and in the Wet Mountains, distinguishing the breeders.

Chas. F. Morrison. List of 332 species known to occur in Colorado, of which 152 are marked as breeding in the State.

Wm. Osburn. Annotated list of 254 species identified by himself and Wm. G. Smith in the vicinity of Loveland.

Capt. P. M. Thorne. Annotated list of 160 species shot by him during five years residence at Fort Lyon. Especially valuable, because nearly all the specimens have been identified by Mr. Brewster and are now in the Field Museum in Chicago.

One of the hardest things to determine in making out a state list, is what shall constitute a valid record and entitle the bird to a place in the list. The present writer has endeavored to take a middle course between including everything that seemed to have a fair claim for admission and excluding everything to whose record attached any suspicion. With all species at all doubtful the full record has been given, so that future students may judge for themselves whether the species is entitled to entry. This course has been taken owing to the small amount of work that has as yet been done on Colorado ornithology. Some readers will undoubtedly believe that the records of some of the species here given need confirmation and should have been omitted. On the other hand the author can say that he has in his possession the records of *forty-two* species that have been ascribed to Colorado. Many of these, in fact the larger part of them, he believes to occur in the State, yet they have been excluded from this list, pending further information.

CLASSIFICATION OF COLORADO BIRDS.

1. Residents; species found in the State at all times of the year regardless of the season.

- | | |
|-------------------------------------|----------------------------------|
| Merganser americanus. | Megascops asio. |
| Lophodytes cucullatus. | Megascops asio maxwelliæ. |
| Anas boschas. | Megascops asio aikeni. |
| Dafila acuta. | Megascops flammeola. |
| Clangula islandica. | Bubo virginianus subarcticus. |
| Histrionicus histrionicus. | Speotyto cunicularia hypogæa. |
| Colinus virginianus. | Glaucidium gnoma. |
| Callipepla californica. | Conurus carolinensis (formerly) |
| Callipepla gambeli. | Geococcyx californianus. |
| Dendragapus obscurus. | Ceryle alcyon. |
| Bonasa umbellus umbelloides. | Dryobates villosus hyloscopus. |
| Lagopus leucurus. | Dryobates pubescens homorus. |
| Pediocætes phasianellus campestris. | Dryobates scalaris bairdi. |
| Centrocercus urophasianus. | Picoides americanus dorsalis. |
| Meleagris gallopavo. | Ceophlœus pileatus. |
| Meleagris gallopavo mexicana. | Melanerpes torquatus. |
| Circus hudsonius. | Colaptes cafer. |
| Accipiter velox. | Otocoris alpestris arenicola. |
| Accipiter cooperi. | Pica pica hudsonica. |
| Accipiter atricapillus. | Cyanocitta stelleri macrolopha. |
| Buteo borealis kriderii. | Aphelocoma woodhousei. |
| Buteo borealis calurus. | Perisoreus canadensis capitalis. |
| Buteo swainsoni. | Corvus corax sinuatus. |
| Archibuteo ferrugineus. | Corvus cryptoleucus. |
| Aquila chrysaëtos. | Corvus americanus. |
| Haliæetus leucocephalus. | Nucifraga columbiana. |
| Falco mexicanus. | Cyanocephalus cyanocephalus. |
| Falco peregrinus anatum. | Pinicola enucleator. |
| Falco sparverius. | Carpodacus cassini. |
| Strix pratincola. | Carpodacus mexicanus frontalis. |
| Asio wilsonianus. | Loxia curvirostra stricklandi. |
| Asio accipitrinus. | Leucosticte australis. |
| Syrnium occidentale. | Spinus tristis. |
| Nyctala acadica. | Spinus pinus. |

<i>Passer domesticus.</i>	<i>Sitta carolinensis.</i>
<i>Calcarius ornatus.</i>	<i>Sitta calolinensis aculeata.</i>
<i>Rhynchophanes mccownii.</i>	<i>Sitta canadensis.</i>
<i>Junco caniceps.</i>	<i>Sitta pygmæa.</i>
<i>Pipilo fuscus mesoleucus.</i>	<i>Parus inornatus griseus.</i>
<i>Ampelis cedrorum.</i>	<i>Parus atricapillus septentrionalis.</i>
<i>Cinclus mexicanus.</i>	<i>Parus gambeli.</i>
<i>Catherpes mexicanus conspersus.</i>	<i>Psaltriparus plumbeus.</i>
<i>Troglodytes hiemalis.</i>	<i>Myadestes townsendii.</i>
<i>Certhia familiaris montana.</i>	

2. Winter visitants; species that have been taken commonly in the State during the winter, but are not included in the foregoing list.

<i>Urinator imber.</i>	<i>Leucosticte tephrocotis.</i>
<i>Merganser serrator.</i>	<i>Leucosticte tephrocotis littoralis.</i>
<i>Aythya americana.</i>	<i>Calcarius lapponicus.</i>
<i>Aythya vallisneria.</i>	<i>Zonotrichia leucophrys intermedia.</i>
<i>Aythya affinis.</i>	<i>Spizella monticola ochracea.</i>
<i>Charitonetta albeola.</i>	<i>Junco aikenii.</i>
<i>Chen hyperborea.</i>	<i>Junco hyemalis connectens.</i>
<i>Archibuteo lagopus sancti-johannis.</i>	<i>Junco mearnsi.</i>
<i>Otocoris alpestris leucolæma.</i>	<i>Junco annectens.</i>
<i>Coccythraustes vespertinus montanus.</i>	<i>Pipilo maculatus arcticus.</i>
<i>Acanthis linaria.</i>	<i>Ampelis garrulus.</i>
<i>Plectrophenax nivalis.</i>	<i>Lanius borealis.</i>

3. Species that breed in the State and regularly winter further south, but a few occur irregularly in southern Colorado in winter and in mild winters may occur throughout the State.

<i>Podilymbus podiceps.</i>	<i>Scolecophagus cyanocephalus.</i>
<i>Larus delawarensis.</i>	<i>Zonotrichia leucophrys.</i>
<i>Anas carolinensis.</i>	<i>Melospiza fasciata montana.</i>
<i>Branta canadensis.</i>	<i>Cistothorus palustris paludicola.</i>
<i>Grus mexicana.</i>	<i>Merula migratoria.</i>
<i>Gallinago delicata.</i>	<i>Merula migratoria propinqua.</i>
<i>Falco columbarius.</i>	<i>Sialia mexicana bairdi.</i>
<i>Agelaius phoeniceus.</i>	<i>Sialia arctica.</i>
<i>Sturnella magna neglecta.</i>	

4. Species that have been taken in Colorado in winter, either as rare or accidental visitors.

Stercorarius parasiticus.	Accipiter atricapillus striatulus.
Rissa tridactyla.	Buteo borealis harlani.
Larus argentatus smithsonianus.	Nyctea nyctea.
Larus atricilla.	Colaptes auratus.
Xema sabinii.	Scolecophagus carolinus.
Aythya marila nearctica.	Loxia leucoptera.
Harelda hyemalis.	Leucosticte atrata.
Oidemia americana.	Zonotrichia coronata.
Oidemia deglandi.	Junco hyemalis.
Oidemia perspicillata.	Melospiza fasciata.
Branta canadensis hutchinsii.	Cardinalis cardinalis.

5. Summer residents; species that have been known to breed in the state.

A. Species that breed on the plains and in the mountains or mountain parks.

Colymbus nigricollis californicus.	Ægialitis montana.
Larus delawarensis.	Centrocercus urophasianus.
Hydrochelidon nigra surinamensis.	Meleagris gallopavo mexicana.
Anas boschas.	Zenaidura macroura.
Anas strepera.	Cathartes aura.
Anas americana.	Circus hudsonius.
Anas carolinensis.	Accipiter velox.
Anas discors.	Accipiter cooperi.
Anas cyanoptera.	Buteo borealis calurus.
Spatula clypeata.	Buteo swainsoni.
Aix sponsa.	Archibuteo ferrugineus.
Eristmatura jamaicensis.	Falco mexicanus.
Botaurus lentiginosus.	Falco peregrinus anatum.
Ardea herodias.	Falco columbarius.
Grus mexicana.	Falco richardsonii.
Porzana carolina.	Falco sparverius.
Fulica americana.	Asio wilsonianus.
Recurvirostra americana.	Asio accipitrinus.
Himantopus mexicanus.	Bubo virginianus subarcticus.
Totanus solitarius.	Speotyto cunicularia hypogæa.
Symphemia semipalmata inornata.	Coccyzus americanus occidentalis.
Actitis macularia.	Ceryle alcyon.
Ægialitis vocifera.	Dryobates villosus hyloscopus.
	Dryobates pubescens h orus.
	Ceophlœus pileatus.

Melanerpes erythrocephalus.	Pooecetes gramineus confinis.
Colaptes cafer.	Spizella socialis arizonæ.
Phalænoptilus nuttalli.	Spizella pallida.
Chordeiles virginianus henryi.	Spizella breweri.
Tyrannus tyrannus.	Melospiza fasciata montana.
Tyrannus verticalis.	Pipilo maculatus megalonyx.
Tyrannus vociferans.	Oreospiza chlorura.
Myiarchus cinerascens.	Pipilo fuscus mesoleucus.
Sayornis saya.	Zamelodia melanocephala.
Empidonax difficilis.	Passerina amoena.
Empidonax traillii.	Progne subis.
Otocoris alpestris arenicola.	Petrochelidon lunifrons.
Pica pica hudsonica.	Chelidon erythrogastra.
Corvus cryptoleucus.	Clivicola riparia.
Corvus americanus.	Stelgidopteryx serripennis.
Molothrus ater.	Ampelis cedrorum.
Xanthocephalus xanthocephalus.	Lanius ludovicianus excubitorides.
Agelaius phœniceus.	Vireo gilvus.
Sturnella magna neglecta.	Dendroica æstiva.
Icterus bullocki.	Icteria virens longicauda.
Scolecophagus cyanocephalus.	Setophaga ruticilla.
Carpodacus mexicanus frontalis.	Oroscoptes montanus.
Spinus tristis.	Galeoscoptes carolinensis.
Spinus psaltria.	Troglodytes ædon aztecus.
Spinus psaltria arizonæ.	Cistothorus palustris paludicola.
Chondestes grammacus strigatus.	Merula migratoria propinqua.
	Sialia arctica.

B. Species that breed on the plains, but only to the foothills of the mountains.

Podilymbus podiceps.	Callipepla californica.
Sterna forsteri.	Meleagris gallopavo.
Pelecanus erythrorhynchos.	Buteo borealis kriderii.
Dafla acuta.	Strix pratincola.
Nycticorax nycticorax nævius.	Megascops asio.
Rallus virginianus.	Conurus carolinensis. (formerly)
Steganopus tricolor.	Icterus galbula.
Bartramia longicauda.	Quiscalus quiscula æneus.
Numenius longirostris.	Passer domesticus.
Colinus virginianus.	Calcarius ornatus.
Pediocætes phasianellus campestris.	Rhynchophanes mccownii.
	Spizella socialis.

Ammodramus savannarum per- pallidus.	Geothlypis trichas occidentalis.
Spiza americana.	Mimus polyglottos.
Calamospiza melanocorys.	Harporhynchus rufus.
Vireo olivaceus.	Sitta carolinensis.
Dendroica striata.	Merula migratoria.
	Sialia sialis.

C. Species that breed in the mountains or mountain parks and not on the plains.

Merganser americanus.	Junco caniceps.
Lophodytes cucullatus.	Melospiza lincolni.
Clangula islandica.	Passerella iliaca schistacea.
Histrionicus histrionicus.	Piranga ludoviciana.
Branta canadensis.	Helminthophila virginia.
Gallinago delicata.	Helminthophila celata.
Dendragapus obscurus.	Helminthophila celata lutes- cens.
Bonasa umbellus umbelloides.	Dendroica auduboni.
Lagopus leucurus.	Dendroica townsendi.
Accipiter atricapillus.	Geothlypis macgillivrayi.
Pandion haliaetus carolinensis.	Sylvania pusilla.
Nyctala acadica.	Anthus pensilvanicus.
Megascops flammeola.	Cinclus mexicanus.
Glaucidium gnoma.	Troglodytes hiemalis.
Picoides americanus dorsalis.	Certhia familiaris montana.
Aëronautes melanoleucus.	Sitta canadensis.
Contopus borealis.	Sitta pygmaea.
Empidonax wrightii.	Parus gambeli.
Cyanocitta stelleri macrolopha.	Regulus satrapa.
Perisoreus canadensis capitalis.	Regulus calendula.
Nucifraga columbiana.	Myadestes townsendii.
Cyanocephalus cyanocephalus.	Turdus fuscescens salicicola.
Pinicola enucleator.	Turdus ustulatus swainsonii.
Carpodacus cassini.	Turdus aonalaschkæ auduboni.
Loxia curvirostra stricklandi.	Sialia mexicana bairdi.
Leucosticte australis.	
Zonotrichia leucophrys.	

D. Species that breed principally in the mountains, and but sparingly on the plains.

Aquila chrysaetos.	Sphyrapicus varius nuchalis.
Haliaeetus leucocephalus.	Sphyrapicus thyroideus.
Megascops asio maxwellia.	Melanerpes torquatus.
Megascops asio aikeni.	Selasphorus platycercus.

Contopus richardsonii.	Vireo solitarius plumbeus.
Aphelocoma woodhousei.	Salpinctes obsoletus.
Corvus corax sinuatus.	Catherpes mexicanus conspersus.
Spinus pinus.	Sitta carolinensis aculeata.
Ammodramus sandwichensis alaudinus.	Parus atricapillus septentrionalis.
Tachycineta bicolor.	
Tachycineta thalassina.	

E. Species that breed regularly only in southern Colorado.

Callipepla gambeli.	Guiraca cærulea eurhyncha.
Columba fasciata.	Compsothlypis americana.
Syrnium occidentale.	Dendroica æstiva sonorana.
Geococcyx californianus.	Dendroica graciae.
Dryobates scalaris bairdi.	Dendroica nigrescens.
Cypseloides niger borealis.	Thryothorus bewickii leucogaster.
Trochilus alexandri.	Parus inornatus griseus.
Selasphorus rufus.	Psaltriparus plumbeus.
Amphispiza bilineata.	Polioptila cærulea.
Amphispiza belli nevadensis.	
Pipilo aberti.	

6. Species taken in the State during the summer, but not known to breed.

Ajaja ajaja.	Phalænoptilus nuttalli nitidus.
Plegadis guarauna.	Dolichonyx oryzivorus.
Ardea candidissima.	Icterus spurius.
Philohela minor.	Junco phæonotus dorsalis.
Callipepla squamata.	Passerina cyanea.
Melopelia leucoptera.	Mniotilta varia.
Coccyzus erythrophthalmus.	Seiurus aurocapillus.
Melanerpes carolinus.	

7. Migrants; species that have been taken in the State during the spring or fall, but are not known to breed or winter in Colorado.

Æchmophorus occidentalis.	Larus franklinii.
Colymbus holboëllii.	Larus philadelphia.
Colymbus auritus.	Sterna paradisæa.
Larus occidentalis.	Phalacrocorax dilophus.
Larus californicus.	Anas obscura.

<i>Aythya collaris.</i>	<i>Squatarola squatarola.</i>
<i>Clangula clangula americana.</i>	<i>Charadrius dominicus.</i>
<i>Chen hyperborea nivalis.</i>	<i>Ægialitis semipalmata.</i>
<i>Anser albifrons gambeli.</i>	<i>Arenaria interpres.</i>
<i>Olor columbianus.</i>	<i>Myiarchus lawrencei olivas-</i>
<i>Olor buccinator.</i>	<i>cens.</i>
<i>Guara rubra.</i>	<i>Sayornis phœbe.</i>
<i>Grus americana.</i>	<i>Empidonax minimus.</i>
<i>Grus canadensis.</i>	<i>Carpodacus purpureus.</i>
<i>Gallinula galeata.</i>	<i>Ammodramus bairdii.</i>
<i>Phalaropus lobatus.</i>	<i>Zonotrichia querula.</i>
<i>Macrorhampus scolopaceus.</i>	<i>Zonotrichia albicollis.</i>
<i>Micropalama himantopus.</i>	<i>Piranga rubra cooperi.</i>
<i>Tringa maculata.</i>	<i>Helminthophila peregrina.</i>
<i>Tringa fuscicollis.</i>	<i>Dendroica cærulescens.</i>
<i>Tringa bairdii.</i>	<i>Dendroica coronata.</i>
<i>Tringa minutilla.</i>	<i>Dendroica maculosa.</i>
<i>Tringa alpina pacifica.</i>	<i>Dendroica rara.</i>
<i>Ereunetes pusillus.</i>	<i>Seiurus noveboracensis nota-</i>
<i>Ereunetes occidentalis.</i>	<i>bilis.</i>
<i>Calidris arenaria.</i>	<i>Sylvania pusilla pileolata.</i>
<i>Limosa fedoa.</i>	<i>Harporhynchus bendirei.</i>
<i>Totanus melanoleucus.</i>	<i>Turdus aonalaschkæ.</i>
<i>Totanus flavipes.</i>	<i>Turdus aonalaschkæ pallasii.</i>
<i>Numenius hudsonicus.</i>	<i>Saxicola œnanthe.</i>

8. Stragglers or doubtful species, including those of which but one instance is known.

<i>Æchmophorus occidentalis.</i>	<i>Ardea rufescens.</i>
<i>Colymbus holboëllii.</i>	<i>Nycticorax violaceus.</i>
<i>Colymbus auritus.</i>	<i>Gallinula galeata.</i>
<i>Rissa tridactyla.</i>	<i>Callipepla squamata.</i>
<i>Larus occidentalis.</i>	<i>Melopelia leucoptera.</i>
<i>Larus californicus.</i>	<i>Elanoides forficatus.</i>
<i>Larus atricilla.</i>	<i>Ictinia mississippiensis.</i>
<i>Anas obscura.</i>	<i>Accipiter atricapillus striatu-</i>
<i>Chen hyperborea nivalis.</i>	<i>lus.</i>
<i>Branta bernicla.</i>	<i>Buteo lineatus elegans.</i>
<i>Ajaja ajaja.</i>	<i>Coccyzus erythrophthalmus.</i>
<i>Guara alba.</i>	<i>Sphyrapicus varius.</i>
<i>Guara rubra.</i>	<i>Milvulus forficatus.</i>
<i>Tantalus loculator.</i>	<i>Myiarchus lawrencei olivas-</i>
<i>Ardetta exilis.</i>	<i>cens.</i>

Sayornis phœbe.	Vireo solitarius cassinii.
Icterus spurius.	Dendroica cærulescens.
Scolecophagus carolinus.	Dendroica rara.
Carpodacus purpureus.	Seiurus aurocapillus.
Zonotrichia querula.	Icteria virens.
Zonotrichia coronata.	Sylvania pusilla pileolata.
Zonotrichia albicollis.	Harporhynchus bendirei.
Melospiza fasciata.	Turdus aonalaschkæ pallasii.
Cardinalis cardinalis.	Saxicola œnanthe.
Piranga rubra cooperi.	

9. Regular visitants from the east or southeast.

Colaptes auratus.	Dendroica coronata.
Tyrannus tyrannus.*	Galeoscoptes carolinensis.*
Quiscalus quiscula æneus.*	Harporhynchus rufus.*
Spizella socialis.*	Sitta carolinensis.*
Spiza americana.*	Polioptila cærulea.*
Helminthophila celata.*	Merula migratoria.*
Compsothlypis americana.*	Sialia sialis.*

*Breeding.

10. Rare or irregular visitants from the east or southeast.

Xema sabinii.	Carpodacus purpureus.
Anas obscura.	Zonotrichia querula.
Branta bernicla.	Zonotrichia albicollis.
Ajaja ajaja.	Melospiza fasciata.
Philohela minor.	Cardinalis cardinalis.
Elanoides forficatus.	Passerina cyanea.
Ictinia mississippiensis.	Vireo olivaceus.
Coccyzus erythrophthalmus.	Mniotilta varia.
Sphyrapicus varius.	Helminthophila peregrina.
Melanerpes carolinus.	Dendroica cærulescens.
Phalænoptilus nuttalli nitidus.	Dendroica maculosa.
Milvulus forficatus.	Dendroica rara.
Sayornis phœbe.	Dendroica striata.
Dolichonyx oryzivorus.	Seiurus aurocapillus.
Icterus spurius.	Icteria virens.
Icterus galbula.	Saxicola œnanthe.
Scolecophagus carolinus.	

11. Regular visitants from the west or southwest.

Anas cyanoptra.	Glaucidium gnoma.
Grus canadensis.	Geococcyx californianus.
Columba fasciata.	Dryobates scalaris bairdi.

<i>Cypseloides niger borealis.</i>	<i>Dendroica graciae.</i>
<i>Trochilus alexandri.</i>	<i>Dendroica nigrescens.</i>
<i>Selasphorus rufus.</i>	<i>Dendroica townsendi.</i>
<i>Myiarchus cinerascens.</i>	<i>Catherpes mexicanus conspersus.</i>
<i>Amphispiza bilineata.</i>	<i>Parus inornatus griseus.</i>
<i>Amphispiza belli nevadensis.</i>	<i>Psaltriparus plumbeus.</i>
<i>Pipilo fuscus mesoleucus.</i>	
<i>Guiraca caerulea eurhyncha.</i>	

NOTE. All of these species have been found breeding in Colorado except *Grus canadensis*.

12. Rare or irregular visitants from the west or southwest.

<i>Plegadis guarauna.</i>	<i>Myiarchus lawrencei olivaceus.</i>
<i>Callipepla squamata.</i>	<i>Junco phænotus dorsalis.</i>
<i>Callipepla gambeli.*</i>	<i>Pipilo aberti.*</i>
<i>Melopelia leucoptera.</i>	<i>Piranga rubra cooperi.</i>
<i>Accipiter atricapillus striatulus.</i>	<i>Vireo solitarius cassinii.</i>
<i>Zonotrichia coronata.</i>	<i>Turdus aonalaschkæ.</i>

*Breeding.

SUMMARY.

Total species in Colorado	360
1. Residents	87
2. Regular winter visitants from the north.....	24
3. Regular breeders that sometimes occur in winter..	17
4. Rare or accidental winter visitants.....	22
5. Summer residents	228
A. Breeding on plains and in mountains.....	101
B. Breeding on plains, but not in mountains..	34
C. Breeding in mountains, but not on plains..	53
D. Breeding principally in mountains, sparingly on plains.....	20
E. Breeding regularly only in southern Colorado	20
6. Summer visitants, not known to breed.....	15
7. Migrants	58
8. Stragglers	48
9. Regular visitants from east and southeast.....	14
10. Rare visitants from east and southeast.....	33
11. Regular visitants from west and southwest.....	20
12. Rare visitants from west and southwest.....	12

DATES OF MIGRATION.

The notes on migration given in the following table are designed to show the different time at which the same species of birds arrive at different places and altitudes in Colorado as compared with the time of their arrival in the same latitude farther east and at a lower altitude. St. Louis, Mo., is thirty miles farther north than Fort Lyon, Colo., and one hundred and twenty miles south of Loveland, Colo. Hence, according to latitude, the birds should arrive in St. Louis about the same time as at Fort Lyon. But it is found that in fact they reach St. Louis on the average about twelve days before they appear at Fort Lyon. The dates of arrival seem to indicate an average difference of six days between Fort Lyon and Loveland. The distance between these two places is one hundred and fifty miles, or an average movement for the birds of twenty-five miles per day. This agrees quite closely with the average of twenty-eight miles per day that was found to be the usual speed of migration in the Mississippi valley.

The birds arrive at Idaho Springs about twenty-five days later than at Loveland, the result of the nearly three thousand feet more of altitude at the former place.

The records that follow for St. Louis, Mo., were taken by Mr. O. Widmann during the spring of 1884, and published on pages 33-37 of "Bird Migration in Mississippi Valley." The records for Fort Lyon were made by Capt. P. M. Thorne, U. S. A., and those at Loveland by Mr. Wm. G. Smith. These records were made for the Division of Ornithology and Mammalogy of the Department of Agriculture at Washington, and the present writer is indebted to the chief of the division, Dr. C. Hart Merriam, for copies of these records. The notes from Idaho Springs are those taken by Mr. T. M. Trippe, and published by Dr. Coues in "Birds of the Northwest."

It is understood, of course, that when dates are given for western varieties that do not occur at St. Louis, it is meant that the western variety was noted in Colorado and its eastern representative at St. Louis. Thus, *merula migratoria propinqua* was seen at Fort Lyon, while *merula migratoria* was the bird seen at St. Louis.

All the dates given are those on which the first individuals of the species were seen.

DATES OF ARRIVAL.

	ST. LOUIS, MO., 1884.	FT. LYON, COLO., 1883-1886.	LOVELAND, COLO., 1887-1890.	IDAHO SPRINGS, COLO., 1873.
<i>Dafila acuta</i>	Jan. 30 ..	Mch. 14-Apr. 1	Jan. 27-Feb. 10	.....
<i>Aythya americana</i> .....	.....	Feb. 22-Mch. 1	Feb. 2-Mch. 6	.....
<i>Anas carolinensis</i>	Feb. 18 ..	Feb. 20-Mch. 3	Feb. 21 .....	.....
<i>Anas strepera</i> .....	.....	Mch. 1	Mch. 1-12 .....	.....
<i>Sialia arctica</i> .....	.....	Mch. 16-17	Mch. 6-16	Mch. 10
<i>Aythya vallisneria</i> .....	.....	Apr. 7	Feb. 10-Mch. 12	.....
<i>Larus delawarensis</i> .....	.....	Mch. 23	Mch. 9-20 .....	.....
<i>Spatula clypeata</i> .....	.....	.....	Mch. 10-20 .....	.....
<i>Aythya affinis</i> .....	.....	Mch. 27-Apr. 10	Mch. 8-19 .....	.....
<i>Anas americana</i> .....	.....	.....	Mch. 10-13 .....	.....
<i>Merula migratoria propinqua</i>	Jan. 30 ..	Mch. 14-18	Feb. 25-Mch. 15	Mch. 15
<i>Ægialitis vocifera</i>	Mch. 11 ..	Mch. 9-12	Mch. 10-16 .....	.....
<i>Charitonetta albeola</i> .....	.....	Mch. 27-Apr. 1	Mch. 20 .....	.....
<i>Chen hyperborea</i>	Feb. 25 ..	Apr. 7	Mch. 21 .....	.....
<i>Falco sparverius</i>	Feb. 26 ..	Apr. 4-20	Mch. 21-29 .....	.....
<i>Anas cyanoptera</i> .....	.....	Mch. 7	Mch. 25-Apr. 13	.....
<i>Anas discors</i> .....	.....	Mch. 1	Mch. 25-Apr. 13	.....
<i>Fulica americana</i> .....	.....	Mch. 31	Mch. 10-25 .....	.....
<i>Totanus melanoleucus</i> .....	.....	Mch. 28-Apr. 10	Mch. 26-Apr. 6	.....
<i>Falco peregrinus anatum</i> .....	.....	.....	Mch. 29 .....	.....
<i>Tringa bairdii</i> .....	.....	.....	Mch. 29-Apr. 9	.....
<i>Sialia mexicana bairdi</i> .....	.....	.....	Apr. 1 .....	.....
<i>Sayornis saya</i> .....	.....	Mch. 1-Apr. 15	Mch. 31-Apr. 15	.....
<i>Oroscoptes montanus</i> .....	.....	.....	Apr. 4-15	May 10
<i>Pipilo maculatus megalonyx</i>	Feb. 20 ..	Apr. 16	Apr. 4-19	May 15
<i>Zonotrichia leucophrys</i>	Feb. 20 ..	.....	Apr. 4 .....	.....
<i>Erismanura jamaicensis</i>	Feb. 26 ..	Mch. 27-Apr. 10	Mch. 27-Apr. 5	.....
<i>Ægialitis montana</i> .....	.....	Mch. 26	Mch. 27-Apr. 18	.....
<i>Speotyto cunicularia hypogæa</i> .....	.....	.....	Mch. 28-Apr. 7	.....
<i>Grus americana</i> .....	.....	.....	Apr. 8-16 .....	.....
<i>Pandion haliaëtus carolinensis</i>	Mch. 17 ..	.....	Apr. 8 .....	.....
<i>Rallus virginianus</i> .....	.....	.....	Apr. 9 .....	.....
<i>Lanius ludovicianus excubitorides</i>	Jan. 30 ..	.....	Apr. 9-14 .....	.....
<i>Zenaidura macroura</i>	Mch. 22 ..	Mch. 22-Apr. 17	Apr. 11-14 .....	.....
<i>Xanthocephalus xanthocephalus</i> .....	.....	Apr. 23	Apr. 11-12 .....	.....
<i>Recurvirostra americana</i> .....	.....	Mch. 28	Apr. 9-23 .....	.....
<i>Numenius longirostris</i> .....	.....	.....	Apr. 10-15 .....	.....
<i>Anthus pensilvanicus</i> .....	.....	.....	Apr. 14-15	May 10
<i>Totanus flavipes</i> .....	.....	Mch. 30	Apr. 15 .....	.....
<i>Podilymbus podiceps</i> .....	.....	.....	Apr. 15-28 .....	.....
<i>Poocætes gramineus confinis</i>	Mch. 22 ..	Apr. 13	Apr. 17	May 10
<i>Cathartes aura</i>	Feb. 26 ..	.....	Apr. 10-22 .....	.....
<i>Scolecophagus cyanocephalus</i> .....	.....	Apr. 22	Apr. 18-25 .....	.....
<i>Dendroica auduboni</i> .....	.....	Apr. 20-May 12	Apr. 19-24	May 15
<i>Tringa minutilla</i> .....	.....	Apr. 28-May 7	Apr. 19-23 .....	.....
<i>Totanus solitarius</i>	May 5 .....	.....	Apr. 20 .....	.....
<i>Ammodramus savannarum perpallidus</i>	Apr. 30 ..	.....	Apr. 21 .....	.....
<i>Actitis macularia</i>	Mch. 17 ..	May 12-17	Apr. 21	May 10
<i>Ammodramus sandwichensis alaudinus</i>	Mch. 22 ..	.....	Apr. 21 .....	.....
<i>Ardea herodias</i> .....	.....	Apr. 10	Apr. 11-21 .....	.....
<i>Pelecanus erythrorhynchus</i> .....	.....	.....	Apr. 23 .....	.....
<i>Chelidon erythrogaster</i> .....	.....	Apr. 17	Apr. 23 .....	.....
<i>Progne subis</i>	Mch. 24 ..	.....	Apr. 21-24 .....	.....
<i>Petrochelidon lunifrons</i>	Apr. 15 ..	May 6-8	Apr. 24 .....	.....

DATES OF ARRIVAL—Continued.

	ST. LOUIS, MO., 1884.	FT. LYON, COLO., 1883-1886.	LOVELAND, COLO., 1887-1890.	IDAHO SPRINGS, COLO., 1873.
<i>Nycticorax nycticorax nævius</i>	-----	-----	Apr. 25.....	-----
<i>Ægialitis meloda circumcincta</i>	-----	-----	Apr. 25-May 5	-----
<i>Dendroica coronata</i>	Apr. 13.....	Apr. 17.....	Apr. 24-25.....	Apr. 25
<i>Turdus aonalaschkae auduboni</i>	-----	May 6-9.....	Apr. 25-May 7	May 25
<i>Myadestes townsendii</i>	-----	Apr. 22-23.....	Apr. 25.....	Resident
<i>Spizella pallida</i>	-----	Apr. 25.....	Apr. 25.....	-----
<i>Tachycineta thalassina</i>	-----	-----	Apr. 26.....	-----
<i>Stelgidopteryx serripennis</i>	Apr. 15.....	-----	Apr. 28.....	-----
<i>Limosa fedoa</i>	-----	-----	Apr. 20-May 1	-----
<i>Tringa alpina pacifica</i>	-----	-----	Apr. 29-May 9	-----
<i>Macrorhampus scolopaceus</i>	-----	May 2.....	Apr. 29.....	-----
<i>Melospiza fasciata montana</i>	Feb. 23.....	-----	Apr. 29.....	-----
<i>Steganopus tricolor</i>	-----	-----	Apr. 27-May 1	-----
<i>Salpinctes obsoletus</i>	-----	Apr. 20.....	Apr. 29-May 8	May 20
<i>Cistothorus palustris paludicola</i>	-----	-----	Apr. 30.....	-----
<i>Colymbus nigricollis californicus</i>	-----	-----	Apr. 26-30.....	-----
<i>Spizella socialis arizonæ</i>	Mch. 22.....	-----	Apr. 30.....	-----
<i>Phalaropus lobatus</i>	-----	-----	May 1-9.....	-----
<i>Helminthophaga celata</i>	May 10.....	May 9.....	May 2-5.....	-----
<i>Melospiza lincolni</i>	Apr. 29.....	Apr. 30.....	May 5.....	May 10
<i>Symphemia semipalmata inornata</i>	-----	May 2.....	Apr. 27-May 5	-----
<i>Clivicola riparia</i>	Apr. 29.....	-----	May 5.....	-----
<i>Tachycineta bicolor</i>	Mch. 24.....	-----	May 5.....	-----
<i>Sterna forsteri</i>	-----	-----	May 5.....	-----
<i>Oreospiza chlorura</i>	-----	Apr. 30-May 8	May 6.....	May 10
<i>Larus franklinii</i>	-----	-----	May 6.....	-----
<i>Ereuntes pusillus</i>	-----	Apr. 25.....	May 6.....	-----
<i>Dendroica æstiva</i>	Apr. 19.....	Apr. 17-May 8	May 7-19.....	-----
<i>Passerina amcena</i>	-----	May 8-15.....	May 7-19.....	-----
<i>Chondestes grammacus strigatus</i>	Apr. 25.....	Apr. 27.....	May 7.....	-----
<i>Tyrannus verticalis</i>	-----	May 5-6.....	May 8.....	-----
<i>Contopus richardsonii</i>	-----	May 22.....	May 8.....	May 25
<i>Tyrannus tyrannus</i>	Apr. 18.....	May 6-10.....	May 7-9.....	-----
<i>Turdus ustulatus swainsonii</i>	Apr. 26.....	May 6.....	May 9-10.....	-----
<i>Setophaga ruticilla</i>	Apr. 17.....	May 14.....	May 9.....	May 20
<i>Dendroica nigrescens</i>	-----	-----	May 9.....	-----
<i>Icterus bullocki</i>	-----	May 4-12.....	May 9-19.....	-----
<i>Geothlypis trichas occidentalis</i>	Apr. 18.....	May 13.....	May 9.....	-----
<i>Ereuntes occidentalis</i>	-----	-----	May 9.....	-----
<i>Calamospiza melanocorys</i>	-----	May 10-15.....	May 9-12.....	-----
<i>Troglodytes ædon aztecus</i>	Apr. 19.....	Apr. 21-May 10	May 10.....	May 15
<i>Piranga ludoviciana</i>	-----	-----	May 10-17.....	June 20
<i>Harporhynchus rufus</i>	Mch. 22.....	May 4-10.....	May 10.....	-----
<i>Geothlypis macgillivrayi</i>	-----	May 2-3.....	May 10-19.....	May 25
<i>Vireo solitarius plumbeus</i>	Apr. 29.....	-----	May 11.....	May 25
<i>Galeoscoptes carolinensis</i>	Apr. 25.....	May 8-14.....	May 11-12.....	May 20
<i>Contopus borealis</i>	-----	May 11.....	May 11.....	-----
<i>Vireo gilvus</i>	Apr. 19.....	-----	May 12.....	-----
<i>Vireo olivaceus</i>	Apr. 26.....	May 29.....	May 12.....	-----
<i>Dendroica striata</i>	Apr. 29.....	May 8.....	May 12.....	-----
<i>Empidonax minimus</i>	Apr. 29.....	-----	May 12.....	-----
<i>Mimus polyglottos</i>	Apr. 14.....	Apr. 17-May 2	May 13.....	-----
<i>Sylvania pusilla</i>	May 6.....	May 5.....	May 11-13.....	May 20
<i>Æronautus melanoleucus</i>	-----	-----	May 13.....	-----
<i>Botaurus lentiginosus</i>	-----	Apr. 26.....	May 13.....	-----
<i>Zamelodia melanocephala</i>	-----	May 19-20.....	May 13.....	May 20
<i>Helminthophaga peregrina</i>	Apr. 29.....	-----	May 17.....	-----
<i>Micropalama himantopus</i>	-----	May 2-22.....	May 20.....	-----

BIBLIOGRAPHY OF COLORADO ORNITHOLOGY.

The following list of publications, concerning the birds of Colorado, is believed to be practically complete with the following exceptions: No record has been made of the reviews or notices that have appeared of these publications. Some twenty-three articles have been omitted as being but incidental references and having no valuable bearing on the subject matter in hand.

One important particular should be noted in regard to the following pages. While referring to the book or article by its title as a whole, the explanatory notes have reference to only that part of the work that deals with Colorado birds as such explicitly. All implied references have been neglected. Even such a broad and comprehensive statement as "found in the entire Rocky Mountain region" has not been deemed sufficient to warrant considering it a Colorado reference. No reference whatever is made to all that part of the publications that deals with other matters.

The names of the authors are arranged alphabetically and the articles under each author in chronological order.

AIKEN, C. E. and HOLDEN, C. H. JR. Notes on the Birds of Wyoming and Colorado Territories. By C. H. Holden, Jr. with additional memoranda by C. E. Aiken. *Proc. Bost. Soc. Nat. Hist.* XV. 1872, pp. 193-210.

The paper is edited by T. M. Brewer who states that Mr. Holden's notes are based on birds and eggs found "in the northern part of Colorado and southern part of Wyoming Territories." As no record is given of the precise localities where each species was obtained, Mr. Holden's notes cannot be quoted with any certainty as referring to Colorado.

The records of Mr. Aiken were taken near Fountain, El Paso County, between November 1, 1871 and May 1872, and formed an important contribution to the knowledge of Colorado birds. The paper treats of 142 species, fully annotated, of which 59 are for the first time accredited to Colorado.

AIKEN, C. E. A Glimpse at Colorado and its Birds. *Am. Nat.* VII. 1873, p. 13.

Field notes on 21 species of birds seen in October in El Paso County.

AIKEN, C. E. A New Species of Sparrow. *Am. Nat.* VII. 1873, p. 236.

Description of *Centronyx ochrocephalus* since ascertained to be a synonym of *A. bairdii*. Taken in El Paso County, Colorado.

AIKEN, C. E. The Nidification of the Blue Crow and of the Gray-headed Snowbird. *Am. Sportsman*, V. 1875, p. 370.

Contains the first published description of the nest and eggs of the Blue Crow (*Cyanocephalus cyanocephalus*) also the first description of the nest and eggs of the Gray-headed Snowbird (*Junco caniceps*).

AIKEN, C. E. Notes on the Ornithology [of Colorado] observed by Mr. C. E. Aiken, Assistant. *Ann. Rep't Chief of Engineers*, 1875, part II. Appendix LL, p. 1070.

A short sketch of the birds observed by him in a trip from Pueblo to Pagosa Springs and return by way of the San Luis Valley. These notes, in a much fuller form, are included in H. W. Henshaw's report on the Birds of the Geographical Explorations and Surveys west of the one hundredth meridian.

ALLEN, J. A. Notes of an Ornithological Reconnaissance of portions of Kansas, Colorado, Wyoming and Utah. *Bull. Mus. Comp. Zool.* III. 1872, pp. 113-183.

A notable paper for the student of the historical side of Colorado Ornithology, as it contains the first real "local list" ever published of Colorado birds. All that had been written previous to this time on the birds of Colorado treats of less than twenty-five species, while this paper mentions more than three times that number. It is not meant that no ornithologists previous to this time had visited Colorado, but that their observations had not at this time been published. Mr. Allen's paper contains in addition to notes on birds from other states, a list of birds observed in Colorado, July-August, 1871 (81 species); in South Park, Colorado, July, 1871 (54 species); on Mount Lincoln, Colorado, July, 1871 (36 species). Of these 84 species are for the first time accredited to Colorado.

ALLEN, J. A. and BREWSTER, WM. List of Birds Observed in the Vicinity of Colorado Springs, Colorado, during March, April and May, 1882. *B. N. O. C.* VIII. 1883, pp. 151 and 189.

Notes on the arrival, abundance and breeding of 134 species. Also technical notes by Mr. Brewster on the specific characters of 14 species. The first and only records for Colorado of Bendire's Thrasher and the Florida Gallinule are given here. Mr. Brewster here gives the original description of *Helminthophila celata lutescens*, but without including Colorado in its geographical range, where however it has been taken by subsequent observers.

ALLEN, J. A. On the Avi-Fauna of Pinal County, with Remarks on some Birds of Pima and Gila Counties, Arizona. By W. E. D. Scott, with annotations by J. A. Allen. *Auk*, V. 1888, p. 160.

States that *Troglodytes ædon aztecus* is the form found in Colorado.

ALLEN, J. A. The North American Species of the Genus *Colaptes* considered with Special Reference to the Relationships of *C. auratus* and *C. cafer*. *Bull. Am. Mus. Nat. Hist.* IV. No. 1, 1892, article II. p. 21.

Considers that true *auratus*, true *cafer* and also the mixed forms are found in Colorado.

AMERICAN ORNITHOLOGISTS' UNION. The Code of Nomenclature and Check List of North American Birds, adopted by the American Ornithologists' Union, being the Report

of the Committee of the Union on Classification and Nomenclature. New York: American Ornithologists' Union, 1886.

Contains specific Colorado references to 35 species.

AMERICAN ORNITHOLOGISTS' UNION. Check List of North American Birds, prepared by a Committee of the American Ornithologists' Union. Second and Revised Edition. New York: American Ornithologists' Union, 1895.

Contains specific Colorado references to 53 species.

ANTHONY, A. W. Winter Plumage of *Leucosticte australis*. *Auk*, IV. 1887, p. 257.

Description of the plumage of male, female and young, based on specimens taken at Gold Hill, Colorado.

ANTHONY, A. W. The Scaled Partridge (*Callipepla squamata*) in Colorado. *Auk*, XII. 1895, p. 388.

A freshly killed bird seen in a taxidermist shop during the winter of 1892-3; said to have been killed on the Platte River near Denver.

BAIRD, S. F., CASSIN, J. and LAWRENCE, G. N. Reports of Explorations and Surveys to ascertain the most practicable and economical route for a railroad from the Mississippi River to the Pacific Ocean. Made under the direction of the Secretary of War in 1853-6, according to Acts of Congress of March 3, 1853, May 31, 1854, and August 5, 1854. Vol. IX. Birds: by Spencer F. Baird, Assistant Secretary Smithsonian Institution, with the co-operation of John Cassin and George N. Lawrence.

Capt. Gunnison's party and that of Lieut. Warren brought back skins and records of about twenty species of birds that have nothing but an historical value in this connection. They are included in the above volume with the records of the other surveying parties.

BAIRD, S. F. Pacific Railroad Reports as above, Vol. X. Route near the 38th and 39th parallels explored by Captain J. W. Gunnison, and near the 41st parallel, explored by Lieutenant E. G. Beckwith. Zoological Report No. 2. Report of Birds Collected on the Survey. By S. F. Baird.

Contains much the same notes from Gunnison's party that had already been printed in Vol. IX. Unimportant records of 15 species.

BAIRD, S. F. Geological Survey of California. J. D. Whitney, State Geologist. Ornithology, Vol. 1. Land Birds. Edited by S. F. Baird from the manuscript and notes of J. G. Cooper. Published by authority of the legislature, 1870, pp. XI., 591.

The only reference to Colorado ornithology is the appearance here under the name of *Leucosticte campestris* of a specimen of *Leucosticte tephrocotis* sent from Denver to the Smithsonian, January, 1862, by Dr. C. Wernigk. This is the first record for this species from Colorado.

- BAIRD, S. F., BREWER, T. M. and RIDGWAY, R. A History of North American Birds. Land Birds, Vol. I.—[III.]. Boston, Little, Brown and Company, 1874. 3 vols.
Contains specific Colorado references on 54 species, nothing of which is new material.
- BATCHELDER, C. F. Description of the First Plumage of Clarke's Crow. *Auk*, Vol. I. 1884, p. 16.
Specimens obtained in Chaffee County, Colorado.
- BATCHELDER, C. F. An Undescribed Subspecies of *Dryobates pubescens*. *Auk*, VI. 1889, p. 253.
Describes *D. p. oreæcus* (= *homorus*) with type from Loveland, Colorado.
- BATTY, J. H. The U. S. Geological Survey. *Forest and Stream*, I. August 28, 1873, p. 35.
Brief notes of a trip from Denver to Buffalo Peaks. Mentions seven species of common birds and in addition says: "I have also taken the nest, eggs and young of the *Regulus calendula* (ruby-crowned wren), which have never been taken before."
- BATTY, J. H. The White-tailed Ptarmigan—*Lagopus leucurus*. *Forest and Stream*, I. January 29, 1874, p. 390.
Seen in winter in the foothills of South Park, Colorado.
- BECKHAM, C. W. The Black-headed Grosbeak (*Zamelodia melanocephala*). *O. and O.* VIII. 1883, p. 63.
Notes on the nest and eggs. A male seen incubating near Pueblo, Colorado.
- BECKHAM, C. W. Notes on Some of the Birds of Pueblo, Colorado. *Auk*, II. 1885, p. 139.
Brief records of the movements of 91 species of birds. Contains the first record for Colorado of *Thryothorus bewickii leucogaster* and, with one exception, the only record to date.
- BECKHAM, C. W. Additional Notes on the Birds of Pueblo County, Colorado. *Auk*, IV. 1887, p. 120.
Addition of 22 species to the 91 previously noted and further notes on 28 species in the original list. First records for Colorado of *Zonotrichia querula* and *Z. albicollis*. There has been a second specimen of the latter taken; the former remains the only record for the state.
- BENDIRE, C. E. Notes on the Habits, Nests and Eggs of the Genus *Sphyrapicus* Baird. *Auk*, V. 1888, p. 226.
Contains extended notes by Mr. Dennis Gale on the habits of *S. v. nuchalis* in Colorado.
- BENDIRE, C. E. Notes on the Habits, Nests and Eggs of the Genus *Glaucidium* Boie. *Auk*, V. 1888, p. 366.
States that the form found in Colorado is *G. gnoma*.
- BENDIRE, C. E. A Peculiar Nest of *Cinclus mexicanus*. *Auk*, VI. 1889, p. 75.
Describes one taken by Mr. Dennis Gale at Gold Hill.

BENDIRE, C. E. *Picicorvus columbianus* (Wils.), Clarke's Nutcracker. Its Nest and Eggs, etc. *Auk*, VI. 1889, p. 226.

Notes made by Mr. Dennis Gale at Gold Hill, Colorado, together with a reprint of Bendire's description of the first nest and eggs ever taken, specimens procured in Oregon, (*Bendire, O. & O. 1882 pp. 105-107 and 113-114*); and a reprint of Goss' description of the nest he found at Fort Garland, Colorado, (*Goss, B. N. O. C., VIII. 1883, p. 44*). Mr. Gale's specimens are the third known to science.

BENDIRE, C. E. Description of the Nest and Eggs of *Megascops asio maxwelliæ*, the Rocky Mountain Screech Owl. *Auk*, VI. 1889, p. 298.

The first nest known was taken by Mr. A. W. Anthony near Denver; also several nests taken by Mr. Dennis Gale near Gold Hill.

BENDIRE, C. E. *Megascops asio maxwelliæ*. *Auk*, VII. 1890, p. 91.

Results of the examination of three ejected pellets sent by Mr. Dennis Gale from Gold Hill.

BENDIRE, C. E. A Second Nest and Eggs of *Picicorvus columbianus* taken in Colorado. *Auk*, VII. 1890, p. 92.

Taken by Mr. Dennis Gale at Gold Hill.

BENDIRE, C. E. Smithsonian Institution. United States National Museum. Special Bulletin No. 1. Life Histories of North American Birds, with special reference to their Breeding Habits and Eggs, with twelve lithographic plates. By Charles Bendire, Captain U. S. Army (retired), Honorary Curator of the Department of Oölogy, etc. pp. VIII. 446. Washington: Government Printing Office, 1892.

Descriptions of the nests and eggs of many species of Quail, Grouse, Doves, Hawks and Owls, of which 26 are specifically mentioned as occurring in Colorado. Contains many interesting and valuable notes by Mr. Dennis Gale, of Gold Hill, Colorado, on the breeding habits of birds in the Rocky Mountains.

BENDIRE, C. E. Smithsonian Institution. United States National Museum. Special Bulletin [No. 3.] Life Histories of North American Birds from the Parrots to the Grackles, with special reference to their Breeding Habits and Eggs. By Charles Bendire, Captain and Brevet Major U. S. A. (retired). Honorary Curator of the Department of Oölogy, U. S. National Museum, Member of the American Ornithologists' Union. With seven lithographic plates. Washington: Government Printing Office, 1895. pp. I-IX. 1-518.

This is Part II. of the work quoted above as Special Bulletin No. 1. It has the same general plan and style and the notes come from the same sources.

- BRACKETT, A. E. Jack Snipe in Colorado. *Forest and Stream* IX. 1877, p. 397.
- BRENINGER, G. F. Lincoln's Sparrow and its Nesting. *O. & O. XII.* 1887, p. 191.
Nest with young taken July 5 at 12,000 feet.
- BRENINGER, G. F. Nesting of the Western Yellow Warbler. *O. & O. XIII.* 1888, p. 64.
Short note on its breeding habits.
- BRENINGER, G. F. Nesting of the Green-tailed Towhee. *O. & O. XIII.* 1888, p. 90.
Eggs taken late in June at 7,000 feet.
- BREWER, T. M. Exhibition of a Pair of *Plectrophanes mac-cowni* from "California," *i. e.*, Colorado. *Proc. Bos. Soc. Nat. Hist. XV.* 1873, p. 311.
- BREWER, T. M. Note on the Nesting and Eggs of *Logopus leucurus*. *Proc. Bost. Soc. Nat. Hist. XVI.* 1874, p. 348.
Taken by Mr. T. M. Trippe at Idaho Springs, Colorado, June 28, 1873, a thousand feet above timber-line.
- BREWER, T. M. [Letter on the Nest and Eggs of *Dendroæca auduboni*.] *Ibis, 4th Series* 1877, p. 394.
Fully described specimens from Summit County, Colorado.
- BREWER, T. M. Notes on *Junco caniceps* and the Closely Allied Forms. *B. N. O. C. III.* 1878, p. 72.
Nest and eggs taken by J. H. Batty. Egg also taken July 12, 1876, in South Park.
- BREWER, T. M. The Rocky Mountain Golden-eye (*Bucephala islandica*). *B. N. O. C. IV.* 1879, p. 148.
First eggs in the United States probably taken by Edwin Carter in 1876
- BREWER, T. M. The Rocky Mountain Whiskey Jack (*Perisoreus canadensis capitalis*). *B. N. O. C. IV.* 1879, p. 239.
Nest taken by Mr. Carter, April 2, 1879, at Breckenridge.
- BREWSTER, WM. On a Collection of Birds lately made by Mr. F. Stephens in Arizona. *B. N. O. C. VIII.* 1883, p. 21.
Refers to the occurrence of the Chapparel Cock in Colorado.
- BREWSTER, WM. and ALLEN, J. A. See Allen, J. A. and Brewster, Wm. *B. N. O. C. VIII.* 1883, pp. 151 and 189.
- BREWSTER, WM. Bendire's Thrasher (*Harporhynchus bendirei*) in Colorado. *B. N. O. C. VIII.* 1883, p. 57.
First and only capture in Colorado.

BREWSTER, WM. Recent Occurrence of the Flammulated Owl in Colorado. *B. N. O. C. VIII.* 1883, p. 123.

Note from Mr. C. E. Aiken recording a young bird in nestling plumage taken near Manitou, and one taken at Mosca Pass, at the same place where Dr. Walbridge shot one four years previous.

BREWSTER, WM. The Red Crossbill (*Loxia curvirostra stricklandi*) in Kansas. By L. L. Dyche. *Auk, III.* 1886, p. 260.

With a supplementary note by Mr. Brewster in which he states that Colorado specimens are much nearer *stricklandi* than *americana*.

BREWSTER, WM. Three New Forms of North American Birds. *Auk, IV.* 1887, p. 145.

Describes a new subspecies *Symphemia semipalmata inornata* with types from Larimer County, Colorado.

BREWSTER, WM. On Three Apparently New Subspecies of Mexican Birds. *Auk, V.* 1888, p. 139.

The Colorado *Dendroica æstiva* is considered as a fair intermediate between *sonorana* and *morcomi*.

BREWSTER, WM. Descriptions of Seven Supposed New North American Birds. *Auk, VIII.* 1891, p. 139.

Includes *Megascops asio aikeni* with type from El Paso County, Colorado.

BURNS, FRANK L. The American Crow, (*Corvus americanus*) with Special Reference to its Nest and Eggs. Bull. No. 5 The Wilson Ornithological Chapter of the Agassiz Association, pp. 1-41. Oberlin, Ohio, March 15, 1895. H. Kenaston's print, Oberlin, Ohio.

Contains notes from Colorado by Mr. F. M. Dille.

BYERS, W. N. Birds and Electric Light. *Forest and Stream, XVIII.* 1882, 366

Destruction of large numbers of birds by flying against the framework of the electric light towers in Denver, Colorado.

CANTWELL, GEO. C. Doings of a Tenderfoot. *O. & O. XV.* 1890, p. 104.

Short notes on several species of common birds seen near Pike's Peak.

COALE, H. K. Ornithological Notes of a Flying Trip through Kansas, New Mexico, Arizona and Texas. *Auk, XI.* 1894, p. 216.

A few notes on five species of the winter birds of Fort Logan, near Denver, Colorado.

COCKERELL, T. D. A. The Second Report of the Colorado Biological Association. *Custer County Courant* [local newspaper], December, 1888.

Note from Chas. F. Morrison giving record of the capture of *Ajaja ajaja* at Silverton, Colorado.

COCKERELL, T. D. A. The Sixth Report of the Colorado Biological Association. *Custer County Courant*, January 16, 1889.

Note from H. W. Nash of the recent capture of the Pygmy Owl near Pueblo.

COCKERELL, T. D. A. The Ninth Report of the Colorado Biological Association. "Our Spring Migrants," T. D. A. C[ockerell]. *Custer County Courant*, February, 1889. Dates of arrival for 1888 of 11 species.

COCKERELL, T. D. A. The Thirteenth Report of the Colorado Biological Association. *Custer County Courant*, March, 1889.

Robins first seen near Short Creek, March 19, 1889.

[Oversheets of all these reports were issued, unpagged and mostly undated].

COOKE, W. W. Ten New Birds for Colorado. *Auk*, XI. 1894, p. 182.

Records of some 15 species, of which *Oidemia deglandi*, *Ardetta exilis*, *Calidris arenaria* and *Coccyzus erythrophthalmus*, proved to be new birds for the State.

COOKE, W. W. The Summer Range of Colorado Birds. *Auk*, XII. 1895, p. 151.

Gives recapitulation of the altitudes at which the birds breed in the State, but mentions only a few species by name.

COUES, E. Range of the *Geococcyx californianus*. *Am. Naturalist*, VII. 1873, p. 751.

Quotes a letter from Dr. A. Woodhull on the occurrence of this species on the Arkansas River near Fort Lyon, Colorado.

COUES, E. Department of the Interior. United States Geological Survey of the Territories. F. V. Hayden. U. S. Geologist in Charge. Miscellaneous Publications No. 3. Birds of the Northwest. A Hand-book of The Ornithology of the Region drained by the Missouri River and its Tributaries. By Elliott Coues, Captain and Assistant Surgeon U. S. Army. Washington: Government Printing Office, 1874. pp. XII. 791.

A large part of Colorado falling within the scope of this volume, there is here collected nearly all that had been written on Colorado birds up to this time. One hundred and forty-five species are attributed specifically to Colorado, in addition to many whose habitat includes Colorado by implication. But the most important part of the work with reference to Colorado, is the very full and valuable notes of Mr. T. M. Trippe on the birds in the vicinity of Idaho Springs. They form to-day the best record there is of the vertical movements of the birds in spring and fall migration.

COUES, E. On the Breeding Habits, Nest and Eggs of the White-tailed Ptarmigan (*L. leucurus*). *Bull. U. S. Geological Surv. Terr. 2d series*, No. 5, January 8, 1876, pp. 263-266.

Most of the material on which these notes are based came from Colorado.

COUES, E. The Destruction of Birds by Telegraph Wire. *Am. Naturalist*, X. 1876, p. 734.

A detailed account from observations in Colorado.

COUES, E. Range of the Lanier Falcon. *B. N. O. C. II.* 1877, p. 26.

Very numerous in open portions of Colorado.

COUES, E. Western Range of *Conurus carolinensis*. *B. N. O. C. II.* 1877, p. 50.

Letter from Mr. E. L. Berthoud of its occurrence from 1860 to 1862 at Golden, Denver, on the Little Thompson, and on the Arkansas River near old Fort Lyon.

COUES, E. Note on the Cinnamon Teal. *B. N. O. C. II.* 1877, p. 51.

This and several other species very abundant, breeding at a small lake in North Park, Colorado.

COUES, E. *Melopelia leucoptera* in Colorado. *B. N. O. C. II.* 1877, p. 83.

Note from Mr. E. L. Berthoud of seeing a dozen or more, July, 1869, at the head of Cub Creek, Jefferson County, Colorado.

COUES, E. Nest and Eggs of *Selasphorus platycercus*. *B. N. O. C. III.* 1878, p. 95.

Record of five nests found by Mr. E. A. Barber, July 26, 1875, in extreme southwestern Colorado.

COUES, E. Department of the Interior, United States Geological Survey of the Territories. F. V. Hayden, U. S. Geologist in charge. Miscellaneous Publications No. 11. Birds of the Colorado Valley. A Repository of Scientific and Popular Information Concerning North American Ornithology. By Elliott Coues. Part First. *Passeres to Laniidae*. Bibliographical Appendix. Seventy Illustrations. pp. XVI. 807. Washington: Government Printing Office, 1878.

Contains a good deal of material on Colorado birds, but it is all quoted from Henshaw's Report on the Surveys West of the Hundredth Meridian. q. v.

COUES, E. Nest and Eggs of *Catherpes mexicanus conspersus*. *B. N. O. C. V.* 1880, p. 181.

Nest with five eggs taken by Mr. H. D. Minot at Manitou, June 8, 1880.

COUES, E. Nest and Eggs of *Myiadestes townsendii*. *B. N. O. C. VIII.* 1883, p. 239.

Description of nest and eggs found by Mr. Wm. G. Smith in Jefferson County, Colorado.

COUES, E. Nest and Eggs of *Parus montanus*. *B. N. O. C. VIII.* 1883, p. 239.

Description of both taken by Mr. Wm. G. Smith.

COUES, E. Key to North American Birds, Etc. Fourth Edition, 1890.

Gives specific Colorado references for 35 species.

DAVIE, OLIVER. Nests and Eggs of North American Birds. By Oliver Davie. The Fourth Edition. Introduction by J. Parker Norris. Illustrations by Theodore Jasper, A. M., M. D., and W. Otto Emerson. pp. XII. 451. Columbus, Hann & Adair, 1889.

Contains specific references to 77 species of birds as breeding in Colorado.

DEANE, RUTHVEN. Capture of a Third Specimen of the Flammulated Owl (*Scops flammeola*) in the United States and First Discovery of its Nest. *B. N. O. C. IV.* 1879, p. 188.

Taken by Mr. C. E. Aiken at Poncha Pass, Fremont County, June 15, 1875; also the nest with one egg. This is the first record of its breeding in Colorado.

DEANE, RUTHVEN. The Old Squaw (*Clangula hyemalis*) in Colorado. *Auk, XII.* 1895, p. 292.

A male and female, shot by Mr. John B. Sibley near Denver, November 13, 1892. This is the first record for Colorado.

DILLE, F. M. Nesting of *Archibuteo ferrugineus*. *Young Oölogist*, 1885, pp. 44, 45.

Nesting April 13, 1885, in Weld County.

DILLE, F. M. A Week's Trip after Hawk's Eggs in Colorado. *O. & O. XII.* 1887, p. 97.

Eggs or young of *B. b. kriderii*, *B. b. calurus*, *B. swainsoni*, *A. ferrugineus*, and *F. mexicanus*, taken May 20-25, 1886, in Weld County.

DILLE, F. M. Nesting of the Black-billed Magpie. *O. & O. XIII.* 1888, p. 23.

Eggs on the plains usually about the first of May; in the mountains by May 25.

DILLE, F. M. Home Life of the Mountain Bluebird. *Nidologist, II.* 1894-5, p. 36.

Notes on the nesting of the Rocky Mountain Bluebird and the House Finch.

DILLE, F. M. Colorado Birds. The Black-billed Magpie. *The Sunny South Oölogist, I. No. 1.*

DILLE, F. M. Egg Collecting in Colorado. *The Sunny South Oölogist, I. No. 2.*

DILLE, F. M. Colorado Birds. Lark Bunting and Mountain Plover. *The Sunny South Oölogist, I. No. 3.*

DREW, F. M. Field Notes on the Birds of San Juan County, Colorado. *B. N. O. C. VI.* 1881, pp. 85 and 138.

Notes of the occurrence, migration and breeding of 104 species that range to or above 10,000 feet. Contains the first Colorado records of *Histrionicus histrionicus*, *Ceophlæus pileatus*, *Cypseloides niger*, *Loxia leucoptera* and *Dendroica gracia*.

DREW, F. M. Song of the White-bellied Swallow (*Iridoprocne bicolor*). *B. N. O. C. VI.* 1881, p. 115.

"A peculiar chirrupy warble, bearing resemblance to a sparrow's song in some respects and strikingly like a robin's in some of the half-whistles."

DREW, F. M. The Golden-crested Wren Breeding in the Colorado Valley. *B. N. O. C. VI.* 1881, p. 244.

A young bird just from the nest, taken in San Juan County, Colorado, on July 25, 1881, at 11,000 feet.

DREW, F. M. *Lopibes hyperboreus* at 9,500 feet. *B. N. O. C. VI.* 1881, p. 249.

Six killed by flying against the telegraph wires.

DREW, F. M. Notes on the Plumage of *Nephæcetes niger borealis*. *B. N. O. C. VII.* 1882, p. 182.

Believes that four years are necessary to acquire full plumage.

DREW, F. M. Notes on *Lagopus leucurus*. *Auk*, 1, 1884, p. 392.

On the moulting of the toe-nails of specimens taken in southern Colorado.

DREW, F. M. On the Vertical Range of Birds in Colorado. *Auk*, II. 1885, p. 11.

One of the most notable articles ever written on Colorado birds. It gives: 1. The highest altitude at which each species is known to range in the spring. 2. The same for the summer. 3. The same for the autumn. 4. The upper and lower limits of altitude, between which the species ranges during the winter. 5. The upper and lower limits of the breeding range.

The list is preceded by a short sketch of the topography of the state and a brief summary of its meteorological conditions.

The article is intended to present a complete list of the birds of Colorado known to that time. It contains 277 species classified as follows:

1. Residents, 51. 2. Summer residents, known to breed, 156. 3. Total breeders, 207. 4. Migrants, 21. 5. Winter visitants, 22. 6. Summer visitants, not known to breed, 5. 7. Known to occur within the state, but not classified, 22. TOTAL, 277.

The article contains the first records for Colorado of *Colymbus holbællii*, *Colinus virginianus*, *Callipepla californica* and *Cardinalis cardinalis*.

DWIGHT, JONATHAN, JR. The Horned Larks of North America, *Auk*, VII. 1890, p. 138.

Breeding birds of Colorado said to be *arenicola*.

FISHER, A. K. U. S. Department of Agriculture. Division of Ornithology and Mammalogy. Bulletin No. 3. The Hawks and Owls of the United States in their Relation to Agriculture. Prepared under the direction of Dr. C. Hart

Merriam, Ornithologist, by A. K. Fisher, M. D., Assistant Ornithologist. Published by authority of the Secretary of Agriculture. pp. 210. Washington: Government Printing Office, 1893.

Specific Colorado references to 12 species.

GOSS, B. F. Notes on the Breeding Habits of Maximilian's Jay (*Gymnocitta cyanocephala*) and Clarke's Crow (*Picicorvus columbianus*). *B. N. O. C. VIII.* 1883, p. 43.

Description of nests and eggs found near Fort Garland, Colorado.

GOSS, N. S. Notes on the Breeding Habits of the American Eared Grebe (*Dytes nigricollis californicus*). *Auk, I.* 1884, p. 19.

Observations on the notes of Mr. Henshaw concerning the nesting of this species in the San Luis Valley.

GOSS, N. S. Additions to the Catalogue of Kansas Birds. *Auk, III.* 1886, p. 114.

Records the Chapparel Cock in southeastern Colorado and southwestern Kansas.

GOSS, N. S. Additions to the Catalogue of the Birds of Kansas with Notes in Regard to their Habits. *Auk, VI.* 1889, p. 123.

Describes nest of Clarke's Nutcracker taken at Fort Garland, Colorado.

HASBROUCK, E. M. The Carolina Paroquet (*Conurus carolinensis*) *Auk, VIII.* 1891, p. 378.

Refers to its former occurrence in Colorado.

HASBROUCK, E. M. The Geographical Distribution of the Genus *Megascops* in North America. *Auk, X.* 1893, p. 250.

The distribution of *M. a. maxwelliæ* and of *M. a. aikenii* in Colorado is given with the authorities and references; also full records to date of all the captures of *M. flammeola* in Colorado.

HENSHAW, H. W. Engineering Department, U. S. Army. Geographical and Geological Explorations and Surveys west of the one hundredth meridian. First Lieutenant Geo. M. Wheeler, Corps of Engineers, in Charge. Report upon Ornithological Specimens collected in the years 1871, 1872 and 1873. Washington: Government Printing Office, 1874, pp. 148.

In addition to various other articles on the birds of New Mexico, Arizona and Utah, it contains an article by Mr. Henshaw on 82 species found at Denver, May, 1873, and another on 104 species at Fort Garland, Colorado.

HENSHAW, H. W. Eared Grebe (*Podiceps auritus* var. *Californicus* Coues.) *Am. Nat. VIII.* 1874, p. 243.

An account of its breeding in San Luis Park.

HENSHAW, H. W. Engineering Department, U. S. Army. Report upon Geographical and Geological Explorations and Surveys west of the one hundredth meridian, in charge of First Lieut. Geo. M. Wheeler, Corps of Engineers, U. S. Army, under the direction of Brig. Gen. A. A. Humphreys, Chief of Engineers, U. S. Army. Published by Authority of Hon. Wm. W. Belknap, Secretary of War, in accordance with Acts of Congress of June 23, 1874, and February 15, 1875. In six volumes, accompanied by one topographical and one geological atlas. Washington: Government Printing Office, 1875. Vol. V. Zoology, Chapter III. Report upon the Ornithological Collections made in portions of Nevada, Utah, California, Colorado, New Mexico and Arizona, during the years 1871, 1872, 1873 and 1874, by H. W. Henshaw. pp. 133-507, plates XV.

Observations on the distribution and breeding of birds as noted by the various parties. So far as Colorado is concerned, it is a reprint of the paper noted above by Mr. Henshaw and all that had been previously written by Mr. C. E. Aiken on Colorado birds, with the addition of much new matter. It gives specific Colorado records for 170 species, of which 14 are here for the first time attributed to the State. The whole makes one of the most valuable contributions to Colorado ornithology.

HENSHAW, H. W. The Shore Larks of the United States and Adjacent Territory. *Auk*, I. 1884, p. 257.

States that *leucolæma* occurs in Colorado only as a winter visitant and that all breeding birds are *arenicola*.

HENSHAW, H. W. List of Birds Observed in Summer and Fall on the Upper Pecos River, New Mexico. *Auk*, II. 1885, p. 333, and concluded in *Auk*, III. 1886, p. 79.

Contains Colorado notes on Baird's Sparrow, Red Crossbill and Pigmy Owl.

HERSEY, J. CLARENCE. The Little White Egret (*Ardea candidissima*) in Colorado. *Am. Naturalist*, X. 1876, p. 430. A specimen taken at Boulder, May 4, 1876.

HOLDEN, C. H., JR. and AIKEN, C. E. See Aiken, C. E. and Holden, C. H., Jr.

INGERSOLL, EARNEST. Our Present Knowledge of the Nidification of the American Kinglets. *B. N. O. C. I.* 1876, p. 77.

Records a nest with five young and one egg, found by Mr. J. H. Batty, near Buffalo Mountain, June 21, 1873, being the first ever known to science.

INGERSOLL, EARNEST. The Flammulated Owl (*Scops flammeola*) in Colorado. *B. N. O. C. V.* 1880 p. 121.

Records a second specimen for Colorado, shot by Dr. Walbridge at Mosca Pass, the third week in August, 1879.

"J" [CAPT. P. M. THORNE]. Range of *Carpodacus frontalis*. *Forest and Stream*, XXI. 1883, No. 26, p. 493.

A pair killed at Fort Lyon, Colorado, June 3, 1883, the female containing eggs nearly ready to lay.

JEFFRIES, J. AMORY. Notes on an Hermaphrodite Bird. *B. N. O. C. VIII.* 1883, p. 17.

A Green-tailed Finch from Colorado Springs, Colorado.

KELLOGG, V. L. Summer Birds of Estes Park, Colorado. *Trans. Kans. Acad. Science*, XII. 1889-90, p. 86.

Annotated list of 89 species, among them being *Colinus virginianus*, *Columba fasciata*, *Pinicola enucleator* and *Sitta carolinensis* [typical].

LAMB, W. F. Nest and Eggs of Townsend's Flycatcher. *B. N. O. C. II.* 1877, p. 77.

First nest ever known to science found by him in Summit County, Colorado, in July, 1876, at an elevation of 10,000 feet.

LOWE, W. P. Some Spring Arrivals at Pueblo County, Colorado. *O. & O. XVII.* 1892, p. 101.

Dates of arrival of about 70 species, including *Poliioptila cærulea*.

LOWE, W. P. A List of the Birds of the Wet Mountains, Huerfano County, Colorado. *Auk*, XI. 1894, p. 266.

Annotated list of 76 species, giving their vertical distribution.

LOWE, W. P. The Scarlet Ibis (*Guara rubra*) in Colorado. *Auk*, XI. 1894, p. 324.

A fine specimen shot in the Wet Mountains in May, 1876. This is the fourth record of its capture in the United States.

LOWE, W. P. An Addition to the Birds of Colorado. *Auk*, XII. 1895, p. 298.

Capture of *Callipepla squamata*, June 10, 1895, in the eastern foothills of the Wet Mountains, Pueblo County, Colorado, at an altitude of 6,000 feet.

LOWE, W. P. The arrival of the English Sparrow at Pueblo. *Nidologist*, II. 1894-5, p. 99.

First seen there February 20, 1895, and quite common a week later.

LOWE, W. P. Notes from the Field. *Nidologist*, II, 1894-5, p. 169.

Heights of nesting sites of several hawks and owls.

MAYNARD, CHAS. J. Eggs of North American Birds. By Chas. J. Maynard. Illustrated with ten Hand-colored Plates. pp. IV. 159. Boston: DeWolfe, Fiske & Co., 1890.

Specific Colorado breeding references for 22 species.

MCGREGOR, R. C. *Junco ridgwayi* in Colorado. *Auk*, X. 1893, p. 205.

One taken near Boulder.

MCGREGOR, R. C. Two Runts. *The Nidiologist*, II. May, 1895, p. 119.

A set of eggs of Swainson's Hawk, taken in Weld County, Colo., June 1, 1887, contained one "runt" egg.

MCGREGOR, R. C. Birds of Estes Park. *Nidiologist*, IV. 1896-7, p. 38.

Short notes on the occurrence of 76 species.

MERRILL, J. C. Oölogical Notes from Montana. *B. N. O. C.* VI. 1881, p. 204.

Refers to the fact that the first four nests of the Ruby-crowned Kinglet known to science came from Colorado.

MILLER, OLIVE THORNE. A Bird Lover in the West. Boston and New York: Houghton, Mifflin & Company. The Riverside Press, Cambridge, 1894. pp. I-VII. 1-278.

Notes on the habits and nesting of several species of birds found in the vicinity of Colorado Springs.

MINOT, H. D. Notes on Colorado Birds. *B. N. O. C.* V. 1880, p. 223.

Annotated notes on 44 species taken at Boulder, 5,000 feet altitude; Nederland, 8,000 feet, and Seven Lakes, near Manitou, 11,000 feet altitude. The first and only record for *Saxicola œnanthe*, taken at Boulder, May 14, 1880.

MORRISON, C. F. Field Notes on some Birds of Colorado. *O. & O.* XI. 1886, pp. 153 and 164, continued in *O. & O.* XII. 1887, p. 27 and 35, 58 and 106.

Notes on 31 species taken at Fort Lewis, Colorado. The "Pinnated Grouse" referred to is of course the "Sharp-tailed Grouse."

MORRISON, C. F. A List of Some Birds of La Plata County, Colorado, with Annotations. *O. & O.* XIII. 1888, p. 70, 107, 115 and 139.

Quite full notes on 116 species, with the first record for Colorado of *Meleagris gallopavo mexicana*.

MORRISON, C. F. A List of the Birds of Colorado. *O. & O.* XIII. 1888, p. 145, 165 and 181, continued in *O. & O.* XIV. 1889, p. 6, 65 and 145, concluded in *O. & O.* XV. 1890, p. 36.

The most extensive list of Colorado birds published up to this time. Begins with No. 1 of the A. O. U. Check List and closes with No. 570 a, enumerating 233 species. The list was never completed, owing to the destruction by fire of much of the material. In addition to records of Colorado birds already in print, the author had the use of a large amount of unpublished notes sent him by local collectors. The list, if completed at that time, would have shown 326 species; but as the records of some fourteen species recorded here have since been ascertained to be incorrect, it would reduce the real number to 312, or 35 more than Mr. Drew's list published three years previous. In this list appear for the first time *Ajaja ajaja*, *Tringa fuscicollis*, *Callipepla gambeli*, *Nyctea nyctea*, and *Junco phænotus dorsalis*.

- NASH, H. W. Notes on Some Birds Breeding in Colorado. *Forest and Stream*, Feb. 5, 1880.
Short observations on the nests and eggs of 28 species breeding near Pueblo.
- NASH, H. W. Colorado Bird Arrivals. *Forest and Stream*, XX. April 19, 1883, p. 225.
Dates of arrival of the Eastern Bluebird and the Western Meadow Lark.
- NORRIS, J. P. A series of Eggs of *Sitta pygmæa*. *O. & O.* XIII. 1888, p. 173.
One set was taken in Estes Park, Colorado, May 29, 1886.
- OSBURN, WM. Nesting of the Grebes. *O. & O.* XV. 1890, p. 68.
Notes on the breeding of *Podilymbus podiceps* near Loveland, Colorado.
- OSBURN, WM. Birds of Rare occurrence in Northern Colorado. *Science*, XXII. 1893, p. 212.
Notes on nine species seldom found there, among which *Zonotrichia coronata* is the first and only record for Colorado.
- PEABODY, P. B. Glossy Ibis at Heron Lake. *Nidologist*, II. 1895, p. 116.
Refers to a mounted specimen in his possession taken near Colorado Springs, Colorado.
- PEARCE, GORDON D. Water Ousel or American Dipper. *The Sunny South Oologist*, I. No. 1.
- POLK, BURR H. A Mallard's Strange Nesting Place. *Forest and Stream*, XVIII. 1882, p. 427.
On the open prairie in eastern Colorado.
- RIDGWAY, ROBERT. On Some New Forms of North American Birds. *Am. Nat.* VII. 1873, pp. 603 and 615.
Describes *Catherpes mexicanus conspersus* taken in Colorado by Aiken and Allen and *Junco hyemalis aikeni* taken by Aiken near Fountain, El Paso County, in the winter of 1871-2.
- RIDGWAY, R. The Birds of Colorado. *Bull. Essex Inst.* V. 1873, p. 174.
The first list of Colorado birds ever published; 243 species, of which 156 are noted as breeding. The center of abundance of each species during the breeding season is also given. The list is preceded by several tables. Eastern species found in Colorado, 30. Others found at more western points, not yet detected in Colorado, 15. [Eleven of these have since been taken in Colorado, and one more only three miles north of the State in Wyoming.] Species of the southern border of the United States found in Colorado, 10. Western species found in Colorado not occurring in corresponding latitudes in the Great Basin, 5. The list is followed by critical notes on several species.
- RIDGWAY, ROBERT. Description of a New Bird (*Leucosticte atrata*) from Colorado. *Am. Sportsman*, IV. 1874, p. 241.
Four specimens taken by C. E. Aiken at Canon City, in April, 1874.

RIDGWAY, ROBERT. Mrs. Maxwell's Colorado Museum; Catalogue of the Birds. *Field and Forest II.* 1887, pp. 195-198 and 208-214.

A list of the 234 species in the collection, several of which are the first and some the first and only records for Colorado.

RIDGWAY, ROBERT. Mrs. Maxwell's Colorado Museum; Additional Notes. *Field and Forest III.* 1887, p. 11.

Notes on two species *Junco caniceps* and *Junco annectens*.

RIDGWAY, ROBERT. *Scops flammeola* in Colorado. *B. N. O. C. V.* 1880, p. 185.

Calls attention to the fact that his record of the specimen in Mrs. Maxwell's collection is the real first record of the species for Colorado.

RIDGWAY, ROBERT. A Review of the American Crossbills (*Loxia*) of the *L. curvirostra* Type. *Proc. Biolog. Soc. of Washington, II.* 1883, p. 84.

Describes a new subspecies, *L. c. bendirei*, as the form occurring in Colorado and adjacent territory. [The A. O. U. have since refused to admit the validity of this subspecies.]

RIDGWAY, ROBERT. On the Possible Specific Identity of *Buteo cooperi* Cass. with *B. harlani* (Aud.). *Auk, I.* 1884, p. 253.

A specimen taken by Mr. C. E. Aiken at Colorado Springs.

RIDGWAY, ROBERT. On *Buteo harlani* (Aud.) and *B. Cooperi* Cass. *Auk, II.* 1885, p. 165.

Shows that Aiken's Colorado specimen should be considered *harlani* instead of *cooperi*.

RIDGWAY, ROBERT. A Manual of North American Birds. By Robert Ridgway. Illustrated by 464 Outline Drawings of the Generic Characters. pp. XI. 631. Plates CXXIV. Philadelphia: J. B. Lippincott Company, 1887.

Gives specific Colorado references to 34 species, one of which, *Coccyzus americanus occidentalis* is here described for the first time and attributed to Colorado, and *Guiraca cærulea eurhyncha* is for the first time stated to be the form found in Colorado.

"R. V. R. S." Winter Snipe in Colorado. *Forest and Stream XXVI.* 1886, No. 1, p. 5.

Wilson's Snipe reported as occurring about warm spring holes in the coldest winter weather.

SAY, THOMAS. Account of an Expedition from Pittsburg to the Rocky Mountains, performed in the years 1819 and '20 by order of the Hon. J. C. Calhoun, Secretary of War; under the command of Major Stephen H. Long. From the notes of Major Long, Mr. T. Say, and other gentlemen of the party. Compiled by Edwin James, botanist and

geologist for the expedition. In two vols. With an atlas. Vol. I. [II.]. Philadelphia: H. C. Carey and I. Lea, Chestnut St. 1823.

All Colorado matter is contained in the second volume, where eight species new to science are described and the type localities given; also short notes on three species previously described.

SCOTT, W. E. D. Notes on Birds observed at Twin Lakes, Lake County, Colorado. *B. N. O. C. IV.* 1879, p. 90.

Annotated list of 60 species, giving dates of nesting and notes on occurrence.

SMITH, H. G. JR. The Shore Lark (*Eremophila cornuta*). *O. & O. IX.* 1884, p. 95.

Notes on its habits and breeding at Denver.

SMITH, H. G. JR. Notes from Denver, Colorado. *O. & O. IX.* 1884, p. 120.

Notes on the Bohemian Waxwing, House Finch and Say's Flycatcher.

SMITH, H. G. JR. Cassin's Purple Finch (*Carpodacus cassini*). *O. & O. X.* 1885, p. 90.

Several seen at Denver, February 26 to March 25, 1885.

SMITH, H. G. JR. Some Additions to the Avi-fauna of Colorado. *Auk, III.* 1886, p. 284.

Ten species not given in Mr. Drew's list of Colorado birds. Of these the Rusty Grackle, Cormorant and Herring Gull are the first and only records for Colorado.

SMITH, H. G. JR. Food of the Great Northern Shrike. *O. & O. XIII.* 1888, p. 163.

Occurs as a winter resident at Denver, capturing Shorelarks and Longspurs; also feeding on grasshoppers and other insects.

SMITH, H. G. Another *Megascops flammeolus* for Colorado. *Auk, X.* 1893, p. 364.

One taken in Jefferson County.

SMITH, H. G. City Birds of Denver, Colorado. *Science XXII.* 1893, p. 244.

Short notes on 32 species.

SMITH, H. G. Some Birds New to Colorado. With notes on others of little known distribution in the State. *The Nidologist III.* 1896, pp. 48, 65, 76.

An important contribution to our knowledge of several species. Notes on 35 species, mostly water birds, of which *Æchmophorus occidentalis*, *Larus atricilla*, *Sterna paradisæa*, *Oidemia perspicillata*, *Gaura alba*, *Arenaria interpres*, *Strix pratincola*, *Dendroica cærulescens* and *Turdus aonalaschkæ* are the first records for Colorado.

SMITH, W. G. [Winter Birds in Larimer County, Colorado.] By W. G. S[mith]. *Random Notes, III.* 1886, p. 13.

- SMITH, W. G. [Nest of Rock Wren.] *Random Notes, III.*
1886, p. 17.
- SMITH, W. G. [Nest and Eggs of *Myiadestes townsendii*.]
Random Notes, III. 1886, p. 25.
- SMITH, W. G. [Notes from Colorado.] *Random Notes, III.*
1886, pp. 66 and 67.
- SMITH, W. G. Nesting of Audubon's Warbler. *O. & O.*
XVIII. 1888, p. 114.
- SMITH, W. G. Nesting of the Ruddy Duck. *O. & O. XIII.*
1888, p. 132.
- SMITH, W. G. Nesting of the Water Ousel. *O. & O. XIII.*
1888, p. 149.
- SMITH, W. G. Nesting of the Pied-billed Grebe. *O. & O.*
XIV. 1889, p. 138.
- SMITH, W. G. Breeding Habits of the Mountain Plover. *O.*
& O. XIII. 1888, p. 187.
- SMITH, W. G. Nesting of the Cinnamon Teal. *O. & O.*
XIV. 1889, p. 77.
- SMITH, W. G. Sabine's Gull. *O. & O. XIV.* 1889 p. 176.
One killed at Loveland, October 12, 1889.
- SMITH, W. G. Nesting of the Eared Grebe. *O. & O. XV.*
1890, p. 140.
- SMITH, W. G. Nesting of the Flammulated Screech Owl.
O. & O. XVI. 1891, p. 27.
Eggs at 10,000 feet on June 2, 1890, and another nest June 4. On June
20, a nest at 8,000 feet. [It is probable that all these were found in Estes Park.]
- STONE, D. D. Water Ousel and Canada Jay. *O. & O. VII.*
1882, p. 181.
A Water Ousel seen at 11,000 feet in October near an open place in the
ice on a small lake during a snow storm. Canada Jay so tame as to alight on
his arm and take bread from his hand.
- STONE, D. D. Notes from Colorado. *O. & O. VII.* 1882, p. 191.
Notes on 16 species taken at about 11,000 feet, Pine Grosbeak in July.
Description of nest and eggs of "Oregon (?) Snowbird" and "Mountain Mock-
ing Bird."
[In *O. & O. VIII.* 1883, p. 13, Mr. R. Ridgway has a note saying that
Mr. Stone's "Mountain Mocking Bird" is *Myiadestes townsendii*, the "Oregon
Snow Bird" is *Junco caniceps*, the "Stellar's Jay" is the Long-crested and the
"Canada Jay" is the White-headed Jay, *Perisoreus capitalis*.]
- STONE, D. D. Ruby-Crowned Kinglet. *O. & O. VIII.* 1883,
p. 83.
Description of nests and eggs taken near Hancock, Colorado.

STONE, D. D. Colorado Notes. Extracts from my Note-book.
O. & O. IX. 1884, Part 1, p. 9. Part 2, p. 20.

Notes on the nests and eggs of 18 species of birds nesting above 11,000 feet.

STONE, D. D. [*Myiadestes townsendii* and *Sialia sialis*.] *Random Notes, III. 1886, p. 42.*

THORNE, P. M. The Eastern Bluebird at Fort Lyon, Colorado.
Auk, III. 1886, p. 489.

A pair nested there in 1886.

THORNE, P. M. Additions to Drew's List of Colorado Birds.
Auk, IV. 1887, p. 264.

Notes on 20 species taken in the vicinity of Fort Lyon. [Of these *Contopus pertinax*, *Melospiza georgiana*, *Vireo belli*, *Anthus spragueii*, *Thryothorus ludovicianus*, *Thryothorus bewickii* and *Turdus fuscescens* are now known to be errors of identification.]

THORNE, P. M. Abnormal Plumage of *Xanthocephalus xanthocephalus*. *Auk, V. 1888, p. 112.*

Taken in Las Animas County, Colorado.

THORNE, T. W. [P. M.] The Olivaceous Flycatcher and Phoebe in Colorado. *Auk, VI. 1889, p. 276.*

Both taken at Fort Lyon; the first and only records for the state.

[WOOD, C. S.] *Scops flammeola*. *Colorado Springs Gazette, Sept. 3, 1879.*

Exhibition by C. E. Aiken of the fourth specimen from the United States.

WOODBURY, A. H. Ring-billed Gull in Colorado. *O. & O. XII. 1887, p. 116.*

One taken at Monte Vista.

THE HISTORY OF COLORADO ORNITHOLOGY.

In an old State like Massachusetts or New York whose birds have been studied and written about for nearly two centuries, it would be almost a hopeless task to collect and digest the enormous mass of material. In Colorado the case is far different. Less than fifty years have elapsed since the first systematic study of Colorado birds was made and but little was done previous to 1870. Yet in twenty-five years many records have been lost and the Colorado list shows already nearly a dozen species known to have been taken in the State, but the data of whose capture, when, where and by whom, cannot now be found.

This shows that it is high time a permanent record should be made of the principal facts in Colorado Ornithology while these facts are obtainable.

1807. **Pike.** The first reference to any birds residing in Colorado is found in Lieut. Pike's account of his trip through the State. He mentions the raven, magpie, turkey and pheasant. From what is now known it seems probable that he refers to *corvus corax sinuatus*, *pica pica hudsonica*, *meleagris gallopavo* and *dendragapus obscurus*, but as this is guess work in the case of two of these species, all of them are repeated under the name of the next one who reported them.

1823. **Say.** The expedition of Maj. Long was accompanied by the first trained ornithologist, who entered the bounds of the present State of Colorado. Thos. Say has left us records of the capture during that trip of *dendragapus obscurus*, *columba fasciata*, *tyrannus verticalis*, *pica pica hudsonica*, *carpodacus mexicanus frontalis*, *spinus psaltria*, *passerina amœna*, *petrochelidon lunifrons*, *mimus polyglottos*, *salpinctes obsoletus* and *merula migratoria*.

1858. **Baird.** The government parties of the Pacific Railroad surveys traveled but little in Colorado. The following is a list of all the government expeditions that entered Colorado previous to 1860:

1806-7. Lieut. Pike. Up the Arkansas River to Canon City, across into South Park; then by a round-about way into the San Luis Valley and to New Mexico.

1820. Maj. Long. Up the South Platte to Denver; across the "Divide" to Colorado Springs and south into New Mexico.

1844 and 1845. Capt. Fremont. Across the State via Grand River, Pueblo, Denver and Fort Morgan.

1851. Capt. Pope. Came from New Mexico north and east to La Junta and east to Kansas.

1853. Capt. Gunnison. Crossed the plains to the Arkansas River, up that stream and its branches to Trinidad, Colorado, across southern Colorado to Fort Massachusetts, over the Continental divide to the Gunnison River, down this stream and the Grand River to Utah.

1855. Lieut. Warren. Just touched Colorado at Julesburg.

1856. Lieut. Bryan. Up the South Platte to Fort Morgan and north into Wyoming.

1859. Col. Loring and Capt. Macomb. Across the southwest corner of Colorado in passing from Utah to New Mexico.

The specimens collected by these various expeditions, together with the field notes of the naturalists were worked up by Prof. Baird and his assistants, and incorporated in the ninth volume of the Pacific Railroad Reports. There occur here the first specific Colorado references to *anas discors*, *aythya americana*, *grus mexicana*, *lagopus leucurus*, *centrocercus urophasianus*, *zenaidura macroura*, *circus hudsonius*, *buteo swainsoni*, *falco sparverius*, *asio wilsonianus*, *speotyto cunicularia hypogæa*, *dryobates villosus hyloscopus*, *colaptes auratus*, *otocoris alpestris arenicola*, *xanthocephalus xanthocephalus*, *oroscoptes montanus*, *troglodytes ædon aztecus*, *parus atricapillus septentrionalis* and *sialia arctica*.

[NOTE. It may seem an anachronism to say that Baird added *d. v. hyloscopus* to the Colorado list, since it was not separated as a variety until many years later. What is meant, of course, is that Baird added the bird which is now called *d. v. hyloscopus*, though he himself used a different name for it.]

1859. **Baird.** In volume ten of the Pacific Railroad Reports, in giving the list of the birds taken by Capt. Gunnison's party, Baird notes specifically as from Colorado, several species that were on hand when volume nine was written, but which are not specially mentioned there as having been taken in Colorado. They are *buteo borealis calurus*, *chordeiles virginianus henryi*, *perisoreus canadensis capitalis*, and *corvus corax sinuatus*.

1870. **Baird.** *Cooper's Birds of California*, I. 1870, p. 163. *Leucosticte tephrocotis* taken by Wernigk at Denver.

1872. **Allen.** *Bul. Mus. Comp. Zool.* III. 1872, pp. 113-183. The visit of J. A. Allen to Colorado laid the foundation of our knowledge of the birds of the State. Passing across the plains, collecting along the base of the foothills and ascending above timber-line on one of the highest mountains, he presented the first "local list" from Colorado and the first statement of the vertical range of the different species. Mr. Allen's opportunities for observation were neither so good nor so exten-

sive as those of Mr. C. E. Aiken, but his notes being published a few months earlier, makes his records antedate those of Mr. Aiken, though really taken somewhat later. Mr. Allen's list adds 84 species to Colorado birds as follows: *anas strepera*, *tringa minutilla*, *totanus melanoleucus*, *totanus flavipes*, *totanus solitarius*, *bartramia longicauda*, *actitis macularia*, *ægalitis vocifera*, *ægalitis montana*, *bonasa umbellus umbelloides*, *pediocætes phasianellus campestris*, *cathartes aura*, *aquila chrysaetos*, *halicæetus leucocephalus*, *falco peregrinus anatum*, *ceryle alcyon*, *picoides americanus dorsalis*, *sphyrapicus varius nuchalis*, *sphyrapicus thyroides*, *melanerpes erythrocephalus*, *melanerpes torquatus*, *colaptes cafer*, *phalænoptilus nuttalli*, *æronautes melanoleucus*, *selasphorus platycercus*, *tyrannus tyrannus*, *sayornis saya*, *contopus borealis*, *contopus richardsoni*, *empidonax wrightii*, *cyanocitta stelleri macrolopha*, *aphelocoma woodhousei*, *nucifraga columbianus*, *molothrus ater*, *agelaius phœniceus*, *sturnella magna neglecta*, *icterus spurius*, *icterus galbula*, *icterus bullocki*, *scolecophagus cyanocephalus*, *carpodacus cassini*, *leucosticte australis*, *spinus tristis*, *spinus pinus*, *poocætes gramineus confinis*, *ammodramus sandwichensis alaudinus*, *chondestes grammacus strigatus*, *zonotrichia leucophrys*, *spizella socialis arizonæ*, *junco caniceps*, *melospiza fasciata montana*, *melospiza lincolni*, *pipilo maculatus megalonyx*, *oreospiza chlorura*, *zamelodia melanocephala*, *spiza americana*, *calamospiza melanocorys*, *piranga ludoviciana*, *chelidon erythrogastra*, *tachycineta bicolor*, *tachycineta thalassina*, *lanius ludovicianus excubitorides*, *vireo olivaceus*, *vireo gilvus*, *vireo solitarius plumbeus*, *dendroica æstiva*, *dendroica auduboni*, *geothlypis macgillivrayi*, *icteria virens longicauda*, *sylvania pusilla*, *setophaga ruticilla*, *anthus pensilvanicus*, *cinclus mexicanus*, *galeoscoptes carolinensis*, *harporhynchus rufus*, *catherpes mexicanus conspersus*, *sitta carolinensis aculeata*, *sitta pygmæa*, *parus gambeli*, *regulus calendula*, *myadestes townsendii*, *turdus fuscescens salicicolus*, *turdus aonalaschkeæ auduboni*, *sialia mexicana bairdi*.

1872. **Aiken.** *Proc. Bost. Soc. Nat. Hist.* XV. 1872, pp. 193-210. For several years, previous to 1872, Mr. C. E. Aiken had been living in Colorado and studying its bird life. His observations were from time to time communicated to Prof. Brewer and Mr. Ridgway. They constitute the largest mass of material on Colorado ornithology collected by any one person. Mr. Aiken's notes, published by Prof. Brewer in 1872, constitute the first records of the movements of the birds in Colorado in winter, and these winter species form, with the water birds, a large part of the 59 species that this list contains in addition to those already given by Mr. Allen. The following are the additions: *hydrochelidon nigra surinamensis*, *anas boschas*, *anas americana*, *anas carolinensis*, *anas cyanoptera*, *spatula clypeata*, *dasyla acuta*, *aix sponsa*, *aythya vallisneria*, *aythya affinis*, *aythya collaris*, *clangula clangula americana*, *charitonetta albeola*, *erismatura jamaicensis*, *branta canadensis hutchinsii*, *botaurus lentiginosus*, *ardea hero-*

dias, grus americana, rallus virginianus, recurvirostra americana, gallinago delicata, tringa maculata, numenius longirostris, bubo virginianus subarcticus, geococcyx californianus, dryobates pubescens homorus, sphyrapicus varius, tyrannus vociferans, myiarchus cinerascens, empidonax traillii, otocoris leucolæma, corvus cryptoleucus, corvus americanus, cyanocephalus cyanocephalus, coccothraustes vespertina, leucosticte tephrocotis, zonotrichia leucophrys intermedia, spizella monticola ochracea, spizella socialis, junco aikeni, junco hyemalis, junco hyemalis connectens, junco mearnsi, pipilo maculatus arcticus, pipilo fuscus mesoleucus, clivicola riparia, ampelis garrulus, ampelis cedrorum, lanius borealis, helminthophila virginicæ, helminthophila celata, compothlypis americana, dendroica coronata, dendroica nigrescens, geoithlypis trichas occidentalis, cistothorus palustris paludicola, parus inornatus griseus, psaltriparus plumbeus, regulus satrapa, sialia sialis.

1873. **Aiken.** *Am. Nat.* VII. 1873, 13, Mr. Aiken records here *ammodramus bairdi* for Colorado.

1873. **Ridgway.** *Bull. Essex Inst. Nov.* 1873, 179. This is one of the most important and, at the same time, one of the most unsatisfactory publications ever issued concerning Colorado birds. It gives a list of 243 species known to occur in Colorado, of which 59 had never before been credited to the State. The list is entirely a compilation and much of it from manuscript notes of various persons and collections, yet, for the most of these species, no source of authority is given; for several the source is given incorrectly, and for some it is impossible at this day to ascertain the basis for including them in the list. The list is based largely on the records of Mr. Aiken, and to him belongs most of the credit for the notes on distribution during the breeding season. Many of the species are included on the authority of Mr. Henshaw who had lately taken them and allowed of their publication here in advance of his own notice that appeared at a later date. Several of the rarer species owe a place in the list to their occurrence in the Maxwell collection, a complete list of which was not published until 1877. And, as stated above, there are some species whose source cannot be now ascertained. The following species appear in this list for the first time; those marked with one star having been taken by Mr. Aiken, those with two stars by Mr. Henshaw, and those with the asterisk are in the Maxwell Collection. ***Colymbus nigricollis californicus*, †*podilymbus podiceps*, †*urinator imber*, †*larus delawarensis*, *sterna forsteri*, †*pelecanus erythrorhynchos*, †*mergamser americanus*, †*lophodytes cucullatus*, **anas obscura*, *aythya marila nearctica*, †*branta canadensis*, *olor buccinator*, †*plegadis guarauana*, †*ardea candidissima*, †*porzana carolina*, ***fulica americana*, †*steganopus tricolor*, ***tringa bairdii*, †*tringa alpina pacifica*, ***ereunetes pusillus*, ***symphemia*

semipalmata inornata, *charadrius dominicus*, **meleagris gallopavo*, *accipiter velox*, *accipiter cooperi*, *accipiter atricapillus*, *archibuteo lagopus sancti-johannis*, ***archibuteo ferrugineus*, ***falco mexicanus*, *falco columbarius*, *falco richardsoni*, †*pandion haliaëtus carolinensis*, **glaucidium gnoma*, **melanerpes carolinus*, *trochilus alexandri*, ***empidonax difficilis*, ***empidonax minimus*, ***empidonax hammondi*, ***dolichonyx oryzivorus*, ***quiscalus quiscula æneus*, †*pinicola enucleator*, *loxia curvirostra stricklandi*, †*plectrophenax nivalis*, †*calcarius ornatus*, †*rhynchophanes mccownii*, *ammodramus savannarum perpallidus*, †*spizella pallida*, ***spizella breweri*, *amphispiza bilineata*, *amphispiza belli nevadensis*, *passerella iliaca schistacea*, **guiraca cærulea eurhyncha*, **passerina cyanea*, ***progne subis*, ***stelgidopteryx serripennis*, **helminthophila peregrina*, *troglodytes hiemalis*, *certhia familiaris montana*, **polioptila cærulea*, †*turdus ustulatus swainsonii*.

1874. **Ridgway.** *Am. Sportsman*, IV. 1874, 241. Records *leucosticte atrata* taken by Aiken at Colorado Springs.

1874. **Coues.** *Birds of the Northwest.* In addition to a recapitulation of what has been written by Allen and Aiken on Colorado birds, this book contains some long and valuable notes by T. M. Trippe on the birds of Idaho Springs and vicinity. Also several extended notes by J. A. Allen, supplementary to those he had already published. There is here published the first and only record of the species taken by Stevenson during the trip made by Dr. Hayden's party in 1869. This party started at Cheyenne, passed south to Denver, up Clear Creek and over Berthoud's Pass to Middle Park, back to Denver and south via Colorado City and Trinidad to New Mexico. The first records for Colorado given in *Birds of the Northwest* are *bhalaropus lobatus*, *acanthis linaria* and *seiurus aurocapillus*.

1874. **Baird, Brewer and Ridgway.** *History of North American Birds.* *Icteria virens* taken by Thos. Say near the headwaters of the Arkansas.

1876. **Henshaw.** *Surveys West of One Hundredth Meridian*, Vol. V. Though some of these notes were really published two years previous, it will be better for present purposes to refer to the above which is the complete report of Mr. Henshaw's work.

In 1873 Henshaw and his assistants visited Denver and after a prolonged stay there during May, visited the San Luis Valley, making their headquarters at Fort Garland. The next year C. E. Aiken, as assistant ornithologist of the party, collected in the vicinity of Colorado Springs and Pueblo and then crossing the range into San Luis Park collected as far west as

Pagosa Springs. In addition to the species communicated to Mr. Ridgway and published by him in 1873, the following are given: *chen hyperborea*, *himantopus mexicanus*, *macrorhampus scolopaceus*, *limosa fedoa*, *selasphorus rufus*, *spinus psaltria arizonæ*, *pipilo aberti*, *piranga rubra cooperi*, *dendroica maculosa*, *dendroica rara*, *dendroica striata*, *dendroica townsendi*, *seiurus noveboracensis notabilis*, *sitta canadensis*.

1877. **Ridgway.** *Maxwell's Colorado Museum. Field and Forest, II.* 1876-7, pp. 195 and 208. This is the finest collection ever made of Colorado birds. It has been claimed that every bird in this collection was actually taken in Colorado. There seems good and sufficient reasons for believing that some of the skins bought by Mrs. Maxwell were really taken outside the State. They were all mounted by Mrs. Maxwell and largely collected by her. Most of them were taken in the vicinity of Boulder, but many were sent to her by friends in other parts of the State. Unfortunately nearly all of the data accompanying these specimens have been lost and there is now no means of ascertaining when or where they were captured.

Besides the species already given from this collection in Ridgway's List there are the following: *stercorarius parasiticus*, *rissa tridactyla*, *larus philadelphia*, *xema sabinii*, *phalacrocorax dilophus*, *mergus serrator*, *clangula islandica*, *oidemia americana*, *anser albifrons gambeli*, *olor columbianus*, *tantalus loculator*, *nycticorax violaceus*, *charadrius squatarola*, *asio accipitrinus*, *nyctala acadica*, *megascops asio maxwelliæ*, *megascops flammeola*, *coccyzus americanus occidentalis*, *leucosticte tephrocotis littoralis*, *calcarius lapponicus*, *vireo solitarius cassinii*. Two of these, *rissa tridactyla*, and *nycticorax violaceus*, still remain the first and only records for Colorado.

This completes the record of all work done in Colorado by the government surveying parties and by the individual workers that did so much for the ornithology of the state from 1869 to 1876. The state list at this time numbered 279 species or two more than those included ten years later by Mr. Drew in his list of Colorado birds. The Maxwell collection is the last large addition to the Colorado list. The 81 species that have since been added are nearly all rare or accidental visitants and have been added a few at a time by a large number of different workers.

1877. **Coues.** *B. N. O. C. II.* 1877, pp. 50 and 83. Adds *conurus carolinensis* and *melopelia leucoptera* taken by E. L. Berthoud.

1880. **Minot.** *B. N. O. C. V.* 1880, 223. First record for *mnioilta varia* and the first and only record for *saxicola ænanthe*, taken at Boulder.

1881. **Drew.** *B. N. O. C. VI.* 1881, pp. 85 and 138. The government expeditions under Mr. Henshaw extended over much of southern Colorado and their work is supplemented by that of Mr. Drew, which gives us the results of several years' active field work in the extreme southwest corner of the State. Several new species are added as follows: *histrionicus histrionicus*, *ceophæus pileatus*, *cypseloides niger borealis*, *loxia leucoptera*, *dendroica gracie* and *merula migratoria propinqua*.

1883. **Brewster.** *B. N. O. C. VIII.* 1883, 57. Records the capture of *harporhynchus bendirei* at Colorado Springs.

1883. **Allen & Brewster.** *B. N. O. C. VIII.* 1883, 151 and 189. *Gallinula galeata* taken at Colorado Springs.

1884. **Ridgway.** *Auk, I.* 1884, 50. *Buteo borealis harlani* taken by Aiken at Colorado Springs.

1885. **Drew.** *Auk, II.* 1885, 11. Includes *colymbus holboellii* but gives no authority for the record. Also mentions that *colinus virginianus* and *callipepla californica* have been introduced in the State. Includes *cardinalis cardinalis* probably based on Anthony's specimen at Denver.

1885. **Beckham.** *Auk, II.* 1885, 139. *Numenius hudsonicus* and *thryothorus bewickii leucogaster* taken at Pueblo.

1886. **H. G. Smith.** *Auk, III.* 1886, 284. Records *larus argentatus smithsonianus*, *nycticorax nycticorax nævius*, *philohela minor* and *scolecophagus carolinus* from near Denver, and *syrrium occidentale* as taken by C. E. Aiken near Colorado Springs.

1887. **Beckham.** *Auk, IV.* 1887, 120. *Zonotrichia querula* and *zonotrichia albicollis* taken at Pueblo.

1887. **Thorne.** *Auk, IV.* 1887, 264. *Branta bernicla*, *grus canadensis* and *micropalama himantopus* taken by him at Fort Lyon.

1887. **Dille.** *O. & O. XII.* 1887, 97. *Buteo borealis krideri* taken in Weld County.

1887. **Ridgway.** *Manual of North American Birds.* *Helminthophila celata lutescens* noted as occurring in Colorado.

1888. **Morrison.** *O. & O. XIII.* 1888, pp. 70, 107, 115 and 139. *Meleagris gallopavo mexicana* added from La Plata County.

1888. **Morrison.** *O. & O. XIII.* 1888, pp. 145, 165 and 181, *XIV.* 1889, pp. 6, 65 and 145, *XV.* 1890, p. 36. *Ajaja ajaja* taken at Silverton, *tringa fuscicollis* taken by Capt. Thorne at Fort Lyon, *callipepla gambeli* taken by Mr. Morrison in southwestern Colorado, *nyctea nyctea* and *junco phænotus dorsalis*.

1888. **Thorne.** *Auk*, V. 1888, p. 112. *Turdus aonalaschkæ pallasii* from Fort Lyon.

1889. **Thorne.** *Auk*, VI. 1889, 276. *Myiarchus lawrencei olivascens* and *sayornis phæbe* taken by him at Fort Lyon.

1890. **Kellogg.** *Trans. Kans. Acad. Science*, XII. 1889-90, 86. *Sitta carolinensis* taken by him in Estes Park.

1891. **Brewster.** *Auk*, VIII. 1891, 139. Description of *megascops asio aikeni*, the type taken by Aiken at Colorado Springs.

1893. **McGregor.** *Auk*, X. 1893, 205. *Junco annectens* taken near Boulder.

1893. **Osburn.** *Science*, XXII. 1893, 212. *Accipiter atricapillus* and *zonotrichia coronata* taken at Loveland.

1894. **Cooke.** *Auk*, XI. 1894, 182. *Ardetta exilis*, at Colorado Springs; *oidemia deglandi*, *calidris arenaria* and *coccyzus erythrophthalmus*, in the museum of the Agricultural College, at Fort Collins.

1894. **Lowe.** *Auk*, XI. 1894, 324. *Guara rubra* taken in the Wet Mountains, near Pueblo in May, 1876.

1895. **Deane.** *Auk*, XII. 1895, 292. *Harelda hyemalis* taken near Denver.

1895. **Lowe.** *Auk*, XII. 1895, 298. *Callipepla squamata* taken by him in the Wet Mountains.

1895. **Lowe.** *Nidologist*, II. 1894-5, 99. *Passer domesticus* first seen at Pueblo, February, 1895.

1896. **Bendire.** *Life Histories of North American Birds. Part II.* *Coccyzus americanus*, *dryobates pubescens* and *phalænoptilus nuttalli nitidus* are credited to Colorado, but no authority given.

1896. **Smith.** *Nidologist*, III. 1895-6, 48, 65 and 76. *Æchmophorus occidentalis*, *larus atricilla*, *sterna paradisæa*, *oidemia perspicillata*, *guara alba*, *arenaria interpres*, *strix pratincola*, *dendroica cærulescens* and *turdus aonalaschkæ* all taken in the vicinity of Denver.

1897. **Cooke.** *Colorado Experiment Station Bulletin No. 37.* The present publication contains the first records for Colorado of several species as follows: *ardea rufescens*, *elanoides forficatus* and *bubo virginianus arcticus*, by Aiken; *carpodacus purpureus*, by Anthony; *icinia mississippiensis*, *buteo lineatus elegans*, *milvulus forficatus* and *sylvania pusilla pileolata*, by Breninger; *dryobates*

scalaris bairdi, by Lowe; *larus californicus*, *larus occidentalis*, *larus franklinii*, *ereunetes occidentalis* and *ægialitis semipalmata*, by Osburn; *chen hyperborea nivalis* and *megascops asio*, by Snyder; *colymbus auritus*, *melospiza fasciata* and *dendroica æstiva sonorana*, by Thorne.

RECAPITULATION.

DATE	AUTHORITY.	Number of Species added	Total number of Species to date
1823--	Thos. Say.....	11	11
1858--	S. F. Baird.....	19	30
1859--	S. F. Baird.....	4	34
1870--	S. F. Baird.....	1	35
1872--	J. A. Allen.....	84	119
1872--	C. E. Aiken.....	59	178
1873--	C. E. Aiken.....	1	179
1873--	R. Ridgway.....	60	239
1874--	R. Ridgway.....	1	240
1874--	E. Coues.....	3	243
1874--	Baird, Brewer and Ridgway.....	1	244
1876--	H. W. Henshaw.....	14	258
1877--	R. Ridgway.....	21	279
1877--	E. Coues.....	2	281
1880--	H. D. Minott.....	2	283
1881--	F. M. Drew.....	6	289
1883--	Wm. Brewster.....	1	290
1883--	Allen and Brewster.....	1	291
1884--	R. Ridgway.....	1	292
1885--	F. M. Drew.....	4	296
1885--	C. W. Beckham.....	2	298
1886--	H. G. Smith.....	5	303
1887--	C. W. Beckham.....	2	305
1887--	P. M. Thorne.....	3	308
1887--	F. M. Dille.....	1	309
1887--	R. Ridgway.....	1	310
1888--	C. F. Morrison.....	1	311
1888--	C. F. Morrison.....	5	316
1888--	P. M. Thorne.....	1	317
1889--	P. M. Thorne.....	2	319
1890--	V. L. Kellogg.....	1	320
1891--	Wm. Brewster.....	1	221
1893--	R. C. McGregor.....	1	322
1893--	Wm. Osburn.....	2	324
1894--	W. W. Cooke.....	4	328
1894--	W. P. Lowe.....	1	329
1895--	R. Deane.....	1	330
1895--	W. P. Lowe.....	1	331
1895--	W. P. Lowe.....	1	332
1896--	C. Bendire.....	3	335
1896--	H. G. Smith.....	9	344
1897--	W. W. Cooke.....	19	363

THE BIRDS OF COLORADO.

1. *Æchmophorus occidentalis*. WESTERN GREBE.

Migratory; rare. A western species that finds its eastern limit at the western edge of the plains. The only certain record for the State is that of H. G. Smith (Nidologist, III. 1896, 48) who saw the skins of one that had been shot near Denver about October 25, 1888, and of two others taken in the vicinity a few days earlier. It may eventually be found to breed in Colorado, since it is an abundant summer resident in Utah.

2. *Colymbus holbœllii*. HOLBÆLL'S GREBE.

Migratory; rare; a northern species coming south in the winter. It is a widely distributed species, liable to be found anywhere but so far has been noted in Colorado only in the southwestern corner in La Plata County, where F. M. Drew noted it in the autumn at 10,000 feet (Auk, II. 1885, 11) and C. F. Morrison notes it as "rare" in the same locality (O. & O. XIII. 1888, 70). It breeds far north.

3. *Colymbus auritus*. HORNED GREBE.

Migratory; rare. Inhabits the whole of North America, but its only Colorado record is that of Capt. P. M. Thorne who writes, "I find in my journal under date of October 8, 1887, the following. 'Killed a *C. auritus*. Was alone. Not seen here before.' I do not think a mistake as to identification possible. I am familiar with *C. n. californicus* and *P. podiceps*." This was at Ft. Lyon on the Arkansas River. The Horned Grebe breeds from the northern United States northward and comes south in the winter.

4. *Colymbus nigricollis californicus*. AMERICAN EARED GREBE.

Summer resident; rare in eastern, not uncommon in western Colorado; breeds in suitable localities throughout its range from the plains to 8,000 feet, especially on the alkali lakes. Mr. Henshaw found it nesting abundantly in the San Luis Valley, most of the eggs being fresh June 23. He also found the birds quite numerous in migration at Denver as late

as May 15, 1874. Its nest has been taken at Loveland, with fresh eggs June 20, and it is not uncommon on the lakes and reservoirs in the Big Thompson and Cache La Poudre Valleys. A few pass across the State and enter Kansas.

6. **Podilymbus podiceps.** PIED-BILLED GREBE.

Summer resident, rare; in migration, common. The only records of breeding come from the vicinity of Loveland, though it probably will be found breeding over much of the northern third of the State below 7,000 feet. In the southern portion of Colorado it is known only as a migrant, but in open seasons a few may remain through the winter.

7. **Urinator imber.** LOON.

Found throughout the State as a migrant and occasionally in winter, but not so common as in most of the country farther east. It has not been known to breed in Colorado, and probably all leave the State for their northern breeding grounds.

37. **Stercorarius parasiticus.** PARASITIC JAEGER.

Breeds at the far north and comes south to Colorado as a rare visitant in fall and winter. Three cases have been recorded. One, in Mrs. Maxwell's collection, was taken at Boulder in December, some time previous to 1874. A young bird in the dark phase was shot at Sloan's lake near Denver during the fall of 1889. (H. G. Smith, Nidologist, III. 1896, 48.)

Mr. W. P. Lowe, of Pueblo, writes that one was secured on the Arkansas River a mile below Pueblo in the fall of 1894, and is now in his collection.

40. **Rissa tridactyla.** KITTIWAKE.

A northern species, rare or accidental in Colorado in the winter. The only known specimen is the one in Mrs. Maxwell's collection, which was taken at Boulder in December.

49. **Larus occidentalis.** WESTERN GULL.

A Pacific Coast bird; accidental in Colorado. The only record for the State is the one Prof. Wm. Osburn writes that he took at Loveland, September 30, 1889.

51a. **Larus argentatus smithsonianus.** AMERICAN HER-
RING GULL.

Inhabits the whole of North America and occurs rarely in Colorado during migration. One was seen for several days by Mr. Breninger, near Fort Collins, and a young bird was shot at Denver, November 17, 1883. (Auk, III. 1886, 284.)

53. **Larus californicus.** CALIFORNIA GULL.

A western species that has been found breeding in immense numbers in Utah and has also been once taken in Kansas. It

would be supposed then that it would be not uncommon in Colorado and it may yet be found rarely in the western part of the State, or even breeding, but at present the only record for Colorado is the one taken by Prof. Wm. Osburn, at Loveland, May 7, 1890.

54. **Larus delawarensis.** RING-BILLED GULL.

Summer resident, rare; in migration, common. The only gull that is commonly found throughout Colorado. Many are seen in the spring migration and they are very common in autumn on all bodies of water below 9,000 feet. They migrate early, appearing in southern Colorado by the middle of March. F. M. Drew records it as breeding at 6,000 feet. (Auk, II. 1885, 11.)

58. **Larus atricilla.** LAUGHING GULL.

A gull of the South Atlantic and Gulf States accidental once in Colorado. One was shot at Sloan's Lake near Denver in December, 1889. (H. G. Smith, Nidologist, III. 1896, 48.)

59. **Larus franklinii.** FRANKLIN'S GULL.

Migratory; rare. Has been taken by Wm. G. Smith, at Loveland, and A. W. Anthony saw a freshly mounted specimen said to have been taken near Denver.

60. **Larus philadelphia.** BONAPARTE'S GULL.

Migratory; rare. Eight specimens have been recorded, and every one has been taken along the edge of the plains from Colorado Springs to Fort Collins. Nearly all were captured in the fall, when it is reported as not uncommon in some localities.

62. **Xema sabinii.** SABINE'S GULL.

Winter visitant; rare. Breeds far north and comes south for the winter. Five occurrences have been recorded, all in the fall and early winter from October to December. They were noted at Denver, Boulder, Loveland and Fort Collins.

69. **Sterna forsteri.** FORSTER'S TERN.

Summer resident, rare; in migration, not uncommon. According to Mr. Ridgway a few breed in the State (Bull. Essex Institute, V. Nov. 1873, 174), but most of them are merely migrants. They are almost as common in the spring as in the fall. They reach northern Colorado the last of April and early in May.

71. **Sterna paradisæa.** ARCTIC TERN.

Migratory; very rare. But two instances are on record. Prof. Wm. Osburn has an adult male that was shot at Loveland,

July 9, 1889, and Mr. Ridgway has identified for H. G. Smith one that was shot near Denver in the spring of 1887. (Nidologist, III. 1896, 48.)

[74. ***Sterna antillarum***. LEAST TERN.

In the Auk, XI. 1894, 182, the present writer added this to the list of Colorado birds on the strength of a mounted specimen at Colorado Springs that he was told had been taken in that vicinity. Further investigation has convinced him that the specimen was secured outside of Colorado. There is now no certain record for this State. It is a southern species that breeds as far north as Kansas, and will undoubtedly some day be obtained in Colorado.]

77. ***Hydrochelidon nigra surinamensis***. BLACK TERN.

Summer resident; not uncommon; in a few localities, nests quite abundantly; somewhat more common in migration. It is found on both sides of the range almost anywhere that the natural conditions are suitable. Reaches northern Colorado the middle of May.

120. ***Phalacrocorax dilophus***. DOUBLE-CRESTED CORMORANT.

All the records for Colorado come from the eastern foothills. There was one in Mrs. Maxwell's collection and H. G. Smith records four instances near Denver; one about November 1, 1885, one about October 1, 1891, from a flock of about 20, one in the fall of 1886, and a fourth from Jones' Lake, near Denver. (Auk, III. 1886, 284, and Nidologist, III. 1896, 48.) Since it has been found breeding abundantly in Utah, it will probably yet be found in the western half of Colorado.

125. ***Pelecanus erythrorhynchos***. AMERICAN WHITE PELICAN.

Formerly not uncommon in migration and some remained to breed; now rare in migration and no late record of its breeding. It is still occasionally noted from both sides of the range. Has been taken in the San Luis valley in October, 1887, at 8,000 feet, but usually is found below 5,500 feet. Still breeds in Wyoming and Montana. Passes across Colorado late in April and early in May.

129. ***Merganser americanus***. AMERICAN MERGANSER.

Resident; winter sojourner not uncommon; rather more common in migration; breeds along the northern boundary of the United States and northward and a few breed in the mountains and mountain parks of the north half of Colorado. It is found in winter wherever there is open water along the South Platte, especially near Fort Morgan, and is likely to be noted on any open water on the plains. It is most common in April, moving northward. It has been reported less commonly from the western half of Colorado, but as it is of general distribution in North America, it probably occurs throughout the State.

130. **Merganser serrator.** RED-BREASTED MERGANSER.

Winter sojourner, rare; in migration, not uncommon. Breeds far north. Occurs in winter on the Platte, and in migration throughout the plains district of eastern Colorado. Undoubtedly occurs, though not yet reported, on the lower waters of western Colorado.

131. **Lophodytes cucullatus.** HOODED MERGANSER.

Resident; a few remain in the State during the winter, and a still smaller number nest irregularly over eastern Colorado and in the mountains. It is a little more common in migration, especially late in the fall, just before the lakes freeze. Capt. Thorne found it at Fort Lyon on June 20 and July 2.

132. **Anas boschas.** MALLARD.

Resident; in winter, not uncommon; in migration, one of the most common ducks, especially in the fall; breeds throughout the State below 9,000 feet, on the plains as well as among the mountains. Chas. F. Morrison makes the statement that in La Plata County the Mallards are never seen in the fall (O. & O. XIII. 1888, 70), however in the lower portions of the State they are abundant at that season, and they have been known to ascend to 10,500 feet during the autumn. The larger part of migration takes place in March, and by the latter part of April few are left except those that remain to breed.

133. **Anas obscura.** BLACK DUCK.

Migratory; rare. An eastern species finding in Colorado its most western extension. One was taken by C. E. Aiken prior to 1873 (Ridgway, Bull. Essex Institute, V. 174), and Prof. Wm. Osburn writes that he took one on the Big Thompson, near Loveland, March 15, 1889.

135. **Anas strepera.** GADWALL.

Summer resident, not common; in migration, common. C. F. Morrison says: "It breeds in the sloughs and small lakes at 11,000 feet in southwestern Colorado. I secured ten young from the La Plata River, unable to fly. These with the parent birds came down from the mountains. They started quite young on their southern migration." (O. & O. XIII. 1888, 145.) V. L. Kellogg found them breeding in Estes Park. (Trans. Kans. Acad. Science, VII. 1889-90, 86.) Other observers have noted their breeding on the plains. It is never as common in migration as many of the other ducks, but old hunters expect to get a few each season. They are most common during the spring migration early in March.

137. **Anas americana.** BALDPATE.

Summer resident; tolerably common, locally; in migration, commonly distributed all over the State and occasionally in the fall migration is locally abundant. Breeds mostly in the north, but a few remain behind to breed on the prairies of Kansas and eastern Colorado, while Dr. Coues found them breeding in large numbers in North Park at an altitude of about 8,000 feet. (B. N. O. C. II. 1877, 51.)

139. **Anas carolinensis.** GREEN-WINGED TEAL.

Summer resident; common, locally; in migration, abundant. One of the earliest ducks to migrate in the spring and on the plains one of the most abundant. The bulk breed farther north and it is a rare breeder on the plains, but among the mountains and mountain parks it is not uncommon through the summer. Henshaw found it in the San Luis Valley breeding in considerable numbers June 24, but not yet through laying. Morrison reports its breeding near Fort Lewis in southwestern Colorado, and Kellogg found it as a common summer resident of Estes Park.

140. **Anas discors.** BLUE-WINGED TEAL.

Summer resident, common; in migration, abundant. Whatever has been given above concerning the Green-winged Teal would apply equally to the Blue-winged.

141. **Anas cyanoptera.** CINNAMON TEAL.

Summer resident; common. A western species abundant over all the country west of the Rocky Mountains. Many cross the range and are found along the eastern foothills; farther east they are rare. H. G. Hoskins writes that he found one at Beloit, near the eastern boundary of the state, on October 27, 1895, and they have several times been taken in Kansas. There is no record of their breeding far out on the plains of Colorado, but judging from their known habits it is probable that a few breed locally over much of the country from the mountains to Kansas. In north central Colorado, at the western edge of the plains, a scattered pair or two can be found breeding in most of the sloughs or marshes. West of the range, Henshaw found them breeding in southern Colorado in June and Dr. Coues notes them as very abundant breeding at small lakes in North Park. They are among the later migrants of the ducks arriving in northern Colorado early in April, and by the middle of June have full clutches of eggs.

142. **Spatula clypeata.** SHOVELLER.

Summer resident; common, locally; in migration, abundant. This duck inhabits the whole of North America and is

among the few that breed throughout their range. It has been taken all over Colorado, but apparently is more common as a breeder in the western half, not because it is more common there in migration, but it seems to prefer the higher altitude. Records of its breeding on the plains are not numerous, but in the mountain parks at about 8,000 feet it is one of the most numerous of the summer resident ducks.

143. **Dafila acuta.** PINTAIL.

Summer resident; rare; in migration; common; winter resident, rare. Some days during spring and fall migration this duck is very common on the plains. It is a bird of the plains, seldom going above 6,000 feet. A few remain around open water on the plains through the winter. It was recorded several years ago as breeding in the State (Ridgway, Bull. Essex Inst. V. 1873, 174), though it usually breeds from the northern row of states in the United States northward. Both W. G. Smith and G. F. Breninger write that it breeds in Larimer County, east of the foothills.

144. **Aix sponsa.** WOOD DUCK.

Summer resident; rare. Occurs over all of the United States and breeds throughout its range, but it must be considered as one of the rare ducks in Colorado. It has been taken at Loveland and is occasionally taken on the lakes near Denver. C. F. Morrison says, "I found this duck at Fort Lewis, where it no doubt breeds, although I found no nest. Abundant about the headwaters of the Rio La Plata at an elevation of 9,500 feet." (O. & O. XIII. 1888, 165.)

146. **Aythya americana.** REDHEAD.

Migratory; common. Breeds far north. Is more common in Colorado than the Canvas-back and occurs throughout the State. Is one of the earlier ducks to move in the spring and occasionally a few appear in the fall by the middle of September, sometime before the regular flight begins.

147. **Aythya vallisneria.** CANVAS-BACK.

Migratory; not common. A few are observed spring and fall over all of the State, and sometimes quite large flocks are noted. It lingers late in the fall and has even been noted in the winter on the plains. Breeds far north.

148. **Aythya marila nearctica.** AMERICAN SCAUP DUCK.

Migratory; rare. Occurs on both sides of the range, but never common anywhere. Has been seen as late as December in southwestern Colorado at 9,000 feet. (Drew, B. N. O. C. VI. 1881, 85.) Breeds far north.

149. **Aythya affinis.** LESSER SCAUP DUCK.

Migratory; not common. Its range is much the same as the last species, but it is rather more common. Occasionally found in southern Colorado in winter. Reaches northern Colorado early in March.

150. **Aythya collaris.** RING-NECKED DUCK.

Migratory; rare. It is a little strange that this duck should be so uncommon as it seems to be in Colorado, since it is more common in Kansas than either of the others. Probably occurs on both sides of the range, though all the records are on the plains east of the foothills. Breeds far north.

151. **Clangula clangula americana.** AMERICAN GOLDEN-EYE.

Migratory; rare. Occurs throughout the State, but never common. Breeds far north, but begins to migrate early. C. E. Aiken took one in southern Colorado at 9,000 feet on August 30, 1874.

152. **Clangula islandica.** BARROW'S GOLDEN-EYE.

Resident; not common. The distribution of Barrow's Golden-eye in Colorado is rather strange. It is a northern species, coming south in the winter to Colorado, and then when spring returns quite a share of these winter birds remain to breed in the mountains. So there results the queer condition of a northern species breeding in the mountains almost at the extreme southern limit of its range. On the plains it is a rare migrant and winter visitant; in the mountains it has been found breeding throughout the whole western half of Colorado, usually at about 8,000 feet. Chas. F. Morrison has the following note concerning its occurrence: "This species might almost be called a resident in southwestern Colorado. I can record its breeding in Dolores County, and have taken them all through the winter in the ponds below Fort Lewis." (O. & O. XIII. 1888, 165.) It nests in trees. There are no records of its extending much east of the mountains far out on the plains, and it never has been taken in Kansas.

153. **Charitonetta albeola.** BUFFLE-HEAD.

Migratory; common. Occurs throughout the State in migration, and is likely to be found near any open water in the winter. Breeds far north.

154. **Harelda hyemalis.** OLD-SQUAW.

Winter visitant; rare. A northern species coming south into Colorado in the late fall and winter. The only records come from the north central part of the state where G. F. Breninger writes that he found a dead bird on the shore of one

of the lakes near Fort Collins. J. B. Sibley shot a male and female on McKay Lake near Denver, November 13, 1892. (Deane, Auk, XII. 1895, 292.)

155. **Histrionicus histrionicus.** HARLEQUIN DUCK.

Resident; not common. This is regularly a northern species, breeding far north and coming into Colorado in the winter as it does over the Mississippi Valley to the eastward. But a few remain to breed at about 10,000 feet in the mountains more particularly of western Colorado. C. F. Morrison says: "I believe it breeds in both the San Juan and La Plata counties. * * * I have often seen it through the winter below Fort Lewis on the Ute reservation together with *G. islandica*." (O. & O. XIII. 1888, 165.) F. M. Drew gives it as breeding from 7,000 to 10,000 feet. (Auk, II. 1885, 11.)

163 **Oidemia americana.** AMERICAN SCOTER.

Winter visitant; rare. This and the next two are "Surf Ducks" that breed far north and come south in the winter, principally along the coast, but a few visit the larger inland waters. One would suppose them out of place in arid Colorado, but professional hunters expect to see a few of them each year. An American Scoter is in Mrs. Maxwell's collection and G. F. Breninger writes that he found a dead one near Fort Collins.

165. **Oidemia deglandi.** WHITE-WINGED SCOTER.

Winter visitant; rare. G. F. Breninger reports the capture of three specimens, one of which, taken November 3, 1890, is now in the cabinet of the State Agricultural College at Fort Collins. H. G. Smith reports four specimens as follows: one at Marston's Lake, near Denver, October, 1887; one on Lee's Lake, near Fort Collins, October 23, 1888; one taken by Wm. G. Smith, at Loveland; one at Sloan's Lake, near Denver, October 16, 1890. (Nidologist, III. 1896, 48.)

166. **Oidemia perspicillata.** SURF SCOTER.

Winter visitant; rare. Prof. Wm. Osburn writes that he saw one in the collection of Wm. G. Smith, taken at Loveland. H. G. Smith says that one was taken at Marston's Lake, near Denver, October, 1887, in company with the specimen of *O. deglandi* mentioned above. (Nidologist, III. 1896, 48.)

167. **Erismatura jamaicensis.** RUDDY DUCK.

Summer resident; common. Occurs on both sides of the range in migration and during the breeding season is not uncommon in the mountains up to 10,000 feet. East from the mountains it becomes less common in summer until along the

eastern border of Colorado it rarely nests, though still common in migration. It is rather late to arrive in the spring and the eggs are laid by the middle of June.

169. **Chen hyperborea.** LESSER SNOW GOOSE.

Migrant and winter resident; not common. A few are seen during migration spring and fall along the plains east of the mountains. There is no record of their wintering on the plains though probably they are at least an occasional winter visitant to the open waters of southeastern Colorado. Twenty years ago Henshaw heard of them as wintering abundantly in the San Luis Valley. But they are much less common everywhere in the Rocky Mountain region now than they were then. West and southwest of Colorado they still remain fairly abundant. Breeds far north.

169a. **Chen hyperborea nivalis.** GREATER SNOW GOOSE.

Migratory; rare. The eastern form, not coming regularly as far west as Colorado, being confined mostly to the Atlantic coast. A specimen shot by Pres. Z. X. Snyder east of Greeley, March 20, 1895, is a little longer than the greatest length given for the Greater Snow Goose. This is the only certain Colorado record.

171a. **Anser albifrons gambeli.** AMERICAN WHITE-FRONTED GOOSE.

Migratory; rare. Probably the rarest Goose that regularly occurs in Colorado. A few have been taken in migration in eastern Colorado.

172. **Branta canadensis.** CANADA GOOSE.

Summer resident, rare except locally; winter resident, not common; in migration, common. The most common Goose of the State. It might almost be called resident since there is no time in the year when there are not some in the State, but it is probable that the same individuals do not remain here throughout the year, those that breed in Colorado going farther south for the winter and their places being taken by those that nested further north. On the plains of eastern Colorado they are known only as migrants and winter residents. In the mountains they breed along the higher secluded lakes at about 10,000 feet, especially in North Park, where Dr. Coues found them breeding in large numbers. (B. N. O. C. II. 1887, 51.) A few remain in southern Colorado through the winter and they are likely to appear irregularly anywhere east of the range except in the severest weather.

172a. ***Branta canadensis hutchinsii***. HUTCHINS'S GOOSE.

Migratory; common. Not quite so common as the Canada Goose and breeding only north of the United States. Passes through in migration spring and fall and a few may winter, since it has been taken as late as December.

173. ***Branta bernicla***. BRANT.

Migratory; rare or accidental. An eastern species seldom coming so far west as Colorado. A specimen was shot by Capt. P. M. Thorne at Fort Lyon, April 11, 1883, and though it was not preserved there can scarcely be any doubt of the correctness of the identification.

180. ***Olor columbianus***. WHISTLING SWAN.

Migratory; not common. In former years Swans were fairly common over much of western North America. Now they are rare anywhere but are still found in migration in Colorado. H. G. Smith mentions four cases of the occurrence of the Whistling Swan at various places in eastern Colorado and says he has heard of others. (Nidologist, III. 1896, 48.) One was shot from a flock of three at Fort Collins, March 16, 1895 and preserved by a local taxidermist.

181. ***Olor buccinator***. TRUMPETER SWAN.

Migratory; rare. Apparently not so common as the last species. There was a specimen in the Maxwell collection and H. G. Smith reports two instances that have come to his knowledge. It has never been known to breed in Colorado, though breeding but a little farther north in the Mississippi Valley. One was shot during the fall of 1896 near Fort Collins.

183. ***Ajaja ajaja***. ROSEATE SPOONBILL.

Accidental visitant; two instances. A southern species not regularly occurring north of the Gulf States. In a letter dated June 17, 1888, T. M. Trippe, of Howardsville, Colo., writes to C. F. Morrison, as follows: "A Rosy Spoonbill was captured at Silverton, Colo., the other day. It was caught alive, but died in a day or two. It was a female in fine spring plumage." (O. & O. XIII. 1888, 181.) H. G. Smith notes a specimen in very worn plumage August 8, 1890. Said to have been taken near Pueblo. (Nidologist, III. 1896, 65.)

184. ***Guara alba***. WHITE IBIS.

Migratory; rare. A southern species, but once known to have been taken in Colorado, but since it has been taken at Great Salt Lake to the west and up the Mississippi Valley to South Dakota, its occurrence in Colorado may not be acci-

dental. The only record for Colorado is the one noted by H. G. Smith that was shot in 1890 at Barr Lake, east of Denver. (Nidologist, III. 1896, 65.)

[185.] **Guara rubra.** SCARLET IBIS.

Accidental. A tropical species that is recorded but four times from the United States. The first three were found, one each, in Florida, Louisiana and Texas; the fourth and last in Colorado. A finely plumaged adult male was shot in the Wet Mountains, May, 1876. The mounted bird is still in the possession of Mr. Livesey, who until 1894 resided in Pueblo. This is the most wonderful record in the whole list of Colorado birds, but there is no doubt whatever of its correctness.

187. **Plegadis guarauna.** WHITE-FACED GLOSSY IBIS.

Summer visitant; rare. Though fairly common locally in New Mexico and Arizona, the Ibis seldom goes as far north as Colorado. H. G. Smith says that it is occasionally reported by sportsmen. He has examined three specimens from Marston's Lake, near Denver, and one from Pueblo. Other specimens have been purchased in the Denver market. (Nidologist, III. 1896, 65.) P. B. Peabody reports one purchased at Colorado Springs and killed in that vicinity. (Nidologist, II. 1895, 116.) There was a specimen in the Maxwell collection, and Prof. Wm. Osburn writes that Wm. G. Smith of Loveland had one in his collection. From its occurrence in Colorado in the summer Mr. Ridgway concludes that it breeds in the State in the "marshes of valleys." (Bull. Essex Institute, V. 1873, 174). The present writer knows of no nests that have ever been taken in Colorado.

188. **Tantalus loculator.** WOOD IBIS.

Summer visitant; rare. There was a mounted specimen of this southern species in the Maxwell collection and this seems to be the basis for the earlier references to its occurrence in Colorado. When and where this specimen was taken can not now be learned. There seems to be no authentic basis for a certain published statement that it breeds in Colorado, except the well-known fact that it ordinarily breeds throughout its range. Mr. C. E. Aiken informs the present writer that he knows of two specimens that have been taken in Colorado.

190. **Botaurus lentiginosus.** AMERICAN BITTERN.

Summer resident; common. Occurs throughout the State, breeding from the plains to about 7,000 feet. Arrives late in April and begins laying by the middle of May.

191. ***Ardetta exilis***. LEAST BITTERN.

Summer visitant; rare. The only record for Colorado is a stuffed specimen now at Colorado Springs that was killed in the immediate vicinity. It is a little strange that no more is known of this bird in Colorado. It is a common bird in Kansas and extends clear across to the Pacific Ocean, though less common west of the Rocky Mountains. Under these conditions it must be more common in Colorado than its record would indicate.

194. ***Ardea herodias***. GREAT BLUE HERON.

Summer resident, not uncommon; in migration, common. Occurs throughout the lower portions of the State seldom going much above 5,000 feet, but a few find their way into the mountain parks. Around Fort Collins it is a rather common breeder, all the nests being placed on the tops of the tallest cottonwoods on the banks of the Cache La Poudre. In other parts of the State it sometimes selects more lowly nesting sites. Arrives in northern Colorado early in April.

197. ***Ardea candidissima***. SNOWY HERON.

Summer visitant; rare; not known to breed. At least seven specimens have been secured in Colorado and several others reported, representing both sides of the range, but all from the lower portions, not above 5,000 feet.

198. ***Ardea rufescens***. REDDISH EGRET.

Summer visitant; rare or accidental; not known to breed. In the collection of C. E. Aiken, of Colorado Springs, there is a young bird of this species shot near that city. The bird is not young enough to indicate that it was hatched in the vicinity, but probably wandered north in the fall after having been reared much farther south. This is the only record for Colorado.

202. ***Nycticorax nycticorax nævius***. BLACK-CROWNED NIGHT HERON.

Summer resident; not common and local; in migration, not uncommon. Since it occurs through most of the United States, this Heron probably will be found west of the range, but at present all of the records refer to the plains country east of the Rockies and not above 5,500 feet. It breeds throughout its range. There is a heronry of this species a few miles from Fort Collins. Six years ago it consisted of about fifty pairs; now it is reduced to about half that number. The nests are close together occupying less than half an acre on an island in the Cache La Poudre River. The eggs are laid about the first of June, the birds arriving the middle of April.

203. **Nycticorax violaceus.** YELLOW-CROWNED NIGHT HERON.

Summer visitant; rare. A southern species coming casually north to Colorado. Not known to breed. The only recorded specimen is the one in Mrs. Maxwell's collection and that is known to have been taken in Colorado, but where can not now be learned.

204. **Grus americana.** WHOOPING CRANE.

Migratory; rare. A Mississippi Valley species reaching its most western extension in Colorado at the western edge of the plains, where it was first recorded by C. E. Aiken who marks it as "seen occasionally in migration." It has since been noted by Wm. G. Smith at Loveland and there is a very fine mounted specimen in the museum of the State Agricultural College at Fort Collins. Passes through during the first half of April.

205. **Grus canadensis.** LITTLE BROWN CRANE.

Migratory. Not enough material has yet been accumulated to give a satisfactory statement of the distribution of this bird in Colorado. All of the earlier records of "*G. canadensis*" refer to the next species now called *G. mexicana*. It is certain that the Little Brown Crane occurs in Colorado in migration for Capt. P. M. Thorne has taken it at Fort Lyon and there is a mounted specimen at the Agricultural College at Fort Collins.

206. **Grus mexicana.** SANDHILL CRANE.

Summer resident; not uncommon locally; in migration, common; winter resident in the southern part of the State. The Rio Grande Valley in Colorado used to be the winter home of thousands of Cranes and even yet they are abundant enough in the fall to induce many parties to go to the San Luis Valley for the express purpose of hunting Cranes. They breed locally throughout their range from 5,000 to 7,500 feet. F. M. Drew mentions that one of their breeding grounds is in Animas Park at 7,000 feet. (B. N. O. C. VI. 1881, 85.) They are also known to breed in Routt County. In the autumn they move higher up, having even been seen passing over above the highest mountain peaks of the State. In the San Luis Valley the migrating birds appear in large numbers about the middle of September and remain until the first of November; they return in the spring any time between the first and twentieth of March, depending on the season, and leave about the first of May. If the Little Brown Crane occurs there it is not distinguished by the hunters from the Sandhill.

212. **Rallus virginianus.** VIRGINIA RAIL.

Summer resident; not uncommon. Though not often seen on account of its retiring habits, this species undoubtedly occurs in migration over all the plains region of Colorado below 5,500 feet. C. E. Aiken took the nest and eggs June 4, presumably in El Paso County. It breeds near Loveland, according to Prof. Wm. Osburn, and a pair is now (June, 1896,) breeding a few miles from Fort Collins.

214. **Porzana carolina.** SORA.

Summer resident; common in suitable localities. One can scarcely go by a marshy spot in Colorado on a summer evening without hearing the note of this bird. It breeds throughout its range from the plains to 7,000 feet. More common during the breeding season in the northern part of Colorado than in the southern.

219. **Gallinula galeata.** FLORIDA GALLINULE.

Summer visitant; rare; not known to breed. Colorado is rather out of the normal range of the Gallinule, but since it is found to the east, south and west of the State, its occurrence here can hardly be considered as accidental. The only record for Colorado is that of Allen and Brewster, who took one at Colorado Springs, May 9, 1883. (B. N. O. C. VIII. 1883, 151.)

221 **Fulica americana.** AMERICAN COOT.

Summer resident, common; in migration, abundant. Breeds throughout the State in suitable places on the plains and in the mountain parks up to 8,000 feet. Reaches northern Colorado the last of March.

223. **Phalaropus lobatus.** NORTHERN PHALAROPE.

Migratory; not uncommon. Breeds far north. Occurs throughout the State from the plains to well up in the mountains. F. M. Drew notes that "May 22, six were killed by flying against telegraph wires at Howardsville, Colo., at 9,500 feet. Unless the flock turned back and retraced fifty miles of their course, they would have to cross the range at 12,000 feet." (B. N. O. C. VI. 1881, 249.) They are usually found below 8,000 feet. Mr. Aiken has taken them several times near Colorado Springs. They cross the plains of northern Colorado the first half of May.

224. **Steganopus tricolor.** WILSON'S PHALAROPE.

Summer resident; not uncommon; in migration, common. The Wilson's Phalarope is more common than the Northern, but there are no records of its occurrence in the mountainous parts of the State. It is a common breeder around the ponds

of northern Colorado below 6,000 feet, even within a few rods of cultivated ground. Eggs have been taken near Fort Collins on June 8. In southern Colorado it is known only as a migrant. Reaches northern Colorado the last of April.

225. **Recurvirostra americana.** AMERICAN AVOCET.

Summer resident; common. Most common on the plains, but occurs in the mountain parks up to 8,000 feet. Rather rare in western Colorado. Henshaw found them breeding abundantly in the San Luis Valley, with nearly all the eggs hatched by June 21. In northern Colorado on the plains the eggs are mostly laid by the first week in June, the birds having come the middle of April.

226. **Himantopus mexicanus.** BLACK-NECKED STILT.

Summer resident; not uncommon. It is found at the same places and at the same time as the Avocet, but the order of abundance is reversed, the Stilt being more common west of the range though still occurring in eastern Colorado. Breeds at the same time as the Avocet from the plains to 8,000 feet.

228. **Philohela minor.** AMERICAN WOODCOCK.

Summer visitant; rare. Colorado marks the extreme western range of the Woodcock and it is found here only to the base of the foothills. The five known instances are all within 50 miles of Denver. H. G. Smith reports one August 12, 1885, and one in October, 1885, within the city limits of Denver. He also reports that one was seen by Mr. John Bently during the fall of 1887 near Boulder and that one was recently shot near Fort Lupton. (Auk, III. 1886, 284 and Nidologist, III. 1896, 65.) Dr. W. H. Bergtold, of Denver, writes that he saw one in Denver, June, 1895. Since the Woodcock breeds throughout its range and since it has been noted here in June and August, it is fair to presume that it breeds occasionally in Colorado, but no nests have as yet been found in the State.

230. **Gallinago delicata.** WILSON'S SNIPE.

Summer resident, rare; in migration, common; winter resident, rare. Found throughout the State in migration anywhere below 10,000 feet, but more common on the eastern slope than the western. F. M. Drew found it breeding in San Juan County (B. N. O. C. VI. 1881, 85), and W. E. D. Scott found a few pairs breeding in June at Twin Lakes at over 9,000 feet. (B. N. O. C. IV. 1879, 90.) On the plains it is known only in migration and a few in winter. Aiken, Morrison and Bennett report it in winter, the first on the plains, the second at Fort Lewis, and the last in Routt County. It has been known to winter at open marshy springs even 150 miles north of Colorado in central Wyoming.

232. **Macrorhampus scolopaceus.** LONG-BILLED DOWITCHER.

Migratory; not uncommon. Probably occurs throughout the lower regions of the State, though all the records are confined to the plains region east of the mountains. It is not uncommon there in migration, passing through about the middle of April. Breeds far north, but a record of one taken by H. W. Henshaw at Denver, July 24, 1873, would lead one to suspect that it may yet be found breeding in the State.

233. **Micropalama himantopus.** STILT SANDPIPER.

Migratory; rare. Only found on the plains of eastern Colorado where it is occasionally met in spring migration in May and early June and less commonly in the fall. It has been reported by Capt. P. M. Thorne, from Fort Lyon, where he killed a female May 22, 1883, with the largest egg the size of No. 6 shot (Auk, IV. 1887, 264), by Prof. Wm. Osburn, from Loveland, by F. Bond, from Cheyenne, and by H. G. Smith, from near Denver. Breeds north of the United States.

239. **Tringa maculata.** PECTORAL SANDPIPER.

Migratory; common. Occurs throughout the State in migration, both on the plains and even up to 13,000 feet in the mountains (Morrison O. & O. XIII. 1888, 107), though of course less common at the higher altitudes. Breeds in the Arctic regions.

240. **Tringa fuscicollis.** WHITE-RUMPED SANDPIPER.

Migratory; not uncommon. A bird of the plains finding its western limit at the base of the Rockies. It has been reported by Thorne, Breninger and Osburn. Breeds far north.

241. **Tringa bairdii.** BAIRD'S SANDPIPER.

Migratory; abundant. In fall migration this is one of the commonest of the Sandpipers, and is also common in spring. Breeds far north but returns early, entering the State again in the latter part of August. When moving northward it is a bird of the plains and the parks below 7,000 feet, but Trippe, Drew and Morrison agree that after the breeding season is over in August and September, it roams to the tops of the loftiest peaks, 13,000 to 14,000 feet, feeding on grasshoppers. Passes through during April and the first half of May.

242. **Tringa minutilla.** LEAST SANDPIPER.

Migratory; common. Arrives the latter part of April and is mostly gone by the middle of May. Is found principally on the plains and below 7,000 feet in the mountains.

243a. **Tringa alpina pacifica.** RED-BACKED SANDPIPER.

Migratory; rare. There are but three Colorado records for this species, which is found throughout North America. There was an adult in winter plumage in Mrs. Maxwell's collection, and Wm. G. Smith took it at Loveland, April 29 and May 9. Breeds far north.

246. **Ereunetes pusillus.** SEMIPALMATED SANDPIPER.

Migratory; not uncommon. Arrives the last of April and first of May. Mostly on the plains and below 7,000 feet.

247. **Ereunetes occidentalis.** WESTERN SANDPIPER.

Migratory; rare. Should not be an uncommon species in Colorado, but so far has been reported but three times. Prof. Wm. Osburn writes that he shot one at Loveland, July 4, 1889, and another May 12, 1890. W. P. Lowe, of Pueblo, shot two on a lake near there in the fall of 1894. Wm. G. Smith took one at Loveland, May 9, 1890. Breeds far north.

248. **Calidris arenaria.** SANDERLING.

Migratory; rare. Though occurring over most of the world, it is quite rare on the plains region of the United States. Prof. Wm. Osburn reports three captures at Loveland, September 24, 1889, September 30, 1889, and May 12, 1890. H. G. Smith saw one May 16, 1888, that had been taken a few days before at Sloan's Lake, near Denver. There is a mounted specimen at the college at Fort Collins that was shot in the vicinity. Breeds far north.

249. **Limosa fedoa.** MARBLED GODWIT.

Migratory; not common. A bird of the plains not often seen; arrives about the first of May. Has once been taken in the mountains by C. E. Aiken at the San Luis Lakes, October 1, 1874. Drew gives it as breeding on the plains, which it does in Nebraska, but there seems to be no record as yet of its nests being found in Colorado.

254. **Totanus melanoleucus.** GREATER YELLOW-LEGS.

Migratory; common. Found both spring and fall everywhere in favorable localities below 7,000 feet. It is a little strange that neither the Greater nor the Lesser Yellow-Legs is known to breed in Colorado, since they both breed in Nebraska but a few miles from the northeast corner of Colorado. They reach northern Colorado about the first of April.

255. **Totanus flavipes.** YELLOW-LEGS.

Migratory; common. Distribution and migration the same as that of the Greater Yellow-Legs but in most places not

quite so numerous. Capt. Thorne shot one at Fort Lyon July 23, which would indicate that it nested not far distant.

256. **Totanus solitarius.** SOLITARY SANDPIPER.

Summer resident, not common; in migration, common. Occurs both on the plains and in the mountains. Arrives in April and most pass on to breed north of the United States, but a few remain to breed from the plains at the eastern base of the mountains up to 10,000 feet.

258a. **Symphemia semipalmata inornata.** WESTERN WILLET.

Summer resident; not uncommon. Rather common in migration on the plains, especially in the fall. In the spring it is most common from the first to the middle of May. Breeds throughout its range in favorable localities, but it is not a common breeder anywhere in Colorado and will not be found breeding at many places apparently well suited to its needs. Usually breeds from the plains to 7,000 feet, but occasionally much higher.

261. **Bartramia longicauda.** BARTRAMIAN SANDPIPER.

Summer resident, common; in migration, abundant. A bird pre-eminently of the plains, where it breeds abundantly; only rarely met west of the mountains. Arrives the latter part of April and extends into the mountains only to 6,000 feet.

263. **Actitis macularia.** SPOTTED SANDPIPER.

Summer resident; abundant. It is strange to think of a Sandpiper nesting on the top of a mountain, but so far up as this species can find a pond or small lake, it will build its nest, even to 12,000 feet. In the fall it ranges above the pines to 14,000 feet. It also breeds on the plains and at all intermediate altitudes. As abundant in Colorado as anywhere. Arrives about the first of May; leaves the higher altitudes in August, and most of them leave the State in September. A few remain until far into the winter, if not through the entire cold season.

264. **Numenius longirostris.** LONG-BILLED CURLEW.

Summer resident; common. Arrives about the last of April and breeds in suitable localities on the plains. Occurs on both sides of the range, but only in the lower portions, usually not above 5,000 feet. A few have been seen as high as 7,500 feet.

265. **Numenius hudsonicus.** HUDSONIAN CURLEW.

Migratory; rare. All the records of this Curlew in Colorado come from the plains region east of the mountains, but as

it occurs over all of North America, it will probably yet be taken on the prairies of western Colorado. Arrives about the first of May and breeds far north.

[266. **Numenius borealis.** ESKIMO CURLEW.

Migratory; rare. There is no reason to doubt that of the enormous flocks of this Curlew that pass over western Kansas, some occasionally enter Colorado; but to date there is no certain record of its capture in the State. It has been previously listed as a Colorado bird, but the record was based on error.]

270. **Squatarola squatarola.** BLACK-BELLIED PLOVER.

Migratory; not common. Passes north through Colorado in May and returns in October. More common in fall than in spring. It is a bird of the plains below 5,000 feet. There are eight recorded instances of its capture at Denver, Loveland and Fort Collins, and Mr. C. E. Aiken has taken it several times near Colorado Springs. Breeds far north.

272. **Charadrius dominicus.** AMERICAN GOLDEN PLOVER.

Migratory; not common. A few pass in the spring and fall over the plains region of Colorado below 5,000 feet. Breeds far north.

273. **Ægialitis vocifera.** KILLDEER.

Summer resident; abundant. One of the earliest migrants, arriving early in March and remaining until the last of September and a few much later. Breeds abundantly on the plains and at the base of the foothills. Is less common in the mountains, but is far from scarce up to the pines at about 10,000 feet. The eggs are laid from the middle of May to the first of June.

274. **Ægialitis semipalmata.** SEMIPALMATED PLOVER.

Migratory; not common. Passes through Colorado on its way from its breeding grounds near the Arctic Circle to its winter habitation which is sometimes far south of the equator. One was shot by Harry Smith at Loveland, May 6, 1890, and the specimen is now in the collection of Prof. Wm. Osburn. This is the only record to date for Colorado.

281. **Ægialitis montana.** MOUNTAIN PLOVER.

Summer resident; common. A bird of the plains rather than the mountains, but also found in the mountain parks and prairies up to 8,000 and rarely to 9,000 feet. Is among the earliest spring arrivals, reaching central Colorado by the last of March to the first week in April. Eggs are laid the latter part of May to the middle of June. On the plains the young are hatched by the last of June; in the mountain parks newly hatched young can be found all through July. Breeds throughout its range. Leaves the state in the fall, the latter part of October. Its number can be judged by the fact that in one day of August at Fort Lyon, Capt. Thorne shot one hundred and twenty-six birds.

283. ***Arenaria interpres***. TURNSTONE.

Migratory; rare. A few pass through Colorado on their way to and from their far northern breeding grounds. According to H. G. Smith an adult was shot April 26, 1890, at Sloan's Lake near Denver. (Nidologist, III. 1896, 95.)

289. ***Colinus virginianus***. BOB-WHITE.

Resident; somewhat common locally. There is some dispute as to whether or not this should be called a native species in Colorado. It has been introduced at various places from Pueblo north along the foothills to Fort Collins near the Wyoming line. In many of these places it is quite common, being protected by law. There seems good reason to believe that all of the Quail along the foothills are the descendents of introduced birds. On the plains of eastern Colorado, near the Kansas line, the case is different. The birds are there beyond doubt, and though many of the original settlers are still there, no one knows of their having been introduced. They are known to be native and common in western Kansas and enormously abundant in Indian Territory, but a few miles from southeastern Colorado, so that it is fair to presume that some of the Quail of eastern Colorado are native. Eastern Colorado is well adapted to their needs and if it was not for the cayotes that destroy their eggs and young, they would easily become numerous. Nearly all the Quail are confined to the plains and the foothills below 5,500 feet. A few years ago several pairs were turned loose in Estes Park at about 8,000 feet and occasionally are still heard from. They have also been introduced along the Arkansas River below La Junta and are prospering. They are certainly native on Bear Creek in the extreme southeastern corner of Colorado.

293. ***Callipepla squamata***. SCALED PARTRIDGE.

Rare or accidental visitant. A southern species coming north regularly only to southern Arizona and New Mexico. The first record for Colorado is the specimen taken by W. P. Lowe the first week in June, 1895, in the eastern foothills of the Wet Mountains. (Auk, XII. 1895, 298.) A. W. Anthony writes that he saw one in the shop of a taxidermist of Denver during the winter of 1892-3. It was freshly killed and said to have been taken on the Platte River east of Denver.

294. ***Callipepla californica***. CALIFORNIA PARTRIDGE.

Resident; local. According to F. M. Drew this species has been introduced in the vicinity of Denver. (Auk, II. 1885, 11.)

295. **Callipepla gambeli.** GAMBEL'S PARTRIDGE.

Resident; rare. Known to occur only in southwestern Colorado, where C. F. Morrison shot three of them 40 miles southwest of Fort Lewis. Across the line in southern Utah and in Arizona they are common.

297. **Dendragapus obscurus.** DUSKY GROUSE.

Resident; common in the mountains. Its only migration is a slight vertical one. Breeds from 7,000 feet to the border of timber-line, 4,000 feet higher. At the lower altitude the eggs are laid about the middle of May; at timber-line about June 1. Raises but one brood which is hatched about the middle of June. In August they begin to gather into flocks of ten to fifteen individuals and visit the grain fields or the more open gulches and foothills for berries. In September they wander above timber-line to feed on grasshoppers, reaching 12,500 feet. In winter they come down into the thick woods during the severest weather, but many remain the whole year close to timber-line.

300b. **Bonasa umbellus umbelloides.** GRAY RUFFED GROUSE.

Resident; rare. So rare that the present writer has not yet been able to find a hunter who has seen it or even heard of it. Occurs mostly farther north, only a few coming as far south as Colorado. Is found from 7,000 to 10,000 feet; breeds among the pines just below timber-line and retires to the higher foothills in fall and winter.

304. **Lagopus leucurus.** WHITE-TAILED PTARMIGAN.

Resident; common. One of the most strictly alpine birds of the Rocky Mountain region. Fifty years ago the surveying parties of the Pacific Railroads found them breeding on the Snowy Range, and to-day the tourist who visits the highest peaks does not consider he has completed his sight seeing until he has been shown a family of Ptarmigan, or "Mountain Quail" as they are commonly called. They breed entirely above timber-line from 11,500 to 13,500 feet, wandering to the summits of the peaks a thousand feet higher. Nesting begins soon after the first of June, and the young are hatched the early part of July. In southern Colorado eggs have been found as early as the first part of May. Only in the severest winter weather do they come down into the timber, usually to 10,000 feet, but occasionally to 8,000. At that season the sexes are in separate flocks and subsist largely on willow buds. In the winter they are white, changing to the darker mixed color in March and April; by the breeding season in June they have become so close in color to

the moss and rocks that they are apt to depend on this for safety and allow a very close approach. The returning change to white begins in September and is completed in December.

308b. **Pediocætes phasianellus campestris.** PRAIRIE SHARP-TAILED GROUSE.

Resident; not common. There are few parts of the State where the "Pin-tail" can now be called common. Twenty years ago it was plentiful in the northern half of Colorado on the plains and in the foothills up to 7,000 feet on both sides of the range. Even as late as ten years ago it was not uncommon throughout Larimer County. It can be said now to inhabit the same regions, but in such small numbers that its early extermination is probable. A few are still found across the whole of northern Colorado from Nebraska to Utah and south on the plains to at least Burlington and the "Divide" south of Denver. Formerly a few were found throughout the southern half of Colorado, but there are no late records of its occurrence south of the places named. So far as known the present small and scattered flocks of Sharp-tailed Grouse are strictly resident. When they were more abundant they used to perform a short migration in eastern Larimer County, moving into the foothills in the summer and coming down onto the plains in immense flocks in the fall.

[NOTE. It may be that the Sharp-tailed Grouse of Routt County are variety *columbianus*, but all the Colorado birds examined by the present writer are *campestris*.]

309. **Centrocercus urophasianus.** SAGE GROUSE.

Resident; common. As its name implies, it is an inhabitant of the artemesia or sage-brush plains, and is scarcely found elsewhere. It inhabits these favorable localities throughout the State, but it is much more common in the northern than the southern half of the State. It is resident where found, except possibly at some of the higher points to which it moves during the summer. It winters from the plains to 7,000 feet, and regularly breeds to 8,000 feet. A few range in summer as high as 9,500 feet.

310. **Meleagris gallopavo.** WILD TURKEY.

Resident; rare, and will probably soon be exterminated. There still remains a doubt as to whether the eastern Wild Turkey is the variety that occurs in southeastern Colorado. A few years ago these birds were enormously abundant along the Arkansas River in Kansas and Indian Territory, hence it is fair to presume that any found along that river in Colorado would be the same variety especially if found on the plains east of the mountains. Those taken by C. E. Aiken in this locality have

been referred by Ridgway to this form (Bull. Essex Institute V. 1873, 174) with the remark that this is the first Colorado record. This latter statement however is an error, for Lieut. Pike in his memorable journey through Colorado in 1806, found Turkeys so abundant from about where Canon City now stands to the present city of Salida, that they formed a large part of the food of his soldiers. From other sources we know that they extended north along the foothills to within a few miles of the northern boundary of the state. One was taken on the Buckhorn in Larimer County as late as 1861. Turkeys still exist in Bent, Prowers, Baca and Las Animas Counties in southeastern Colorado. A flock of thirty was seen in 1883 on the Purgatoire River east of Trinidad and near the Spanish Peaks as late as 1890. During the winter of 1896-1897 they were seen in Bent County.

310a. **Meleagris gallopavo mexicana.** MEXICAN TURKEY.

Resident; rare, locally. There are a few Turkeys yet to be found in the wilder parts of southwestern Colorado and they are known to belong to the Mexican variety. Chas. F. Morrison found them abundant ten years ago on the Rio los Pinos which runs through the Ute reservation in La Plata County. At an earlier date they were not uncommon along the southern boundary of Colorado from the front range westward. They ascend the mountains only to 7,000 feet.

312. **Columba fasciata.** BAND-TAILED PIGEON.

Summer resident; local. Generally considered as a rare bird in Colorado, but on bringing together all of its records in the State, it is found to have been noted as follows: "Most abundant in southwestern part in scrub oak, feeding on acorns." (Morrison.) "Breeds at Durango up to 7,000 feet." (Osburn.) West base of Spanish Peaks in September, and on September 25 on the Rio Grande at Del Norte. Had been there through the summer. (Henshaw.) "Abundant in the Wet Mountains west of Pueblo from 7,800 to 10,000 feet." (Lowe.) This includes what may be considered its regular range, i. e., from Cañon City west and south. Northeastward it has wandered nearly two hundred miles farther as these records will show. In the fall of 1887 John Bentley saw many of them at Dome Rock in Platte Cañon. The following summer he captured several, some of which were young birds evidently reared in the vicinity. (H. G. Smith.) Seen by my father near Morrison. (Anthony.) In 1820 it was first taken, described and named by Maj. Long's Expedition on the South Platte at the "foot of the mountains" on a small tributary running north and south. This would make it not far from Denver. The most northern record is that of V. L. Kellogg who saw a small flock in Estes

Park during the summer of 1889. (Trans. Kans. Acad. Science, XII. 1889-90, 86.) Breeds from 5,000 to 7,000 feet and occasionally higher.

316. **Zenaidura macroura.** MOURNING DOVE.

Summer resident; very abundant. Arrives the last of March and the early part of April, begins laying early in May and fresh eggs have been found as late as August 12. Breeds everywhere below the pine region up to 10,000 feet, but rather rare above 8,000 feet. In the fall wanders upward to 12,000 feet. Remains late in the fall even to the middle of December in Larimer County.

319. **Melopelia leucoptera.** WHITE-WINGED DOVE.

Accidental. The only claim of this southern species to a place in the list of Colorado birds, rests on the following statement of Dr. Coues: "Mr. E. L. Berthoud informs me of its occurrence near timber-line (11,500 feet), on the head of Cub Creek, Jefferson County. He saw a dozen or more July, 1869." (B. N. O. C. II. 1877, 83). If this is not a case of mistaken identity, it is a strange case of wandering.

325. **Cathartes aura.** TURKEY VULTURE.

Summer resident; common. Occurs throughout the State and breeds from the plains to 10,000 feet. C. F. Morrison found one nest at 12,000 feet on the La Plata Mountains. Is most common on the plains along the base of the mountains. Arrives early in April and nests in the latter part of April and in May.

327. **Elanoides forficatus.** SWALLOW-TAILED KITE.

Summer visitant; rare or accidental. The only record for Colorado is the one seen by Mr. C. E. Aiken, near Leadville, in August, 1871. This is a bird of the plains, not coming regularly west of middle Kansas. It would not be surprising to find it occasionally in southeastern Colorado, but its occurrence west of the range, and at 11,000 feet, is purely accidental.

329. **Ictinia mississippiensis.** MISSISSIPPI KITE.

Accidental. G. F. Breninger writes me that there is a mounted specimen at Denver that was taken at Trinidad. It is rare in eastern Kansas and common southward.

331. **Circus hudsonius.** MARSH HAWK.

Resident; common. Is most common in migration, but is still common as a breeder and a few remain through the winter. On the plains it is one of the most common Hawks. In the mountains it breeds up to 10,000 feet, and in the fall has been seen as high as 14,000 feet. Spring migration begins early in March. It winters on the plains to the northern boundary of Colorado.

332. **Accipiter velox.** SHARP-SHINNED HAWK.

Resident; common. In migration is common throughout the State, and breeds throughout its range, but much more commonly in the mountains than on the plains. Breeds up to 10,000 feet. C. F. Morrison took a set of eggs at Fort Lewis, June 22, 1886.

333. **Accipiter cooperi.** COOPER'S HAWK.

Resident; common. Breeds both on the plains and in the mountains to about 9,000 feet. Along the main range of the mountains it is not so common as the Sharp-shinned Hawk. Dennis Gale found eggs at Gold Hill June 25 and young July 2.

334. **Accipiter atricapillus.** AMERICAN GOSHAWK.

Resident; not uncommon. Is rather more common in winter than in summer. In winter it occurs throughout the State below 9,500 feet; in summer the few that remain are restricted to the mountains, breeding from 9,000 to 10,000 feet.

334a. **Accipiter atricapillus striatulus.** WESTERN GOSHAWK.

Winter visitant; rare, if not accidental. Most of the numerous records of the occurrence of the Western Goshawk in Colorado really refer to the eastern form, which is the common Goshawk of this State. The only certain record of the western form is that of Prof. Wm. Osburn, who says: "A male of this species was captured at Arkins, February 26, 1889, and a female at the same place, March 5. The male was much darker than the female with finer markings on the under parts, corresponding to the description of variety *striatulus*." (Science, XXII. 1893, 212.) This is the Pacific Coast Goshawk coming east regularly to Idaho.

337a. **Buteo borealis kriderii.** KRIDER'S HAWK.

Resident; not uncommon. There is a slight question yet as to the distribution of the three varieties of Red-tailed Hawks that occur in Colorado. It has been taken for granted that all the records of typical *borealis* for Colorado should be referred to some of the other forms, though it is not unlikely that it may rarely visit the extreme eastern portion of the State. There can be no doubt that Krider's Hawk occurs on the plains in Colorado during migration, and the present writer feels sure that the record of its nesting there is also correct. F. M. Dille reports that it nests on plains and large cliffs; one nest in Weld County was taken May 24. Of the occurrence and breeding of Krider's Hawk in the mountains there is more question. It probably does occasionally visit the eastern foothills of the main range, but there is as yet no unquestionable record of its nesting above 6,000 feet.

337b. **Buteo borealis calurus.** WESTERN RED-TAIL.

Resident; abundant. Is the common Rocky Mountain form overlapping the range of Krider's Hawk and breeding from the plains to 12,000 feet in the mountains. Is one of the most common hawks of the State through the summer and not a few spend the winter in Colorado.

337d. **Buteo borealis harlani.** HARLAN'S HAWK.

Winter visitant; rare. One specimen taken by C. E. Aiken at Colorado Springs. (Ridgway, Auk, II. 1885, 165.) One was probably taken by Capt. P. M. Thorne at Fort Lyon.

339b. **Buteo lineatus elegans.** RED-BELLIED HAWK.

Migratory; rare. Included in the list of Colorado birds on the strength of the following note from Geo. F. Breninger: "I saw one at Table Rock, a full plumaged bird with the breast to me; saw one at Fort Collins. I have handled them here in California and there is not the least doubt in the matter."

342. **Buteo swainsoni.** SWAINSON'S HAWK.

Resident; common. More common on the plains than in the mountains. Breeds throughout the State everywhere below 11,000 feet. Begins building its nest the last of April, eggs are laid the middle of May and the young appear early in June. Sometimes very abundant locally. A. S. Bennet of Lay, Colo., says he saw a flock of five hundred July 10, 1889.

347a. **Archibuteo lagopus sancti-johannis.** AMERICAN ROUGH-LEGGED HAWK.

Winter resident; not uncommon. Arrives from the north in November and remains until March. Is usually found in the lower parts of the mountains and on the plains.

348. **Archibuteo ferrugineus.** FERRUGINOUS ROUGH-LEG.

Resident; rather common. Breeds both in mountains and on plains, but in the winter is mostly confined to the plains and the lower streams below 6,000 feet. Breeds at least as far south as Pueblo and thence to British America. Eggs have been taken in Colorado as early as April 13, and well-grown young by May 24; but three to four weeks later than these dates is the more common time.

349. **Aquila chrysaëtos.** GOLDEN EAGLE.

Resident; common in favorable localities. In few, if any, parts of the United States is the Golden Eagle more common than in the more mountainous portions of Colorado. They breed from the foothills to at least 12,500 feet. In the winter they wander occasionally over the plains, but are also found in

the mountains to 11,000 feet. The nest is repaired for the season about the first of March, and the young are hatched about three months later.

352. **Halizætus leucocephalus.** BALD EAGLE.

Resident; fairly common. Mostly in the mountains in the summer time and on the plains during the winter. Breeds in the mountains to 9,000 feet and occasionally higher; breeds less commonly on the plains. Capt. Thorne found a nest with two young, June 12, near Fort Lyon on the Arkansas River.

355. **Falco mexicanus.** PRAIRIE FALCON.

Resident; not uncommon. Breeds from the plains to 10,000 feet. In some of the more open portions of western Colorado it is quite numerous. Nearly all leave the State in the winter, returning in March and April. The eggs are laid in May.

356. **Falco peregrinus anatum.** DUCK HAWK.

Resident; not uncommon, locally. Has been reported from many places in the State. W. P. Lowe found the nest and young in St. Charles Cañon, near Pueblo, during the summer of 1895. Dennis Gale took a set of eggs on the Poudre River, April 30, 1889. Others report it as breeding up to 10,000 feet in the mountains.

357. **Falco columbarius.** PIGEON HAWK.

Summer resident; rather uncommon; in migration fairly common; a few remain through the winter in the lower portions. The eggs have been taken in various parts of the State, from the plains to about 9,000 feet, but more commonly from 8,000 to 9,000. Eggs are laid about the first of June.

358. **Falco richardsonii.** RICHARDSON'S MERLIN.

Summer resident; rare; in migration not uncommon. There are several references to its breeding in the State, as it undoubtedly does, but this seems to have been inferred from its being seen here in summer rather than from its nest and eggs having been actually taken. Drew states that it breeds from the plains upward. It has been taken in summer as high as 11,000 feet. In migration occurs throughout the State.

360. **Falco sparverius.** AMERICAN SPARROW HAWK.

Resident; abundant. The most common hawk from the plains to 11,000 feet. In mild winters, like that of 1895-6, quite a number remain throughout the lower portions of the state, but the bulk winter farther south, returning early in March. Eggs are laid the latter part of April and fully fledged

young are around by the middle of July. Breeds from the plains to 11,500 feet and in the fall ascends to the highest peaks, feeding on mice and grasshoppers.

364. **Pandion haliaëtus carolinensis.** AMERICAN OSPREY.

Summer resident; not uncommon, locally. W. E. D. Scott found a pair breeding at Twin Lakes at about 9,000 feet. (B. N. O. C. IV. 1879, 90.) It is said to begin laying the last of April, but Mr. Scott found eggs as late as the middle of June. Has been taken in the fall as high as 10,500 feet.

365. **Strix pratincola.** AMERICAN BARN OWL.

Resident; very rare. The only record for Colorado is the one mentioned by H. G. Smith as caught in the Town Hall of South Denver. (Nidologist, III. 1896-7, 76.) A southern species rarely coming so far north as Colorado. The above record of "resident" is made not so much from the instance cited, as from its general distribution and the fact that it has been found breeding in Nebraska near the Colorado line.

366. **Asio wilsonianus.** AMERICAN LONG-EARED OWL.

Resident; common. Winters from the plains to 10,000 feet and breeds from the plains to 11,000. Eggs are laid early in April.

367. **Asio accipitrinus.** SHORT-EARED OWL.

Resident; not common. Much less common than the Long-eared and nearly confined to the plains. The highest record is a little below 8,000 feet. Breeds throughout its range in Colorado, but rather more common in summer in northern than southern Colorado. Begins laying in April.

369. **Syrnium occidentale.** SPOTTED OWL.

Resident. There is no reason to doubt the occurrence of this species in the State, but its record for Colorado is badly mixed. All Colorado records are known to be incorrect except the statement by H. G. Smith that C. E. Aiken has taken several Owls of this species. (Auk. III. 1886, 284.) Though the correctness of this statement has been challenged, yet Mr. Aiken has lately informed the present writer that there can be no question of the identification.

372. **Nyctala acadica.** SAW-WHET OWL.

Resident; not uncommon. Occurs throughout the State below 8,000 feet, but all the records of breeding come from the mountains between 7,000 and 8,000 feet. Eggs are laid the latter part of May. H. G. Hoskins writes that he found one at Beloit, near the Kansas line, April 9, 1894. H. G. Smith records three cases in the vicinity of Denver.

373. **Magascops asio.** SCREECH OWL.

Resident; rare. The western range of *asio* and the eastern extension of *maxwelliæ* and *aikeni* have not been satisfactorily determined. *Asio* is the common form of western Kansas and western Nebraska, and *maxwelliæ* is the common form of the foothills and extending at least thirty miles out on the plains. Between these known points lie nearly two hundred miles of plains, which form an unknown land so far as Screech Owls are concerned. That *asio* does sometimes come into Colorado is proved by the capture of one in the mottled phase near Greeley, as reported to the present writer, by Pres. Z. X. Snyder. According to Capt. P. M. Thorne, there is a Screech Owl inhabits the timber along the Arkansas River at Fort Lyon. No specimens were obtained. It must be either *asio* or *aikeni*, and of the two it is more likely to be *asio*.

373e. **Magascops asio maxwelliæ.** ROCKY MOUNTAIN SCREECH OWL.

Resident; common. According to present ideas this form occurs in the mountains of Colorado from the central part of the State northward, and from the foothills to about 6,000 feet. It has been reported breeding from Denver, Boulder and Loveland. Eggs are usually laid about the middle of April, but have been found as early as the first of April and as late as the last of May. V. L. Kellogg records it as a rare visitant at Lamb's ranch in Estes Park. (Trans. Kans. Acad. Science, XII. 1889-90, 86.) This ranch has an altitude of nearly 9,000 feet.

373g. **Megascops asio aikeni.** AIKEN'S SCREECH OWL.

Resident. Type from El Paso County. E. M. Hasbrouck, in summarizing the records of this species, says that it probably does not occur north of Douglas County anywhere in Colorado. It is a bird of the more open country along the foothills of the Rocky Mountains, south to central New Mexico and northeastern Arizona. Apparently not found below 5,000 feet nor above 9,000. Hasbrouck refers to this variety, Morrison's "Mccalli," from La Plata County. (Auk, X. 1893, p. 250.) W. P. Lowe, of Pueblo, writes that a Screech Owl, presumably this variety, is rather common in the foothills of the Wet Mountains and that he once found it breeding at 7,800 feet.

374. **Megascops flammeola.** FLAMMULATED SCREECH OWL.

Resident; rare. The rarest owl in Colorado, if not in the United States. All the known specimens from Colorado have been taken along the main front range of the Rocky Mountains, from Estes Park to the San Luis Valley. The first record for Colorado is the specimen in the Maxwell Collection, taken at Boulder, in March of some year previous to 1876.

(Ridgway, Field and Forest, II. 1876-77, 195 and 208). The second, by C. E. Aiken, at Poncha Pass, Fremont County, June 15, 1875, and the nest with one egg, being the first nest of this species known to science. (Deane, B. N. O. C. IV. 1879, 188.) The third was shot by Dr. Walbridge, at Mosca Pass in the San Luis Valley, the third week in August, 1879. (Ingersoll, B. N. O. C. V. 1880, 121.) The fourth was found dead in 1883 in the same place where Dr. Walbridge took his specimen. The fifth, by C. E. Aiken, in nestling plumage, about the middle of September, 1883, near Colorado City, at an altitude of 7,500 to 8,000 feet. (Fourth and fifth specimens, Brewster B. N. O. C. VIII. 1883, 123.) The sixth, seventh and eighth, by W. G. Smith, in Estes Park, one June 2, 1890, a female and nest with three fresh eggs, at 10,000 feet; one June 4 at the same altitude, a female, nest and two fresh eggs; one June 20, a female, nest and four partly incubated eggs at 8,000 feet. (O. and O. XVI. 1891, 27.) The ninth, by Evan Lewis, near Idaho Springs, June 7, 1890, a nest with three eggs at 8,700 feet. (Bendire, Life Histories N. Am. Birds, 1892, p. 375.) The tenth was taken July 17, 1884, near Evergreen P. O., Jefferson County. (H. G. Smith, Auk, X. 1893, 364.) In addition to these only six other specimens are known from the rest of the United States, and there are no records of its breeding anywhere but in Colorado. There is a specimen in the National Museum at Washington that bears the date June 10, 1890 and was taken in Estes Park by W. G. Smith. It is presumably one of the three mentioned above, but it cannot now be learned which one it is. Mr. Dennis Gale writes that he took one twelve miles from Gold Hill in the direction of Estes Park. This makes the eleventh specimen for Colorado. Of these eleven, seven have been taken in Boulder County or vicinity.

375a. **Bubo virginianus subarcticus.** WESTERN HORNED OWL.

Resident; common. Not enough material has accumulated to define the range of the different forms of the Horned Owl in Colorado. The following statements are given with the knowledge that they are far from complete and quite liable to error. But they seem to be the best explanation that can be given of the known facts. The second edition of the A. O. U. Check List gives *subarcticus* as the only form breeding in Colorado, confining *arcticus* during the summer to Arctic America, with a southern migration in winter to Montana and Wyoming. The earlier writers went to the opposite extreme and referred all Colorado birds to *arcticus*. The present writer is inclined to accept the theory that *subarcticus* is the form of the lower portions of the State, breeding commonly along the timbered river bottoms. How far this form extends into the mountains is not

now known. There certainly is a Horned Owl that breeds in the mountains even up to 11,000 feet, and either this or some closely related form is found in winter nearly to the limit of trees. It is probable that these winter birds belong to both *subarcticus* and *arcticus*, and that the summer birds are principally, if not entirely, *subarcticus*, though largely partaking of the character of both forms.

375b. **Bubo virginianus arcticus.** ARCTIC HORNED OWL.

Winter visitant; not uncommon. That this variety occurs in Colorado at any time in the year has been often denied. All doubts on the subject were lately settled by a specimen that Mr. C. E. Aiken lately sent to the present writer and which has been identified by Mr. Ridgway as undoubtedly *arcticus*. Mr. Aiken writes about these birds, that there was "an owl I had mounted twelve or fourteen years ago which I called *arcticus*. That specimen was a little more white and probably nearer the type than the present one. Both birds were brought to me by boys who had killed them near town [Colorado Springs,] but whether in the mountains or along the creek below town I cannot say. We have a flight of the lighter marked owls late in the fall, quite regularly, but I think the two under consideration are the only ones I have seen quite so light. I think both these birds were killed in November." Writing some years ago about *arcticus*, Mr. C. F. Morrison says: "This is the variety to which I refer the mountain specimens, they showing as much difference from the plains specimens of *subarcticus* as my Montana birds do, and in some cases even lighter. Do not know just where to draw the line, but I think true *arcticus* will be found as far south as the southern border of the State in the main chain of the Rockies." Prof. Wm. Osburn says that one he has referred to this variety was shot in the mountains near Loveland November 29, 1890. It was nearly white.

[375c. **Bubo virginianus saturatus.** DUSKY HORNED OWL.

Resident; not common. In time the above record of this variety will probably be shown to be correct, but at the present time it is hardly a scientific statement. It has been but once formally stated as occurring in Colorado (Fisher, Hawks and Owls of the U. S., 74), and that is based on a misquotation, the birds having been found in Arizona instead of Colorado. Moreover all writers on Colorado birds agree that the Horned Owls of the mountains are a light colored race showing a tendency toward *arcticus* instead of *saturatus*. Nevertheless it is almost certain since the variety has been found common a few miles from the southwest corner of Colorado that it does really inhabit the higher mountains in the coniferous forests]

376. **Nyctea nyctea.** SNOWY OWL.

Winter visitant; rare. More than a score of cases are known of its occurring in winter on the plains and the lower foothills of eastern Colorado to about the central part of the

State. It was unusually common around Denver during the winter of 1886-7. One was captured alive near Fort Collins in the early winter of 1896-7.

378. ***Speotyto cunicularia hypogæa***. BURROWING OWL.

Resident; abundant locally. Breeds from the plains to 8,000 feet regularly, less commonly to 9,000 feet and only occasionally seen at 10,000 feet. It is found clear across the State to Utah. Begins laying the latter half of April and eggs have been found in northern Colorado as late as the first of July. The Burrowing Owl is a partial migrant in northern Colorado and in the higher altitudes, but there is need of more precise knowledge concerning its movements.

379. ***Glaucidium gnoma***. PYGMY OWL.

Resident; rare. Occurs throughout the whole State west of the foothills, but no records as yet for the plains, except the single specimen taken in winter at Loveland by W. G. Smith, and that was but ten miles from the foothills. Mr. Smith also found the nest, with just hatched young, May 31, 1890, in Estes Park, at 10,000 feet, while in the extreme southwestern part of the State, at 1,000 feet lower, C. F. Morrison found four nests with eggs the first half of June, 1886. W. P. Lowe reports it as common in the Wet Mountains from 7,800 to 10,000, while E. B. Darnall writes that it occurs in Routt County in northwestern Colorado, below 6,000 feet. One was taken at Denver by H. G. Smith, February 18, 1888, and one during the winter of 1888-9 near Durango.

382. ***Conurus carolinensis***. CAROLINA PAROQUET.

Formerly resident. The only record for Colorado is that of E. L. Berthoud, who wrote to Dr. Coues: "I saw the Carolina Parrot at this place (Golden) and at Denver on the South Platte in 1860-61, and on the Little Thompson River, Colorado, in 1862. I have also seen it near old Fort Lyon, on the Arkansas River. (Coues, B. N. O. C. 1877, 50.)

385. ***Geococcyx californianus***. ROAD-RUNNER.

Resident; not common. Has been recorded along the southern border of Colorado from the extreme southeastern to the extreme southwestern corner. Its first Colorado record was by C. E. Aiken from El Paso County, and that still remains as the most northern record. There was a specimen in Mrs. Maxwell's collection at Boulder, but it probably was taken in southern Colorado. Breeds throughout its range. Rarely found above 5,000 feet, but W. P. Lowe writes that he once saw one at 8,000 feet in the Wet Mountains. According to Henshaw the young hatch the last of July.

387. **Coccyzus americanus.** YELLOW-BILLED CUCKOO.

Summer visitant; rare. The only claim this species has for admission to the list of Colorado birds is the statement by Major C. Bendire that it extends "casually to eastern Colorado." (Life Hist. N. Am. Birds Part II, 19.) It is probably now too late to ascertain the foundation for this statement. It must be rare in Colorado for all the specimens taken at Fort Lyon, only a few miles from the eastern boundary of the State, are *occidentalis*.

387a. **Coccyzus americanus occidentalis.** CALIFORNIA CUCKOO.

Summer resident; not uncommon locally. Occurs throughout the State, below 8,000, but most common on the edge of the plains. Specimens taken almost to the Kansas line are found to be this variety. Breeds throughout its range in Colorado.

388. **Coccyzus erythrophthalmus.** BLACK-BILLED CUCKOO.

Migratory; rare. There is a mounted specimen in the museum of the Agricultural College at Fort Collins, taken near there on June 11, by G. F. Breninger. Prof. Wm. Osburn writes that he took one at Loveland, at which place one was also taken by W. G. Smith. These are all the present records for Colorado, though it probably some time will be found here breeding.

390. **Ceryle alcyon.** BELTED KINGFISHER.

Resident; common. Breeds throughout the State, from the plains to 10,000 feet, although it is more common on the lower streams. A few remain even during severe winters along the foothills almost to the northern boundary of the State.

393d. **Dryobates villosus hyloscopus.** CABANIS'S WOODPECKER.

Resident; common. Breeds from the plains to 11,000 feet and winters at almost as great an elevation. But the larger number breed among the pines in summer time and return to lower altitudes for the winter. Eggs are laid early in May.

394. **Dryobates pubescens.** DOWNY WOODPECKER.

Visitant; rare, if not accidental. Included among Colorado birds on the strength of the note of Maj. Bendire that it extends "irregularly to Colorado." (Life Hist. N. Am. Birds, part II. 55.) It is probable that this statement is based on the geographical range for this species as given in Ridgway's Man-

ual, "Northern and Eastern North America and sporadically Western North America (Colorado, California, etc.)." The birds there referred to by Mr. Ridgway as being found in the west are now considered by him as belonging to *homorus*. As the authority for Maj. Bendire's remarks cannot be now learned they are entered here to call attention to the record.

394b. **Dryobates pubescens homorus.** BATCHELDER'S WOODPECKER.

Resident; common. Hardly as common in Colorado as its eastern representative is in the Mississippi Valley and much less common than Cabanis's Woodpecker. To this form are now referred all Colorado birds. It ranges in winter from the plains to 10,000 feet and breeds from the plains to 11,500, but is more common at the higher altitude in summer and at the lower in fall and winter.

396. **Dryobates scalaris bairdi.** TEXAN WOODPECKER.

Resident; rare and local. It is rather strange that this bird should have been overlooked by previous collectors, as W. P. Lowe writes that it occurs regularly in Pueblo and Huerfano Counties. More commonly seen in spring and fall and occasionally an old bird in winter. Mr. Lowe has taken several of the birds and the skins have been positively identified, so there can be no doubt of its occurrence as he states. This is the first and only Colorado record for the bird and carries its known range over three hundred miles to the eastward.

401b. **Picoides americanus dorsalis.** ALPINE THREE-TOED WOODPECKER.

Resident; not common. Throughout the mountains from about 8,000 to 12,000 feet. Occasionally a few feet lower, but remains even in winter in the pine belt chiefly at about 10,000 feet. It is not common anywhere but is scattered quite generally through the mountains. D. D. Stone found a nest with five young birds near Hancock, July 10, 1883, at about 10,000 feet. (O. & O. IX. 1894, 9 and 10.)

402. **Spyrapicus varius.** YELLOW-BELLIED SAPSUCKER.

Migratory; rare. The eastern variety scarcely coming west to the Rocky Mountains. It was taken by C. E. Aiken, presumably in El Paso County, and there is a single specimen in the Maxwell Collection.

402a. **Sphyrapicus varius nuchalis.** RED-NAPED SAPSUCKER.

Summer resident; common. Breeds from the plains to 12,000 feet, but the great bulk of nests are made between 8,000 and 9,000 feet. Arrives in April but eggs are not found until the first half of June.

404. **Sphyrapicus thyroideus.** WILLIAMSON'S SAPSUCKER.

Summer resident; common. Breeds from 5,000 feet to the upper limit of the pines. In southern Colorado is most common from 9,000 to 10,000 feet; in northern Colorado from 6,000 to 9,000 feet includes the great bulk of the birds. Arrives the first week in April and eggs are laid the last half of May.

405. **Ceophlœus pileatus.** PILEATED WOODPECKER.

Resident; very rare. The A. O. U. Check List gives its geographical distribution as "Formerly the heavily wooded region of North America south of about Lat. 63°, except in the southern Rocky Mountains; now rare or extirpated in the more thickly settled parts of the Eastern States." That it is rare in the Rocky Mountains of Colorado is certain, and it is not sure that it occurs there at all. F. M. Drew says that in southwestern Colorado "I have been told of a great big woodpecker and from the description think it is this bird." (B. N. O. C. VI. 1881, 85 and 138.) H. G. Hoskins writes that while passing Tuttle Ranch he saw a large crested Woodpecker that he took to be this species. Tuttle Ranch is only a few miles from the Kansas line and as this species is known to occur only a little farther east, it is probable that Mr. Hoskins' identification is correct.

406. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.

Summer resident; common. Breeds on the plains and up to 10,000 feet. Rather more common on the plains than in the mountains. One of the latest migrants, not reaching northern Colorado until the last week in May. Eggs are not laid until late in June.

408. **Melanerpes torquatus.** LEWIS'S WOODPECKER.

Resident; common. Winters from the plains to the lower foothills and breeds from the edge of the plains to about 8,000 feet. Regularly passes but a few miles out on the plains, but has been taken in Finney County in southwestern Kansas, April 23, 1893, and Capt. P. M. Thorne saw two at Fort Lyons on the Arkansas River. A very characteristic bird of the lower foothills and has been seen as high as 10,000 feet in southern Colorado, though probably does not breed above 9,000 feet. Performs a slight southward migration, but most of its movements are merely to retire a few feet lower during the winter season. Breeds late in June.

409. **Melanerpes carolinus.** RED-BELLIED WOODPECKER.

Summer visitant; rare, if not accidental. A southern and eastern species not regularly occurring farther west than central

Kansas. One was taken by C. E. Aiken, and there are both a male and a female in the Maxwell Collection. In 1895, Pres. Z. X. Snyder saw one near Greeley.

412. **Colaptes auratus.** FLICKER.

Migratory; rare. The eastern form only extends west across the plains to the foothills and there is no record of its breeding, though a few may winter. Taken by Capt. Thorne at Fort Lyons, December 10, 1883, and by Prof. Osburn at Loveland during the fall migration, September 24, 1889. One was taken by the Pacific Railroad surveying parties on the South Platte.

413. **Colaptes cafer.** RED-SHAFTED FLICKER.

Summer resident; abundant. Breeds from the plains to 12,000 feet and is almost as common at 11,000 feet as on the plains. An early migrant reaching northern Colorado by the first week in April and in mild winters, like that of 1895-6, remains all winter throughout the plains region. Even in the severest winter a few linger in the State. Eggs are laid from the last of May on the plains to the middle of June in the mountains. Most of the birds leave the mountains early in November, and the State by the first of December.

418. **Phalænoptilus nuttalli.** POOR-WILL.

Summer resident; common. Breeds on the plains and in the mountains to at least 8,000 feet, while it has been noted as high as 10,000 feet in the mountains of southern Colorado. Arrives about the middle of May and the eggs are laid the latter part of June. Remains in the fall until October.

418a. **Phalænoptilus nuttalli nitidus.** FROSTED POOR-WILL.

Summer resident; rare. In his original description of this variety, Mr. Brewster says that Colorado birds are true *nuttalli*, and this is of course true for the great bulk of the birds all over the State. But in southeastern Colorado *nuttalli* becomes mixed with *nitidus*. Of three specimens taken by Capt. Thorne at Fort Lyon, Mr. Brewster marks two as typical *nuttalli* and the other as not typical and nearest *nitidus*. The latter specimen is now in Mr. Brewster's collection. As *nitidus* comes north regularly to western Kansas, there is no reason why it should not occur in southeastern Colorado.

420a. **Chordeiles virginianus henryi.** WESTERN NIGHT-HAWK.

Summer resident; abundant. Breeds on the plains and up to about 11,000 feet; in the fall wanders to 12,000 feet. Is rather more common on the plains and lower foothills than

higher up, but is still common to 10,000 feet. Reaches northern Colorado the last of May and nests by the middle of June. Eastern Colorado is within the geographical range of *C. v. sennetti*, but it has not yet been reported from the State.

422. **Cypseloides niger borealis.** BLACK SWIFT.

Summer resident; abundant, locally. Occurs regularly in southwestern Colorado, where it was found by F. M. Drew, who says that they come late in June and leave late in September; breed from 10,000 to 12,000 feet, and range far above 13,000 feet. Are very common and always hunt in large flocks. (B. N. O. C. VII. 1882, 182 and B. N. O. C. VI. 1881, 85 and 138.) Has been taken by Dr. A. K. Fisher as far east as Trinidad. (Bendire, Hist. N. Am. Birds, Part II. 175.)

455. **Aëronauts melanoleucus.** WHITE-THROATED SWIFT.

Summer resident; not uncommon, locally. Breeds only in inaccessible rocks from the lower foothills at about 6,000 feet to at least 12,000 feet if not higher. Arrives the last of March to the middle of April. More common in the southern half of the State, but breeds at 7,000 feet on Horsetooth Mountain a few miles from Fort Collins and passes north into Wyoming.

429. **Trochilus alexandri.** BLACK-CHINNED HUMMINGBIRD.

Summer resident; not uncommon, locally. Occurs only in the extreme western and southwestern part of Colorado, and there only in the lower portions below 6,000 feet.

432. **Selasphorus platycercus.** BROAD-TAILED HUMMINGBIRD.

Summer resident; common. The most common Hummer in Colorado. Arrives early in May and breeds from the foothills to 11,000 feet. Ranges 2,000 feet above timber-line in summer time. Breeds most commonly from 7,000 to 9,000 feet. First set of eggs is laid about the middle of June and, at least in southern Colorado, two broods are reared. The young from the later brood are scarcely out of the nest by the middle of August and a few weeks later the birds start southward. Records are lacking for the plains region east of the foothills, though common clear to the edge of the plains.

433. **Selasphorus rufus.** RUFIOUS HUMMINGBIRD.

Summer resident; not uncommon locally. A western species coming into southwestern Colorado, where it breeds from 7,000 to 10,000 feet and ranges in summer several thousand feet higher. Tolerably common in western Colorado and much less common along the eastern slope of the mountains.

The most northeastern record is that of Mr. W. G. Smith who took it in Larimer County. One was taken by Mr. Dennis Gale near Boulder and a specimen was taken by Henshaw at Fort Garland, August 12, during the fall migration. There is a specimen in the Maxwell Collection, but no data as to where it was captured.

443. **Milvulus forficatus.** SCISSOR-TAILED FLYCATCHER.

Summer visitant; rare, if not accidental. The only record for Colorado of this southern species is that of G. F. Breninger. He writes that he saw one at Table Rock, on the Divide, south of Denver. He says, "I saw the bird close to and there is no doubt in the matter."

444. **Tyrannus tyrannus.** KINGBIRD.

Summer resident; common. Occurs regularly only on the plains and a little way up the eastern foothills to 6,000 feet. Breeds throughout its range. Has been taken as a rare visitant in Routt County, in northwestern Colorado. Arrives about the first week in May.

447. **Tyrannus verticalis.** ARKANSAS KINGBIRD.

Summer resident; common. Gets its English name from having been originally described by Say, from specimens taken on the Arkansas River [notwithstanding the statement in Baird, Brewer and Ridgway's Birds of North America that they were taken on the Platte]. Rather more common in eastern than western Colorado, especially on the plains at the base of the foothills. Scarcely found in the mountains, rising regularly only to 7,000 feet, breeding from there down to the plains. Arrives the first week in May and nests about the middle of June. After the young are able to fly, about the first of August, a few wander into the mountains to 8,500 feet.

448. **Tyrannus vociferans.** CASSIN'S KINGBIRD.

Summer resident; common. Occurs throughout Colorado, breeding from the plains to 7,000 feet and is fairly common even to the northern boundary of the State, though more common in the southern two-thirds. Arrives the second week in May. There are no records on the plains more than about fifty miles out from the foothills.

454. **Myiarchus cinerascens.** ASH-THROATED FLYCATCHER.

Summer resident; rare. A western species, coming east to the western edge of the plains. Breeds from the plains to 7,000 feet. Arrives the last of May and departs south late in October. The most northeastern record is one taken at Golden by Prof. Osburn.

455a. **Myiarchus lawrencei olivascens.** OLIVACEOUS FLY-CATCHER.

Summer visitant; rare, if not accidental. A southern species, known from Arizona and Mexico. Taken once by Capt. P. M. Thorne, at Fort Lyon, May 11, 1883. (Auk, VI. 1889, 276.)

456. **Sayornis phœbe.** PHŒBE.

Summer visitant; rare. Comes west rarely to the eastern edge of Colorado. The only record is the one taken by Capt. P. M. Thorne at Fort Lyon, April 20, 1884. (Auk, VI. 1889, 276.)

457. **Sayornis saya.** SAY'S PHŒBE.

Summer resident; common. A bird of the plains rather than the mountains. Most common along the edge of the foothills, breeding in towns and around buildings like the eastern Phœbe, which it here replaces. Arrives early, from the middle of March to the first week in April, according to the season. Breeds on the plains and in the mountains to about 8,000 feet. Eggs are laid early in June.

459. **Contopus borealis.** OLIVE-SIDED FLYCATCHER.

Summer resident; common. Occurs in migration on the plains and in the mountains throughout the State. Breeds only in the mountains from 7,000 to 12,000 feet and is much less common breeding than in migrations. Breeds at least as far south as southern Colorado. Arrives late in May and breeds about the last of June. Departs southward in September.

462. **Contopus richardsonii.** WESTERN WOOD PEWEE.

Summer resident; common. Fairly common throughout the State as a breeder below 11,000 feet and very common in migration. In some places the most common Flycatcher. Extends eastward to Kansas. Arrives last of April and first week in May and breeds about the middle of June. It is most common during the breeding season from 7,000 feet to the pine region. Migrates south in September.

464. **Empidonax difficilis.** WESTERN FLYCATCHER.

Summer resident; common. Breeds from the plains to 10,000 feet, but is more common in the upper part of its range. Arrives late in May and nests early in July.

466. **Empidonax traillii.** TRAILL'S FLYCATCHER.

Summer resident; fairly common. More common on the plains, but occurs in the mountains to 8,000 feet, breeding throughout its range in Colorado. Arrives early in May and leaves late in September.

467. **Empidonax minimus.** LEAST FLYCATCHER.

Migratory; rare. Comes west only on the plains of Colorado and to the edge of the foothills. Has not been found higher than 6,000 feet. Arrives in May, and probably breeds, but no nests have as yet been taken.

468. **Empidonax hammondi.** HAMMOND'S FLYCATCHER.

Summer resident; common. Comes east only to the western edge of the plains. Pueblo is the most eastern record. Breeds from the plains to 8,000 feet. Arrives early in May.

469. **Empidonax wrightii.** WRIGHT'S FLYCATCHER.

Summer resident; abundant. In migration is abundant throughout the State west of the plains, and is equally common during the breeding season from 7,500 to about 10,000 feet. Arrives the last of April and the first week in May.

474a. **Otocoris alpestris leucolæma.** PALLID HORNED LARK.

Winter resident; abundant. The literature of the Horned Larks in Colorado is more mixed than that of any other bird. *Alpestris*, *cornuta*, *occidentalis* and *chrysolæma* have all been recorded for the State, but according to present ideas only *leucolæma* and *arenicola* really occur in Colorado. *Leucolæma* is the common "Snowbird" of the plains region and in the northern part of Colorado is enormously abundant from late in October until the middle of February. Only a few enter the mountains during the winter, probably not much if any above 8,000 feet. How far it passes up the mountains during migration has not yet been satisfactorily determined. Breeds north of the United States.

474c. **Otocoris alpestris arenicola.** DESERT HORNED LARK.

Resident; abundant. All of the summer Horned Larks of Colorado are *arenicola* and most of the winter birds of the southern half of the State belong here, as well as many from northern Colorado. Winters on the plains and a little ways into the mountains up to 9,000 feet, but only a few individuals above 7,000 feet. Breeds on the plains and in the mountains up to 13,000 feet. The bulk of migratory birds arrive on the plains in March and nesting begins early in April, two broods being raised. Eggs have been found as late as July 5. In the mountains nesting is from a month to two months later. Begins to leave the mountains early in October.

475. **Pica pica hudsonica.** AMERICAN MAGPIE.

Resident; common. A few visit the plains of the extreme eastern Colorado during the winter and breed nearly to the

Kansas line. They become more common westward, until at 50 miles from the foothills they are not uncommon locally along the banks of the larger streams. From the foothills through the mountains below 8,000 feet, they are very common and characteristic. A few breed as high as 11,000 feet and winter to 9,000 feet. On the plains and among the foothills nestbuilding begins in March and the earliest eggs the first week in April. Young are ready to fly the last of May. In the mountains the young scarcely leave the nest before the first of July.

478b. **Cyanocitta stelleri macrolopha.** LONG-CRESTED JAY.

Resident; common. Seldom strays far east of the foothills, but has been taken in winter by Capt. P. M. Thorne at Fort Lyon. Very common from the edge of the plains westward through the mountains. Breeds from the base of the foothills to timber-line, but seldom below 7,000 feet. Winters from the edge of the plains to nearly 10,000 feet. The upward movement from the plains begins early in May. Eggs are found the last of May and all through June. Fully fledged young are noted the last of June. The return movement begins the last of September.

480. **Aphelocoma woodhousei.** WOODHOUSE'S JAY.

Resident; common. Most common along the base of the foothills and the lower wooded mountains. Not often seen on the plains of eastern Colorado, but has been taken by Capt. P. M. Thorne at Fort Lyon from October to April. Breeds from 5,000 to 8,000 feet, and most commonly at about 6,000 feet. Eggs are laid the last of April and first week in May. Winters in the lower valleys and along the edge of the plains at about 5,000 feet. In the fall has been known to wander to 9,500 feet.

484a. **Perisoreus canadensis capitalis.** ROCKY MOUNTAIN JAY.

Resident; common. Remains near timber line all the year round. During the winter descends a few hundred feet, and occasionally a few wander down to the foothills, but the bulk remain above 9,000 feet even in the coldest weather. Breeds early, usually by the middle of April, which at that altitude of 8,000 to 11,500 feet is long before the snows cease. F. M. Drew says of this species in San Juan County, "In autumn, when on his first tour of inspection around the house, he hops along in a curious sidling manner just like a school girl in a slow hurry. White-headed, grave and sedate, he seems a very paragon of propriety, and, if you appear a suitable personage, he will be apt to give you a bit of advice. Becoming confidential, he sputters out a lot of nonsense in a manner which causes you

to think him a veritable 'whiskey Jack.' Yet, whenever he is disposed, a more bland, mind-his-own-business appearing bird will be hard to find, as also many small articles around camp after one of his visits, for his whimsical brain has a great fancy for anything which may be valuable to you, but perfectly useless to himself." (B. N. O. C. VI. 1881, 140.)

486. **Corvus corax sinuatus.** AMERICAN RAVEN.

Resident; common, locally. More particularly a bird of western Colorado, but occurs in the mountains as a not uncommon visitant. Has been taken by Capt. P. M. Thorne at Fort Lyon, and even extends occasionally east to western Kansas. Breeds throughout its range, but more commonly in the mountains at least to timber-line. Winters from the plains to about 10,000 feet. Irregular in its movements.

487. **Corvus cryptoleucus.** WHITE-NECKED RAVEN.

Resident; rare. Formerly common along the eastern base of the front range for its entire length in Colorado and from 50 to 100 miles out on the plains. Now entirely absent from much of this region. F. M. Dille found nests and eggs May 24, 1887, in Weld County, far east of the foothills. There is no other late record north of Boulder, where R. A. Campbell saw them twice in 1894, high up in the foothills. C. E. Aiken says of its range 20 years ago: "I first saw them in October, 1871, about 25 miles south of Cheyenne on the line of the Denver Pacific Railroad where a large flock was hovering over the plain. In the city of Denver I have often seen them searching for food in the less frequented streets, and about 100 miles farther south on the Fontaine Qui Bouille, I have seen immense numbers. At the latter place a flock of probably 1,000 individuals was resident during the winter of 1871-2. Although so abundant in winter, very few are to be seen in summer; the greater number either pass to the northward or become so distributed over the country as not to attract attention. * * * *C. cryptoleucus* is mainly a bird of the plains, being replaced in the mountains by the common raven. The two birds resemble each other so closely, both in notes and habits, that it is difficult to distinguish between them at a distance; the greatest apparent discrepancy being in size, though the croak of *carnivorus* is somewhat deeper and louder than that of the other. I have sometimes found them both associated in the same flock. Each succeeding year since I first saw these birds I have noticed a marked decrease in their numbers in El Paso County, Colorado. The cause of this I do not know unless it is because as the country becomes more thickly settled, the solitude they love so well is denied them."

The narrow strip of country in Colorado where they used to be most common, now contains fully three-fourths of the entire population of the State. The White-necked Raven used to breed from the plains to 6,000 feet, and there is no reason to believe that the few survivors have changed their nesting habits. Its present scarcity can be judged by the fact that of fifteen correspondents who have spent a great deal of their time in the field for the last ten years along the eastern base of the mountains from Pueblo to Cheyenne, only two have seen the bird alive.

488. **Corvus americanus.** AMERICAN CROW.

Resident; common in northeastern Colorado, rare in the rest of the State. F. M. Dille says in substance of its distribution in Colorado: Breeds in considerable numbers along the courses of the South Platte and its tributaries in northeastern Colorado, although confined principally to the valley of the Platte. Have found it breeding in the near vicinity of Greeley, but from a point eight miles below the town their nests were quite abundant. Five nests found at one time on an island less than two acres in extent. Sometimes after a mild open winter, when the birds had been present in large numbers all the winter, they would disappear entirely as the breeding season approached. The earliest date of a full set of eggs is April 1, and the latest date May 23; average date April 27. One set taken May 5 on Clear Creek, Jefferson County, and once found nesting almost within the city limits of Denver. (Burns, Bull. No. 5, Wilson Ornith. Chapter Agassiz Assoc., Oberlin, Ohio.) In the vicinity of Fort Collins the present writer has found them not uncommon during the fall in quite large flocks, and a few nest along the Cache La Poudre, east of the foothills. H. G. Hoskins reports having seen seven at various times near Burlington, close to the Kansas line. Capt. P. M. Thorne saw a few at Fort Lyon, on the Arkansas river, while Drew and Morrison both record it from southwestern Colorado. Breeds from the plains to about 7,000 feet and winters on the plains.

491. **Nucifraga columbiana.** CLARKE'S NUTCRACKER.

Resident; abundant. The first eggs known to science were taken by Dennis Gale at Gold Hill March 9, 1888, at 8,500 feet; a second set at the same place April 16, 1889. B. F. Goss had before this, on May 21, 1879, found a nest with young at Fort Garland. Breeds from 7,000 to 12,000 feet, though most commonly from 9,000 to 10,000 feet. Breeds from the first half of March at 8,000 feet to the middle of April at its highest range. Only one brood: young are on the wing the latter half of May. Some remain in small parties during the rest of the summer, others gather in larger companies. W. E. D. Scott reports "enormous flocks" at Twin Lakes June 24,

1878. During the fall they wander up to at least 13,000 feet; in October begin to descend into the valleys. Most of them remain through the winter at 7,000 to 9,000 feet, but a few come down to the plains. H. G. Hoskins sent one for identification taken at Burlington, near the Kansas line, in January, 1896, and says that others have been seen there occasionally. They have also been taken as wanderers in South Dakota, western Nebraska and western Kansas. They begin the upward movement early in the spring, before most other migrants, and are almost the earliest birds to nest at 9,000 feet.

492. **Cyanocephalus cyanocephalus.** PINON JAY.

Resident; abundant, locally. In the summer the Pinon Jay deserves its name, for it breeds almost exclusively among the pinon pines from 7,000 to 8,000 feet. A few nests have been found as low as 5,000 feet and as high as 9,000. First eggs are laid the last of March and first of April, and eggs are found as late as the middle of May. Keeps in small parties during the breeding season, and in large flocks the remainder of the year. Continually changing location according to food supply. In autumn wanders far above the pinon pines to 13,000 feet. Late in October begins to descend, and spends the winter in the lower foothills and on the edge of the plains. At this season it wanders eastward across Colorado to Nebraska and Kansas. During the winters of 1889, 1890 and 1891 large flocks were seen in Finney County in southwestern Kansas. Returns to the pinon pines early in spring.

494. **Dolichonyx oryzivorus.** BOBOLINK.

Summer visitant; rare. Occurs only east of the range on the plains and at the base of the foothills. Henshaw saw three at the Huerfano crossing in May, 1873, Allen and Brewster noted one at Colorado Springs May 18, and two others were reported May 23. Prof. Wm. Osburn writes he has seen one at Loveland and there was one in the Maxwell Collection. This completes the record to date for Colorado. Not known to breed in the State. The bird commonly known in Colorado as the "Bobolink" is the Lark Bunting (*Calamospiza melanocorys*).

495. **Molothrus ater.** COWBIRD.

Summer resident; common. Confined principally to the lower regions, breeding from the plains to 8,000 feet. As common on the plains as anywhere in the Mississippi Valley. Arrives the last of March and leaves late in September.

497. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.

Summer resident; common. In migration occurs throughout the State and breeds in suitable places on the plains and

among the foothills and parks to 7,500 feet. Scott found one July 20 at Twin Lakes at 9,500 feet, but did not ascertain that it nests at that altitude. Arrives about the middle of April and breeds early in June. Usually departs in September, but Capt. P. M. Thorne found one at Las Animas as late as October 17.

498. **Agelaius phœniceus.** RED-WINGED BLACKBIRD.

Summer resident; common. One of the most abundant birds on the plains in suitable places, breeding principally below 7,500 feet but occasionally up to 9,000 feet. Arrives early, usually about the middle of March and remains in flocks until the middle of May, when it pairs and breeds during the whole month of June. The bulk depart late in October; some remain a month later, and a few linger through most of the winter. During the mild winter of 1895-6 they were common even in northern Colorado, and during the winter of 1896-7 very large flocks were constantly present. It would seem probable that the presence of part of them at least was due to the increased abundance of food. Beginning in 1892, more and more sheep have been fed in the Valley of the Poudre and Big Thompson Rivers. The number during the winter of 1896-7 has reached nearly 200,000. All of these are fed on corn in open yards. The blackbirds in large numbers have made these yards their feeding grounds and have apparently derived a good share of their food from the scattered grain.

[499. **Agelaius gubernator californicus.** BICOLORED BLACKBIRD.

Has not been taken in Colorado, but one was taken by Mr. Bond at Cheyenne, Wyo., April 14, 1889. (Auk, VI. 1889, 341.) This is just over the line from Colorado and the bird must have crossed Colorado to get there. This is a Pacific Coast bird and the occurrence is of course accidental.]

501b. **Sturnella magna neglecta.** WESTERN MEADOWLARK.

Summer resident; abundant. More especially a bird of the plains, but also common in the lower mountain parks. Breeds on the plains and to 8,000 feet. Also met both in summer and fall above timber-line, but does not breed so high. Arrives early in March and breeds the latter part of May. Moves southward in October, though a few winter in southern Colorado. During the winter of 1895-6 they were not uncommon over most of the plains region of the State and also during 1896-7.

506. **Icterus spurius.** ORCHARD ORIOLE.

Summer visitant; rare, if not accidental. The only record for Colorado known to the present writer is the single specimen taken by Allen at Denver. (Bull. Mus. Comp. Zool. III. 1872, 113-118.) There seem to have been other records, but they are no longer accessible.

507. **Icterus galbula.** BALTIMORE ORIOLE.

Summer resident; rare. The first record for Colorado is that by Allen, that it is rare westward to the base of the Rocky Mountains. Aiken afterwards found it in El Paso County and there was one specimen in the Maxwell Collection. Undoubtedly breeds, though there is no record as yet of the nest having been found.

508. **Icterus bullocki.** BULLOCK'S ORIOLE.

Summer resident; abundant. More common at the western edge of the plains than the Baltimore Oriole is in the east. Breeds abundantly on the plains and in all the mountain region below 10,000 feet. Arrives early in May and breeds late in June. Departs in September, though Beckham saw two at Pueblo as late as October 24.

509. **Scolecophagus carolinus.** RUSTY BLACKBIRD.

Migratory; rare, if not accidental. A pair were shot near Denver December 17, 1883. (H. G. Smith, Auk, III. 1886, 284.) Prof. Wm. Osburn took one at Loveland November, 1889. (Science XXII. 1893, 212.) These are the only authentic records for Colorado. It has been several other times reported, but was evidently mistaken for Brewer's Blackbird.

510. **Scolecophagus cyanocephalus.** BREWER'S BLACKBIRD.

Summer resident; abundant. Occurs throughout the State, breeding from the plains to 10,000 feet. Arrives on the plains the middle of April, and journeys upward as fast as open marshes appear. Nests the last of May. In August and September large flocks ascend 3,000 feet above their breeding grounds and swarm over the country above timber-line to 13,000 feet. Retire in October and are common on the plains for a month longer. A few remain through the winter in the lower portions of the State.

511b. **Quiscalus quiscula æneus.** BRONZED GRACKLE.

Summer resident; not uncommon locally. Only in eastern Colorado to the base of the Rocky Mountains. Henshaw found it rather numerous at Denver; just about to build May 14. The first arrived at Burlington, Colorado, May 9, 1896. Capt. P. M. Thorne writes that he has taken it at Fort Lyon and W. P. Lowe says that it breeds near Pueblo. There is no Colorado record of its breeding above 5,000 feet.

514a. **Coccothraustes vespertinus montanus.** WESTERN EVENING GROSBEAK.

Winter visitant; irregular and not uncommon. Is liable to occur anywhere in Colorado during the winter season. It has been seen at all times from early fall to late spring. Capt. P.

M. Thorne took one at Fort Lyon May 11, and C. F. Morrison saw a flock of 30 at Fort Lewis May 17, at an altitude of 8,000 feet. These records so late in the season, make it not improbable that it may yet be found breeding in the State. It has been noted from the plains to 10,000 feet. One was taken at Fort Collins as early as October, 1888.

515. **Pinicola enucleator.** PINE GROSBEAK.

Resident; not uncommon. Most common in late summer and in winter when the bulk are just below timber-line, but stragglers descend to the foothills and wander over the plains. Capt. P. M. Thorne saw them several times at Fort Lyon and G. F. Breninger took one at Fort Collins November 6. They breed at timber-line. Trippe found young birds fully feathered by June, before the snow was gone, while at 11,500 feet D. D. Stone saw a pair feeding young as late as July 25. (O. & O. IX. 1884, 20.)

517. **Carpodacus purpureus.** PURPLE FINCH.

Migratory; rare, if not accidental. The only certain record for Colorado of this eastern species is the following from A. W. Anthony, who writes: "I have a female, which I shot November 15, 1885, near Denver. It was in company with *C. frontalis* and *cassini*."

518. **Carpodacus cassini.** CASSIN'S PURPLE FINCH.

Resident; common. Toward the latter part of November this western representative of the Purple Finch leaves its breeding grounds in the mountains and retires to the foothills and plains. It is then common in flocks along the western edge of the plains and has been taken by Capt. P. M. Thorne as far east as Fort Lyon, which is at present the most eastern record of this species. A few remain through the winter in some of the lower parks up to 7,000 feet, and a large part go south of Colorado for that season. The last of March or early in April the return movement to the mountains begins. This is almost the only species in which the summer and winter ranges are complementary. It winters from the plains to 7,000 feet and breeds from 7,000 to 10,000. By May it has worked its way up the mountains to its summer home and breeds there the latter half of June. Capt. Thorne has taken one at Fort Lyon as late as May 28. It was a female with eggs just visible to the naked eye.

519. **Carpodacus mexicanus frontalis.** HOUSE FINCH.

Resident; abundant. Originally described by Say from specimens taken near where Cañon City now stands. One of the most abundant winter birds on the plains along the base of

the foothills and breeding quite commonly in the same localities. Common in towns, breeding around the cornices of buildings and in the shades of the electric lights like the English Sparrow of the East, for which it is often taken by visitors from the portions of the United States blessed by the English importation. Rare far out on the plains, but a flock of 15 was seen in Finney County, in southwestern Kansas, January 5, 1892. Breeds on the plains and especially in the lower foothills. Less commonly in the mountains to 8,000 feet. The most eastern record of breeding anywhere is that of Capt. P. M. Thorne, who took a pair at Fort Lyon June 3, 1883. The female contained an egg with shell. He also saw one other in the fall. The height of the breeding season along the foothills is the middle of June and two broods are often reared. Eggs have been noted at Fort Collins as early as March 25 and as late as the middle of July. The most northern record noted is that of F. Bond at Cheyenne, where the first came April 14 and the nest and eggs were taken June 11, 1889. (Auk, VI. 1889, 341.)

521a. ***Loxia curvirostra stricklandi***. MEXICAN CROSSBILL.

Resident; not uncommon. Under this heading are included all the Red Crossbills of Colorado, not because specimens exactly like eastern birds are not found here, but because there seems to be no satisfactory way of separating them from the western form. Occurs on the plains and the lower foothills during the winter, and breeds in the foothills and the lower mountains to about 8,000 feet. The above may be considered as the usual range, but specimens have been taken in winter at Manhattan at an altitude of 9,000 feet, and the birds have been seen in summer up to at least 11,000 feet. The breeding period is apparently quite irregular. The Red Crossbill of the east breeds in winter, and the western form must do the same at least part of the time, for C. F. Morrison found a nest and four eggs January 30, 1887, near Fort Lewis (O. & O. XIII. 1888, 70), while W. E. D. Scott at Twin Lakes found young flying June 24 that were several months old. On the contrary T. M. Trippe speaks of their breeding as late as May.

522. ***Loxia leucoptera***. WHITE-WINGED CROSSBILL.

Winter visitant; rare. Only one record, that of F. M. Drew, who took one in Baker's Park, in southwestern Colorado, at 9,500 feet. (B. N. O. C. VI. 1881, 85 and 138.)

524. ***Leucosticte tephrocotis***. GRAY-CROWNED LEUCOSTICTE.

Winter resident; rare. A western species breeding in the Sierra Nevada of California and probably in British America. Comes south and east in winter to Colorado, and has been taken along the eastern slope of the Rocky Mountains. To the speci-

mens already recorded may be added two taken at Fort Collins March 31. Most of the earlier records of this species really refer to *L. australis*.

524a. **Leucosticte tephrocotis littoralis.** HEPBURN'S LEUCOSTICTE.

Winter visitant; rare. Summers in British America and comes south and east in the Rocky Mountains to Colorado. There was a specimen in the Maxwell Collection; F. M. Drew gives it as occurring in the winter from 5,000 to 8,000 feet, while C. F. Morrison says that it is a winter visitant, rare on the eastern slope and common on the western. He says he has seen it both in the spring and in the fall. There is much need of more information on the occurrence in Colorado of this variety and the typical species.

525. **Leucosticte atrata.** BLACK LEUCOSTICTE.

Winter visitant; rare. Was originally described by Ridgway (Am. Sportsman IV. 1874, 24) from four specimens taken by C. E. Aiken at Cañon City in April, 1874. The present writer has seen a mounted specimen in Colorado Springs and there is one in the Maxwell Collection. All references to the birds in Colorado apparently refer to one or the other of these instances.

526. **Leucosticte australis.** BROWN-CAPPED LEUCOSTICTE.

Resident; abundant. Ranges the highest in summer of any bird in Colorado, unless it is the White-tailed Ptarmigan. Never seen below timber-line in summer and not known to nest below 12,000 feet; thence to the tops of the highest peaks. The height of the breeding season is the latter part of July. In August young and old swarm over the summits of the peaks picking insects off the snow. By the last of October or early in November, they descend to timber-line and remain there through the winter except as they are driven a little lower by the severest storms. At the same time a few come into the lower valleys almost to the base of the foothills.

528. **Acanthis linaria.** REDPOLL.

Winter resident; common. Arrives from the north in November and is fairly common on the plains and in the mountains to 10,000. Remains high in the mountains even when the temperature is thirty degrees below zero. More especially common in the lower foothills of the northern half of the State. Leaves for the north from the middle of March to the middle of April.

529. **Spinus tristis.** AMERICAN GOLDFINCH.

Resident; not common in winter and apparently then confined to the plains; abundant in migration; rather common

breeding on the plains and in the lower portions of the mountains. It seems to be most common during the summer on the plains and in the lower valleys. Although it enters the mountain parks and reaches 9,000-10,000 feet, it is not common above 7,000 feet. The great bulk move north and south in May and September, but their movements are quite irregular.

530. **Spinus psaltria.** ARKANSAS GOLDFINCH.

Summer resident; common. Comes as far north as the northern boundary of Colorado and breeds throughout its range in the State, on the plains and in the mountains to somewhat over 9,000 feet. It is the latest migrant, scarcely reaching northern Colorado before the middle of June. Breeds from the last of June to the middle of July. Nash found young at Pueblo just leaving the nest September 18, 1879. Migrates southward late in October and the first part of November. Is found rather less than a hundred miles east of the mountains out on the plains. Seems to be most common in central Colorado.

530a. **Spinus psaltria arizonæ.** ARIZONA GOLDFINCH.

Summer resident; not common and either local or else has not been separated by observers from typical *psaltria*. Brought into the fauna of Colorado by a specimen in the Maxwell Collection. In southwestern Colorado C. F. Morrison says that *psaltria* and *arizonæ* are about in even numbers and that after the young of *arizonæ* are out of the nest they go up into the mountains and appear again in abundance in October, stay a few weeks and retire south. A. W. Anthony writes that he has specimens from Pueblo and Colorado Springs taken in the breeding season. Prof. Wm. Osburn writes that he has two specimens he took at Loveland in the breeding season and that he also found them breeding at Golden. They can therefore be said to breed from the plains to 6,000 feet.

533. **Spinus pinus.** PINE SISKIN.

Resident; common. During migration this species is very abundant along the foothills. Retires to the mountains to breed, ranging in the summer from about 7,000 feet to timber-line. Occasionally a few nest at the base of the foothills. Some remain through the winter, but a little below timber-line, while the bulk are scattered over the lower valleys and throughout the plains.

000. **Passer domesticus.** EUROPEAN HOUSE SPARROW.

Resident; not yet abundant anywhere. This imported pest reached Colorado only a few years ago. W. P. Lowe noticed its arrival at Pueblo in February, 1895. (Nidologist, II.

1895, 90.) It had, however, been gradually approaching the mountains for several years previous. It reached Denver during the summer of 1896, and there are probably less than twenty pairs of these sparrows now (March, 1897) in that city, where in ten years from now there will be as many thousands. The Sparrow has reached the Rocky Mountains by following the lines of railroad westward. It is not rare in the towns along the Union Pacific and Burlington roads in northern Colorado, to within fifty miles of the mountains, and it is a question of but a few years before they will over-run all of the country east of the foothills. They have not increased very rapidly so far in the State. At Las Animas, on the Arkansas River, where they have been for about four years, there are probably not more than ten pairs in the town and none in the country outside the city limits. Their habits here are the same as in the east. It will be interesting to note the result of the rivalry in Colorado of this bird and the House Finch (*Carpodacus mexicanus frontalis*). This latter bird has for years occupied the place in Colorado that the English Sparrow does farther east. Over the eastern half of the United States, the English Sparrow has not had to contend with any species of habits similar to its own. In Colorado, at the base of the mountains, it meets its first real foe. Time will tell which will be victorious.

534. **Plectrophenax nivalis.** SNOWFLAKE.

Winter visitant; rare. Comes to the plains region of northeastern Colorado during the winter season, but never in large numbers and not regularly. Has been taken at Fort Collins, Loveland, Boulder and Denver. C. F. Morrison records one from La Plata County March 1. This is the only record from west of the range.

536. **Calcarius lapponicus.** LAPLAND LONGSPUR.

Winter resident; common. Enters Colorado from the north in October and remains through the winter. When it first arrives it passes up into the lower mountain parks, but in severe weather it is confined to the plains extending to southern Colorado. Breeds far north.

538. **Calcarius ornatus.** CHESTNUT-COLLARED LONGSPUR.

Summer resident, rare; winter resident, not common; in migration, common. Has been taken during the winter at Fort Collins, Loveland, Boulder, Pueblo, Fort Lyon, and Allen and Brewster saw a flock at Colorado Springs as late as May 9. No records from west of the range. Breeds regularly in Northern United States and British America. Given by Ridgway as breeding in Colorado, though the present writer can find no authority for the statement. Known to breed in Wyoming and Nebraska just over the Colorado line.

539. **Rhynchophanes mccownii.** McCOWN'S LONGSPUR.

Winter resident; common. One of the commonest winter birds on the whole plains region of Colorado east of the mountains. Found by Allen and Brewster at Colorado Springs as late as May 9. Reaches southern Colorado in the fall about the first of October. McCown's Longspur has been several times given as breeding in Colorado. This is very likely true, but the present writer has been unable to find a single authentic record of its occurrence in the State during the summer. Allen found it breeding abundantly at Cheyenne, Wyo., only a few miles north of Colorado.

540a. **Pooecetes gramineus confinis.** WESTERN VESPER SPARROW.

Summer resident; abundant. During migration one of the most abundant of birds on the plains and in the foothills. It breeds sparingly on the plains of eastern Colorado, more commonly on the plains nearer the foothills, and abundantly at the base of the mountains. It is still a common breeder to 9,000 feet, and occasionally to 12,000. Arrives in southern Colorado the middle of April, and reaches the mountain parks early in May.

542b. **Ammodramus sandwichensis alaudinus.** WESTERN SAVANNA SPARROW.

Summer resident; common. In migration it is very abundant and many remain to breed. On the plains they can hardly be called other than a migrant, but from the base of the foothills through the mountains it is not an uncommon breeder up to nearly 12,000 feet. Arrives early in April and remains until the middle of October. All the specimens taken by Capt. P. M. Thorne at Fort Lyon were typical *alaudinus*.

545. **Ammodramus bairdii.** BAIRD'S SPARROW.

Migratory; not common. Has been taken at various places along the eastern edge of the mountains and on the plains during spring and fall migration. The only record west of the Front Range is the one taken by Aiken in the San Luis Valley August 22, 1874. But since it is common in Arizona during the fall and winter, it undoubtedly crosses western Colorado during its migrations. Not known to breed in the State.

546a. **Ammodramus savannarum perpallidus.** WESTERN GRASSHOPPER SPARROW.

Summer resident; not uncommon, but seldom noticed. Breeds mostly on the plains or in the lower foothills. Arrives the middle of April.

552a. ***Chondestes grammacus strigatus***. WESTERN LARK SPARROW.

Summer resident; common. Breeds commonly over all the plains of eastern and western Colorado, and in the mountain parks less commonly to 10,000 feet. Arrives the last of April and breeds late in May.

553. ***Zonotrichia querula***. HARRIS'S SPARROW.

Migratory; rare. Only one record for the State. One taken by C. W. Beckham at Pueblo, October 29, 1886. (*Auk*, IV. 1887, 120.) In the *Auk*, XI. 1894, 182, the present writer recorded a specimen at Colorado Springs that he was assured had been taken in the vicinity. Further investigation has revealed the fact that the specimen was obtained in Texas.

554. ***Zonotrichia leucophrys***. WHITE-CROWNED SPARROW.

Summer resident; abundant. During migration one of the commonest birds. Arrives in April and spends two months in working up to timber-line. F. M. Drew has noted the queer fact of their changing location between the first and second brood. He says that they are common and breed during June in Baker's Park in San Juan County at about 8,000 feet; that most of them then leave the Park and are numerous among the stunted bushes above timber-line where they raise a second brood. In September they return to the park and linger until October. (*B. N. O. C.* VI. 1881, 138.) Breeds most abundantly from 10,000 to 11,000 feet and July is the height of the breeding season. Known to breed as high as 12,500 feet. The last of the migrants leaves the lower valleys about the first of June. On their return the last leaves the State in November.

554a. ***Zonotrichia leucophrys intermedia***. INTERMEDIATE SPARROW.

Migratory; common. Arrives from the last of March to the middle of April, and on its northward journey keeps near the level of the plains. It is abundant in the foothills and lower portions of western Colorado and is not uncommon east to the Kansas line. The bulk leave the State in April and the last about the middle of May. On their southward journey they are a little later than the White-crowned Sparrow. Breed north of the United States.

557. ***Zonotrichia coronata***. GOLDEN-CROWNED SPARROW.

Winter visitant; accidental. A Pacific Coast species, known once from Colorado. Prof. Wm. Osburn says that a small flock spent the winter of 1889 in the thickets along the Big Thompson. One was shot February 23. (*Science*, XXII. 1893, 212.)

558. **Zonotrichia albicollis.** WHITE-THROATED SPARROW.

Migratory; rare. The only records for Colorado of this eastern species are the one shot by C. W. Beckham at Pueblo, October 24, 1886 (Auk, IV. 1887, 120), and the one taken by H. G. Smith near Denver October 5, 1892. (Nidologist, III. 1896-7, 76.) Since it has been taken as a rare migrant on the Platte in Wyoming and is known to breed in northern Wyoming, it is probable that more pass through Colorado in migration than would be supposed from the meagreness of the record.

559a. **Spizella monticola ochracea.** WESTERN TREE SPARROW.

Winter resident; common. Spends the winter on the plains and in the lower parts of the mountains. Common to 7,000 feet and occasionally to 9,000. Arrives from the north about the middle of October and becomes common early in November. The bulk leave in April and the last by the first of May. The western form is found over all the plains to Kansas.

560. **Spizella socialis.** CHIPPING SPARROW.

Summer resident, rare; in migration, not uncommon. The typical Chippy of the east comes into Colorado as far as the foothills of the Rocky Mountains. There is no authentic record as high as 6,000 feet. The western variety, *arizonæ*, is the prevailing form at the base of the mountains and for several miles out on the plains. There is need of much more information as to the relative distribution of the two birds in eastern Colorado. Though not uncommon during migration, the typical form must be quite rare as a breeder. There is indeed no unquestionable record of its breeding in Colorado and it is entered above as a summer resident on the strength of its known breeding to the east and the north in Kansas and Nebraska. Arrives in northern Colorado the last of April.

560a. **Spizella socialis arizonæ.** WESTERN CHIPPING SPARROW.

Summer resident; abundant. Especially common along the foothills in migration. Allen and Brewster mention a flock of at least 1,000 birds seen May 13 at Colorado Springs. Not known to breed far out on the plains, but it breeds from the base of the foothills to nearly 10,000 feet. Breeds most commonly from 6,000 to 7,000 feet. Arrives the middle of April and most go into the foothills by the middle of May. Breeds the middle of June. Leaves the State the latter part of October. Six specimens taken by Capt. P. M. Thorne at Fort Lyon have been identified as this variety, but they are known there only during migration.

561. **Spizella pallida.** CLAY-COLORED SPARROW.

Summer resident; not uncommon. Appears not to be common anywhere in Colorado, but is scattered over all of the State east of the mountains. Breeds in north-central Colorado on the plains and at the base of the foothills, but the southern limit of its breeding range in the State has not been satisfactorily determined. V. L. Kellogg shot one in Estes Park August 10. (Trans. Kans. Acad. Science, XII. 1889-90, 86). This is the only record for the mountains and is probably a bird that had wandered upward after the breeding season. Arrives the last of April and leaves late in September.

562. **Spizella breweri.** BREWER'S SPARROW.

Summer resident; not uncommon. Arrives from the middle of April to the first of May. Most common in migration the first half of May. Rather more common in the southern half of the State. Breeds throughout its range from the plains to 8,000 feet. Principally a western species, but Capt. P. M. Thorne took it as far east as Fort Lyon.

566. **Junco aieni.** WHITE-WINGED JUNCO.

Winter resident; common. Winters on the plains and in the mountains to at least 8,000 feet. The commonest Snowbird in the mountains in the winter. According to C. E. Aiken, "the first stragglers from the north do not make their appearance till about the 5th of October, [this is on the plains of El Paso County. In the mountains they do not arrive until late in October or early November,] and then in gradually increasing numbers till the first of December, when they come in large flocks, the last to arrive being the old and fully plumaged males. While many of the females and young birds proceed farther to the south, the greater number of the adult males winter at some point farther to the north than El Paso County, as of the whole number seen during the winter only about two-fifths are males. Early in February the old birds begin to start northward, the general migration being delayed about a month." Has been taken in Colorado as late as April 11. Breeds in northern Wyoming.

567. **Junco hyemalis.** SLATE-COLORED JUNCO.

Winter resident; not common. The typical *hyemalis* comes west to the Rocky Mountains as a rather rare visitor. If it is ever common, it is during spring migration from the last of March to the middle of April; less common during fall migration in November; still less common during the winter season. Winters on the plains and in the foothills to 7,000 feet. During spring migration goes a 1,000 feet higher. Not

known to breed in the State, which is somewhat strange considering how far south it breeds in the mountains of eastern United States.

567b. **Junco hyemalis connectens.** SHUFELDT'S JUNCO.

Winter resident; abundant. Great numbers winter in southern Colorado, where F. M. Drew says that they appear first at timber line in September; later, stragglers come down and mix with *caniceps* and by October have taken full possession. When severe winter weather begins they pass lower down. (B. N. O. C. VI. 1881, 138.) They remain in numbers throughout the winter as far north as central Colorado, and are not an uncommon winter resident nearly to the northern boundary. Very common in migration during November and April. Extend eastward to Kansas.

568. **Junco mearnsi.** PINK-SIDED JUNCO.

Winter resident; common. In middle Colorado, during the winter, one of the most common Juncos, especially on the plains at the base of the foothills. Arrives rather late in the fall, and is most numerous during the spring migration. At this latter season it is principally a bird of the mountains from 6,000 to 10,000 feet. The period of greatest numbers is about the first of April. The last of the migrating Juncos to leave, remaining until the last of April. Aiken once saw females in El Paso County as late as May 4. Extends east on the plains as far as Fort Lyon, where it has been taken by Capt. P. M. Thorne.

568. I. **Junco annectens.** RIDGWAY'S JUNCO.

Winter visitant; rare. One was taken by R. C. McGregor at Boulder November 25, 1892, associated with *mearnsi*, *caniceps*, *aikeni*, and *connectens*. (Auk, X. 1893, 205.)

569. **Junco caniceps.** GRAY-HEADED JUNCO.

Resident; abundant. The only Junco at present known to breed in Colorado. The bulk winter south of the State, but a few remain on the plains and the lowest valleys of the mountains from November to April. In southwestern Colorado F. M. Drew says that they are very abundant in summer from 7,500 to 12,000 feet, raising two and perhaps three broods. Large young out of the nest taken June 26, and nest with fresh eggs a month later; young birds September 25. The commonest summer bird, taking the place of the Chippy of the east. Leave the first of November just as *oregonus* [= *connectens*] becomes plentiful. (B. N. O. C. VI. 1881, 138.) Farther north, in Clear Creek County, where it does not winter, T. M. Trippe, in "Birds of the Northwest," says that it arrives the middle or

latter part of March, two or three weeks before the other varieties leave. Works upward as the snow leaves, and by the middle of June has left the region below 8,000 feet. Breeds abundantly from the upper limit of shrubs to 1,000 feet below timberline, and less commonly down to 8,500, and occasionally at 7,000 feet. In October descends to lower valleys and soon leaves the county. D. D. Stone found fresh eggs from June 8 to July 18 at 10,000 feet in Gunnison County. (O. & O. IX. 1884, 20.) Common on the plains during spring and fall migration, remaining in the spring usually to the first of May, and rarely as late as June 1. Capt. P. M. Thorne took it as far east as Fort Lyon.

570a. **Junco phænotus dorsalis.** RED-BACKED JUNCO.

Migratory; rare. The only record for Colorado is that of Chas. F. Morrison who says that they were abundant during the spring of 1887 at Fort Lewis in the extreme southwestern corner of Colorado. (O. & O. XV. 1890, 36.) This is the resident and abundant form just south of the Colorado line and it would be strange if some did not enter the State. It has been entered above as migratory according to the record, but if it occurs as anything more than an accidental visitant, it must breed.

573. **Amphispiza bilineata.** BLACK-THROATED SPARROW.

Summer resident; not uncommon, locally. A southern and western species barely reaching to Colorado and found only in the southwestern portion. Abundant a little south of Colorado in Arizona. The only record east of the range and probably accidental, is one taken by C. E. Aiken, July 26, 1872, in a mountain park near Cañon City.

574a. **Amphispiza belli nevadensis.** SAGE SPARROW.

Summer resident; abundant. Quite common on the sagebrush plains of western and southwestern Colorado. Comes east as far as San Luis Park, where Henshaw found it not uncommon up to 8,000 feet.

581. **Melospiza fasciata.** SONG SPARROW.

Migratory; rare. Among five Song Sparrows taken by Capt. P. M. Thorne at Fort Lyon, and now in the Field Columbian Museum at Chicago, is one typical *fasciata*, the other four being *montana*. *Fasciata* is the common form found throughout Kansas and Nebraska, and in view of the above record it is probable that a few migrate across the plains of the extreme eastern Colorado and may not unlikely breed in northeastern Colorado.

581b. **Melospiza fasciata montana.** MOUNTAIN SONG SPARROW.

Summer resident; common. It might be called resident, since a few breed on the plains and in mild winters a few remain all the year. Common throughout the State in migration and not uncommon as a breeder from the plains to 8,000 feet. Breeds more commonly at the upper limit of its range. Arrives late in March.

583. **Melospiza lincolni.** LINCOLN'S SPARROW.

Summer resident; common. An abundant species in migration both on the plains and in the mountains. Breeds in the mountains from 7,000 feet to timber-line and occasionally to the base of the foothills. Most common during the summer months at or near timber-line. Arrives last of April or early in May and by the last of May has left the plains for the north or gone up into the mountains. Breeds late in June and descends to the plains again the first half of October, leaving the State about the first of November.

585c. **Passerella iliaca schistacea.** SLATE-COLORED SPARROW.

Summer resident; rare. The status of this species as a Colorado bird is very unsatisfactory. Ridgway makes the unequivocal statement that it breeds in Colorado along "streams of the mountain parks." (Bull. Essex Inst. V. 1873, 183.) The basis for this statement cannot now be ascertained and it has not been confirmed by later observers. Indeed this is the only record the bird has for Colorado. It has been commonly supposed that the type specimen of this variety was taken in Colorado and this is so stated by Bendire in his Life Histories of North American Birds. The present writer is indebted to Prof. T. S. Palmer, of the Department of Agriculture at Washington, for the information that the specimen in question was taken by Lieut. Bryan's party July 19, 1859, in Nebraska, about 20 miles east of the Colorado line.

588. **Pipilo maculatus arcticus.** ARCTIC TOWHEE.

Winter resident; not uncommon. It is somewhat difficult to draw the line between *arcticus* and *megalonyx* in Colorado. According to the best light obtainable at the present time, those birds should be referred to *arcticus* that occur on the plains east of the mountains during fall, winter and spring as migrants from the north; and that all breeding birds should be referred to *megalonyx*. *Arcticus* arrives from the north early in October and remains until April. Occurs from middle Kansas to the eastern base of the Rocky Mountains.

588a. **Pipilo maculatus megalonyx.** SPURRED TOWHEE.

Summer resident; common. Arrives last of March to the middle of April and by the middle of May has reached its upper summer limit at 9,000 feet. Breeds from the base of the eastern foothills westward. Eggs are laid from the last of May through June. Goes south late in September. So far as known extends even in migration but a few miles out on the plains.

590. **Oreospiza chlorura.** GREEN-TAILED TOWHEE.

Summer resident; common. Occurs throughout all of western Colorado and common for a few miles out on the plains. Has been taken by Capt. P. M. Thorne as far east as Fort Lyon. Arrives the last of April and early part of May; ascends into the mountains to the limit of trees. Breeds in all its range but most commonly about 8,000 feet; nests in May and often raises two broods. Leaves the State in October.

591. **Pipilo fuscus mesoleucus.** CANON TOWHEE.

Resident; common, locally. All the records for the State come from the Arkansas Valley. It is a common resident in Pueblo County nesting in juniper and sometimes cactus bushes. Most common on the plains and lower foothills but occurs sparingly up to 10,000 feet. Breeds the latter part of April. The above statements are from the notes of Beckham, Lowe and Nash, who have made a special study of the birds of the Arkansas Valley. Occurs regularly and abundantly south and southwest of Colorado.

592. **Pipilo aberti.** ABERT'S TOWHEE.

Summer resident; rare. There is no record for Colorado but that of Henshaw, who says: "Though no specimens were secured, pretty good evidence of the presence of this species at the alkali lakes northwest of Fort Garland, Colo., was obtained by the discovery of a nest, about June 25, 1873, containing two eggs, which a careful comparison with specimens in the Smithsonian Institution satisfies me, must have belonged to this bird. It had evidently been deserted a short time before." (Henshaw, 1875, 306.) In New Mexico and Arizona this species is abundant.

593. **Cardinalis cardinalis.** CARDINAL.

Winter visitant; rare, if not accidental. A. W. Anthony writes that one was taken below Denver, December 5, 1883. It is a rare resident in western Kansas and common southward.

596. **Zamelodia melanocephala.** BLACK-HEADED GROSBEAK.

Summer resident; common. Occurs throughout the whole of Colorado from the plains to 8,000 feet, and breeds every-

where. Arrives about the middle of May and breeds about the first of June. Departs south in September. W. P. Lowe reports seeing several in the Wet Mountains at an altitude of 10,000 feet.

597a. **Guiraca cærulea eurhyncha.** WESTERN BLUE GROS-BEAK.

Summer resident; not uncommon, locally. A southern species, known from South Dakota, southwesterly across southeastern Colorado to southern Utah. All the records for Colorado come from the Arkansas Valley, where it is reported by Aiken, Lowe and Beckham as not uncommon and breeding at Pueblo. Capt. P. M. Thorne also saw two at Fort Lyon. Arrives late in May.

598. **Passerina cyanea.** INDIGO BUNTING.

Summer visitant; rare, if not accidental. An eastern species, coming regularly only to eastern Kansas. Taken twice in Colorado; once by C. E. Aiken in El Paso County, while the other specimen is in the Maxwell Collection, without any record as to when or where it was taken.

599. **Passerina amœna.** LAZULI BUNTING.

Summer resident; abundant. From the plains to the lower foothills, an abundant and characteristic species, breeding everywhere. A few breed at 7,000 feet and occasionally wander a thousand feet higher. Taken by Capt. P. M. Thorne at Fort Lyon and breeds east to western Kansas. Arrives early in May and breeds about the middle of June. One was taken by Prof. C. P. Gillette July 7, 1896, on Little Beaver Creek, Larimer County, at an altitude of 9,100 feet.

604. **Spiza americana.** DICKCISSEL.

Summer resident; rare. Occurs only on the plains and at the foothills east of the Rocky Mountains. A few pairs spend the summer each year on the plains near Fort Collins and they have been noted at various places from there to Fort Lyon where Capt. P. M. Thorne saw six June 22, 1884. In five years residence there, these were the only ones seen. Farther east in Kansas it becomes one of the commonest birds.

605. **Calamospiza melanocorys.** LARK BUNTING.

Summer resident; abundant. The most common summer bird on the plains. Locally known as the "Bobolink." Much more common east than west of the mountains. Breeds on the plains and in the foothills to about the limit of cultivated fields at 8,000 feet. Becomes rapidly less numerous after passing the lowest foothills. Arrives the first week in May spreading over

all the plains region in a few days. The females arrive about a week later than the males. Begins to migrate south late in August and disappears the latter part of September.

607. ***Piranga ludoviciana***. LOUISIANA Tanager.

Summer resident; common. In migration occurs on the plains for 50 to 75 miles east of the foothills. It is common at Pueblo, but 80 miles east of there at Fort Lyon, Capt. P. M. Thorne did not see one in five years' residence. It was taken however at Finney County, southwest Kansas as a rare straggler, May 20 and June 1, 1893. During the breeding season it deserts the plains and is common at 10,000 feet. Few breed below 7,500 but some as low as 6,000 feet. Arrives on the plains the middle of May and moves into the mountains early in June. Breeds the last of June and remains in the mountains until September. The last leave the State late in October.

[608. ***Piranga erythromelas***. SCARLET Tanager.

A male was taken by Mr. Bond at Cheyenne, Wyo., May 28, 1889. (Auk, VI, 1889, 341.) The bird is common a little farther east, but has no Colorado record. This individual may have crossed Colorado to reach Cheyenne, which is just over the Colorado line, or it may have passed westward up the Platte].

610a. ***Piranga rubra cooperi***. COOPER'S Tanager.

Summer visitant; rare or accidental. A southern species common in New Mexico and Arizona, but scarcely coming north to Colorado. Only one specimen known, taken by Henshaw at Denver, May 10, 1873. (Henshaw, 1875, 239.)

611. ***Progne subis***. PURPLE MARTIN.

Summer resident; not common and local. Appears to be almost entirely lacking along the eastern slope of the Rocky Mountains and the plains at their base. As common in Utah as in the east and not uncommon in the extreme western part of Colorado. Again to the eastward, it is common in Kansas and extends a little way across the border into Colorado. In eastern Colorado, it arrives the last week of April and remains to breed on the plains. In western Colorado it arrives about the same time, but goes into the mountains for the summer, breeding from 6,000 to 8,000 feet; farther west in Utah it breeds both in towns on the plains and in the mountains.

612. ***Petrochelidon lunifrons***. CLIFF SWALLOW.

Summer resident; abundant. Breeds everywhere from the plains to 10,000 feet, nesting both on cliffs and under eaves. Arrives the last of April and first half of May. Breeds late in June. There is so long a time between its arrival and the beginning of nest building that breeding occurs at about the same time on the plains and in the mountains over the whole of Colorado.

613. **Chelidon erythrogastra.** BARN SWALLOW.

Summer resident; common. Breeds on the plains and in the mountains to 10,000 feet, but nowhere in such numbers as *lunifrons* or *thalassina*. Arrives the last of April. Breeds in June and often raises two broods. H. G. Smith says that the same pair returned to his place in Denver to breed for fifteen consecutive years.

614. **Tachycineta bicolor.** TREE SWALLOW.

Summer resident; not uncommon, but rare for a Swallow. Breeds occasionally on the plains and more frequently in the mountains to 10,000 feet. Arrives in April and breeds from the last of May to the last of June. Departs in September.

615. **Tachycineta thalassina.** VIOLET-GREEN SWALLOW.

Summer resident; abundant, locally. Throughout western Colorado and east to the edge of the plains. A few breed on the plains, but more commonly from 6,000 to 10,500 feet. Arrives from the first week in May on the plains to the last of the month in the mountains. Begins laying late in June to the first of July. Deserts the higher regions in August and the lower early in September.

616. **Clivicola riparia.** BANK SWALLOW.

Summer resident; rare. The rarest Swallow in Colorado. Arrives the last of April and breeds on the plains and at the base of the foothills.

617. **Stelgidopteryx serripennis.** ROUGH-WINGED SWALLOW.

Summer resident; not uncommon. Much more common than the Bank Swallow. Breeds near streams on the plains and in the lower portions of the mountains below 7,500 feet. Arrives early in May.

618. **Ampelis garrulus.** BOHEMIAN WAXWING.

Winter resident; not uncommon. Irregular in its movements and numbers. Has been noted at one time or another from most of the State; rather rare on the plains and more common in the mountains to at least 8,000 feet. Breeds north of the United States and reaches southern Colorado in November; remaining through the winter. The bulk leave late in February or early March. Has been taken at Denver by H. G. Smith as late as March 22, 1884.

619. **Ampelis cedrorum.** CEDAR WAXWING.

Resident; not common; local and irregular. Scattered over the lower portions of the State during the fall, winter and spring. Breeds on the plains and in the mountains to about 9,000 feet. Breeds about the middle of June.

621. *Lanius borealis*. NORTHERN SHRIKE.

Winter resident; common. Breeds north of the United States and comes south to Colorado in October. Makes its first appearance high up on the mountains above timber-line and later descends to the plains. Quite common at the western edge of the plains where food, in the shape of Shore Larks, is abundant. Also winters less commonly in the mountain parks to 9,500 feet. Departs northward in March.

622a. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE.

Summer resident; common. Arrives from the south soon after the Northern Shrike leaves, early in April, and is quite common through the summer on the plains. Less common in the mountains to about 9,500 feet. On the plains breeds late in May and sometimes raises two broods.

624. *Vireo olivaceus*. RED-EYED VIREO.

Summer resident; rare. An eastern species coming only west to the base of the foothills. Allen took it in the mountains at 11,000 feet, but this must be considered as an accidental occurrence. Arrives late in May and leaves in September. Capt. P. M. Thorne took it at three different times at Fort Lyon, where he marks it as tolerably common. Prof. Wm. Osburn saw but one at Loveland in several years of active collecting. There are both male and female in the Maxwell Collection.

627. *Vireo gilvus*. WARBLING VIREO.

Summer resident; common. The most common Vireo in Colorado. Arrives on the plains the first week in May and at its upper range in the mountains by the last of the month. Breeds sparingly on the plains and abundantly in the mountains; almost as common at 10,000 feet in summer as lower down. Breeds about the first of July.

629a. *Vireo solitarius cassinii*. CASSIN'S VIREO.

Rare or accidental summer visitant; not known to breed. A southwestern species not regularly reaching north to Colorado. There was a specimen in the Maxwell Collection that may or may not have been taken in this State. Mr. H. G. Smith took one near Denver May 13, 1888, and the specimen was identified by Ridgway. (Nidologist, III. 1896-7, 76.)

629b. *Vireo solitarius plumbeus*. PLUMBEOUS VIREO.

Summer resident; common. Extends east at least to the base of the mountains and a few miles out on the plains. Arrives early in May. Breeds in the foothills and among the mountains to rather over 9,000 feet. Nests among the pines, but in migration occurs everywhere.

636. **Mniotilta varia.** BLACK AND WHITE WARBLER.

Summer visitant; rare. An eastern species scarcely coming west of central Kansas. Has been taken twice, once by Minot at Boulder, June 1, 1880 (B. C. N. O. V. 1880, 223), and Geo. F. Breninger writes that he took one at Table Rock, on the Divide between Denver and Colorado Springs. Not known to breed in Colorado, though breeding in corresponding latitudes in Kansas.

644. **Helminthophila virginiaæ.** VIRGINIA'S WARBLER.

Summer resident; common. Most common at the limit of its eastern extension at the base of the foothills and though so common there it is not known a few miles out on the plains at Pueblo. This is one of the few exceptions to the rule that any western species found in the foothills follows down the Arkansas at least as far as Pueblo. Through western Colorado it is abundant in migration and in many places is the most common Warbler during the breeding season. Breeds very commonly along the eastern slope of the Rocky Mountains from the foothills to 7,500 feet. Arrives the first week in May and breeds about the middle of June. Leaves the State late in September.

646. **Helminthophila celata.** ORANGE-CROWNED WARBLER.

Summer resident; not uncommon. Quite common in migration, extending over the plains and a little ways into the mountains. Over the former it is known only as a migrant; in the latter it breeds from about 6,000 to 9,000 feet, but is rare above 8,000 feet. Arrives the first week in May and leaves late in September or early October.

646a. **Helminthophila celata** {**lutescens.** LUTESCENT WARBLER.

Summer resident; not uncommon. The western form of the Orange-crowned Warbler, coming east as far as the eastern base of the Rocky Mountains at Denver and at Colorado Springs. Movements and habits so far as known the same as the Orange-crowned Warbler. There is no doubt that the two forms occur in Colorado, and that in general one inhabits eastern Colorado and the other western, but whether their habitats meet or overlap, and their relative distribution in the mountains during the breeding season, are points that need further elucidation.

647. **Helminthophila peregrina.** TENNESSEE WARBLER.

Migratory; rare. Only known from eastern Colorado at the base of the Rocky Mountains, where it has been taken in El Paso County by Aiken, at Boulder by Minot, at Loveland by

Osburn and Smith, and there are both male and female in the Maxwell Collection. Passes through Colorado the latter half of May.

648. **Compothlypis americana.** PARULA WARBLER.

Summer resident; rare. An eastern species coming scarcely west to the foothills of the Rocky Mountains. Has never been taken in the northern part of Colorado, but from Colorado Springs south and southeast a few occur each summer. Arrives early in May.

652. **Dendroica æstiva.** YELLOW WARBLER.

Summer resident; abundant. The commonest Warbler that breeds on the plains. Arrives the first week in May and breeds both on the plains and in the mountains to 8,000 feet, though rather more common at the lower altitudes.

652a. **Dendroica æstiva sonorana.** SONORA YELLOW WARBLER.

Summer resident; probably common. To the southwestward the eastern form of the Yellow Warbler shades into the Sonora variety. It is not yet known with definiteness, where the dividing line should be drawn. In his original description of *sonorana*, Mr. Brewster says that a Colorado specimen is a fair intermediate between *sonorana* and *morcomi*. (Auk, V. 1888, 139.) A specimen taken by Capt. P. M. Thorne at Fort Lyon, Mr. Brewster marks as not typical but nearest *sonorana*. If this view is finally adopted, it will probably include under *sonorana* many of the Yellow Warblers of southern and especially southwestern Colorado.

654. **Dendroica cærulescens.** BLACK-THROATED BLUE WARBLER.

Migratory; rare. The only Colorado record is that of a specimen taken in the vicinity of Denver by Mr. H. G. Smith, May 24, 1888. (Nidologist, III. 1896-7, 76.) In the Auk, XI. 1894, 182, the present writer recorded a specimen at Colorado Springs that he was assured had been shot in that vicinity. Further investigation has shown that the bird came from without the State.

655. **Dendroica coronata.** MYRTLE WARBLER.

Migratory; not uncommon. Arrives the last of April or early in May and is not uncommon for two or three weeks along the base of the foothills and on the plains. Migrates from ten days to two weeks ahead of *auduboni*, but in May the two species are often found together. A few go into the foothills to 9,000 feet. Scarcely known west of the Rocky Mountains. The last leave

by the middle of May. Breeds from the northern United States northward. Much less common during fall migration.

656. ***Dendroica auduboni***. AUDUBON'S WARBLER.

Summer resident; abundant. During the summer this is the most common Warbler among the higher mountains. Arrives on the plains early in May and in migration is very common at the western edge of the plains and less and less common eastward to western Kansas. Is known on the plains only as a migrant. Extends into the mountains the middle of May and by the last of the month has reached the upper limit of its range. Breeds from 7,500 to 11,000 feet and is most common above 9,000 feet. Laying begins from the last of May in southwestern Colorado to the middle of June in the north-central part of the State. The last leaves the plains for the mountains the last week in May. Begins to return in August; during September is common in the lower parks and appears on the plains. Leaves the State in October.

657. ***Dendroica maculosa***. MAGNOLIA WARBLER.

Migratory; rare. In migration extends westward to the western edge of the plains, where one was taken by Henshaw at Denver May 17, 1873. Capt. P. M. Thorne has also taken one at Fort Lyon May 17, 1884. Breeds in the northern United States and northward.

658. ***Dendroica rara***. CERULEAN WARBLER.

Migratory; rare. The only Colorado record is the one seen by Henshaw at Denver May 17, 1873. An eastern species common in Kansas during migration and rarely breeding in that State.

[659. ***Dendroica pensylvanica***. CHESTNUT-SIDED WARBLER.

One was taken by Mr. Bond at Cheyenne, Wyo., May 23, 1889. (Auk, VI. 1889, 341.) This is only just over the line from Colorado, and the bird, which is a common species a little farther east, may have crossed Colorado or may have passed westward up the Platte River.]

661. ***Dendroica striata***. BLACK-POLL WARBLER.

Summer resident; rare. An eastern species coming rarely but regularly west to the Rocky Mountains. Occasionally common in migration, both on the plains and at the base of the foothills. The only record of breeding in Colorado, and the most southern in the United States, is that of H. D. Minot who found it as a summer resident at Seven Lakes, near Manitou, at an altitude of 11,000 feet. (B. N. O. C. V. 1880, 223.) Reaches Colorado about the middle of May.

664. ***Dendroica graciae***. GRACE'S WARBLER.

Summer resident; common in extreme southwestern Colorado. A southwestern species reaching its extreme northern

limit in southern Colorado. F. M. Drew says that it is common on the tributaries of the San Juan River, breeding in the pines from 6,000 to 7,000 feet. (B. N. O. C. VI. 1881, 85.) In La Plata County, Chas. F. Morrison found them not common and took eggs in May at 8,500 feet. A most surprising occurrence was the appearance of a small flock of these birds in the spring of 1889 at Loveland, where they were seen by Prof. Wm. Osburn and one secured April 25. At the request of the present writer, the specimen has been lately re-examined and there is no doubt of the identification.

665. *Dendroica nigrescens*. BLACK-THROATED GRAY WARBLER.

Summer resident; rare. A western species coming north to north central Colorado and east to the base of the foothills, but never common. Arrives early in May. Has been taken at Silverton, 9,500 feet, May 30, and at Idaho Springs, 7,800 feet, May 23. Its breeding range in the State has not been satisfactorily determined.

668. *Dendroica townsendi*. TOWNSEND'S WARBLER.

Summer resident; not uncommon. A western species coming east regularly to the base of the foothills and a few miles out on the plains. The most eastern record is that of Capt. P. M. Thorne at Fort Lyon, one only seen, May 26, 1883. Rare on the plains at any time and then only as a migrant, passing north the latter part of May and returning in September. In the mountains it is rather common during the fall migration from 7,500 to 10,000 feet. Rather rare in summer, breeding from 5,500 to 8,000 feet in western Colorado. No record of its breeding east of the Rocky Mountains.

674. *Seiurus aurocapillus*. OVEN-BIRD.

Summer visitant; rare or accidental. The only fully authentic record for Colorado is the single specimen taken by Dr. C. Wernigk at Denver in June, 1862. It will probably yet be found as a rare visitant to northeastern Colorado, since it is not uncommon a short distance from the State line.

675a. *Seiurus noveboracensis notabilis*. GRINNELL'S WATER-THRUSH.

Migratory; rare. Recorded from Denver, Boulder, Nederland, Loveland and Fort Lyon, i. e., from the plains to 8,000 feet. Passes through Colorado the latter part of May. Not known to breed.

680. *Geothlypis macgillivrayi*. MACGILLIVRAY'S WARBLER.

Summer resident; common. Arrives early in May and breeds from the base of the foothills to 9,000 feet. Laying begins

the latter part of June. Leaves the mountains in August and the State in September. One of the most common Warblers of western Colorado. Comes east commonly to the edge of the plains and rarely to Fort Lyon, where it was seen occasionally and taken by Capt. P. M. Thorne.

681a. **Geothlypis trichas occidentalis.** WESTERN YELLOW-THROAT.

Summer resident; common. Almost confined to the plains, where it is common in migration and not uncommon as a breeder. Is found on both sides of the range, but only in the lowest portions scarcely coming up to 6,000 feet; much less common in western Colorado than eastern. Arrives the first week in May, but sometimes reaches northern Colorado by the middle of April.

683. **Icteria virens.** YELLOW-BREASTED CHAT.

Summer visitant; accidental. The typical form from the east was found by Say in the Rocky Mountains at the headwaters of the Arkansas. (B. B. and R. Birds of N. Am.)

683a. **Icteria virens longicauda.** LONG-TAILED CHAT.

Summer resident; common. Scarcely found in the mountains, but common in the lower foothills and on the plains. Does not breed above 6,500 and is never seen above 8,000 feet. Found throughout the State, but most common at the western edge of the plains. Arrives the first week in May and laying begins the first week in June.

685. **Sylvania pusilla.** WILSON'S WARBLER.

Summer resident; abundant. In migration is common or abundant throughout the State, in about equal numbers on the plains and in the mountains. Arrives on the plains about the middle of May and is common for ten days to two weeks. By June 1 has left the plains for the north or gone into the mountains. During the month of June, is moving up the mountains and by the end of June is at its summer home just above timberline where during July it is the most numerous insect-eating bird. Laying begins the last of June; young are able to fly by the latter part of July. The center of abundance during the breeding season is about 11,000 feet, but it has been known to breed from 6,000 to 12,000 feet. Is very common in the upper parks in August during its fall descent; reaches the lower parks in September; the plains in October and leaves the State late in this month.

685a. **Sylvania pusilla pileolata.** PILEOLATED WARBLER.

Migratory; rare. This is the western form, found regularly from the Great Basin to the Pacific. A specimen taken by

Geo. F. Breninger at Fort Collins May 22, and now in the museum of the Agricultural College is almost typical *pileolata*, much nearer that than *pusilla*. This is the only record for Colorado about which there is no doubt. Several other records probably refer to *pusilla*.

687. **Setophaga ruticilla.** AMERICAN REDSTART.

Summer resident; not uncommon in eastern Colorado; rather rare in western Colorado. In migration on the plains and in the foothills it is fairly common. Arrives about the middle of May. A few breed on the plains and it is not uncommon as a breeder in the mountains below 8,000 feet. Trippe saw a female in July at timber-line, but this is 3,000 feet above its normal range.

697. **Anthus pensilvanicus.** AMERICAN PIPIT.

Summer resident; common. In migration occurs throughout the State; breeds only on the summits of the mountains. Arrives on the plains the last of April and it is about a month later that the last have departed into the mountains. Through May it is in the higher mountain parks and by June has ascended above timber-line to its summer home. Laying begins early in July, as soon as the first grass has started. Most nests are made between 12,000 and 13,000 feet, the lowest known being one on Mount Audubon at 11,000 feet, found with fresh eggs July 3. Never goes below timber-line during the breeding season. In August many wander to the tops of the peaks at 14,000 feet. At this time they gather into flocks and remain high until late in the season. They descend into the upper parks the last of September and some remain above timber-line until October. During October they come back to the plains and leave the State in November.

701. **Cinclus mexicanus.** AMERICAN DIPPER.

Resident; common in suitable localities. Remains near open water all the year. In winter this brings it down to the foothills and larger mountain streams, usually between 6,000 and 9,000 feet, but it has been noted clear down to the plains. Common all winter in the Cañon of the Grand River as far down as Glenwood Springs at about 5,500 feet. Moves back into the mountains as soon as the streams thaw out in April and spends the summer from 8,000 feet to just below timber-line. No record of any nest being found lower than 8,000 feet, but the present writer saw several pairs on the Cache La Poudre the last of July, that, if they nested higher, must have descended very early. Laying begins the last of May and early in June. Remains high in the mountains as late as possible, until it is forced by the coldest weather to descend to the lower valleys.

D. D. Stone records the shooting of one at Hancock, October 16, at 10,000 feet. It was in open water in the ice on a lake. Snow had been on the ground for two weeks and it was snowing at the time. (O. & O. VII. 1882, 181.)

702. **Oroscoptes montanus.** SAGE THRASHER.

Summer resident; not uncommon. Comes east as far as the edge of the plains and is about in equal numbers along the eastern slope of the mountains and in western Colorado. Arrives early in April and breeds from the plains to nearly 10,000 feet. Leaves the State late in October.

703. **Mimus polyglottos.** MOCKINGBIRD.

Summer resident; not uncommon, locally. In southeastern Colorado, along the Arkansas from Pueblo eastward, as abundant as at any place in the south. Fairly common north to Colorado Springs and thence is not common and irregular over the rest of the State east of the mountains. According to Ridgway, C. E. Aiken was the first to record the mockingbird from Colorado (Bul. Essex Inst. V. 1873, 178) but this is an error, since it was found by Maj. Long's party, with nests and young at the Platte River near where Brighton now stands, July 4, 1823. H. G. Smith reports them as quite common in 1895 along Clear Creek near Denver and W. G. Smith says they used to breed on the Big Thompson near Loveland. F. M. Dille says that they used to breed abundantly in Greeley but left for isolated places because their young were so much sought. They breed regularly in the Republican Valley at the eastern end of Arapahoe County. During the summer of 1896, two pairs took up their residence on the grounds of the Agricultural College at Fort Collins where they had never before been seen. Four other pairs were noted in the neighboring foothills to about 6,000 feet. They have several times been seen at Cheyenne and Dr. Jesurn reports the capture of an adult male April 30, 1894, at Douglas, Wyo., 150 miles north of Cheyenne. Arrives in southern Colorado the latter part of April and breeds early in June. Breeds mostly on the plains, but occasionally in the foothills to 8,000 feet.

704. **Galeoscoptes carolinensis.** CATBIRD.

Summer resident; common. Breeds from the plains to about 8,000 feet. Arrives early in May and breeds the latter part of June. Shy, but fairly common on the plains and the eastern slope of the Rocky Mountains; rare in western Colorado. Nowhere in the State is it so common as in most parts of the Mississippi Valley. Returns from the mountains to the plains in August.

705. **Harporhynchus rufus.** BROWN THRASHER.

Summer resident; not uncommon. Almost confined to the plains and only east of the mountains, which it barely penetrates to 7,500 feet. Arrives about the middle of May and breeds throughout its range.

708. **Harporhynchus bendirei.** BENDIRE'S THRASHER.

Summer visitant; accidental. One shot by Brewster at Colorado Springs, May 8, 1882. The first and only record north of Arizona. (B. N. O. C. VIII. 1883, 57.)

715. **Salpinctes obsoletus.** ROCK WREN.

Summer resident; common. More particularly a bird of the foothills and mountains, but extending eastward over all the plains region to Kansas. Breeds on the plains, but more commonly in the mountains from 6,000 to 9,000 feet; much less commonly to 12,000 feet. Arrives on the plains the middle of April and laying begins the latter part of May. At the upper part of its range each of these dates is about a month later. Leaves the mountains in September and the State the latter part of October.

717a. **Catherpes mexicanus conspersus.** CAÑON WREN.

Resident; rare. There are but few records of this species in Colorado. It comes east to the eastern base of the Rocky Mountains and north as far as Boulder where A. W. Anthony saw several November 23, 1892. In the winter it has been noted by C. E. Aiken at Fountain and the present writer saw it the winter of 1895-6 in the Cañon of the Grand River near Glenwood Springs. Rather more common in the mountains of south-central Colorado where, according to W. P. Lowe, it breeds and is occasionally seen as high as 8,000 feet. The only nest recorded to date is the one with five fresh eggs found by H. D. Minot at Manitou June 8, 1880. (B. N. O. C. V. 1880, 223.)

719b. **Thryothorus bewickii leucogaster.** BAIRD'S WREN.

Summer resident; rare. Only four records for Colorado and all on the plains east of the mountains; known however from southern Utah and Arizona and hence will probably yet be found in the lowest portions of western Colorado. Capt. P. M. Thorne shot one at Fort Lyon, April 27, 1886. C. E. Beckham took one at Pueblo, H. G. Hoskins writes that he has seen several near Burlington and W. G. Smith took it at Loveland.

721b. **Troglodytes aëdon aztecus.** WESTERN HOUSE WREN.

Summer resident; common. Occurs in migration over all of Colorado below the pine region and though it breeds through-

out its range, yet in Colorado, it breeds much more commonly in the mountains than on the plains. Arrives on the plains the last of April and in the mountains the middle of May. Breeds from the plains to 10,000 feet. Raises two broods and often three. Laying begins the first of June and continues until late in July. Comes down from the mountains in September and soon after leaves the State.

722. **Troglodytes hiemalis.** WINTER WREN.

Resident; rare. Has been noted but a few times in Colorado. The honor of including it among the breeders of the State belongs to Prof. C. P. Gillette of Fort Collins who found several July 7, 1896, in the mountains thirty miles west of Fort Collins at an altitude of 8,000 feet. They were in company with *aztecus*. Though no nests were found, they were evidently breeding at the time. Later in the same season the present writer saw several birds along the Big Thompson in Estes Park at about 7,000 feet. One was taken in Denver October 13, 1891, by Mr. H. G. Smith. (Nidologist III. 1896-7, 76.)

725a. **Cistothorus palustris paludicola.** TULÉ WREN.

Summer resident; not uncommon, locally. Rather more common in southern Colorado than northern, and more common at the base of the foothills than farther east on the plains. Arrives usually the last of April, but Prof. Wm. Osburn writes that he took two unusually early migrants at Loveland in March, 1889. Laying begins about the middle of June. Breeds on the plains and up to 8,000 feet. Remains in the State until late in September. Mr. A. A. Bennett writes that he has seen them in Routt County in January. There are some hot water swamps, and the Wrens stay in them all winter.

726b. **Certhia familiaris montana.** ROCKY MOUNTAIN CREEPER.

Resident; common. In migration and during the winter occurs on the plains, where typical *montana* has been taken by Capt. P. M. Thorne as far east as Fort Lyon. At the same time it is also found at timber-line where it is resident all the year. The center of abundance during the winter is from 7,000 to 9,000 feet. During the breeding season it is confined to the immediate vicinity of timber-line and is there quite plentiful. Leaves the plains in April and breeds in June.

727. **Sitta carolinensis.** WHITE-BREASTED NUTHATCH.

Resident; not common. The A. O. U. Check List gives the geographical distribution of the typical form as "west to the Rocky Mountains," while *aculeata* is given as coming "east to the plains." Thus the two forms would intermingle in east-

ern Colorado. The only one who has formally noted both forms is V. L. Kellogg, who reports finding both in Estes Park during the summer. (Trans. Kans. Acad. Science, XII. 1889-90, 86.) A specimen taken at Fort Collins is a fair intermediate between the two forms. Not enough material has been collected to define its range in Colorado.

727a. **Sitta carolinensis aculeata.** SLENDER-BILLED NUTHATCH.

Resident; common. This is the common form in Colorado occurring throughout the State from the foothills westward. Winters at the edge of the plains and in the foothills, less commonly nearly to the pines. Breeds occasionally down to the plains, but commonly from about 7,500 feet to timber-line. Its upward movement occurs in April and it breeds the last of May and early in June. Returns to the lower regions in October.

728. **Sitta canadensis.** RED-BREASTED NUTHATCH.

Resident; not uncommon. Migratory on the plains and resident in the mountains to about 8,000 feet, occasionally to 10,000 feet. Less common than the Slender-billed or the Pygmy Nuthatches. Breeds in June.

730. **Sitta pygmæa.** PYGMY NUTHATCH.

Resident; abundant. Comes east only to the edge of the plains and occurs there only in the winter. Descends from the mountains in December and remains through until February. By the first of March all have returned to the mountains. At the same time they are fully as abundant in the mountains, braving the severest cold to at least 8,000 feet. During the summer they are most common from 7,000 to 10,000 feet and a few breed as low as 6,000 feet. The great bulk scarcely make any migration, even vertical. Begins to pair in April and laying begins the latter part of May. Probably two broods are often reared.

733a. **Parus inornatus griseus.** GRAY TITMOUSE.

Resident; not common. Known only from southern Colorado, coming north to El Paso County and east to the eastern foothills. It has been taken from 5,000 to 9,000 feet and is known to breed, but its breeding range is not yet definitely determined. It seems probable that it winters in the foothills and breeds from 5,000 to 8,000 feet.

735a. **Parus atricapillus septentrionalis.** LONG-TAILED CHICKADEE.

Resident; not uncommon. Winters on the plains and in the foothills, occasionally up to 8,000 feet. Breeds in the

mountains from 7,000 to 10,000, rarely above 9,000 feet and rather uncommon breeding on the plains.

738. **Parus gambeli.** MOUNTAIN CHICKADEE.

Resident; abundant. The most common Titmouse in Colorado. Occasionally comes down to the plains in the fall and winters as far east as Pueblo. Resident in the mountains nearly to timber-line. Leaves the lowlands in April and nests from 8,000 feet to timber-line, ranging in the fall to the tops of the loftiest peaks. Breeds early in June.

744. **Psaltriparus plumbeus.** LEAD-COLORED BUSH-TIT.

Resident; not common. Western Colorado, coming east to the eastern foothills, wintering up to 6,500 and breeding from the plains to 7,800. The only records are those of C. E. Aiken and W. P. Lowe.

748. **Regulus satrapa.** GOLDEN-CROWNED KINGLET.

Summer resident; rare, breeding; rather common, in migration. Arrives late in April and is present on the plains but a few days; returning, leaves the last of September. Less common than the Ruby-crown and the few that remain to breed in Colorado, range higher than the bulk of the Ruby-crowns. In migration occurs through the State; breeds only near timber-line at about 11,000 feet. Breeds early in July.

749. **Regulus calendula.** RUBY-CROWNED KINGLET.

Summer resident; abundant, both in migration and breeding. Although very common during the breeding season near the timber-line, but few nests have ever been taken. The first one known to science was taken by J. H. Batty, near Buffalo Mountains June 21, 1873, and contained five young and one egg. During the same year, Henshaw found a nearly finished nest at Fort Garland June 11. W. E. D. Scott took the next nest with five eggs at Twin Lakes June 25, 1879, followed two years later by one with four young, taken by F. M. Drew in San Juan County July 5, 1881. D. D. Stone took a set of eggs in 1883, at Hancock, and saw young August 1, while J. A. Allen saw young on Mount Lincoln the last of July.

Arrives on the plains early in April, passes through the middle mountains during May, and reaches its breeding grounds the last of May and early in June. Only known as a migrant on the plains and in the foothills, the last leaving in the spring migration early in May. Returns to the plains early in October and leaves the State the last of that month. Breeds most commonly from 9,000 feet to timber-line, less commonly 2,000 feet lower. It is rather queer that it should seem to breed at a lower altitude in southern Colorado than in northern. Begins to descend early in September.

751. ***Polioptila cærulea***. BLUE-GRAY GNATCATCHER.

Summer resident; rare. Not known north of El Paso County nor west of the mountains. Breeds on the plains and in the foothills to 7,000 feet. H. W. Nash found a nest at Pueblo June 22, containing two young and a cowbird's egg. Lowe notes its arrival at the same place April 27, common May 10.

754. ***Myadestes townsendii***. TOWNSEND'S SOLITAIRE.

Resident; common. In the mountains is a permanent resident, winter as well as summer. Only visits the plains during the fall, winter and spring and then not so common as in the mountains and quite local. Leaves the plains about the first of May and returns about the middle of October, but stragglers are found at the base of the foothills, both later and earlier than these dates. Though not common except at the western edge of the plains, Capt. P. M. Thorne took four specimens at Fort Lyon and it is known as a rare fall and winter visitor in western Kansas. Through all the winter it can be found in the mountains from the lower valleys to about 10,000 feet; in summer it breeds from 8,000 to fully 12,000 feet. Pairs the last of April and first of May and laying lasts from the first week in June to the middle of July. Though so abundant and well known, it was not until 1876 that the first nest with eggs was taken. This was by W. L. Lamb in Summit County July, 1876, at 10,000 feet; eggs about ten days incubated. T. M. Trippe found a nest and four eggs at Howardsville July 9, 1880, D. D. Stone found two sets June 20 and one June 25, 1882, at Hancock, and Wm. G. Smith took fresh eggs on Buffalo Creek, Jefferson County, June 18, 1883. During the season of 1883 D. D. Stone took ten sets from June 6 to July 8 at Alpine Tunnel and Hancock. After this they could no longer be called "extremely rare."

756a. ***Turdus fuscescens salicicola***. WILLOW THRUSH.

Summer resident; not uncommon. Occurs throughout the lower parts of the State, during migration as far east as Kansas. Breeds in the foothills and parks to about 8,000 feet. Arrives early in May.

758a. ***Turdus ustulatus swainsonii***. OLIVE-BACKED THRUSH.

Summer resident, rare; in migration, common. The bulk pass through Colorado on the plains and in the mountains from the first week in May to the last of the month, and on the return arrive in September and leave the State in October. A few remain to breed from the plains to 10,500 feet, but most above 8,000 feet.

759. **Turdus aonalaschkæ.** DWARF HERMIT THRUSH.

Migratory; rare. The exact position of this bird in Colorado is not yet definitely settled. The prevailing form of Hermit Thrush is *auduboni*, but there is a mounted specimen of the typical Dwarf Thrush taken at Fort Collins the first day of October. H. G. Smith at Denver has taken one May 13, 1887, and one September 26, 1884, both identified by Ridgway, and a third that probably should be referred to this form was taken there October 5, 1892. These records make it sure that this form extends regularly during spring and fall migration as far east at least as the western edge of the plains. Concerning those sent to Mr. Ridgway, he says: "Not quite typical, being a little larger than the average, but are much too small for *auduboni* and altogether too gray and too slender-billed for *pallasii*." (Nidologist, III. 1896-7, 76.)

759a. **Turdus aonalaschkæ auduboni.** AUDUBON'S HERMIT THRUSH.

Summer resident; common. Sometimes called the Rocky Mountain Hermit Thrush because it is common and characteristic of that region. The most eastern record is that of Capt. P. M. Thorne and it is fairly common a few miles nearer the foothills during migration. Arrives the last of April and leaves the plains the last of May. Breeds in the mountains from 8,000 feet to timber-line and occasionally to the lower foothills. At the lower altitude in southern Colorado laying begins early in June and is continued on the mountains to the middle of July. Returns to the lower parts in September and leaves the State about the middle of October.

759b. **Turdus aonalaschkæ pallasii.** HERMIT THRUSH.

Migratory; rare. From the east the true Hermit Thrush comes only to the eastern edge of Colorado, thus just touching the range of *auduboni*. Two young-of-the-year were taken September 26, 1885, by Capt. P. M. Thorne at Fort Lyon, and identified for him by Mr. Brewster.

761. **Merula migratoria.** AMERICAN ROBIN.

Summer resident; not common. The robins of Colorado shade from nearly pure *migratoria* on the plains of eastern Colorado to typical *propinqua*. There is no definite dividing line between the two forms, and for two hundred miles east of the Rocky Mountains, birds are often found that are a fair intermediate between the two forms. Birds that can be reasonably assigned to the eastern form occur as far west as the base of the foothills, and V. L. Kellogg mentions taking Robins in Estes Park that were as bright as specimens from eastern Kansas. It

is a fair presumption that the Robins of Colorado as a whole are *propinqua*, and that a few of those on the plains east of the mountains should be referred to *migratoria*. It is not possible to make any distinction between the two forms as regards migration and breeding.

761a. **Merula migratoria propinqua.** WESTERN ROBIN.

Summer resident; abundant. The prevailing form of western Colorado, though specimens have been taken by Capt. P. M. Thorne at Fort Lyon, and it is known as a rare visitant to western Kansas. Much more common in the foothills and on the western edge of the plains than farther east. Arrives from the middle of March to the middle of April, according to the season, and sometimes a few winter in southern Colorado. Nesting begins the first of May and often two broods are reared, the latter early in July. Breeds on the plains and to 11,000 feet. The bulk leave the State late in November. In January, 1897, a few were seen at 8,000 feet among the pines of Boulder County.

765. **Saxicola œnanthe.** WHEATEAR.

Accidental. A European species, straggling to New England and once taken by Minot at Boulder, May 14, 1880. (B. N. O. C. V. 1880, 223.)

766. **Sialia sialis.** BLUEBIRD.

Summer resident; rare. The eastern form comes west to the base of the Rocky Mountains, thence westward its place being taken by *S. m. bairdi*. According to Capt. P. M. Thorne it nested at Fort Lyon the summer of 1866. Beckham took it at Pueblo, Aiken in El Paso County. There are both male and female in the Maxwell Collection, while Mr. Dennis Gale informs the present writer that he has several times taken it at Gold Hill fairly within the foothills of the Rockies. Arrives the last of April.

767a. **Sialia mexicana bairdi.** CHESTNUT-BACKED BLUEBIRD.

Summer resident; not common. Comes east as far as Pueblo, where it occurs in both spring and fall migration. Not uncommon along the base of the foothills and breeds from there up the mountains to 9,500 feet. Arrives the last of March and breeds about the middle of May.

768. **Sialia arctica.** MOUNTAIN BLUEBIRD.

Summer resident; abundant. The most common Bluebird of Colorado, far outnumbering both the other kinds. Common in migration as far east as Fort Lyon and even to Kansas. Arrives in February to the middle of March according to the

season and probably sometimes winters. By the last of March has spread throughout the mountains nearly to timber-line. Breeds on the plains as far east as Pueblo, more commonly at the foothills and abundantly from 7,000 feet to timber-line. Breeds on the plains the last of April and in the mountains during May. Sometimes raises two broods. In autumn wanders upward far above timber-line to at least 13,000 feet. Returns late to the foothills and the bulk leave in November and early December.

ADDENDA.

Some material that has accumulated while this publication was passing through the press necessitates some additions to the foregoing pages.

Page 3. The total species known in Colorado should be 363, of which 230 are breeders.

Page 11. Add *Phalacroptilus nuttalli nitidus* to species that breed on the plains.

Page 12. Add *Empidonax hammondi* to species that breed principally in the mountains.

Page 14. Add *Bubo virginianus arcticus*, *Coccyzus americanus* and *Dryobates pubescens* to the stragglers or doubtful species.

Page 16. SUMMARY.

Change Total species in Colorado to-----	363
Change Summer residents to -----	230
Change Breeding on plains, but not in mountains to--	35
Change Breeding principally in mountains to -----	21
Change Stragglers to-----	51

INDEX.

- Abert's Towhee 108.
aberti, *Pipilo* 13, 16, 45, 108.
acadica, *Nyctala* 8, 12, 45, 77.
Acanthis linaria 9, 44, 98.
Accipiter atricapillus 8, 12, 44, 47, 74.
 striatulus 10, 14, 16, 74.
 Cooperi 8, 10, 44, 74.
 velox 8, 10, 44, 74.
accipitrinus, *Asio* 8, 10, 45, 77.
Actitis macularia 10, 18, 42, 67.
aculeata, *Sitta carolinensis*, 9, 13, 42, 122.
acuta, *Dafila* 8, 11, 18, 42, 55.
Æchmophorus occidentalis 13, 14, 37, 47, 49.
Ægialitis meloda circumcincta 19.
 montana 10, 18, 42, 68.
 semipalmata 14, 48, 68.
 vocifera 10, 18, 42, 68.
æneus, *Quiscalus quiscula* 11, 15, 44, 95.
Æronautes melanoleucus 12, 19, 42, 86.
æstiva, *Dendroica* 11, 19, 42, 114.
affinis, *Aythya* 9, 18, 42, 56.
Agelaius gubernator californicus 94.
 phoeniceus 9, 11, 42, 94.
aikeni, *Junco* 9, 43, 104.
 Megascops asio 8, 12, 26, 47, 78.
Aiken's Screech Owl 78.
Aix sponsa 10, 42, 55.
Ajaja ajaja 13, 14, 15, 26, 34, 46, 59.
alaudinus, *Ammodramus sandwichensis* 13, 18, 42, 101.
alba, *Guara* 14, 37, 47, 59.
albeola, *Charitonetta* 9, 18, 42, 56.
albicollis, *Zonotrichia* 14, 15, 23, 46, 103.
alcyon, *Ceryle* 8, 10, 42, 82.
alexandri, *Trochilus* 13, 16, 44, 86.
Alpine Three-toed Woodpecker 83.
Ammodramus bairdii 14, 20, 43, 101.
 sandwichensis alaudinus 13, 18, 42, 101.
 savannarum perpallidus 12, 18, 44, 101.
American Avocet 64.
 Barn Owl 77.
 Bittern 60.
 Coot 63.
 Crossbill 36.
 Crow 26, 92.
 Dipper 35, 118.
 Eared Grebe 31, 49.
 Golden-eye 56.
 Goldfinch 98.
 Golden Plover 68.
 Goshawk 74.
 Herring Gull 50.
 Kinglet 32.
 Long-eared Owl 77.
 Magpie 89.
 Merganser 52.
 Osprey 77.
 Pipit 118.
 Raven 91.
 Redstart 118.
 Robin 125.
 Rough-legged Hawk 75.
 Scaup Duck 55.
 Scoter 57.
 Sparrow Hawk 76.
 White-fronted Goose 58.
 White Pelican 52.
 Woodcock 64.
americana, *Anas* 10, 18, 42, 54.
 Aythya 9, 18, 41, 55.
 Clangula clangula 14, 42, 56.
 Compsothlypis 13, 15, 43, 114.
 Fulica 10, 18, 43, 63.
 Grus 14, 18, 43, 62.
 Oidemia 10, 45, 57.
 Recurvirostra 10, 18, 43, 64.
 Spiza 109.
americanus, *Coccyzus* 47, 82, 128.
 Corvus 8, 11, 26, 43, 92.
 Merganser 8, 12, 43, 52.
Ampelis cedrorum 9, 11, 43, 111.
 garrulus 9, 43, 111.
Amphispiza belli nevadensis 13, 16, 44, 106.
 bilineata 13, 16, 44, 106.

- amœna*, *Passerina* 11, 19, 40, 109.
Anas americana 10, 18, 42, 54.
 boschas 8, 10, 13, 42, 53.
 carolinensis 9, 10, 18, 42, 54.
 cyanoptera 10, 15, 18, 42, 54.
 discors 10, 18, 41, 54.
 obscura 14, 15, 43, 53.
 strepera 10, 18, 42, 53.
anatum, *Falco peregrinus* 8, 10, 18, 42, 76.
annectens, *Junco* 9, 36, 47, 105.
Anser albifrons gambeli 14, 45, 58.
Anthus pensilvanicus 12, 18, 42, 118.
 spraguei 39.
antillarum, *Sterna* 52.
aonalaschkæ, *Turdus* 14, 16, 37, 47, 125.
Aphelocoma woodhousei 8, 13, 42, 90.
Aquila chrysaëtos 8, 12, 42, 75.
Archibuteo ferrugineus 8, 10, 29, 44, 75.
 lagopus sancti-johannis 9, 44, 75.
Arctic Horned Owl 80.
 Tern 3, 51.
 Towhee 107.
arctica, *Sialia* 9, 11, 18, 41, 126.
arcticus, *Bubo virginianus* 47, 80, 128.
 Pipilo maculatus 9, 43, 107.
Ardea candidissima 13, 32, 43, 61.
 herodias 10, 18, 42, 43, 61.
 rufescens 14, 47, 61.
Ardetta exilis 14, 27, 47, 61.
arenaria, *Calidris* 14, 27, 47, 61.
Arenaria interpres 14, 37, 47, 69.
arenicola, *Otocoris alpestris* 8, 11, 32, 41, 89.
Arizona Goldfinch 99.
arizonæ, *Spinus psaltria* 11, 45, 99.
 Spizella socialis 11, 19, 42, 103.
Arkansas Goldfinch 99.
 Kingbird 87.
Ash-throated Flycatcher 87.
Asio accipitrinus 8, 10, 45, 77.
 Megascops 8, 11, 48, 78.
 wilsonianus 8, 10, 41, 77.
ater, *Molothrus* 11, 42, 93.
atrata, *Leucosticte* 10, 35, 44, 98.
atricapillus, *Accipiter* 8, 12, 44, 47, 74.
atricilla, *Larus* 10, 14, 37, 47, 51.
auduboni, *Dendroica* 12, 18, 25, 42, 115.
 Turdus aonalaschkæ 12, 19, 42, 125.
Audubon's Hermit Thrush 125.
 Warbler 38, 115.
aura, *Cathartes* 10, 18, 42, 47, 73.
auratus, *Colaptes* 10, 15, 21, 41, 85.
auritus, *Colymbus* 13, 14, 48, 49.
aurocapillus, *Seiurus* 13, 15, 44, 116.
australis, *Leucosticte* 8, 12, 22, 42, 98.
Avocet, *American* 64.
Aythya affinis 9, 18, 42, 56.
 americana 9, 18, 41, 55.
 collaris 14, 42, 56.
 marila nearctica 10, 43, 55.
 vallisneria 9, 18, 42, 55.
aztecus, *Troglodytes ædon* 19, 21, 41, 120.
bairdii, *Ammodramus* 14, 20, 43, 101.
 Dryobates scalaris 8, 13, 15, 47, 83.
 Sialia mexicana 9, 12, 18, 42, 126.
 Tringa 14, 18, 43, 65.
Baird's Sandpiper 65.
 Sparrow 32, 101.
 Wren 120.
Bald Eagle 76.
Baldpate 54.
Baltimore Oriole 3, 95.
Band-tailed Pigeon 72.
Bank Swallow 111.
Barn Swallow 111.
Barrow's Golden-eye 3, 56.
Bartramia longicauda 11, 42, 67.
Bartramian Sandpiper 67.
Batchelder's Woodpecker 83.
Belted Kingfisher 82.
bendirei, *Harporhynchus* 14, 15, 25, 46, 120.
Bendire's Thrasher 4, 21, 25, 120.
bernicla, *Branta* 14, 15, 46, 59.
bewickii, *Thryothorus* 39.
Bicolored Blackbird 94.
bicolor, *Tachycineta* 13, 19, 42, 111.
bilineata, *Amphispiza* 13, 16, 44, 106.
Bittern, *American* 60.
 Least 61.
Black and White Warbler 113.
 -bellied Plover 68.
 -billed Cuckoo 82.
 -billed Magpie 29.
Blackbird, *Bicolored* 94.
 Brewer's 95.
 Red-winged 94.
 Rusty 95.
 Yellow-headed 93.
Black-chinned Hummingbird 86.
 -crowned Night Heron 61.
 Duck 53.
 -headed Grosbeak 23, 108.
 Leucosticte 98.
 -poll Warbler 115.
 -necked Stilt 64.
 Swift 3, 86.
 Tern 52.
 -throated Blue Warbler 114.
 Gray Warbler 116.
 Sparrow 106.
Bluebird 3, 34, 39, 126.
 Chestnut-backed 126.
 Mountain 126.
 Rocky Mountain 29.

- Blue Crow 21.
 Gray Gnatcatcher 124.
 -winged Teal 54.
 Bobolink 3, 93.
 Bob-white 69.
 Bohemian Waxwing 37, 111.
 Bonaparte's Gull 51.
 Bonasa umbellus umbelloides 8, 12, 42, 70.
 borealis, Contopus 12, 19, 42, 88.
 Cypseloides niger 13, 16, 30, 46, 86.
 Lanius 9, 43, 112.
 Numenius 68.
 boschas, Anas 8, 10, 13, 42, 53.
 Botaurus lentiginosus 10, 19, 42, 60.
 Brant 59.
 Branta bernicla 14, 15, 46, 59.
 canadensis 9, 12, 43, 58.
 hutchinsii 10, 42, 59.
 breweri, Spizella 11, 44, 104.
 Brewer's Blackbird 95.
 Sparrow 104.
 Broad-tailed Hummingbird 86.
 Bronzed Grackle 95.
 Brown-capped Leucosticte 98.
 Thrasher 120.
 Bubo virginianus arcticus 47, 80, 128.
 subarcticus 8, 10, 43, 79.
 saturatus 80.
 buccinator, Olor 14, 59, note.
 Bucephala islandica 25.
 Buffle-head 56.
 bullocki, Icterus 11, 19, 42, 95.
 Bullock's Oriole 95.
 Bunting, Indigo 109.
 Lark 29, 109.
 Lazuli 109.
 Burrowing Owl 81.
 Bush-Tit, Lead-colored 123.
 Buteo borealis calurus 8, 10, 29, 41, 75.
 harlani 10, 36, 46.
 kriderii 8, 11, 29, 46, 74.
 cooperi 36.
 lineatus elegans 14, 47, 75.
 swainsoni 8, 10, 29, 41, 75.
 Cabanis's Woodpecker 82.
 cærulea, Polioptila 13, 15, 33, 44, 124.
 cærulescens, Dendroica 14, 15, 37, 47, 114.
 cafer, Colaptes 8, 11, 21, 42, 85.
 Calamospiza melanocorys 12, 19, 42, 109.
 Calcarius lapponicus 9, 45, 100.
 ornatus 9, 11, 44, 100.
 calendula, Regulus 12, 23, 42, 123.
 Calidris arenaria 14, 27, 47, 66.
 California Cuckoo 82.
 Gull 50.
 Partridge 69.
 californianus, Geococcyx, 8, 13, 15, 27, 43, 81.
 californica, Callipepla 8, 11, 30, 46, 69.
 Agelaius gubernator 94.
 Colymbus nigricollis 10, 19, 43, 49.
 Larus 14, 48, 50.
 Callipepla californica 8, 11, 30, 46, 69.
 gambeli 8, 13, 16, 34, 46, 70.
 squamata 13, 14, 16, 22, 33, 47, 69.
 calurus, Buteo borealis 8, 10, 29, 41, 75.
 campestris, Pedicætes phasianellus 8, 11, 42, 71.
 Canada Goose 58.
 Jay 38.
 canadensis, Branta 9, 12, 43, 58.
 Grus 14, 46, 62.
 Sitta 9, 12, 45, 122.
 candidissima, Ardea 13, 32, 43, 61.
 caniceps, Junco 9, 12, 21, 25, 36, 38, 42, 105.
 Canon Towhee 108.
 Wren 120.
 Canvas-back 55.
 Cardinal 108.
 Cardinalis cardinalis 10, 15, 30, 46, 108.
 carolinensis, Anas 9, 10, 18, 42, 54.
 Conurus 8, 11, 28, 31, 45, 81.
 Galeoscoptes 11, 15, 19, 42, 119.
 Pandion haliaëtus 12, 18, 44, 77.
 Sitta 9, 12, 15, 33, 47, 121.
 Carolina Paroquet 31, 81.
 Porzana 10, 43, 63.
 carolinus, Melanerpes 13, 15, 44, 84.
 Scoleophagus 10, 15, 46, 95.
 Carpodacus cassini 8, 12, 37, 42, 96.
 frontalis 33.
 mexicanus frontalis 8, 11, 40, 96.
 purpureus 14, 15, 47, 96.
 cassini, Carpodacus 8, 12, 37, 42, 96.
 Vireo solitarius 15, 16, 45.
 Cassin's Kingbird 87.
 Purple Finch 37, 96.
 Vireo 112.
 Catbird 119.
 Cathartes aura 10, 18, 42, 47, 73.
 Catherpes mexicanus conspersus 9, 13, 16, 28, 35, 42, 120.
 Cedar Waxwing 111.
 cedrorum, Ampelis 9, 11, 43, 111.
 celata, Helminthophila 12, 15, 19, 43, 113.
 Centrocercus urophasianus 8, 10, 20, 41, 71.
 Ceophæus pileatus 8, 10, 30, 46.
 Certhia familiaris montana 9, 12, 121.
 Cerulean Warbler 115.
 Ceryle alcyon 8, 10, 42, 82.
 Chapparel Cock 25, 31.
 Charadrius dominicus 14, 44, 68.
 squatarola 45.

- Charitonetta albeola* 9, 18, 42, 56.
Chat, Long-tailed 117.
 Yellow-breasted 117.
Chelidon erythrogastra 11, 18, 42, 111.
Chen hyperborea 9, 14, 18, 45, 58.
 nivalis 14, 48, 58.
Chestnut-backed Bluebird 126.
 -collared Longspur 100.
 -sided Warbler 115.
Chickadee, Long-tailed 122.
 Mountain 123.
Chipping Sparrow 103.
chlorura, Oreospiza 19, 42, 108.
Chondestes grammacus strigatus 11,
 19, 42, 102.
Chordeiles virginianus henryi 11, 41,
 85.
chrysaëtos, Aquila 8, 12, 42, 75.
Cinclus mexicanus 9, 12, 23, 42, 118.
cinerascens, Myiarchus 11, 16, 43, 87.
Cinnamon Teal 28, 38, 54.
Circus hudsonius 8, 10, 41, 73.
Cistothorus palustris paludicola 9, 11,
 19, 43, 121.
capitalis, Perisoreus canadensis 8, 12,
 25, 41, 90.
Clangula clangula americana 14, 42, 56.
 hyemalis 29.
 islandica 8, 12, 45, 56.
Clarke's Crow 23, 31.
 Nutcracker 24, 31, 92.
Clay-colored Sparrow 104.
Cliff Swallow 110.
Clivicola riparia 11, 19, 43, 111.
clypeata, Spatula 10, 18, 42, 54.
Coccyzus americanus 47, 82, 128.
 occidentalis 10, 36, 45, 82.
 erythrophthalmus 13, 14, 15, 27, 47,
 82.
Coccythraustes vespertinus 43.
 montanus 9, 95.
Colaptes auratus 10, 15, 21, 41, 85.
 cafer 8, 11, 21, 42, 85.
collaris, Aythya 11, 42, 56.
Colinus virginianus 8, 11, 30, 33, 46,
 69.
Columba fasciata 13, 15, 33, 40, 72.
columbarius, Falco 9, 10, 44, 76.
columbiana, Nucifraga 8, 12, 42, 92.
 Olor 14, 45, 59.
Colymbus auritus 13, 14, 48, 49.
 holbœllii 13, 14, 30, 46, 49.
 nigricollis californicus 10, 19, 43,
 49.
Compsothlypis americana 13, 15, 43,
 114.
confinis, Pooecetes gramineus 11, 18, 42,
 101.
connectens, Junco hyemalis 9, 43, 105.
conspersus, Catherpes mexicanus 9, 13,
 16, 28, 35, 42, 120.
Contopus borealis 12, 19, 42, 88.
 pertinax 39.
 richardsonii 13, 19, 42, 88.
Conurus carolinensis 8, 11, 28, 31, 45,
 81.
cooperi, Accipiter 8, 10, 44, 74.
 Piranga rubra 14, 15, 16, 45.
Cooper's Hawk 74.
 Tanager 110.
Coot, American 63.
Cormorant 37.
 Double-crested 52.
coronata, Dendroica 14, 15, 19, 43, 114.
 Zonotrichia 10, 15, 16, 35, 47, 102.
Corvus americanus 8, 11, 26, 43, 92.
 corax sinuatus 8, 13, 40, 41, 91.
 cryptoleucus 8, 11, 43, 91.
Cowbird 93.
Crane, Little Brown 62.
 Sandhill 62.
 Whooping 62.
Creeper, Rocky Mountain 121.
Cróssbill, Mexican 97.
 Red 26, 32.
 White-winged 97.
Crow, American 92.
 Blue 21.
Cuckoo, California 82.
 Black-billed 82.
 Yellow-billed 82.
cucullatus, Lophodytes 8, 12, 43, 53.
Curlew, Eskimo 68.
 Hudsonian 67.
 Long-billed 67.
cryptoleucus, Corvus 8, 11, 43, 91.
cyania, Passerina 13, 15, 44, 109.
Cyanocephalus cyanocephalus 8, 12, 21,
 43, 93.
 Scolecophagus 9, 11, 18, 42, 95.
Cyanocitta stelleri macrolopha 8, 12,
 42, 90.
cyanoptera, Anas 10, 15, 18, 42, 54.
Cypseloides niger borealis 13, 16, 30,
 46, 86.
Dafila acuta 8, 11, 18, 42, 55.
deglandi, Oidemia 10, 27, 47, 57.
delawarensis, Larus 9, 10, 18, 53, 57.
Dendragapus obscurus 8, 12, 40, 70.
Dendroica æstiva 11, 19, 42, 114.
 sonorana 13, 26, 48, 114.
 auduboni 12, 18, 25, 42, 115.
 cærulescens 14, 15, 37, 47, 114.
 coronata 14, 15, 19, 114.
 graciæ 13, 16, 30, 46, 115.
 maculosa 14, 15, 45, 115.
 nigrescens 13, 16, 19, 43, 116.
 pennsylvanica 115.
 rara 14, 15, 45, 115.
 striata 12, 15, 19, 45, 115.
 townsendi 12, 16, 45, 116.

- Desert Horned Lark 89.
 Dickcissel 109.
difficilis, *Empidonax* 11, 44, 88.
dilophus, *Phalacrocorax* 13, 45, 52.
 Dipper, American 118.
discors, *Anas* 10, 18, 41, 54.
Dolichonyx oryzivorus 13, 15, 44, 93.
domesticus, *Passer* 9, 11, 47, 99.
dominicus, *Charadrius* 14, 44, 68.
dorsalis, *Junco phæonotus* 13, 16, 34, 46, 106.
Picoides americanus 8, 12, 42, 83.
 Double-crested Cormorant 52.
 Dove, Mourning 73.
 White-winged 4, 73.
 Dowitcher, Long-billed 65.
 Downy Woodpecker 82.
Dryobates pubescens 23, 47, 82.
 homorus 8, 10, 23, 43, 83.
 oreocæus 23.
 scalaris bairdi 8, 13, 15, 47, 83.
 villosus hyloscopus 8, 10, 41, 82.
 Duck, American Scaup 55.
 Black 53.
 Harlequin 3, 57.
 Hawk, 76.
 Lesser Scaup 56.
 Ring-necked 56.
 Ruddy, 38, 57.
 Surf 4.
 Wood 55.
 Dusky Horned Owl 80.
 Grouse 70.
 Dwarf Hermit Thrush 3, 125.
Dytes nigricollis californicus 31.
 Eagle, Bald 76.
 Golden 75.
 Eared Grebe 31, 38.
 Eastern Bluebird 34, 39.
 Egret, Little White 32.
 Reddish 61.
Elanoides forficatus 14, 15, 47, 73.
elegans, *Buteo lineatus* 14, 47, 75.
Empidonax difficilis 11, 44, 88.
 hammondi 44, 89, 128.
 minus 14, 19, 44, 89.
 traillii 11, 43, 88.
 wrightii 12, 42, 89.
enucleator, *Picicola* 8, 12, 44, 96.
Eremophila corruta 37.
Ereunetes occidentalis 14, 19, 48, 66.
 pusillus 14, 19, 43, 66.
Erisimatura jamaicensis 10, 18, 42, 57.
erythrogastra, *Chelidon* 11, 18, 42, 111.
erythromelas, *Piranga* 110.
erythrophthalmus, *Coccyzus* 13, 14, 15, 27, 47, 82.
erythrorhynchos, *Plecanus* 11, 18, 43, 52.
 Eskimo Curlew 68.
eurhyncha, *Guiraca cærulea* 13, 16, 44, 109.
 European House Sparrow 99.
 Evening Grosbeak 95.
excubitorides, *Lanius ludovicianus* 11, 18, 42, 112.
exilis, *Ardetta* 14, 27, 47, 61.
Falco columbarius 9, 10, 44, 76.
 mexicanus 8, 10, 29, 44, 76.
 peregrinus anatum 8, 10, 18, 42, 76.
 richardsoni 10, 44, 76.
 sparverius 8, 10, 18, 41, 76.
 Falcon, Lanier 28.
 Prairie 76.
fasciata, *Columba* 13, 15, 33, 40, 72.
 Melospiza 10, 15, 48, 106.
fedoa, *Limosa* 14, 19, 45, 66.
ferrugineus, *Archibuteo* 8, 10, 29, 44, 75.
 Ferruginous Rough-leg 75.
 Finch, Cassin's Purple 96.
 House 29, 37, 96.
 Purple 96.
flammeola, *Megascops* 8, 12, 31, 37, 45, 78.
 Flammulated Screech Owl 26, 29, 32, 38, 78.
flavipes, *Totanus* 14, 18, 42, 66.
 Flicker 85.
 Red-shafted 85.
 Florida Gallinule 21, 63.
 Flycatcher, Ash-throated 87.
 Hammond's 89.
 Least 89.
 Olivaceous 4, 39, 88.
 Olive-sided 88.
 Say's 37.
 Scissor-tailed 87.
 Townsend's 33.
 Traill's 88.
 Western 88.
 Wright's 89.
forficatus, *Elanoides* 14, 15, 47, 73.
 Milvulus 14, 15, 47, 87.
forsteri, *Sterna* 11, 19, 43, 51.
 Forster's Tern 51.
franklinii, *Larus* 13, 19, 48, 51.
 Franklin's Gull 51.
frontalis, *Carpodacus mexicanus* 8, 11, 40, 96.
 Frosted Poorwill 85.
Fulica americana 10, 18, 43, 63.
fuscescens, *Turdus* 39.
fuscicollis, *Tringa* 14, 34, 46, 65.
 Gadwall 53.
galbula, *Icterus* 15, 42, 95.
galeata, *Gallinula* 14, 46, 63.
Galeoscoptes carolinensis 11, 15, 19, 42, 119.

- Gallinago delicata* 9, 12, 43.
Gallinula galeata 14, 46, 63.
Gallinule, Florida 21, 63.
gallopavo, *Meleagris* 8, 11, 40, 44, 71.
gambeli, *Anser albifrons* 14, 45, 58.
 Callipepla 8, 13, 16, 34, 46, 70.
 Parus 9, 12, 42, 123.
Gambel's Partridge 70.
garrulus, *Ampelis* 9, 43, 111.
Geococcyx californianus 8, 13, 15, 27, 43, 81.
Geothlypis macgillivrayi 12, 19, 42, 116.
 trichas occidentalis 12, 19, 43, 117.
gilvus, *Vireo* 11, 19, 42, 112.
Glaucidium gnoma 8, 12, 15, 23, 44, 81.
Glossy Ibis 35.
Gnatcatcher, *Blue-gray* 124.
gnoma, *Glaucidium* 8, 12, 15, 23, 44, 81.
Godwit, *Marbled* 66.
Golden-crested Wren 30.
 -crowned Kinglet 123.
 Sparrow 3, 102.
 Eagle 75.
 -eye, *American* 56.
 Barrow's 3, 56.
 Rocky Mountain 25.
Goldfinch, *American* 98.
 Arkansas 99.
 Arizona 99.
Goose, *American White-fronted* 58.
 Canada 58.
 Greater Snow 58.
 Hutchin's 59.
 Lesser Snow 58.
 Goshawk, *American* 74.
 Western 74.
graciæ, *Dendroica* 13, 16, 30, 46, 115.
Grace's Warbler 3, 115.
Grackle, *Bronzed* 95.
 Rusty 37.
Gray-tailed Leucosticte 97.
 -headed Junco 21, 105.
 -ruffed Grouse 70.
 Titmouse 122.
Great Blue Heron 61.
 Northern Shrike 37.
Greater Snow Goose 58.
 Yellow-legs 66.
Grebe 35.
 American Eared 49.
 Eared 31, 38.
 Holboell's 3, 49.
 Horned 49.
 Pied-billed 38, 50.
 Western 49.
Green-tailed Towhee 25, 33, 108.
 -winged Teal 54.
Grinnell's Water-thrush 116.
griseus, *Parus inornatus* 9, 13, 16, 43, 122.
Grosbeak, *Black-headed* 23, 108.
 Pine 38, 96.
 Western Blue 109.
 Evensing 95.
Grouse, *Dusky* 70.
 Gray Ruffed 70.
 Pinnated 34.
 Prairie Sharp-tailed 71.
 Sage 71.
 Sharp-tailed 34.
Grus americana 14, 18, 43, 62.
 canadensis 14, 46, 62.
 mexicana 9, 10, 41, 62.
Guara alba 14, 37, 47, 59.
 rubra 14, 33, 47, 60.
guarauna, *Plegadis* 60.
Guiraca cærulea eurhyncha 13, 16, 36, 44, 109.
Gull, *American Herring* 50.
 Bonaparte's 51.
 California 50.
 Franklin's 51.
 Herring 37.
 Laughing 51.
 Ring-billed 39, 51.
 Sabine's 38, 51.
 Western 50.
Gymnocitta cyanocephala 31.
Haliaeetus leucocephalus 8, 12, 42, 76.
hammondi, *Empidonax* 44, 89, 128.
Hammond's Flycatcher 89.
Harelda hyemalis 10, 47, 56.
harlani, *Buteo borealis* 10, 36, 46, 75.
Harlan's Hawk 75.
Harlequin Duck 3, 57.
Harporynchus bendirei 14, 15, 25, 46, 120.
 rufus 12, 15, 19, 42, 120.
Harris's Sparrow 102.
Hawk, *American Rough-legged* 75.
 Sparrow 76.
 Cooper's 74.
 Duck 76.
 Harlan's 75.
 Krider's 74.
 Marsh 73.
 Pigeon 76.
 Red-bellied 75.
 Sharp-shinned 74.
 Swainson's 33, 75.
Helminthophila celata 12, 15, 19, 43, 113.
 lutescens 12, 21, 46, 113.
 peregrina 14, 15, 19, 44, 113.
 virginiae 12, 43, 113.
henryi, *Chordeiles virginianus* 11, 41, 85.
Hepburn's Leucosticte 98.
Hermit Thrush 125.

- Heron, Black-crowned Night 61.
 Great Blue 61.
 Snowy 61.
 Yellow-crested Night 62.
 herodias, Ardea 10, 18, 42, 43, 61.
 Herring Gull 37.
 hiemalis, Troglodytes 9, 12, 44, 121.
 Himantopus mexicanus 10, 45, 64.
 Micropalama 14, 19, 46, 65.
 Histrionicus histrionicus 8, 12, 30, 46,
 57.
 Hooded Merganser 53.
 holboëllii, Colymbus 13, 14, 30, 46, 49.
 Holboëll's Grebe 3, 49.
 homorus, Dryobates pubescens 8, 10,
 23, 43, 83.
 Horned Grebe 49.
 Lark 30, 89.
 House Finch 29, 37, 96.
 hudsonica, Pica pica 8, 11, 40, 89.
 Hudsonian Curlew 67.
 hudsonicus, Numenius 14, 46, 67.
 hudsonius, Circus 8, 10, 41, 73.
 Hummingbird, Black-chinned 86.
 Broad-tailed 86.
 Rufous 86.
 hutchinsii, Branta canadensis 10, 42,
 59.
 Hutchins's Goose 59.
 Hydrochelidon nigra surinamensis 10,
 42, 52.
 hyemalis, Harelda 10, 47, 56.
 Junco 10, 43, 104.
 hyloscopus, Dryobates villosus 8, 10,
 41, 82.
 hyperborea, Chen 9, 14, 18, 45, 58.
 hypogæa, Speotyto cunicularia 8, 10,
 18, 41, 81.
 Ibis, Glossy 35.
 Scarlet 4, 33, 60.
 White 4, 59.
 White-faced Glossy 60.
 Wood 60.
 Icteria virens 15, 44, 117.
 longicauda 11, 42, 117.
 Icterus galbula 11, 15, 42, 95.
 bullocki 11, 19, 42, 95.
 spurius 13, 15, 42, 94.
 Ictinia mississippiensis 14, 15, 47, 73.
 imber, Urinator 9, 43, 50.
 Indigo Bunting 109.
 inornata, Symphemia semipalmata 10,
 19, 26, 43, 44, 67.
 intermedia, Zonotrichia leucophrys 9,
 43, 102.
 Intermediate Sparrow 102.
 Interpres, Arenaria 14, 37, 47, 69.
 Iridoprocne bicolor 30.
 islandica, Clangula 8, 12, 45, 56.
 Jack Snipe 25.
 Jæger, Parasitic 50.
 jamaicensis, Erismatura 10, 18, 42, 57.
 Jay, Long-crested 38, 90.
 Maximilian's 31.
 Pinion 93.
 Rocky Mountain 90.
 Stellar's 38.
 White-headed 38.
 Woodhouse's 90.
 Junco aikenii 9, 43, 104.
 annectens 9, 36, 47, 105.
 caniceps 9, 12, 21, 25, 36, 38, 42,
 105.
 Gray-headed 21, 105.
 hyemalis 10, 43, 104.
 aikenii 35.
 connectens 9, 43, 105.
 mearnsi 9, 43, 105.
 phaenotus dorsalis 13, 16, 34, 46,
 106.
 Pink-sided 105.
 Red-backed 106.
 ridgwayi 33.
 Ridgway's 105.
 Shufeldt's 105.
 Slate-colored 104.
 White-winged 104.
 Killdeer 68.
 Kingbird 87.
 Arkansas 87
 Cassin's 87.
 Kingfisher, Belted 82.
 Kinglet, Golden-crowned 123.
 Ruby-crowned 23, 32, 34, 38, 123.
 Kite, Mississippi 73.
 Swallow-tailed 75.
 Kittiwake 50.
 kriderii, Buteo borealis 8, 11, 29, 46,
 74.
 Krider's Hawk 74.
 Lagopus leucurus 8, 12, 23, 25, 27, 30,
 41, 70.
 Lanier Falcon 28.
 Lanius borealis 9, 43, 112.
 ludovicianus excubitorides 11, 18,
 42, 112.
 Lapland Longspur 100.
 lapponicus, Calcarius 9, 45, 100.
 Lark Bunting 29, 109.
 Desert Horned 89.
 Horned 30, 89.
 Pallid Horned 89.
 Shore 32, 37.
 Larus argentatus smithsonianus 10, 46,
 50.
 atricilla 10, 14, 37, 47, 51.
 californicus 13, 14, 48, 50.
 delawarensis 9, 10, 18, 43, 51.

- franklinii* 13, 19, 48, 51.
occidentalis 13, 14, 48, 50.
philadelphia 13, 45, 51.
 Laughing Gull 51.
 Lazuli Bunting 109.
 Lead-colored Bush-Tit 123.
 Least Bittern 61.
 Flycatcher 89.
 Sandpiper 65.
 Tern 52.
lentiginosus, *Botaurus* 10, 19, 42, 60.
 Lesser Scaup Duck 56.
 Snow Goose 58.
leucocephalus, *Haliaeetus* 8, 12, 42, 76.
leucogaster, *Thryothorus bewickii* 13,
 23, 46, 120.
leucolæma, *Otocoris alpestris* 9, 32, 43,
 89.
leucophrys, *Zonotrichia* 9, 12, 18, 42,
 102.
leucoptera, *Loxia* 10, 30, 97.
 Melopelia 13, 14, 16, 28, 45, 73.
Leucosticte atrata 10, 35, 44, 98.
 australis 8, 12, 22, 42, 98.
 Black 98.
 Brown-capped 98.
 campestris 22.
 Gray-crowned 97.
 Hepburn's 98.
 teprocotis 9, 22, 43, 97.
 littoralis 9, 45, 98.
leucurus, *Lagopus* 8, 12, 23, 25, 27, 30,
 41, 70.
 Lewis's Woodpecker 84.
Limosa fedoa 14, 19, 45, 66.
linaria, *Acanthis* 9, 44, 98.
lincolni, *Melospiza* 107.
 Lincoln's Sparrow 25, 107.
 Little Brown Crane 62.
 White Egret 32.
littoralis, *Leucosticte tephrocotis* 9, 45,
 98.
lobatus, *Phalaropus* 14, 19, 44, 63.
loculatus, *Tantalus* 14, 45, 60.
 Long-billed Curlew 67.
 Dowitcher 65.
 -crested Jay 38, 90.
longicauda, *Bartramia* 11, 42, 67.
 Icteria virens 11, 42, 117.
longirostris, *Numenius* 11, 18, 43, 67.
 Longspur 37.
 Chestnut-collared 100.
 McCown's 101.
 Lapland 100.
 Long-tailed Chat 117.
 Chicadee 122.
 Loon 50.
Lophodytes cucullatus 8, 12, 43, 53.
Lopibes hyperboreus 30.
 Louisiana Tanager 110.
Loxia curvirostra bendirei 36.
 stricklandi 8, 12, 26, 36, 44, 97.
 leucoptera 10, 30, 46, 97.
ludoviciana, *Piranga* 12, 19, 42, 110.
 Thryothorus 39.
lunifrons, *Petrochelidon* 11, 18, 40, 110.
lutescens, *Helminthophila celata* 12,
 21, 46, 113.
 Lutescent Warbler 113.
macgillivrayi, *Geothlypis* 12, 19, 42,
 116.
 Macgillivray's Warbler 116.
maculopha, *Cyanocitta stelleri* 8, 12,
 42, 90.
Macrorhampus scolopaceus 14, 19, 45,
 65.
macroura, *Zenaidura* 10, 18, 41, 93.
macularia, *Actitis* 10, 18, 42, 67.
maculata, *Tringa* 14, 43, 65.
maculosa, *Dendroica* 14, 15, 45, 115.
Magnolia Warbler 115.
 Magpie 40.
 American 89.
 Black-billed 29.
 Mallard 35, 53.
 Marbled Godwit 66.
 Marsh Hawk 73.
 Martin, Purple 110.
 Maximilian's Jay 31.
maxwelliæ, *Megascops asio* 3, 12, 24,
 31, 45, 78.
mccownii, *Rhyncophanes* 9, 11, 44, 101.
 McCown's Longspur 101.
 Meadow Lark, Western 34, 94.
mearnsi, *Junco* 9, 43, 105.
megalonyx, *Pipilo maculatus* 18, 42,
 108.
Megascops asio 8, 11, 48, 78.
 aikeni 8, 12, 26, 31, 47, 78.
 maxwelliæ 8, 12, 24, 31, 45, 78.
 flammeola 8, 12, 31, 37, 45, 78.
Melanerpes carolinus 13, 15, 44, 84.
 erythrocephalus 11, 42, 84.
 torquatus 8, 12, 42, 84.
melanocephalus, *Zamelodia* 11, 19, 23,
 42, 108.
melanocorys, *Calamospiza* 109.
melanoleucus, *Aëronautes* 12, 19, 42,
 86.
 Totanus 14, 18, 42, 66.
Meleagris gallopavo 8, 11, 40, 44, 71.
 mexicana 8, 10, 34, 46, 72.
Melopelia leucoptera 13, 14, 16, 28, 45,
 73.
Melospiza fasciata 10, 15, 48, 106.
 montana 9, 11, 19, 42, 107.
 georgiana 39.
 lincolni 12, 19, 42, 107.

- Merganser americanus* 8, 12, 43, 52.
 Hooded 53.
 Red-breasted 53.
 serrator 9, 45, 53.
Merlin, Richardson's 76.
Merula migratoria 9, 12, 15, 40, 125.
 propinqua 9, 11, 18, 46, 126.
mesoleucus, Pipilo fuscus 9, 11, 16, 43,
 108.
Mexican Crossbill 97.
 Turkey 72.
mexicanus, Cinclus 9, 12, 23, 118.
 Falco 8, 29, 44, 76.
 Grus 9, 10, 41, 62.
 Himantopus 10, 45, 64.
 Meleagris gallopavo 8, 10, 34, 46,
 72.
Micropalama himantopus 14, 19, 46, 65.
migratoria, Merula 9, 12, 15, 40, 125.
Milvulus forficatus 14, 15, 47, 87.
Mimus polyglottos 12, 19, 40, 119.
minimus, Empidonax 14, 19, 44, 89.
minor, Philohela 13, 15, 46, 64.
minutilla, Tringa 14, 18, 42, 65.
Mississippi Kite 73.
mississippiensis, Ictinia 14, 15, 47, 73.
Mniotilta varia 13, 15, 45, 113.
Mockingbird 119.
 Mountain 38.
Molothrus ater 11, 42, 93.
montana, Ægialitis 10, 18, 42, 68.
 Certhia familiaris 9, 12, 121.
 Coccothraustes vespertinus 9, 43,
 95.
 Melospiza fasciata 9, 11, 19, 42, 107.
 Oroscoptes 11, 18, 41, 119.
Mountain Bluebird 126.
 Chickadee 123.
 Mockingbird 38.
 Plover 29, 38, 68.
 Song Sparrow 107.
Mourning Dove 73.
Myadestes townsendii 9, 12, 19, 28, 37,
 38, 39, 42, 124.
Myiarchus cinerascens 11, 16, 43, 87.
 lawrencei olivaceus 14, 16, 47, 88.
Myrtle Warbler 114.

nearctica, Aythya marila 10, 43, 55.
neglecta, Sturnella magna 9, 11, 42, 94.
Nephocetes niger borealis 30.
nevadensis, Amphispiza belli 13, 16, 44,
 106.
Nighthawk, Western 85.
Night Heron, Black-crowned 61.
 Yellow-crowned 62.
nigrescens, Dendroica 13, 16, 19, 43,
 116.
nitidus, Phalænoptilus nuttalli 13, 15,
 47, 48, 85.
 nivalis, Chen hyperborea 14, 48, 58.
 Plectrophanes 9, 44, 100.
Northern Phalarope 63.
 Shrike 112.
notabilis, Seiurus noveboracensis 14,
 45, 116.
nuchalis, Sphyrapicus varius 12, 23, 42,
 83.
Nucifraga columbiana 8, 12, 42, 92.
Numenius borealis 68.
 hudsonicus 14, 46, 67.
 longirostris 11, 18, 43, 67.
Nutcracker, Clarke's 92.
Nuthatch, Pygmy 122.
 Red-breasted 122.
 Slender-billed 122.
 White-breasted 121.
nuttalli, Phalænoptilus 11, 42, 85.
Nyctala acadica 8, 12, 45, 77.
Nyctea nyctea 10, 34, 46, 80.
Nycticorax nycticorax nævius 11, 19,
 46, 61.
 violaceus 14, 45, 62.

obsoletus, Salpinctes 13, 19, 40, 120.
obscura, Anas 14, 15, 43, 53.
 Dendragapus 8, 40, 70.
occidentalis, Æchmophorus 13, 37, 47,
 49.
 Coccyzus americanus 10, 36, 45, 82.
 Ereunetes 14, 19, 48, 66.
 Geothlypis trichas 12, 19, 43, 117.
 Larus 13, 14, 48, 50.
 Syrnium 8, 13, 46, 77.
ochracea, Spizella monticola 9, 43, 103.
oenanthe, Saxicola 4, 14, 15, 34, 45, 126.
Oidemia americana 10, 45, 57.
 deglandi 10, 27, 47, 57.
 perspicillata 10, 37, 47, 57.
Old Squaw 29, 56.
Olivaceous Flycatcher 4, 39, 88.
 Vireo 12, 15, 19, 112.
olivaceus, Myiarchus lawrencei 14, 16,
 47, 88.
Olive-backed Thrush 124.
 -sided Flycatcher 88.
Olor buccinator 14, 43, 59.
 columbianus 14, 45, 59.
Orange-crowned Warbler 113.
Oregon Snowbird 38.
Oreospiza chlorura 19, 42, 108.
Oriole, Baltimore 3, 95.
 Bullock's 95.
 Orchard 94.
ornatus, Calcarius 9, 11, 100.
Oroscoptes montanus 11, 18, 41.
oryzivorus, Dolichonyx 12, 15, 44, 93.
Osprey, American 77.
Otocoris alpestris arenicola 8, 11, 32,
 41, 89.
 leucolæma 9, 32, 43, 89.

- Ousel, Water 35, 38.
 Oven-bird 116.
 Owl, Aiken's Screech 78.
 American Barn 77.
 Long-eared 77.
 Arctic Horned 80.
 Burrowing 81.
 Dusky Horned 80.
 Flammulated Screech 26, 29, 32,
 38, 78.
 Pygmy 27, 32, 81.
 Rocky Mountain Screech 24, 78.
 Saw-whet 77.
 Screech 78.
 Short-eared 77.
 Spotted 77.
 Snowy 80.
 Western Horned 79.

pacifica, *Tringa alpina* 14, 19, 43, 66.
Pallid Horned Lark 89.
pallida, *Spizella* 11, 19, 44, 104.
pallasii, *Turdus aonalaschkæ* 14, 15,
 47, 125.
paludicola, *Cistothorus palustris* 9, 11,
 19, 43, 121.
Pandion haliaëtus carolinensis 12, 18,
 44, 77.
paradisæa, *Sterna* 13, 37, 47, 51.
Parasitic Jæger 50.
parasiticus, *Stercorarius* 10, 45, 50.
Paroquet, *Carolina* 81.
Partridge, *California* 69.
 Gambel's 70.
 Scaled 22, 69.
Parula Warbler 114.
Parus atricapillus septentrionalis 9, 13,
 41, 122.
 gambeli 9, 12, 42, 123.
 inornatus griseus 9, 13, 16, 43, 122.
 montanus 28.
Passer domesticus 9, 11, 47, 99.
Passerella iliaca schistacea 12, 44, 107.
Passerina amcena 11, 19, 40, 109.
 cyanea 13, 15, 44, 109.
Pectoral Sandpiper 65.
Pediocætes phasianellus campestris 8,
 11, 42, 71.
Pelecanus erythrorhynchos 11, 18, 43,
 52.
Pelican, *American White* 52.
 silvianicus, *Anthus* 12, 18, 42, 118.
peregrina, *Helminthophila* 14, 15, 19,
 44, 113.
Perisoreus canadensis capitalis 8, 12,
 25, 41, 90.
perpallidus, *Ammodramus savannarum*
 12, 18, 44, 101.
perspicillata, *Oidemia* 10, 37, 47, 57.
Petrochelidon lunifrons 11, 18, 40, 110.
Pewee, *Western Wood* 88.

Phalænoptilus nuttalli 11, 42, 85.
 nitidus 13, 15, 47, 48, 85.
Phalacrocorax dilophus 13, 45, 52.
Phalarope, *Northern* 63.
 Wilson's 63.
Phalaropus lobatus 14, 19, 44, 63.
Pheasant 40.
philadelphia, *Larus* 13, 51.
Philohela minor 13, 15, 46, 64.
Phœbe 3, 39, 88.
 Sayornis 14, 15, 47, 88.
 Say's 88.
phœniceus, *Agelaius* 9, 11, 42, 94.
Pica pica hudsonica 8, 11, 40, 89.
Picicorvus columbianus 24, 31.
Picoides americanus dorsalis 8, 12, 42,
 83.
Pied-billed Grebe 38, 50.
Pigeon, *Band-tailed* 72.
 Hawk 76.
pileolata, *Sylvania pusilla* 14, 15, 47,
 117.
Pileolated Warbler 117.
Pine Siskin 99.
 Grosbeak 38, 96.
Pinicola enucleator 8, 12, 33, 44, 96.
Pinion Jay 93.
Pink-sided Junco 105.
Pinnated Grouse 34.
Pintail 55.
pinus, *Spinus* 8, 13, 42, 99.
Pipilo aberti 13, 16, 45, 108.
 fuscus mesoleucus 9, 11, 16, 43, 108.
 maculatus arcticus 9, 43, 107.
 megalonyx 18, 42, 108.
Pipit, *American* 118.
Piranga erythromelas 110.
 ludoviciana 12, 19, 42, 110.
 rubra cooperi 14, 15, 16, 45, 110.
platycercus, *Selasphorus* 12, 28, 42, 86.
Plectrophanus meadowii 25.
Plectrophenax nivalis 9, 44, 100.
Plegadis guarauna 13, 16, 43, 60.
Plover, *American Golden* 68.
 Black-bellied 68.
 Mountain 29, 38, 68.
 Semipalmated 68.
Plumbeous Vireo 112.
plumbeus, *Psaltriparus* 9, 13, 16, 43,
 123.
 Vireo solitarius 13, 19, 42, 112.
Podiceps auritus californicus 31.
 Podilymbus 9, 18, 35, 43, 50.
Podilymbus podiceps 9, 18, 35, 43, 50.
Polioptila cærulea 13, 15, 33, 44, 124.
polyglottos, *Mimus* 12, 19, 40, 119.
Poocætes gramineus confinis 11, 18, 42,
 101.
Poor-will 85.
 Frosted 85.
Porzana carolina 10, 43, 63.

- pratincola, *Strix* 8, 11, 37, 47.
 Prairie Falcon 76.
 Sharp-tailed Grouse 71.
Progne subis 11, 18, 44, 110.
propinqua, *Merula migratoria* 9, 11, 18,
 46, 126.
pubescens, *Dryobates* 23, 47, 82.
 Purple Finch 96.
 Martin 110.
purpureus, *Carpodacus* 14, 15, 47, 96.
pusillus, *Ereunetes* 14, 19, 43, 66.
 Sylvania 12, 19, 42, 117.
psaltria, *Spinus* 11, 40, 99.
Psaltriparus plumbeus 9, 13, 16, 43,
 123.
Ptarmigan, White-tailed 23, 27, 70.
pygmaea, *Sitta* 9, 12, 35, 42, 122.
 Pygmy Nuthatch 122.
 Owl 27, 32, 81.

querula, *Zonotrichia* 14, 15, 23, 46, 102.
Quiscalus quiscula aeneus 11, 15, 44, 95.

 Rail, Virginia 62.
Rallus virginianus 11, 18, 43, 63.
rara, *Dendroica* 14, 15, 45, 115.
 Raven 40.
 American 91.
 White-necked 91.
Recurvirostra americana 10, 18, 43, 64.
 Red-backed Junco 106.
 Sandpiper 66.
 -bellied Hawk 75.
 Woodpecker 84.
 -breasted Merganser 53.
 Nuthatch 122.
 Crossbill 26, 32.
 Reddish Egret 61.
 Red-eyed Vireo 112.
 head 55.
 -naped Sapsucker 83.
 -poll 98.
 shafted Flicker 85.
 start, American 118.
 -tail, Western 75.
 -winged Blackbird 94.
Regulus calendula 12, 23, 43, 123.
 satrapa 12, 43, 123.
Rhynchophanes mccownii 9, 11, 44, 101.
richardsoni, *Contopus* 13, 19, 42, 88.
 Falco 10, 44, 76.
 Richardson's Merlin 76.
 Ridgway's Junco 105.
 Ring-billed Gull 39, 51.
 necked Duck 56.
riparia, *Clivicola* 11, 19, 43, 111.
Rissa tridactyla 10, 14, 45, 50.
 Roadrunner 81.
 Robin 27.
 American 125.
 Western 126.

 Rock Wren 37, 120.
 Rocky Mountain Bluebird 29.
 Creepers 121.
 Golden-eye 25.
 Jay 90.
 Screech Owl 24, 78.
 Whiskey Jack 25.
Roseate Spoonbill 4, 59.
Rough-leg, Ferruginous 75.
 -winged Swallow 111.
rubra, *Guara* 14, 33, 47, 60.
Ruby-crowned Kinglet 23, 32, 34, 38,
 123.
 Wren 23.
Ruddy Duck 38, 57.
rufescens, *Ardea* 14, 47, 61.
Rufous Hummingbird 86.
rufus, *Harporhynchus* 12, 15, 19, 42,
 120.
 Selasphorus 13, 45, 86.
Rusty Blackbird 95.
 Grackle 37.
rutililla, *Setophaga* 11, 19, 42, 118.

sabini, *Xema* 10, 15, 45, 51.
Sabine's Gull 38, 51.
Sage Grouse 71.
 Sparrow 106.
 Thrasher 119.
salicicola, *Turdus fuscescens* 12, 42,
 124.
Salpinctes obsoletus 13, 19, 40, 120.
sancti-johannis, *Archibuteo lagopus* 9,
 44, 75.
Sanderling 66.
Sandhill Crane 62.
Sandpiper, Baird's 65.
 Bartramian 67.
 Least 65.
 Pectoral 65.
 Red-breasted 66.
 Semipalmated 66.
 Solitary 67.
 Spotted 67.
 Stilt 65.
 Western 66.
 White-rumped 65.
Sapsucker, Red-naped 83.
 Yellow-bellied 83.
satrapa, *Regulus* 12, 43, 123.
saturatus, *Bubo virginianus* 80.
Saw-whet Owl 77.
Saxicola oenanthe 4, 14, 15, 34, 45, 126.
saya, *Sayornis* 11, 18, 42, 88.
Sayornis phoebe 14, 15, 47, 88.
 saya 11, 18, 42, 88.
Say's Phoebe 88.
 Flycatcher 37.
Scaled Partridge 22, 69.
Scarlet Ibis 4, 33, 60.
 Tanager 110.

- schistacea, *Passerella iliaca* 12, 44, 107.
 Scissor-tailed Flycatcher 87.
Scolecophagus carolinus 10, 15, 46, 95.
 cyaenocephalus 9, 11, 18, 42, 95.
scelopaceus, *Macrorhampus* 14, 19, 45, 65.
Scops flammeola 29, 32, 36, 39.
 Scoter, American 57.
 Surf 57.
 White-winged 57.
 Screech Owl 78.
Seiurus aurocapillus 13, 15, 44, 116.
 noveboracensis notabilis 14, 45, 116.
Selasphorus platycercus 12, 28, 42, 86.
 rufus 13, 16, 45, 86.
semipalmata, *Ægialitis* 14, 48, 68.
Sempalmated Plover 68.
 Sandpiper 66.
septentrionalis, *Parus atricapillus* 9, 13, 41, 122.
serrator, Merganser 9, 45, 53.
serripennis, *Stelgidopteryx* 11, 19, 44, 111.
Setophaga ruticilla 11, 19, 42, 118.
 Sharp-shinned Hawk 74.
 -tailed Grouse 34.
 Shore Larks 32, 37.
 Short-eared Owl 77.
 Shoveller 54.
 Shrike, Great Northern 37.
 Northern 112.
 White-rumped 112.
 Shufeldt's Junco 105.
Sialia arctica 9, 11, 18, 41, 126.
 mexicana bairdi 9, 12, 18, 42, 126.
 sialis 12, 15, 39, 43, 126.
 Siskin, Pine 99.
Sitta canadensis 9, 12, 45, 122.
 carolinensis 9, 12, 15, 33, 47, 121.
 aculeata 9, 13, 42, 122.
 pygmæa 9, 12, 35, 42, 122.
sinuatus, *Corvus corax* 8, 13, 40, 41, 91.
 Slate-colored Junco 104.
 Sparrow 107.
 Slender-billed Nuthatch 122.
smithsonianus, *Larus argentatus* 10, 40, 50.
 Snipe, Jack 25.
 Wilson's 36, 64.
 Snowbird, Oregon 29.
 Snowflake 100.
 Snowy Heron 61.
 Owl 80.
socialis, *Spyzella* 11, 15, 43, 103.
 Solitaire, Townsend's 124.
solitarius, Totanus 10, 18, 42, 67.
 Solitary Sandpiper 67.
 Song Sparrow 106.
 Sonora Yellow Warbler 114.
sonorana, *Dendroica æstiva* 13, 26, 48, 114.
 Sora 63.
 Sparrow, Baird's 101.
 Black-throated 106.
 Brewer's 104.
 Chipping 103.
 Clay-colored 104.
 European House 99.
 Golden-crowned 102.
 Harris's 102.
 Intermediate 102.
 Lincoln's 25, 107.
 Mountain Song 107.
 Sage 106.
 Slate-colored 107.
 Song 106.
 Western Chipping 103.
 Grasshopper 101.
 Lark 102.
 Savanna 101.
 Tree 103.
 Vesper 101.
 White-crowned 102.
 -throated 103.
sparverius, *Falco* 8, 10, 18, 41, 76.
Spatula clypeata 10, 18, 42, 54.
Speotyto cunicularia hypogæa 8, 10, 18, 41, 81.
Sphyrapicus thyroideus 12, 42, 84.
 varius 14, 15, 43, 83.
 nuchalis 12, 23, 42, 83.
Spinus pinus 8, 13, 42, 99.
 psaltria 11, 40, 99.
 arizonæ 11, 45, 99.
 tristis 8, 11, 42, 98.
Spiza americana 12, 15, 42, 109.
Spyzella breweri 11, 44, 104.
 monticola ochracea 9, 43, 103.
 pallida 11, 19, 44, 104.
 socialis 11, 15, 43, 103.
 arizonæ 11, 19, 42, 103.
Sponsa, Aix 10, 42, 55.
 Spoonbill, Roseate 4, 59.
 Spotted Owl 77.
 Sandpiper 67.
spurius, *Icterus* 13, 15, 42, 94.
 Spurred Towhee 108.
squamata, *Callipepla* 13, 14, 16, 22, 33, 47, 69.
Squatarola squatarola 14, 68.
squatarola, *Charadrius* 45.
Steganopus tricolor 11, 19, 43, 63.
Stelgidopteryx serripennis 11, 19, 44, 111.
 Stellar's Jay 38.
Stercorarius parasiticus 10, 45, 50.
Sterna antillarum 52.
 forsteri 11, 19, 43, 51.
 paradisæa 13, 37, 47, 51.

- Stilt, Black-necked 64.
 Sandpiper 65.
strepera, *Anas* 10, 18, 42, 53.
striata, *Dendronica* 12, 15, 19, 45, 115.
striatulus, *Accipiter atricapillus* 10, 14, 16, 74.
stricklandi, *Loxia curvirostra* 8, 12, 26, 36, 44, 97.
strigatus, *Chondestes grammacus* 11, 19, 42, 102.
Strix pratincola 8, 11, 37, 47, 77.
Sturnella magna neglecta 9, 11, 42, 99.
subarcticus, *Bubo virginianus* 8, 10, 43, 79.
subis, *Progne* 11, 18, 44, 110.
 Surf Duck 4.
 Scoter 57.
surinamensis, *Hydrochelidon nigra* 10, 42, 52.
swainsoni, *Buteo* 8, 10, 29, 41, 75.
Turdus ustulatus 12, 19, 44, 124.
 Swainson's Hawk 33, 75.
 Swallow, Bank 111.
 Barn 111.
 Cliff 110.
 Rough-winged 111.
 -tailed Kite 73.
 Tree 111.
 Violet-green 111.
 White-bellied 30.
 Swan, Trumpeter 59.
 Whistling 59.
 Swift, Black 3, 86.
 White-throated 86.
Sylvania pusilla 12, 19, 42, 117.
 pileolata 14, 15, 47, 117.
Symphemia semipalmata inornata 10, 19, 26, 43, 44, 67.
Syrnium occidentale 8, 13, 46, 77.
Tachycineta bicolor 13, 19, 42, 111.
 thalassina 13, 19, 42, 111.
 Tanager, Cooper's 110.
 Louisiana 110.
 Scarlet 110.
Tantalus loculator 14, 45, 60.
 Teal, Blue-winged 54.
 Cinnamon 54.
 Green-winged 54.
 Tennessee Warbler 113.
teporotus, *Leucosticte* 9, 22, 43, 97.
 Tern, Arctic 51.
 Black 52.
 Forster's 51.
 Least 52.
 Texan Woodpecker 83.
thalassina, *Tachycineta* 13, 19, 42, 111.
 Thrasher, Bendire's 4, 21, 25, 120.
 Brown 120.
 Sage 119.
 Thrush, Audubon's Hermit 125.
 Dwarf Hermit 125.
 Hermit 125.
 Olive-backed 124.
 Willow 124.
Thryothorus bewickii 39.
 leucogaster 13, 23, 46, 120.
 ludovicianus 39.
 Titmouse, Gray 122.
torquatus, *Melanerpes* 8, 12, 42, 84.
Totanus flavipes 14, 18, 42, 66.
 melanoleucus 14, 18, 42, 66.
 solitarius 10, 18, 42, 67.
 Towhee, Abert's 108.
 Arctic 107.
 Canon 108.
 Green-tailed 25, 33, 108.
 Spurred 108.
townsendi, *Dendroica* 12, 16, 45, 116.
 Myadestes 9, 12, 19, 28, 37, 38, 39, 42, 124.
 Townsend's Flycatcher 33.
 Solitaire 124.
 Warbler 116.
traillii, *Empidonax* 11, 43, 88.
 Traill's Flycatcher 88.
 Tree Sparrow 111.
tricolor, *Steganopus* 11, 19, 43, 63.
tridactyla, *Rissa* 10, 14, 45, 50.
Tringa alpina pacifica 14, 19, 43, 66.
 bairdii 14, 18, 43, 65.
 fuscicollis 14, 34, 46, 65.
 maculata 14, 43, 65.
 minutilla 14, 18, 42, 65.
tristis, *Spinus* 8, 11, 42, 98.
Trochilus alexandri 13, 16, 44, 86.
Troglodytes aëdon aztecus 11, 19, 21, 41, 120.
 hiemalis 9, 12, 44, 121.
 Trumpeter Swan 59.
 Tulé Wren 121.
Turdus aonalaschkæ 14, 16, 37, 47, 125.
 auduboni 12, 19, 42, 125.
 pallasii 14, 15, 47, 125.
 fuscescens 39.
 salicicola 12, 42, 124.
 ustulatus swainsonii 12, 19, 44, 124.
 Turkey 40.
 Mexican 72.
 Vulture 73.
 Wild 71.
 Turnstone 69.
Tyrannus tyrannus 11, 15, 42, 87.
 verticalis 11, 19, 40, 87.
 vociferans 11, 43, 87.
umbelloides, *Bonasa umbellus* 8, 12, 42, 70.
urophasianus, *Centrocerus* 8, 10, 20, 41, 71.
 Urinator imber 9, 43, 50.

- vallisneria, *Aythya* 9, 18, 42, 55.
varia, *Mniotilta* 13, 15, 45, 113.
varius, *Sphyrapicus* 14, 15, 43, 83.
velox, *Accipiter* 8, 10, 44, 74.
verticalis, *Tyrannus* 11, 19, 40, 87.
violaceus, *Nycticorax* 14, 45, 62.
 Violet-green Swallow 111.
Vireo belli 39.
 • Cassin's 112.
 gilvus 11, 19, 42, 112.
 olivaceus 12, 15, 19, 42, 112.
 Plumbeous 112.
 Red-eyed 112.
 solitarius cassinii 15, 16, 45, 112.
 plumbeus 13, 19, 42, 112.
 Warbling 112.
virens, *Icteria* 15, 44, 117.
 Virginia Rail 63.
virginiae, *Helminthophila* 12, 43, 113.
virginianus, *Colinus* 8, 11, 30, 33, 46,
 69.
 Rallus 11, 18, 43, 63.
 Virginia's Warbler 113.
vocifera, *Ægialitis* 10, 18, 42, 68.
vociferans, *Tyrannus* 11, 43, 87.
 Vulture, Turkey 73.
 Warbler, Audubon's 115.
 Black and White 113.
 -poll 115.
 -throated Blue 114.
 -throated Gray 116.
 Cerulean 115.
 Chestnut-sided 115.
 Grace's 115.
 Lutescent 113.
 Macgillivray's 116.
 Magnolia 115.
 Myrtle 114.
 Orange-crowned 113.
 Parula 114.
 Pileolated 117.
 Sonora Yellow 114.
 Tennessee 113.
 Townsend's 116.
 Virginia's 113.
 Western Yellow 25.
 Wilson's 117.
 Yellow 114.
 Warbling Vireo 112.
 Water Ousel 35, 38.
 Thrush, Grinnell's 116.
 Waxwing, Cedar 111.
 Bohemian 37, 111.
 Western Blue Grosbeak 109.
 Chipping Sparrow 103.
 Evening Grosbeak 95.
 Flycatcher 88.
 Goshawk 74.
 Grasshopper Sparrow 101.
 Grebe 49.
 Gull 50.
 Horned Owl 79.
 House Wren 120.
 Lark Sparrow 102.
 Meadow Lark 34, 94.
 Night-hawk 85.
 Red-tail 75.
 Robin 126.
 Sandpiper 66.
 Savanna Sparrow 101.
 Tree Sparrow 103.
 Vesper Sparrow 101.
 Willet 67.
 Wood Peewee 88.
 Yellow-throat 117
 Warbler 25.
 Wheatear 126.
 Whiskey Jack, Rocky Mountain 25.
 Whistling Swan 59.
 White-bellied Swallow 30.
 -breasted Nuthatch 121.
 -crowned Sparrow 102.
 -faced Glossy Ibis 60.
 -headed Jay 38.
 Ibis 4, 59.
 -necked Raven 91.
 -rumped Sandpiper 65.
 Shrike 112.
 -tailed Ptarmigan 23, 27, 70.
 -throated Sparrow 103.
 Swift 86.
 -winged Crossbill 97.
 Dove 4, 73.
 Junco 104.
 Scoter 57.
 Whooping Crane 62.
 Wild Turkey 71.
 Willet, Western 67.
 Willow Thrush 124.
wilsonianus, *Asio* 8, 10, 41, 77.
Wilson's Phalarope 63.
 Snipe 36, 64.
 Warbler 117.
 Winter Wren 121.
 Woodcock, American 64.
 Duck 55.
woodhousei, *Aphelocoma* 8, 13, 42, 90.
Woodhouse's Jay 90.
 Wood Ibis 60.
 Woodpecker, Alpine Three-toed 83.
 Batchelder's 83.
 Cabanis's 82.
 Downy 82.
 Lewis's 84.
 Red-bellied 84.
 Red-headed 84.
 Texan 83.
 Wren, Baird's 120.
 Canon 120.
 Golden-crested 30.
 Rock 37, 120.

- Ruby-crowned 23.
 Tulé 121.
 Western House 120.
 Winter 121.
 wrightii, Empidonax 12, 42, 89.
 Wright's Flycatcher 89.
- Xanthocephalus xanthocephalus 11,
 18, 39, 41, 93.
 Xema sabinii 10, 15, 45, 51.
- Yellow-bellied Sapsucker 83.
 Yellow-billed Cuckoo 82.
 Yellow-breasted Chat 117.
 Yellow-crowned Night Heron 62.
- Yellow-headed Blackbird 93.
 Yellow-legs 66.
 Greater 66.
 Yellow-throat, Western 117.
 Yellow Warbler 114.
- Zamelodia melanocephala 11, 19, 23,
 42, 108.
 Zenaidura macroura 10, 18, 41, 73.
 Zonotrichia albicollis 14, 15, 23, 46,
 103.
 coronata 10, 15, 16, 35, 47, 102.
 leucophrys 9, 12, 18, 42, 102.
 intermedia 9, 43, 102.
 querula 14, 15, 23, 46, 102.

