

## NEW LIGHT ON THE STATUS OF EMPIDONAX TRAILLII (AUDUBON).

By HARRY C. OBERHOLSER.

Few birds are so puzzling as the flycatchers of the American genus *Empidonax*. None of these are more difficult to understand than *Empidonax traillii* and its closely related forms, the status of which has long been in dispute. The careful investigations and reasonable conclusions of Mr. William Brewster,\* have long been accepted as the final word by ornithologists generally; and it is with some degree of reluctance that the writer now reopens the case. Subsequent identification of breeding specimens, however, from the north central part of the United States, from Ohio to Arkansas, Missouri, and Iowa, has indicated discrepancies in the range of *Empidonax traillii traillii* as currently delineated. With the idea, therefore, of confirming Mr. Brewster's conclusions and settling the identification of specimens of this species in the Biological Survey collection, the writer resolved to investigate the matter *de novo*; and to this end has examined a large amount of material; in all, 411 specimens. The rather surprising and, to some extent, unfortunate results of this study were announced at the meeting of the American Ornithologists' Union at Philadelphia in 1911, and therefore they long ago should have been placed on permanent record.

For the preparation of this paper the writer has made use chiefly of the collection of the United States National Museum, including that of the Biological Survey. In addition, he is indebted for the loan of specimens and for other assistance to Mr. P. A. Taverner, Mr. F. C. Lincoln, Mr. L. J. Hersey, and Mr. F. Kermode.

### EMPIDONAX TRAILLII TRAILLII (Audubon).

*Muscicapa traillii* AUDUBON, Birds Amer., folio ed, I, 1828, pl. 45 (woods along the prairie lands of the Arkansas River, Arkansas).

*Empidonax traillii alnorum* BREWSTER, Auk, XII, No. 2, April, 1895, p. 161 (Upton, Maine).

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\*Auk, XII, No. 2, April, 1895, pp. 159-163.

*Chars. subsp.*—Bill rather small; upper surface decidedly greenish; wing-bars whitish, tinged with greenish or yellowish.

*Measurements.*—Male:† Wing, 64.5-78 (average, 71.7) mm.; tail, 54-62.5 (58.2); exposed culmen, 11-13 (12); tarsus, 15.5-17.5 (16.7); middle toe without claw, 9-10.5 (9.5).

Female:‡ Wing, 64.5-75.5 (average, 68.3) mm.; tail, 51.5-61.5 (55.2); exposed culmen, 10-12.5 (11.6); tarsus, 14.5-17.5 (16); middle toe without claw, 8.5-10 (9.4).

*Type locality.*—Borders of the woods along the prairie lands of the Arkansas River, Arkansas.

*Geographic distribution.*—North America, except the extreme northern part, south to Central America and northwestern South America; no authentic record for the West Indies. Breeds in the Hudsonian, Canadian, Transition, Upper Austral, and occasionally the Lower Austral zones in North America, north to Newfoundland, central Quebec, northern Ontario, northern Manitoba, northwestern Mackenzie, and central Alaska; west to western and southeastern Alaska and western British Columbia; south to central southern British Columbia, northwestern Montana, southeastern Montana, southern South Dakota, northeastern Colorado, central Arkansas, southern Kentucky, southern West Virginia, western Maryland, Pennsylvania, and northern New Jersey; east to eastern Massachusetts, eastern New Hampshire, eastern Maine, Nova Scotia, and Newfoundland. Winters south to Ecuador; and north to northern Colombia, Costa Rica, Nicaragua, and Yucatan, Mexico. Migrates west to central Colorado, western Texas, and Oaxaca.

*Remarks.*—The best characters to distinguish the eastern form of this species from that of the western United States, from Colorado to California, are the more greenish upper surface, the more greenish or yellowish wing-bars, and smaller bill. Every specimen does not exhibit all these characters to the best advantage, but enough are usually present to render possible satisfactory identification. Furthermore, the eastern bird is somewhat darker above, though this is not more than an average character.

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†Thirty-seven specimens, from New England, Illinois, Minnesota, North Dakota, and Montana.

‡Twenty-eight specimens, from New England, Pennsylvania, New Jersey, District of Columbia, Indiana, Illinois, North Dakota, Yukon, and Alaska.

The geographic variation in this subspecies is not great. Breeding birds from Maine and New Brunswick seem to be absolutely indistinguishable from those taken at the same time of year in Maryland and in Mackenzie, Canada. Furthermore, birds that breed at Fort Keogh, Montana, appear to be perfectly typical. Birds from North Dakota, South Dakota, Nebraska, northeastern Colorado, and extreme western Montana are intermediate, in that there is among them more individual variation, rendering some individuals difficult to distinguish from the bird of the far western United States. They are, however, as a whole, decidedly nearer the eastern race. Likewise, breeding birds from Ohio, Indiana, Illinois, Arkansas, Missouri, and Iowa, as well as from Michigan and Wisconsin, must be referred to the New England race. This, therefore, obliterates the zonal distinction between the breeding ranges of the two forms of this species, which Mr. Brewster\* has delineated.

One of the things brought out by the present study is the great and very complicated individual color variation that exists in both geographic races, which greatly increases the difficulty of identifying individual specimens. The wing-bars in the eastern bird are usually whitish, more or less tinged with yellow or greenish, but occasionally these are decidedly brownish, much resembling those of the western form of the species. The lower parts are sometimes as yellowish below as in *Empidonax virescens*, but are usually more grayish or whitish. Furthermore, the upper parts exhibit at least six more or less well marked color phases, which, by individual variation, merge imperceptibly into each other, so that there exists an infinite variety of coloration. These phases, if such they may be called, fall naturally into two series, separated in a general way by the pattern of the upper surface. In one the color is almost uniform from forehead to upper tail-coverts, and the type of *Muscicapa traillii* Audubon is a bird of this kind; in the other style the pileum and cervix are, in color, conspicuously different from the back, being either more brownish or grayish and forming a rather well defined cap. Birds of each one of these styles exhibit three color phases: (1) dark greenish, which is apparently the normal coloration, in which the upper parts are

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\*Auk, XII, No. 2, April, 1895, p. 159.

decidedly greenish with no yellowish tinge; (2) yellowish green, which is very much less commonly observed, a condition in which the greenish of the upper surface is decidedly tinged with yellowish, particularly on the interscapulum; and (3) a grayish phase, in which the olive upper surface is decidedly grayish with no yellowish and but little greenish tinge. So different are some specimens of these six phases that they look like different species. One specimen, an adult from Fort Simpson, Mackenzie, taken in July, 1861, is so brown that in color it actually is not with certainty distinguishable from California birds of this species; in fact, were it from a breeding locality anywhere within the range of the Great Basin bird, one would unhesitatingly refer it to that form. It is an example of the difficulty which attends identification of some of the individuals of this flycatcher, and shows that single individuals occur which are practically impossible to assign subspecifically without assistance from some other source than the color of the plumage.

Seasonal variation further complicates the case. By the wear of the plumage some adults become, by July, very much paler and more brownish above, as well as somewhat so on the lower parts; in which condition examples of the eastern and northern race (*Empidonax traillii traillii*) are easily mistaken for the form of the western United States, hereinafter described as *Empidonax traillii brewsteri*.\* A bird taken on June 25, 1894, at Canton, Illinois, is in this condition, and is practically indistinguishable from worn specimens of the western race. This specimen was doubtless partly responsible for Mr. Brewster's reference of the Illinois birds to the western subspecies. Since, however, breeding birds from all the surrounding region now prove to belong to the eastern race, *Empidonax traillii traillii*, this example is certainly but a worn, abnormally brown individual of the same form.

Birds in juvenal plumage are also sometimes difficult to decide subspecifically, because those of the eastern race are, on the upper parts, much more brownish than the adults, and thus often readily, at least superficially, to be mistaken for western representatives.

Mr. Brewster's transference of the name *Empidonax traillii traillii* to the western subspecies was made on the

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\*Postea, p. 12.

identification of the type specimen, now, as then, preserved in the United States National Museum. Mr. Brewster mentions\* three specimens in the United States National Museum marked as types of *Muscicapa traillii* Audubon; viz., Nos. 960, 1865, and 2039. The first of these, No. 960, is now not to be found in the collection, but it was entered as *Tyrannula minima* [*Empidonax minimus*] in Baird's own handwriting in the original catalogue of his collection, which formed the beginning of the National Museum bird register. Without much doubt, therefore, "No. 960" in Mr. Brewster's article is a typographical error for No. 2960, which is still in the National Museum collection, and is one of the two birds still marked with a red type label. Of these two supposed types of *Muscicapa traillii* Audubon, one is No. 1865, U. S. Nat. Mus., likewise the same number of the original Baird collection; and it is also one of the three specimens mentioned by Mr. Brewster. This bird, together with another, numbered 1866, were entered by Professor Baird in his catalogue in January, 1845. On the label of No. 1865 there is the following inscription in Baird's own handwriting, the "(N)" indicating that the specimen was received from Audubon:

<i>Tyrannula trailli</i> Aud.	
1865	(N)

This specimen, considered alone, is without any doubt referable to the eastern race, and it agrees absolutely with a specimen, No. 165385, U. S. Nat. Mus., from Mountain Lake Park, Maryland, collected, July 3, 1899, by E. A. Preble; the only observable difference, and this slight, being its rather more yellowish posterior lower parts, very slightly duller wing-bars, and partly darker, somewhat more greenish upper surface. It is in somewhat worn breeding plumage, but it is about as near a match for this Maryland bird as is any bird in our series. It measures as follows: wing, 73.5 mm.; tail, 58; exposed culmen, 11.2; tarsus, 18; middle toe without claw, 9. The original locality of Audubon's *Muscicapa traillii*, as given by him,† is the "Skirts of the woods along the prairie lands of the Arkansas river." Mr. A. H. Howell has recently collected

\*Auk, XII, No. 2, April, 1895, p. 160.

†Ornith. Biog., I, 1831, p. 236.

breeding birds at Chester and Stuttgart, in Arkansas, which are for all practical purposes topotypes, and these belong unquestionably to the eastern form. From the above facts it is reasonably certain that Nos. 1865 and 1866 of the United States National Museum catalogue are the original specimens collected by Audubon near the Arkansas River, and that they came into Baird's possession and were duly entered by him in his catalogue. Since in size and color the one now marked No. 1865 in the United States National Museum collection is found to agree substantially with Audubon's original description, it may reasonably and properly be considered the type.

The second specimen marked as one of the types in the United States National Museum, and considered as such by Mr. Brewster, is an adult and bears on its original label in Baird's own handwriting the following inscription:

<i>Tyrannula traillii?</i> Aud
2960 <span style="float: right;">n</span>

This individual was evidently later received from Audubon by Professor Baird, as it was not entered in the catalogue until May, 1846, and then among a lot of other birds from the Columbia River received from Mr. J. K. Townsend. It will be noticed that the specimen was *doubtfully* identified by Professor Baird as *traillii*; and it was, without any reasonable doubt, one of the Columbia River examples obtained by Audubon from J. K. Townsend after the species was described.† That the Columbia River was its origin is further borne out by the fact that it is not subspecifically the same as the specimen here considered the type (No. 1865, U. S. Nat. Mus.), but is identical, as it should be, with birds from western Washington. It is apparently a female, though not sexed, and measures as follows: wing, 66 mm.; tail, 53; exposed culmen, 10.3; tarsus, 16; middle toe without claw, 9.5.

The third specimen mentioned by Mr. Brewster, No. 2039, U. S. Nat. Mus., is, as he states, in juvenal plumage, and was received by Professor Baird also from Audubon. It is, however, clearly an immature specimen of the Columbia River bird.

†Cf. Birds Amer., I, octavo ed., 1840, p. 235.

From the above facts it is very evident that the name *Empidonax traillii traillii* belongs to the eastern race, and that we must thus revert to the use of this name as it was before Mr. Brewster transferred it to the western bird; and by this change *Empidonax traillii alnorum* Brewster\* now becomes a synonym.

Altogether 202 specimens of *Empidonax traillii traillii*, from the following localities, have been examined in the present connection:

**Alaska.**—Circle (July 12, 1903); Tatondou River, Yukon River (August 6, 1899); Charlie Creek, Yukon River (June 21, 1903); Nulato.

**Alberta.**—Smith Landing (June 15, 1901); Fort McMurray (August 11, 1903); 140 miles west of Edmonton (May 30, 1896).

**British Columbia.**—Vernon (June 5, 1895); Penticton (June 25, 1913); Hazelton (July 21, 1913); Okanagan Landing (June 18, 1915, August 18, 1915); Brackendale, Howe Sound (June 13 and 21, 1916, August 30, 1916).

**Mackenzie.**—Fort Resolution (June 30, 1865; June 22 and 24, 1903; June 19, 1903; July 10, 1903); Fort Simpson (July, 1861); Fort Rae (July 29, 1901); Nahannie River Mountains (July 13, 1903); Fort Good Hope (June 22 and 23, 1904); Hay River, Great Slave Lake (June 5, 6, 13, and 17, 1908); Fort Norman (June 13, 1904; June 30, 1903; July 4 and 24, 1908); Fort McPherson (July 9, 1904).

**New Brunswick.**—Grand Manan Island (July 4, 1907).

**Ontario.**—Mount Forest (June 13 and 29, 1892).

**Saskatchewan.**—Indian Head (June 24, 1895).

**Yukon.**—Fort Selkirk (July 26, 1899).

**Arkansas.**—Chester (June 4, 1910); Stuttgart (May 13, 1910).

**Colorado.**—Avalo (June 7, 1909; Wray (May 21, 1909); Lake Station, Lincoln County, (May 27, 1905); Clear Creek, near Denver (June 4, 1911).

**District of Columbia.**—Washington (May 21, 1886; May 14, 1887; May 15, 1889; Sept. 9 and 17, 1890; August 31, 1890; May 18, 1892; Sept. 13, 1894; August 20, 1896).

**Idaho.**—Near Fernan Lake (Sept. 1, 1913).

**Illinois.**—Warsaw (May 3, 1884); Urbana (May 11, 1908); Arcola (May 14, 1908); Richland County (May 21, 1883); Sugar Creek Prairie, Richland County (June 5, 1885; June 6,

\*Auk, XII, No. 2, April, 1895, p. 161 (Upton, Maine).

1890); Canton (June 25, 1894); Lee (Aug. 8, 1907); Olney (Sept. 10, 1908).

**Indiana.**—Wheatland (May 21, 1885).

**Iowa.**—Clay County (July 3, 4, 13, and 17, 1907; August 7, 9, 13, and 19, 1907); Palo Alto County (July 13, 1907).

**Maine.**—Sebec Lake (June 1, 1907); Upton (June 11, 12, and 13, 1872); North Haven Island (June 16 and 19, 1907).

**Maryland.**—Laurel (May 16, 1888); Mountain Lake Park (July 3 and 4, 1899).

**Michigan.**—Isle Royale (July 14, 1905; August 26 and 30, 1905); Porcupine Mountains (July 22, 1905).

**Minnesota.**—Tower (June 14, 1895).

**Missouri.**—Grandin (June 3, 1907).

**Montana.**—Fort Keogh (May 28 and 31, 1889; June 2, 3, 4, and 8, 1889); Little Missouri River (June 6, 1916); Blackfoot Agency (June 13, 1895); Summit (June 19, 1895); Java (June 28, 1895).

**New Hampshire.**—Coos County (June 21 and 22, 1905).

**New York.**—Peterboro (May 21, 1886; May 21 and 30, 1887; June 2 and 3, 1887; July 19, 1886); Highland Falls (May 13, 1880; May 27, 1876); Kenwood (June 19, 1900).

**North Dakota.**—Lisbon (May 28, 1912); Pembina (June 3 and 9, 1873); Blackmer (June 5, 1915); Lidgerwood (June 18, 1915); Oakes (June 4, 1912; June 29, 1915); Kenmare (July 15, 1913); Dawson (July 21, 25, and 27, 1915; August 2, 1915); Lostwood Lake (August 16, 1915).

**Ohio.**—Wooster (June 20, 1892).

**Pennsylvania.**—Carlisle (May 20, 1845; May 31, 1841); Erie (May 21, 1894); Philadelphia (May 26, 1845).

**South Dakota.**—Smithville (May 31, 1894); Miner County (June 30, 1892); Evarts (August 6, 1903); Forestburg (August 10, 1906).

**Texas.**—Brewster County (May 8, 1913); Runge (August 24, 1905); Brownsville (August 27 and 28, 1912); Columbus (Sept. 4, 1905); Victoria (Sept. 12, 1906).

**Virginia.**—Four Mile Run (Sept. 2, 1894; May 10, 1894).

**Wisconsin.**—Madison (July 24, 1893).

**Costa Rica.**—Santa Maria de Dota (Feb. 29, 1866; May 11, 1908).

**Nicaragua.**—San Carlos (Feb. 25, 1892).

**Oaxaca.**—Huiloatepec (May 12, 1895).

***Empidonax traillii brewsteri*, subsp. nov.\***

*Empidonax traillii pusillus* AUCT. (nec Swainson).

*Empidonax traillii traillii* BREWSTER, Auk, XII, No. 2, April, 1895, p. 159 (nec Audubon).

*Chars. subsp.*.—Similar to *Empidonax traillii traillii*, but bill larger, wing-bars darker, duller, much more brownish (less yellowish or greenish); upper parts decidedly more brownish or less greenish.

*Description.*.—Type, adult male, No. 158360, U. S. Nat. Mus., Biological Survey collection, Cloverdale, Nye County, Nevada, May 31, 1898; Harry C. Oberholser; original number, 57. Pileum brownish olive, the centers of the feathers olive brown; the remainder of the upper parts between brownish olive and light brownish olive, but verging slightly toward olive, and paling on the shorter upper tail-coverts to light brownish olive; longest upper tail-coverts brownish olive; tail fuscous, margined externally on the basal portion with brownish olive; wings fuscous, the narrow external margins of tertials and secondaries tulleul buff, the margins of the lesser and median coverts brownish olive, the tips of the greater coverts between avellaneous and light drab; lores yellowish white, tips of the feathers olive brown; the sides of head and of neck rather light citrine drab, shading to buffy; sides of breast the same, but somewhat darker; chin and throat dull brownish white; jugulum and upper breast between grayish olive and deep olive buff; lower breast and abdomen naphthalene yellow; lower tail-coverts colonial buff; sides of body naphthalene yellow with an olivaceous tinge; thighs Saccardo's olive; edge of wing below, chamois; and lining of wing naphthalene yellow.

*Measurements.*.—Type: wing, 69 mm.; tail, 60; exposed culmen, 12.5; tarsus, 16.5; middle toe without claw, 9.7.

Male:† Wing, 69–73 (average 70.6) mm.; tail, 56–60.5 (58.1); exposed culmen, 12.5–13.5 (13.0); tarsus, 15.5–17.5 (16.8); middle toe without claw, 9–10.5 (9.6).

Female:‡ Wing, 63–68.5 (65.7) mm.; tail, 52–60 (56.0); exposed culmen, 11.5–13 (12.2), tarsus, 15.5–17 (16.3); middle toe without claw, 9–10 (9.4).

\*Named for Mr. William Brewster.

†Thirteen specimens, from Oregon, California, Arizona, New Mexico, and Colorado.

‡Ten specimens, from Oregon, California, Arizona, and Utah.

*Type locality.*—Cloverdale, Nye County, Nevada.

*Geographic distribution.*—Western United States and extreme southwestern British Columbia, south to Mexico, Central America, and northwestern South America. Breeds chiefly in the Lower Austral, Upper Austral, and Transition zones of North America and Mexico; north to central Wyoming, central Idaho, northern Washington, and southwestern British Columbia; west to southwestern British Columbia, western Washington, western Oregon, and western California; south to the extreme northern edge of Lower California, northern Sonora, Durango, southern New Mexico, and central Texas; and east to northeastern Texas, eastern Oklahoma, southeastern and central Colorado. Winters from northern Colombia to Panama, Costa Rica, and Nicaragua. Migrates east to eastern Nebraska, Tamaulipas, and Oaxaca; west to Sinaloa and Guerrero.

*Remarks.*—There is surprisingly little geographic variation within the range of this race, but birds from northern Washington and extreme southwestern British Columbia are somewhat intermediate, though not sufficiently so to cause doubt about their proper reference to this form. Birds from eastern Colorado and Texas likewise verge somewhat toward *Empidonax traillii traillii*.

There is, as in *Empidonax traillii traillii*, a large amount of individual variation in the present subspecies, including counterparts of the same six more or less well-defined color phases. The two patterns of coloration on the upper parts are even better indicated. In one of them the upper surface is nearly or quite uniform; in the other the pileum and cervix are much more grayish or brownish, and distinctly, even trenchantly, different from the back. The type of *Empidonax traillii brewsteri* is of the nearly uniform style. In specimens of each of these two patterns there are three definable phases of coloration. The upper parts may in color be either (1) normally dark and brownish; (2) yellowish brown on all but the pileum; or (3) distinctly gray. The yellowish brown phase is not so greenish as the corresponding plumage in *Empidonax traillii traillii*, and the gray phase is very much more purely grayish, less greenish. Furthermore, the lower parts are sometimes very strongly tinged with yellowish, particularly on the posterior portion; in other specimens this yellowish tinge is scarcely noticeable, except on the crissum.

Seasonal variation does not seem to be quite so strongly marked as in *Empidonax traillii traillii*, though summer birds are more brownish (less olivaceous) or more grayish, and paler than in autumn, spring or winter.

Birds in juvenal plumage, compared with the same stage of *Empidonax traillii traillii*, are usually lighter on the breast and more yellowish on the posterior lower parts, but some specimens are very difficult to distinguish.

The distinction between *Empidonax traillii traillii* and *Empidonax traillii brewsteri* has, of course, long been known. The name *Empidonax pusillus* (Swainson) was, until Mr. Brewster's investigations,\* used for the latter, during which period the name *Empidonax traillii* or *Empidonax pusillus traillii* (Audubon) was employed for the eastern bird. The name *Empidonax pusillus* was taken from *Platyrhynchus pusillus* of Swainson,† which was described in the following language:

"Olive brown, beneath yellowish white; wings with two pale bands; tail moderate, even; bill small; head crested.

Maritime parts of Mexico.

Total length,  $5\frac{1}{2}$ ; bill,  $\frac{9}{10}$ ; wings,  $2\frac{1}{2}$ ; tail,  $2\frac{1}{4}$ ."

Swainson subsequently identified with this bird a specimen killed at Carlton House, Saskatchewan, and described and figured by him as *Tyrannula pusilla*‡, which is, as already stated by Mr. Brewster, very probably not this species at all, but *Empidonax minimus*. Even if the *Tyrannula pusilla* of Swainson be correctly identified as *Platyrhynchus pusillus* from Mexico, this does not aid in the solution of the identity of the latter, for the availability of the name must in this case be determined from the original description or from an examination of the type. As the above quotation shows, the original description of *Platyrhynchus pusillus* Swainson, while pointing toward the bird we have here described as *Empidonax traillii brewsteri*, is not certainly identifiable as such. Professor Alfred Newton made careful search among the Swainson types still remaining in the collection of the museum at Cambridge, England, but the type of *Platyrhynchus pusillus* is not there; nor apparently is it ever likely to turn up elsewhere. Therefore, as has already

\*Auk, XII, No. 2, April, 1895, pp. 159-163.

†Philosophical Magazine, new series, I, No. V, May, 1827, p. 366.

‡Fauna Bor.-Amer., II, 1831 (1832), p. 144, pl. XLVI, upper figure.

been so well and fully stated by Mr. Brewster,\* we are apparently justified in rejecting this name as unidentifiable. This leaves the western bird, the *Empidonax pusillus* of authors and the *Empidonax traillii traillii* of Brewster, without a name, and we take pleasure in bestowing upon it herewith the name *Empidonax traillii brewsteri*, in recognition of Mr. Brewster's careful work on these very difficult flycatchers.

Two hundred and nine specimens of this subspecies have been examined, from the localities that follow:

**British Columbia.**—Victoria (June 4, 1892; June 13, 1894); Comox (July 11, 1895); Gibson Landing, Howe Sound (July 28, 1897).

**Arizona.**—Nogales (May 23, 1893); Santa Cruz River, Mexican Boundary Line (June 2 and 8, 1893); Alpine (August 1, 1915); Fort Whipple (August 10 and 15, 1864); Clifton (August 19, 1914); Lees Ferry (August 25, 1909); San Bernardino Ranch, Mexican Boundary Line (August 17, 1893; August 21 and 31, 1892; Sept. 5, 1892); San Francisco River (August 21, 1914); Pinal County (Sept. 3, 1883).

**California.**—Stockton (May 11, 1878; July, 1877); Mountain Spring, Mexican Boundary Line, San Diego County (May 13, 1894); Fort Mojave (May 21, 1861); Jacumba, San Diego County (May 23, 1894); Saticoy (May 24, 1873); Brawley (June 4, 1907); Kern County (June 8, —); Owen Lake (June 9 and 12, 1891); Lone Pine (June 11, 1891); Hornbrook (June 15 and 16, 1897); Tulare Lake (June 20, 1907); Santa Barbara (June 25, 1875); San Bernardino (June 26, 1910); Kern River Lake (July 21, 1904, three nestlings); Donner Lake (July 25, 1900); Grafton (July 28, 1906); mountains near Camp Bidwell (July 31, 1878); Grizzly (August 11, 1900); Marshalls (August 18, 1905); San Clemente Island (August 23, 1894); Fresno Flat (August 30, 1904); Fort Tejon (August, 1875; Sept. 11, 1857); Bear Valley (1880).

**Colorado.**—Wray (May 22, 1911); Fort Garland (May 28, 1873); Arvada, Jefferson County (June 12, 1904); Loveland (June 26, 1891; July 26, 1895); Grand Junction (June 28, 1893); Colorado Springs (July 1 and 3, 1882); Breckenridge (July 2 and 8, 1877); Pueblo (July 23, 1874); Clear Creek, near Denver (August 6, 1911); Olivet, Jefferson County (August 8, 1911).

\*Auk, XII, No. 2, April, 1895, pp. 160-161.

**Idaho.**—American Falls (June 3, 1911); Weiser (June 18, 1913); Birch Creek (July 22, 1890; August 4 and 15, 1890); Shelley (July 28, 1911); Van Wyck (August 16, 1913).

**Nebraska.**—Columbus (Sept. 1, 1892).

**Nevada.**—Pahranagat Valley (May 23, 1891); Glenbrook (May 30, 1889); Cloverdale (May 30 and 31, 1898); Mountain City (June 12, 1898); Winnemucca Lake (June 19, 1889); Ruby Valley (August 29, 1868); East Humboldt Mountains (Sept. 8, 1868).

**New Mexico.**—Las Vegas (May 23, 1900); Santa Rosa (May 26, 1903); Rinconada (June 1, 1904); Magdalena Mountains (August 30, 1909).

**Oklahoma.**—Dougherty (August 16, 1892); Hartshorn (Aug. 25, 1892).

**Oregon.**—Homestead (May 31, 1916; June 1, 1916); Salem (June 4, 1895); head of Whiskey Creek (June 14, 1897); head of Drew's Creek (June 17, 1897); Forest Grove (June 20 and 22, 1903); Portland (June 23 and 24, 1897); Fort Klamath (June 26 and 28, 1882; July 23 and 28, 1883); Jordan Valley (June 28, 1915); Looking-glass (June 29, 1916); Beulah (June 29, 1916); Beaverton (July 7, 1890); Reston (July 8, 1916); Juntura (July 8, 1916); Astoria (July 15, 1897); Rockville (July 16, 1915); Riverside (July 20, 1916); Shirk (July 22, 1896); Drew (July 28, 1916); Diamond (July 29 and 31, 1916); Telocaset (August 6, 1915); La Pine (August 11, 1914); Anchor (August 12, 1916); McEwen (August 20, 1915).

**Texas.**—San Angelo (April 8, 1885); Marathon (May 14, 16, 17, and 19, 1901); Brewster County (May 19, 1913); Tascosa (May 21, 1894; June 6, 1899); Laredo (May 23, 1866); mouth of Tornillo Creek (May 24, 1901); Fort Hancock (June 18, 1893); Boston (July 4, 1902); upper Devil's River (July 21, 1902); Texline (August 1, 1903); Pecos River, 55 miles northwest of Comstock (August 2 and 4, 1902); Pecos City (August 28, 1902); near Santa Rosa, Cameron County (Sept. 20, 1891).

**Utah.**—Mouth of Bear River (May 26 and 28, 1915); June 7, 1916; August 20, 1915); Antelope Island, Great Salt Lake (June 4, 1869); Ogden (June 15, 1872); Provo River (July 25 and 26, 1872); Parley's Park, Wasatch Mountains (July 28, 1869); Provo (July 26, 1872; August 2 and 3, 1872); Clear Creek (August 9, 1908).

**Washington.**—Fort Bellingham (May 27, 1905); Neah Bay (June 10, 1897); Prescott (June 18, 1908); Mount Vernon (June 24, 1897); Tenino (June 29, 1897; July 1, 1897); Granville (July 9, 1897); Steilacoom (August 1, 1856); Ellenburg (August 13, 1897); Tacoma (August 20, 1897).

**Wyoming.**—Stanley (August 23, 1911).

**Costa Rica.**—San Jose? (1873).

**Durango.**—Rio Nazas (June, 1853).

**Guerrero.**—Dos Arroyos (May 4, 1903).

**Lower California.**—Mount Mayor (May 24, 1915); Nacho-guero Valley (June 1, 1894).

**Michoacan.**—La Salada (March 18, 1903).

**Morelos.**—Cuernavaca (April 9, 1908).

**Nicaragua.**—Sucuya (Feb. 7, 1883); Greytown (Feb. 8, 1892).

**Oaxaca.**—Tehuantepec (May 20, 1895); Huilotepec (May 11, 1895).

**Panama.**—Canal Zone (Jan. 14, 1912); Gatun, Canal Zone (March 6, 1911; May 8 and 15, 1911); Tabernilla (April 18, 1911); Porto Bello (May 26, 1911); Cana (May 23, 1912).

**Sinaloa.**—Mazatlan.

**Sonora.**—Nogales (June, 1855).

**Tamaulipas.**—Jaumave (June 2, 1898).