

THE FORMS OF *VERMIVORA CELATA* (SAY).

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THREE forms of the North American warbler, *Vermivora*¹ (= *Helminthophila*) *celata* (Say), are at present commonly recognized. An examination of the pertinent material in the Biological Survey of the Department of Agriculture and in the United States National Museum, some 280 specimens in all, shows conclusively that an additional race should be defined, and that the ranges, as well as, to slight extent, also the characters of the already known forms readjusted. This is attempted in the succeeding paragraphs.

Vermivora celata celata (Say).

Sylvia celatus SAY, Long's Exped. Rocky Mts., I, 1823, p. 169.

Helminthophaga celata var. *obscura* RIDGWAY, in Baird, Brewer and Ridgway, Hist. North Am. Birds, Land Birds, I, 1874, p. 192, pl. xi, fig. 6 (Georgia and Florida).

Chars. subsp.—Of medium size; palest and most grayish of all the forms of the species.

Type locality.—Engineer Cantonment, Council Bluffs, Iowa.

Geographical distribution.—Alaska, excepting the coast region from Cook Inlet southward; Canadian territories of Yukon, Mackenzie, Athabasca, and central Keewatin; in migration south to Washington, Arizona, Texas, Florida, South Carolina, New England, and eastern Mexico to the state of Hidalgo.

Specimens from the neighborhood of the western base of the Alaska Peninsula are quite typical *celata*, though of rather large size; the only example from Kadiak, an adult male in perfect plumage, taken June 7, 1893, is of maximum *celata* dimensions, and is much too grayish for *lutescens* or even the Rocky Mountain race. This form of the species is, like all the others, noticeably more grayish in fall and winter than in summer. The bird described as *Helminthophaga celata* var. *obscura* by Mr. Ridgway²

¹ For the use of this generic name, cf. Oberholser, *Smithson. Quart.*, III, 1905, p. 66.

² Baird, Brewer, and Ridgway, *Hist. North Am. Birds, Land Birds, I*, 1874 p. 192, pl. xi, fig. 6.

was based on adventitiously soiled winter individuals of typical *celata*.

True *celata* has been detected from the following localities, breeding records being indicated by an asterisk :

Alaska :— Circle *; Yukon River, 20 miles above Circle *; Mountains near Eagle *; Yukon River at Alaska-Canada Boundary *; Fort Yukon *; St. Michael *; Mouth of Porcupine River *; Nushagak *; Lake Clark *; Port Heiden *; Lake Aleknagik *; Kadiak Island *; Lake Iliamna *.

Alberta :— Edmonton.

Assiniboia :— Medicine Hat; Indian Head.

Athabasca :— Fort Chippewyan *; Smith Landing *.

Keewatin :— York Factory *.

Mackenzie :— Fort Resolution *; Fort Rae *; Fort Simpson *.

Manitoba :— Carberry.

Yukon :— Caribou Crossing, Yukon River *.

Arizona :— Fort Huachuca.

Florida :— Gainesville; Newman's Lake, Alachua County; Fort Basinger; Enterprise.

Georgia :— Atlanta.

Illinois :— Mt. Carmel.

Montana :— Fort Keogh.

North Dakota :— Souris River.

South Carolina :— Mount Pleasant; Port Royal.

Texas :— Fort Clark; San Antonio; Laredo; Sycamore Creek.

Washington :— Neah Bay.

Wisconsin :— Dane County.

Hidalgo :— Pachuca.

Nuevo Leon :— Monterey.

Tamaulipas :— Camargo; Matamoras; Soto la Marina; Charco Escondido.

Vermivora celata orestera, subsp. nov.

Chars. subsp.— Similar to *Vermivora celata celata*, but larger and much more yellowish, both above and below.

Description.— Type, adult male, No. 186782, U. S. N. M., Biological Survey Collection; Willis, New Mexico, July 16, 1903; V. Bailey. Upper parts yellowish olive green, brighter on the rump and upper tail-coverts, the crown with a partially concealed orange rufous patch; wings and tail fuscous, edged with yellowish olive; sides of head and neck yellowish olive, somewhat lighter than the back; a rather ill-defined yellow superciliary stripe; under surface yellow, washed with olive, most heavily so on breast and sides.

Geographical distribution.—Mountains of New Mexico, Arizona, and southeastern California, to British Columbia; in migration east to Minnesota and Pennsylvania, south to Texas, and Mexico to Lower California, Michoacan, Guerrero, and Puebla.

This new form has usually been included with *V. celata celata*, but breeding specimens recently obtained, principally from New Mexico and British Columbia, indicate its much closer relationship, in all respects except size, with the west coast forms. From *Vermivora celata lutescens* it may, however, readily be distinguished by its duller, less yellowish color, both above and below, and by its much greater size.

Specimens of this form are in hand from the subjoined localities :

Alberta :— Canmore; Banff; Edmonton.

British Columbia :— Penticton.*

Arizona :— Mount Graham*; San Francisco Mt.; San Pedro River, Mexican Boundary Line; Adonde; Tucson; Fort Huachuca; seven miles north of Bisbee.

California :— Argus Range; Panamint Mts.*; Olanche Peak.

Colorado :— Denver.

Minnesota :— Fort Snelling.

Montana :— Columbia Falls; Fort Keogh; Dry Creek, Gallatin County; Jefferson River, Gallatin County.

Nevada :— Ruby Mts.*; Humboldt Valley; Upper Humboldt Valley.

New Mexico :— Willis*; Rinconada; Stinking Spring Lake; Guadalupe Cañon, Mexican Boundary Line; Taos Mts.; Fort Defiance; Big Hatchet Mts.; Arroyo Hondo*; Santa Rosa; Culebra Mt.*; Twining*; Capitan Mts.*; Corner Monument No. 40 (100 miles west of El Paso), Mexican Boundary Line.

Pennsylvania :— Williamsport.

Texas :— Guadalupe Mts.; Fort Clark; San Antonio; Benbrook; Paint Rock.

Utah :— Parley's Park, Wasatch Mts.*

Wyoming :— Fort Bridger*; Bridgers Pass.

Chihuahua :— Chihuahua.

Guanajuato :— Guanajuato.

Guerrero :— Mountains near Chilpancingo.

Hidalgo :— El Chico.

Jalisco :— San Sebastian.

Lower California :— La Paz; Gardiners Lagoon, Salton River.

Michoacan :— Patamban.

Morelos :— Huitzilac; Tetela del Volcan.

Nuevo Leon :— Rodriguez; Monterey.

Puebla:—Orizaba; Huachinango.

San Luis Potosi:—Soledad; San Luis Potosi.

Tamaulipas:—Matamoras.

Vermivora celata sordida (*Townsend*).

Helminthophila celata sordida TOWNSEND, Proc. U. S. Nat. Mus., XIII, 1890, p. 139.

Chars. subsp.—Similar to *Vermivora celata orestera*, but wing shorter; bill longer; upper and lower parts darker and duller.

Type locality.—San Clemente Island, California.

Geographical distribution.—Santa Barbara Islands, California; occasional on adjacent mainland.

Specimens have been examined from the following localities:

California:—Santa Catalina Island; Santa Cruz Island; Santa Rosa Island; San Clemente Island; Pasadena.

Vermivora celata lutescens (*Ridgway*).

Helminthophaga celata var. *lutescens* RIDGWAY, Amer. Journ. Sci. and Arts, 3rd Ser., IV, Dec. 1872, p. 457.

Chars. subsp.—Similar to *Vermivora celata sordida*, but smaller, and lighter colored, the yellow of lower parts brighter, the olive green of upper surface more yellowish.

Type locality.—Fort Kenai, Alaska.

Geographical distribution.—Pacific coast region, from Cook Inlet, Alaska, to Los Angeles County, California, east to the Sierra Nevada and Cascade Mountains; in winter east to Nevada and Arizona, and south through western Mexico to Guatemala.

Birds from the northern Sierra Nevada (Lake Tahoe to Mount Lassen) are somewhat intermediate between *V. c. lutescens* and *V. c. orestera*, but appear to be nearer the former. In the original description of this race¹ the range is said to be "Pacific coast from Kadiak to Cape St. Lucas," and Mr. Ridgway has recently given² the type locality as Kadiak Island; but the Kadiak bird is, as already noted, almost typical *celata*; while the type locality is really Fort Kenai, Alaska, as proved by the type specimen, an

¹ Am. Journ. Sci. and Arts, 3rd. Ser., IV, Dec. 1872, p. 457.

² Birds N. and Mid. Amer., II, 1902, p. 467.

adult male collected by Bischoff, which still bears its original label with the statement that it is the type.

Examples of this race have been seen from the localities given below :

Alaska :—Kasaan Bay, Prince of Wales Island* ; Sitka* ; Yakutat* ; Haines* ; Fort Kenai* ; Gustavus Point* ; Mitkof Island* ; Wrangell* ; Virgin Bay* ; Glacier Bay.*

Arizona :—Fort Huachuca ; Tinajas Altas, Mexican Boundary Line ; Pinal County.

British Columbia :—Port Simpson* ; Cumshewa Inlet, Queen Charlotte Islands* ; Victoria* ; New Westminster ; Burrard Inlet* ; Wellington* ; Port Moody* ; Lund, Melaspina Inlet*.

California :—San Francisco* ; Rio Dell* ; Calaveras County* ; Lassen Peak* ; Donner* ; Mount Shasta* ; Tejon Valley ; Weaverville* ; Riverside ; Mono Lake ; South Fork of Merced River* ; Soda Springs* ; Los Gatos* ; Fort Jones* ; Oakland ; Haywards ; Baird* ; Yuba County.

Nevada :—East Humboldt Mts. ; Humboldt Valley.

Oregon :—Sodaville ; Columbia River ; Fort Klamath ; Diamond Lake* ; Beaverton ; Maury Mts.* ; Fort Umpqua* ; Seaside* ; Portland* ; Des Chutes River.

Washington :—Neah Bay* ; Mt. St. Helens* ; Chiloweyuck Depot* ; Fort Steilacoom ; Lapush* ; Suez*.

Colima :—Manzanillo.

Lower California :—La Paz ; Cape St. Lucas ; Sierra San Gertrude.

Sinaloa :—Mazatlan.

Millimeter measurements of males of the four forms of *Vermivora celata* may be compared from the following table :

Vermivora celata celata.

Locality.	Date.	Wing.	Tail.	Exposed culmen.	Tarsus.	Middle toe.
Circle, Alaska	July 16	59.5	48.5	9.	18.	10.5
Fort Resolution, Mackenzie .	June 22	59.5	47.	10.	16.5	11.
“ “ “ “	“ “	61.5	47.5	9.5	18.5	11.
York Factory, Keewatin . . .	July 16	60.	48.	10.	17.5	9.5
Fort Chippewyan, Athabasca	June 1	61.5	50.	9.	17.	10.5
Smith Landing, Athabasca . .	June 11	61.	48.5	10.	17.5	10.5
Carberry, Manitoba	May 14	62.5	50.5	9.5	18.	11.
Mt. Carmel, Illinois	Apr. —	63.	49.5	10.	18.	11.
Gainesville, Florida	Feb. 1	64.	53.	11.	18.5	11.5
Fort Clark, Texas	Mar. 22	61.	49.	10.	17.	10.5
Average		61.4	49.2	9.8	17.7	10.7

Vermivora celata orestera.

Locality.	Date.	Wing.	Tail.	Exposed culmen.	Tarsus.	Middle toe.
Willis, New Mexico . . .	July 16	63.	51.	10.5	18.5	11.
" " " . . .	Aug. 19	63.5	51.5	10.	18.	10.
Rinconada, New Mexico . . .	Apr. 28	64.	50.5	10.5	17.5	11.
" " " . . .	May 3	66.	53.	10.	18.	10.5
Stinking Spring Lake, N. M.	Oct. 2	61.5	49.5	11.	17.5	10.
Argus Range, Calif. . . .	May 9	62.	48.5	10.	18.5	10.
" " " . . .	"	64.	50.	10.	18.5	10.
Columbia Falls, Mont. . . .	May 4	64.	50.	10.	19.	10.5
Ruby Mts., Nevada	June 20	63.5	49.5	10.	19.5	10.5
Guadalupe Mts., Texas . . .	Aug. 24	62.	50.	10.	18.	10.5
Average		63.4	50.4	10.2	18.3	10.4

Vermivora celata sordida.

Locality.	Date.	Wing.	Tail.	Exposed culmen.	Tarsus.	Middle toe.
Santa Catalina I., Calif. . . .	Apr. 23	60.5	50.	11.5	18.5	11.
" " " . . .	" 11	62.	51.5	10.5	18.5	10.
" " " . . .	" 20	60.	51.5	11.	18.5	11.
" " " . . .	" 12	61.	52.5	11.5	18.5	10.5
" " " . . .	" 21	59.5	48.5	11.	18.5	10.5
" " " . . .	" 25	62.	51.5	12.5	19.	12.
" " " . . .	" 22	62.	52.	11.	18.	10.5
" " " . . .	" 22	60.	47.5	11.	19.	11.
Santa Cruz I., Calif.	Feb. 7	60.5	52.	11.5	19.	11.
Santa Rosa I., Calif.	Jan. 7	59.	49.5	11.	19.	11.
Average		60.7	50.7	11.3	18.7	10.9

Vermivora celata lutescens.

Locality.	Date.	Wing.	Tail.	Exposed culmen.	Tarsus.	Middle toe.
San Francisco, Calif.	May 3	60.5	47.	9.5	18.	11.
Sodaville, Oregon	May 21	57.	44.	9.5	17.5	10.5
Neah Bay, Washington	May 18	61.	48.	10.	16.	11.
" " "	June 4	60.	48.	10.	17.5	11.
Fort Simpson, Brit. Col.	Aug. 13	61.	47.	9.	18.	11.
Queen Charlotte Is., Brit. Col.	June 15	60.5	49.5	10.5	17.	10.5
Prince of Wales I., Alaska . . .	May 19	59.5	46.	10.5	18.	10.5
Sitka, Alaska	July 31	58.5	47.5	10.	18.	11.
Yakutat, Alaska	June 19	59.	45.	10.	17.5	10.5
Haines, Alaska	June 1	59.	47.	10.	18.	12.
Average		59.6	46.9	9.9	17.6	10.9