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A REVISION OF THE CALIFORNIA FORMS OF *PIPILO MACULATUS* SWAINSON, WITH DESCRIPTION OF A NEW SUBSPECIES

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WITH ONE MAP

(Contribution from the Museum of Vertebrate Zoology of the University of California)

THE SPOTTED TOWHEE (*Pipilo maculatus*) is a common and characteristic bird over a large part of California. Its range is included almost altogether in the Upper Sonoran and Transition zones. Its absence from nearly all parts of Lower Sonoran is probably chiefly due to the lack of suitable associational conditions over most of the arid regions comprising this zone; for in some places, as in the Lower Sonoran San Joaquin Valley, this towhee is found, though in small numbers, in the limited portion of the region which is adapted to its needs.

Six geographic races of this species are here recognized as occurring within the state. Five of them permanently occupy definite and fairly well-defined areas within the state; the sixth occurs only as the merest straggler. On the accompanying map (fig. 47) is shown the distribution in California of the five resident subspecies, platted from specimens and data in the Museum of Vertebrate Zoology. A comparison of this with Grinnell's (1902) map of the faunal areas of the state shows a close paralleling of the outlines of the ranges of the various subspecies with those of certain of the faunal areas. This, of course, is what is to be expected in a non-migratory and somewhat variable species, and occurs in this towhee as in *Melospiza, Thryomanes,* and certain other birds. Where there are striking differences in the two maps they can in most cases be explained satisfactorily by the towhee's known manner of zonal distribution.

In California the species is restricted substantially to the Upper Sonoran and Transition zones, debarred from the extremes of Lower Sonoran and Boreal, but otherwise not affected by zonal changes. Thus the Colorado Desert (taking the term as it is used on Grinnell's map), lying wholly within the Lower Sonoran Zone, has no representative of the species, except *P. m. curtatus* as a winter visitant in a restricted portion of the region.

In general terms the ranges of the various subspecies of *Pipilo maculatus* in California may be said to be as follows: *P. m. megalonyx* in the San Diegan and Southern Sierran districts; *P. m. falcifer* in the Santa Cruz, San Francisco Bay, and Northern Humid Coast districts; *P. m. falcinellus* in the San Joaquin-Sacramento and Sierra Nevadan districts; *P. m. curtatus* in the Great Basin district; and *P. m. clementae* in a part of the Santa Barbara Island district.

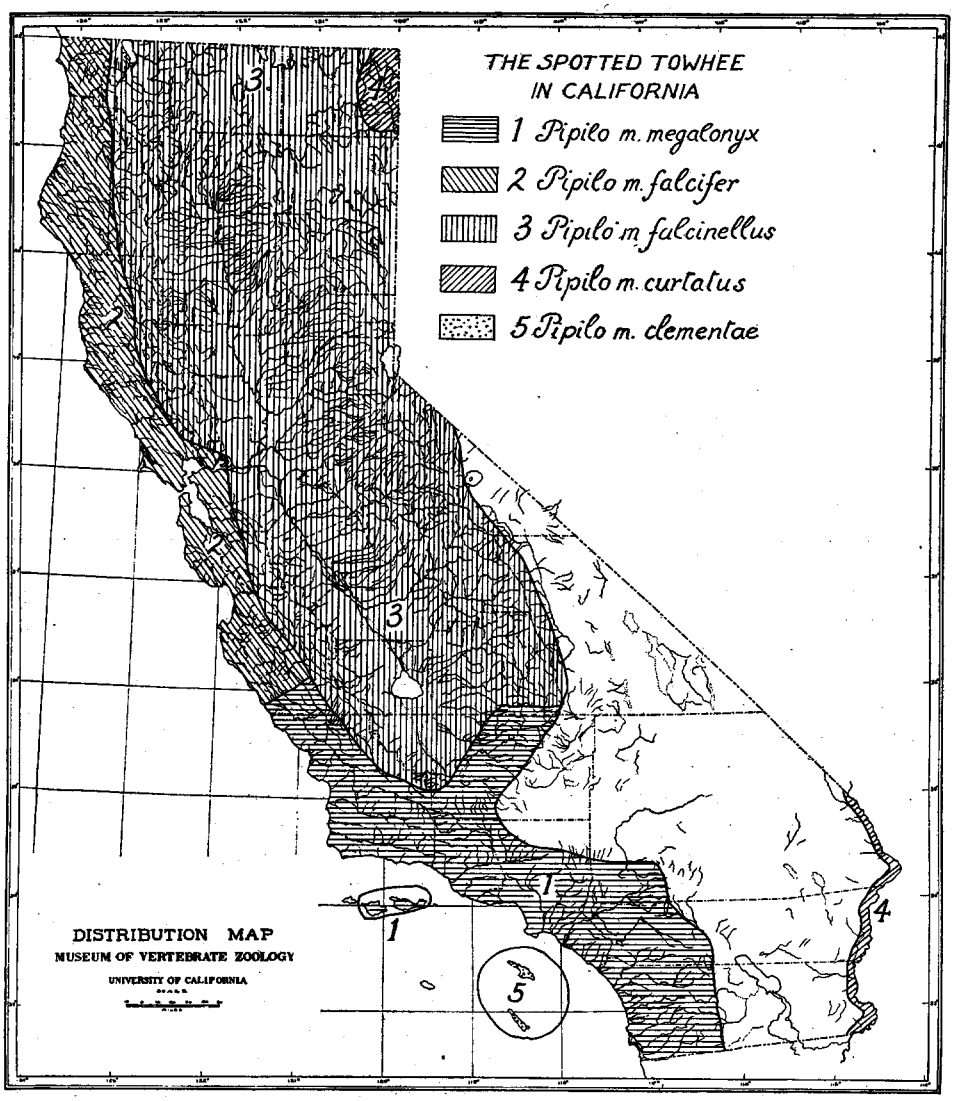

Fig. 47. Map showing the distribution in California of the subspecies of *Pipilo maculatus* occurring within the state. No. 1, *Pipilo maculatus megalonyx;* no. 2, *P. m. falcifer;* no. 3, *P. m. falcinellus;* no. 4, *P. m curtatus;* no. 5, *P. m. clementae.*

While this map is believed to indicate the general outlines of the ranges with a fair degree of accuracy, it is not to be relied upon for the finer details of distribution. Thus although large portions of the San Joaquin Valley are not inhabited by the species, lack of specimens, together with the small scale of the map, render it impracticable to illustrate this point. The range of *curtatus* in northeastern California, as here shown, merely takes in the points from which specimens have been examined; and the boundary between *curtatus* and *falcinellus* may eventually prove to lie much farther west.

The "Southern Sierran district" includes all of southern California lying within the Transition Zone, and the towhee (*P. m. megalonyx*) ranges upward into this region from the San Diegan district, unchanged. This same subspecies (as distinguished from *P. m. falcinellus*) ranges well up into the southern Sierras, near the head of Kern River, but the Museum's recent (1911) exploration in this region shows that most of the Sonoran species of this locality are the same as those of the coast of southern California, and it seems as though the term "San Diegan" could well include the lower extremity of the southern Sierras east to the vicinity of Walker Pass. This seems to be the gap, rather than the Tehachapi as previously supposed.

The occurrence of *P. m. falcinellus* in the Sierra Nevadan district is exactly comparable to the manner of occurrence of *P. m. megalonyx* in the Southern Sierran.

P. m. falcifer ranges through three faunal areas, but not entirely unchanged. The increasingly humid climate from the Santa Cruz district northward is accompanied by certain changes in the towhees of the various regions, but the variations are slight, and as gradually accomplished as are the climatic changes.

P. m. curtatus is confined in summer to the Great Basin district, a small portion of which extends into extreme northern and eastern California. It is the only representative of this group in California which is migratory in its habits, the known winter range of the subspecies including the extremely narrow riparian strip of the Colorado River valley, south to Fort Yuma.

P. m. clementae is confined to two islands of the so-called Santa Barbara Island faunal area. This, although a convenient name by which to designate this group of islands, is unsatisfactory in that the islands form anything but a homogeneous group, as regards their animal life. The towhees themselves are a good example of this absence of uniformity. Thus *P. m. clementae,* a strongly marked race, occurs on San Clemente and Santa Catalina, while on Santa Cruz the spotted towhee is practically indistinguishable from the mainland bird.

In studying the differences in the various races of *Pipilo maculatus* in its wide distribution over the state, it will be observed that there are two distinct lines of variation, these lines converging at the extreme southwestern corner of California. Starting from the southwestern form *megalonyx* of the San Diegan district, gradual changes can be traced to widely different extremes at the northeast and northwest, respectively.

In the towhees of the coast region, from British Columbia to southern California, the back and rump of the male bird are uniformly and intensely black. The difference in color between the various coast forms lies in the extent of the white markings of wings, interscapulars and tail, and in the intensity of the chestnut coloration of sides and crissum, with *oregonus* at one extreme, *megalonyx* at the other, and *falcifer* occupying middle ground.

The birds of the interior (*falcinellus* and *curtatus*) have the rump almost invariably grayish or olivaceous; in the exceptional instances where the upper parts are almost or quite uniform, the black coloration is never as lustrous and intense as in the coast forms.

Along both these diverging lines a gradual and unbroken series of intergradients can be followed, from *oregonus* to *megalonyx* on the one hand, and from *curtatus* to *megalonyx* on the other. In one feature, however, *megalonyx* differs widely from both of the other types; for though in coloration it may be considered as intermediate between them, the exceptional development of the tarsus and foot, especially the hind claw, sets it off distinctly by itself.

Thus, taking the Pacific Coast representatives of the spotted towhee, we may consider *oregonus, megalonyx* and *curtatus* as occupying respectively the three points of a V, with *megalonyx* at the point of junction. There is unbroken connection between *oregonus* and *megalonyx* through *falcifer,* and between *curtatus* and *megalonyx* through *falcinellus;* but as far as the available material shows there is no connection between *oregonus* and *curtatus.*

The bird of the islands (*P. m. clementae*) has the large feet and claws, even more greatly developed than *megalonyx,* but in coloration it is distinctly of the gray-rumped inland type.

No specimens of the Lower California *P. m. magnirostris* have been available for comparison, but from the published descriptions it appears that one of the distinctive features of the subspecies is again large feet and claws.

From all this it would seem that the southwestern subspecies of *Pipilo maculatus* are distinguished from others of the species by the excessive development of feet and claws; while the northwestern (humid coast) and eastern (Rocky Mountain) forms are alike in having these members comparatively small and weak. The northwestern bird, in common with a majority of the animals of the same region, has assumed an intensely dark coloration. The Rocky Mountain forms (applying this term to *curtatus* as well as to *arcticus* and *montanus*) are all decidedly grayish in color.

In its comparatively dark hue *megalonyx* is probably to be regarded as a modification of the black *oregonus,* with which it is unbrokenly connected, but this view does not explain the coloration of the neighboring race *clementae.* By characters of the proportional size of the bill and feet *megalonyx* and *clementae* are closely connected, but the island bird is abruptly grayish colored, of the general style of the Rocky Mountain forms.

Pipilo maculatus megalonyx Baird. SPURRED TOWHEE.

Type Locality.—Fort Tejon, Kern County, California.

Range.—Pacific slope of southern California; north along the coast to San Luis Obispo County; in the interior, to the southern Sierra Nevada (northern Kern County). Also on Santa Cruz and Santa Rosa islands.

Specimens examined from the following localities. San Diego County: Dulzura; Julian; Foster. Orange County: Trabuco Canyon; Santa Ana Canyon. Riverside County: San Jacinto Mountains; Santa Rosa Mountains. San Bernardino County: San Bernardino Mountains. Los Angeles County: Pasadena; El Monte; Glendora; Cerritos; Santa Monica Mountains. Ventura County: Ventura; Nordhoff; Mount Pinos; head of Piru Creek. Kern County: Mount Breckinridge; Kern River, 12 miles below Bodfish; Greenhorn Mountains; west slope of Walker Pass; Fay Creek, 6 miles north of Weldon; Kiavah Mountain; Onyx. Santa Barbara County: Santa Cruz Island. San Luis Obispo County: Santa Margarita; Paso Robles. Total number of specimens, 166.

Distinguishing Characters.—Coloration very dark, and white markings restricted. Adult male (and sometimes the immature male as well) with the entire back uniformly deep black (except for the usual white markings), the rump being deep black instead of more or less grayish or olivaceous. Hind claw longer than in any other California race of *Pipilo maculatus.*

Remarks.—*Pipilo m. megalonyx* as here defined is almost the equivalent of Ridgway's (1899, p. 254) *P. m. atratus.* There is, as pointed out by that author, a race on the Pacific slope of southern California, characterized principally by exceedingly dark coloration; but the range of this subspecies includes the type locality of *Pipilo megalonyx* Baird, Fort Tejon, and extends some distance north

of this locality, both in the interior and on the coast. *Atratus* is thus a synonym of *megalonyx* (see Swarth, 1905, p. 171, and Ridgway, 1906, p. 100), but the characters attributed by Ridgway to the former race are applicable to *megalonyx* as here restricted.

Eleven specimens from Santa Cruz Island have been examined, six from the Grinnell collection, four from the Mailliard collection, and one from the Willett collection. Two of the Mailliard specimens (nos. 3184, 3244) had been examined by Mr. Ridgway at some time, and bear the following writing upon the attached labels: "*Pipilo maculatus clementae.* Not typical; near *megalonyx.* R. R." The eleven specimens at hand are decidedly much more closely similar to *megalonyx* than to *clementae,* being in fact, practically indistinguishable from mainland birds. In this connection also see Linton (1908, p. 208).

No specimens are available from Santa Rosa Island; but it is probably safe to anticipate that birds from that island will be found similar to the Santa Cruz form rather than to the more remote San Clemente and Santa Catalina island subspecies.

Pipilo maculatus falcifer McGregor. SAN FRANCISCO TOWHEE.

Type Locality.—Palo Alto, Santa Clara County, California.

Range.—A narrow strip along the coast of central and northern California, west of the inner coast ranges; from the northern boundary of the state south through Monterey County.

Specimens examined from the following localities. Humboldt County: Cuddeback. Trinity County: Van Dusen River. Mendocino County: Sherwood. Marin County: Nicasio; Mailliard; Bolinas; Fairfax; San Geronimo. Contra Costa County: Martinez; Lafayette; Walnut Creek; Mount Diablo. Alameda County: Oakland; Berkeley; Haywards; Alameda. San Mateo County: Pescadero. Santa Clara County: Palo Alto; Black Mountain. Monterey County: Pacific Grove; Sur River. Total number of specimens, 74.

Distinguishing Characters.—Coloration dark; white markings more restricted than in *megalonyx* but much more extensive than in *oregonus.* Hind claw smaller and weaker than in *megalonyx.*

Remarks.—There is a steady diminution northward in the extent of the white areas, birds from Monterey County being much less easily distinguished from *megalonyx* than are those from western Mendocino County. The northernmost California specimens available, from Mendocino and Humboldt counties, are, however, clearly referable to *falcifer* rather than to *oregonus.* The entire series distinguished by the name *falcifer* forms a connecting link between *megalonyx* and *oregonus,* but on the whole is much more closely related to the former race. Specimens from the region of mergence of *falcifer* and *megalonyx,* in Monterey and San Luis Obispo counties, are with difficulty assigned to one or the other of the two forms, so gradual is the change. No specimens were available from extreme northwestern California and southern Oregon, from between the Humboldt Bay region and Salem, Oregon. Three examples from the latter locality are typical *oregonus,* those from the former are, as before indicated, undoubtedly *falcifer.* Thus there are no specimens at hand showing the finer degrees of intergradation between *falcifer* and *oregonus,* which may be supposed to be found somewhere in southern Oregon.

The numerous records of *Pipilo m. oregonus* from California nearly all properly pertain to this subspecies.

Pipilo maculatus oregonus Bell. OREGON TOWHEE.

Type Locality.—Columbia River, at or near Fort Vancouver, Washington.

Range.—Coast district of southern British Columbia, including the southern part of Vancouver Island, south through western Washington into Oregon.

Specimens examined from California: One from San Clemente Island.

Distinguishing Characters.—White markings reduced in extent more than in any other race of *Pipilo maculatus.* Chestnut areas of sides and crissum darker than in *megalonyx* or *falcifer.* Hind claw short and weak.

Remarks.—But one example of *P. m. oregonus* secured in California has been examined. This specimen (no. 21273, Mus. Vert. Zool.) is a female, taken on San Clemente Island December 4, 1908; it was formerly in the collection of Mr. John E. Thayer, but was donated by him to the Museum of Vertebrate Zoology. This bird is to all appearances a typical example of *oregonus,* being indistinguishable from comparable specimens from Vancouver Island.

Whether it is in fact a veritable representative of this form, a straggler which had wandered an almost incredible distance from its normal habitat, or whether it is an individual variant of *clementae,* a "sport" which has assumed a superficial resemblance to another race, it is impossible to say; but the closeness of its resemblance to the form *oregonus* leaves no choice but to call it by that name. The fact that *oregonus* is usually so limited in its migrations that it does not range southward even as far as northern California, makes doubly astonishing this single occurrence at a far southern island locality.

The capture of this bird was first recorded by Linton (1909, p. 194).

Pipilo maculatus clementae Grinnell. SAN CLEMENTE TOWHEE.

Type Locality.—Smuggler's Cove, San Clemente Island, California.

Range.—San Clemente and Santa Catalina islands, California.

Specimens examined from the following localities: San Clemente Island; Santa Catalina Island. Total number of specimens, 46.

Distinguishing Characters.—General size slightly greater than in *megalonyx;* bill and feet appreciably larger. Coloration grayer than in *megalonyx;* black areas in the male duller and less intense; rump and lower back more or less mixed with grayish .

Remarks.—Apparently confined to San Clemente and Santa Catalina islands, where it is resident. I am unable to distinguish the slightest difference between birds from the two islands.

Pipilo maculatus falcinellus, new subspecies. SACRAMENTO TOWHEE.

Type.—Adult male; no. 22832, Univ. Calif. Mus. Vert. Zool; Marysville Buttes, alt. 500 feet, 4 miles northwest of Sutter, Sutter County, California; April 8, 1912; collected by W. P. Taylor; original number 5555 .

Distinguishing Characters.—Most nearly similar to *Pipilo maculatus megalonyx* Baird, from which it differs in weaker foot, with noticeably short, weak, hind claw, in somewhat greater extent of white markings, and olivaceous or grayish rump. From *Pipilo m. curtatus* it differs in slightly longer hind claw, decidedly darker brown on sides and crissum, and in having the black areas more intensely and glossy black.

Range.—San Joaquin and Sacramento valleys, both slopes of the Sierra Nevada south to southern Tulare County and including the foothill region along the western edge of Owens Valley; north to the northern boundary of the state, between the coast ranges and the Warner Mountains, in Siskiyou, Trinity, and Shasta counties.

Specimens examined from the following localities. Tulare County: Trout Creek. Inyo County: Lone Pine; Independence; Kearsarge Pass; Carroll Creek; Cottonwood Creek. Placer County: Dutch Flat; Blue Canyon. Stanislaus County: Modesto. San Joaquin County: Tracy; Tracy Lake. Solano County: Vacaville. Sacramento County: Sacramento. Amador County: Carbondale. Yolo County: Grand Island. Sutter County: Marysville Buttes. Butte County: Oroville. Tehama County: Tehama. Shasta County: Tower House; McCloud River near Baird. Siskiyou County: Callahan; Summerville. Total number of specimens, 66.

Remarks.—The range of this subspecies in California practically corresponds with that ascribed by Ridgway (1901, p. 416) to *megalonyx* as distinguished by him from *atratus* in the southern part of the state. The name *megalonyx* has since been determined to apply to the southern subspecies, and at least one writer (Goldman, 1908, p. 205) has used the name *montanus* for the form here called *falcinellus,* in recognition of its evident difference from typical *megalonyx.*

From *montanus,* however, it is much more widely separated, and I have seen no California specimens of this or any other form of *Pipilo maculatus* which bear close resemblance to that race.

Pipilo maculatus curtatus Grinnell. NEVADA TOWHEE.

Type Locality.—Pine Forest Mountains, Humboldt County, Nevada.

Distinguishing Characters.—The palest colored of the California races of *Pipilo maculatus.* Besides the general pale coloration and greater extent of white markings, it differs from *megalonyx* in much shorter hind-toe-and-claw. From *P. m. montanus,* to the southward and eastward in Arizona, it differs in slightly darker coloration, shorter wing and much shorter tail. From *P. m. arcticus* it differs in darker colors and slightly longer tail and hind-toe-and-claw.

Range.—Known to occur in California only in the extreme northeastern corner of the state (the Warner Mountain region), possibly in certain of the desert mountain ranges (Panamint, Inyo, and White mountains), and in winter in the valley of the Colorado River. Also found in northern Nevada and eastern Oregon (Grinnell, 1911, p. 310).

Specimens examined from the following localities. Colorado River: 5 miles south of Needles; Chemehuevis Valley; Riverside Mountain; Fort Yuma (collection of A. B. Howell). Warner Mountains: Sugar Hill; Dry Creek. Total number of specimens, 7.

Remarks.—In the Sixteenth Supplement to the A. O. U. *Check-List* (1912, p. 386) this subspecies is denied recognition, as being inseparable from *P. m. arcticus.* As according to the range ascribed to *arcticus* in the *Check-List* (1910, p. 279) the latter does not approach Nevada or California in the breeding season any nearer than southern Alberta and southcentral Montana, this does not seem to have been a very logical conclusion to reach. The area inhabited by *curtatus* is included in the range of *Pipilo m. montanus* as given in the *Check-List,* and if the former is to be relegated to synonymy it should, according to this treatment, be placed with *montanus.* There is, however, no difficulty whatever in distinguishing these two forms.

The conclusion in the Sixteenth Supplement, though illogical when taken in connection with the treatment all the related subspecies are accorded in the *Check-List,* is really nearer the truth of the matter, in that *curtatus* actually is in some respects more nearly like *arcticus* than *montanus.*

Through the courtesy of Dr. Louis B. Bishop I have been privileged to borrow from his collection a series of eleven specimens of *P. m. arcticus,* all breeding adults, including four males and three females from southeastern Saskatchewan and Alberta and thus practically topotypes of the subspecies.

Comparison of these birds with the available series of *curtatus* gives the following results: The males of the two subspecies are very closely similar. In

the male of *arcticus* the black of the upper parts is usually more mixed with olivaceous or grayish, and the white markings, especially of the scapulars and rectrices, are rather more extensive and noticeable, but these differences are not especially conspicuous, and at a casual glance the males of the two forms look very much alike. There are no differences of moment in size or proportions.

The females of the forms are so dissimilar, however, as to leave no doubt as to the distinctness of the two. In *curtatus* the female is of the type of the western races of *P. maculatus* in general, with the head and the ground color of the upper parts very dark (a dull slate color), with little or no indication of brown. In the female of *arcticus* these same areas are so overlaid with a brownish suffusion as to give a decidedly different and lighter tone of color to the whole bird. This is not a difference requiring close scrutiny for discernment, but is something that is readily apparent at a glance. When series of females of *P. m. curtatus, P. m. arcticus,* and *P. erythrophthalmus* are laid out side by side, so as to produce a general "mass effect" of each of the three, the body color of *arcticus* appears to be almost intermediate between the slaty hue of *curtatus* and the brown of *erythrophthalmus.*

Thus the study of this material leads directly to the conclusion that the name *curtatus* should not be considered a synonym of *arcticus,* as has been claimed, but that it represents a distinguishable subspecies, apparently intermediate between the paler colored Rocky Mountain forms and the more intensely black Pacific Coast races. The material available in the present study shows unbroken intergradation from *curtatus* through *falcinellus* to the extremely dark *megalonyx,* though not between *curtatus* and *arcticus.*

In this connection the probability suggests itself of the breeding bird of the central Rocky Mountain region (Utah, Colorado, etc.) being of the form *curtatus* rather than *montanus,* to which it is at present referred, but the pertinent material at hand does not warrant more than the suggestion.

In differentiating *curtatus* from the other California forms the pale color of the chestnut areas in the former appears to be an excellent character. A molting bird at hand from the Warner Mountains (Mus. Vert. Zool., no. 14861), in which many of the chestnut-colored side and flank feathers are still partly ensheathed, nevertheless has these parts lighter colored than examples of *falcinellus* or *megalonyx.* The absolutely fresh and unworn condition of the feathers in this case is conclusive evidence against the assumption that the paler color of *curtatus* is due to fading, being produced by the fiercer heat and sunshine to which it is exposed.

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MEASUREMENTS IN MILLIMETERS (AVERAGE, MINIMUM AND MAXIMUM) OF CERTAIN OF THE SUBSPECIES OF *PIPILO MACULATUS*

	Wing	Tail	Culmen	Tarsus	Hind Toe and Claw	Spot on Tail *
Pipilo maculatus megalonyx	84.6	96.4	13.5	27.2	21.3	24.4
10 males from Pasadena and San Jacinto Mts.	(80-88)	(91-100.5)	(12.5-14.5)	(25-28)	(20-23)	(21-29)
Pipilo maculatus falcifer	82.9	94.2	13.9	27.9	20.9	22.7
10 males from Palo Alto and Oakland	(80-87)	(91-100.5)	(13.2-15)	(26.5-29)	(19.2-22)	(19-27)
Pipilo maculatus oregonus	84.6	95.9	14.7	28.1	19	20.7
10 males from Vancouver Island, B. C.	(80-88)	(89-100)	(14-15)	(26-29.5)	(17.5-20)	(18-25)
Pipilo maculatus falcinellus	85.4	98.3	14.1	27.9	18.9	26.8
10 males from Sacramento Valley	(84-88)	(96-103)	(13-15)	(27-28.5)	(18-20.5)	(25-30.2)
Pipilo maculatus curtatus	85.7	98	13.8	27.4	18.6	27.5
6 males from Nevada and Oregon	(83.5-86.5)	(95-101)	(12.9-14.8)	(26.5-28.5)	(18-19)	(26-31.8)
Pipilo maculatus arcticus	86.8	98.2	13.08	26.5	18.5	33.1
6 males (4 from Saskatchewan and Alberta)	(82-89)	(96-101)	(12.2-13.8)	(25.5-27.5)	(17.5-20)	(29-36)
Pipilo maculatus clementae	84	95.3	14.7	28.4	21.2	22.7
7 males from San Clemente Island	(84-87)	(91-100)	(14-15.5)	(28-29)	(19-24)	(22-24)

* Length of white spot on inner web of outer tail feather.