

TAXONOMY OF THE BROWN CREEPER IN CALIFORNIA

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ABSTRACT.—Three subspecies of the Brown Creeper breed in California: *C. a. zelotes*, from the inner Coast Range of northern California east to the Warner Mountains and south through the Sierra Nevada, Transverse, and Peninsular ranges, has a dark cinnamon rump, a dusky brown crown and back narrowly streaked whitish, and white underparts. *C. a. occidentalis* from the humid coast belt from the Oregon border south to Marin and Alameda counties; has a dark cinnamon rump, a deep rufous crown and back narrowly streaked buff, and white underparts. *C. a. phillipsi*, new subspecies, of the central coast from San Mateo to San Luis Obispo counties; has a golden cinnamon rump, a deep rufous crown and back narrowly streaked whitish and smoke gray, and grayish brown underparts. Two additional subspecies occur as rare winter visitors: *C. a. montana*, breeding in the Rocky Mountains and known in California from five specimens; has a paler tawny rump, a relatively pale crown and back with broad white streaks but little rufous, and white underparts. *C. a. americana*, breeding in eastern North America and known in California from four specimens; has also a pale tawny rump, a relatively pale crown with broad buff-tinted whitish streaks, a broadly white-streaked back with much rufous, usually white underparts (sometimes tinted pale peach color), and a tendency to a shorter bill.

Webster (1986) reviewed the subspecies of the Brown Creeper (*Certhia americana*) most recently. Since 1965, however, we have collected 91 creepers in California that he did not see and that provide a different perspective on the species' variation in the state. Geographic variation in this species is largely in plumage color. The shade of rufous or buff on the back, the width and whiteness of the dorsal streaks, the color of the rump, and the color and pattern of the underparts all vary, apparently independently. Only bill length has been identified as a geographically significant mensural variable in the Brown Creeper, provided that the sexes are analyzed separately. Various populations differ slightly in average wing length, but in no case is this difference important to the subspecies' definition. Because creepers use the tail as a prop in climbing trees, their rectrices wear very quickly, and tail length is not useful as a taxonomic character.

MATERIALS AND METHODS

We based our study primarily on the collections of the San Diego Natural History Museum (SD), home of all our recently collected specimens (203 total), California Academy of Sciences (CAS), San Francisco (78 specimens relevant to this study examined), Museum of Vertebrate Zoology (MVZ), University of California, Berkeley (179 specimens), Los Angeles County Museum of Natural History (LACM; 23 specimens), San Bernardino County Museum (SBCM; 5 specimens), and American Museum of Natural History, New York (AMNH; 91 specimens). We also borrowed selected specimens from the National Museum of Natural History (USNM; 5), Denver Museum of Natural History (DMNH; 3), University of Michigan (UMMZ; 1), and University of California, Santa Barbara (UCSB; 1).

Although Webster (1986) appears to have addressed adequately the Brown Creeper's variation in size, he presented measurements for males only. Therefore, we measured bill lengths from nostril of females of the subspecies in which this variable was likely to be significant. Otherwise, we assessed variation in plumage color visually.

PLUMAGES AND MOLT

The Brown Creeper's plumage cycle is typical of many sedentary North American songbirds. The post-juvenile molt includes the body plumage and tail (Pyle et al. 1987) but not the remiges. The extremely delicate juvenile plumage is easily distinguished from the basic plumage, but the basic plumage of first-year birds is the same as that of older adults. There is no spring molt, only the complete annual post-breeding molt, which takes place mainly from late July to early September. Because of the Brown Creeper's habit of creeping on tree trunks and nesting in bark crevices, combined with the plumage's lacy texture, that plumage wears severely over the year. By late spring the edges of the crown and back feathers are worn off, and the underparts, at least, are frequently smeared with pitch and soot. Therefore, we based our study largely on fall and early winter specimens, disregarding those with adventitious black stains.

There is a slight average difference in size, especially bill length, between the sexes, the males averaging larger, but none in plumage pattern or color.

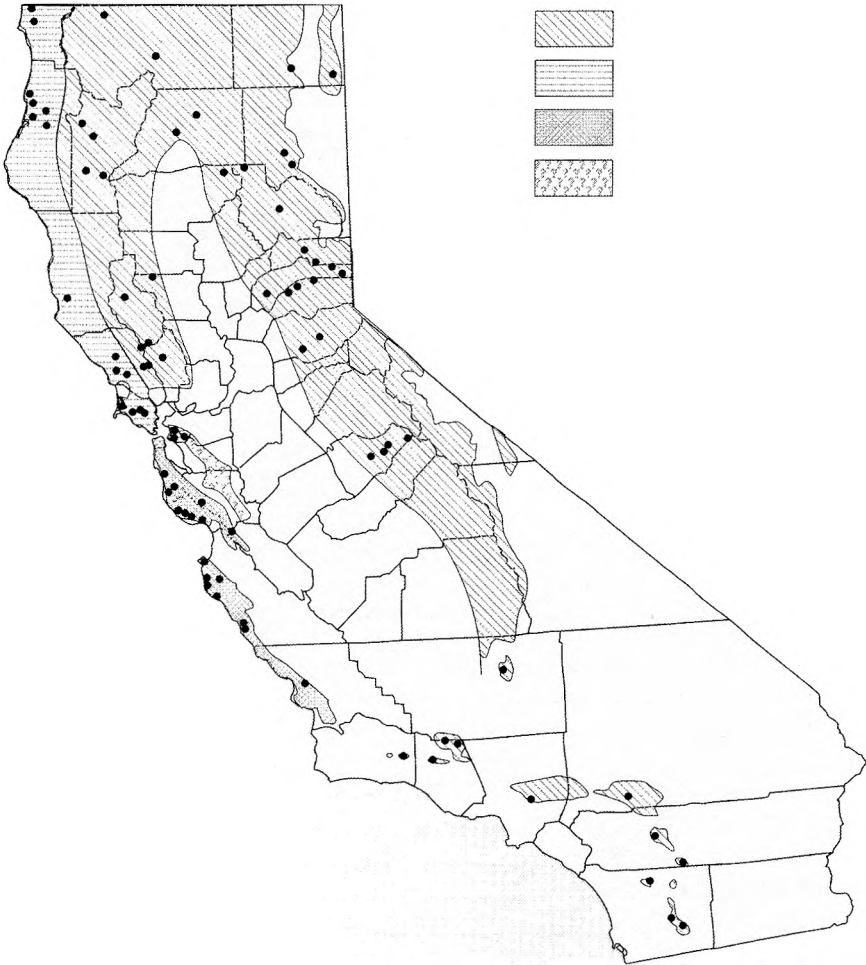


FIG 1. Breeding distribution of the Brown Creeper in California. Symbols represent localities of taxonomically informative specimens examined during this study. Triangles, *C. a. zelotes*; squares, *C. a. occidentalis*; circles, *C. a. phillipsi*; M, *C. a. montana*; A, *C. a. americana*. Shading suggests breeding ranges of the three subspecies in California. Vertical lines, *C. a. zelotes*; horizontal lines, *C. a. occidentalis*; stippling, *C. a. phillipsi*.

BREEDING DISTRIBUTION

In California, the Brown Creeper is a largely resident species of coniferous or oak forests, occurring in other habitats only as a rare nonbreeding visitor. The great majority of the California specimens we examined were from the species' breeding range. Because of the high level of homogeneity in samples from any given area, we believe the samples are representative of breeding populations (Fig. 1). We have identified only three specimens from the Brown Creeper's breeding range that represent migrants, in addition to 15 from outside the breeding range (see under Nonbreeding Distribution).

Certhia americana zelotes Osgood, 1901

The most widespread subspecies of creeper in California is *C. a. zelotes* (type locality Battle Creek, which forms part of the boundary between northeastern Tehama County and southeastern Shasta County). It has whitish underparts and dark brown upperparts narrowly streaked whitish; often the whitish streaks are tinged brown. The rump is deep cinnamon (Fig. 2). *Certhia a. zelotes* occurs in the inner Coast Ranges of northern California, Cascade Range, Sierra Nevada, Warner and White mountains, and on all the forested mountains of southern California from Figueroa Mountain, Santa Barbara County (Lentz 1993), east through the Transverse Ranges and south in the Peninsular Ranges to the Cuyamaca and Laguna mountains, San Diego County (Fig. 1). The identity of the creepers of southern California as *zelotes* is confirmed by our 20 recently collected fresh-plumaged specimens from Santa Barbara, Ventura, Riverside, and San Diego counties.

We mis-reported a specimen of *zelotes* from the Laguna Mountains as *C. a. montana* Ridgway, 1882 (type locality Mount Graham, Graham County, Arizona), because of its broader white streaking lacking any brown tinge (Unitt 1984). Although most specimens of *montana* have broader white streaks than most specimens of *zelotes*, the two subspecies overlap in this character. The Laguna specimen, however, like all 12 other specimens from San Diego County, has the dark cinnamon rump typical of *zelotes* rather than the paler tawny rump typical of *montana*. We have found no overlap between the two in rump color (Fig. 2).

Certhia americana occidentalis, Ridgway, 1882

In the humid coastal zone of California from Del Norte County south to the Golden Gate the narrow streaks on the creepers' crowns are buff, not whitish, and the background color between the streaks is deep rufous, not dusky brown (Fig. 2). The rump is the same dark cinnamon as in *zelotes*. The underparts sometimes have faint brown mottling on the sides but are basically white.

This description applies to all specimens we have seen from Del Norte, Humboldt, and Mendocino counties, and to most of the 15 from Sonoma and Marin counties. Two specimens from Sonoma County (CAS 16637, Sebastopol; CAS 55653, Camp Meeker) have the underparts tinged brown; in the former specimen, the brown is confined to the tips of the feathers, giving the bird a scalloped appearance reminiscent of a juvenile, which it is not. The upperparts of both specimens are strongly rufous, typical of *occidentalis* (type locality Simiahmoo, Whatcom County, Washington), and unlike the population south of the Golden Gate.

The population in the East Bay Hills of Contra Costa and Alameda counties also seems to be *occidentalis*, though we have seen only five specimens from this area, two of them juveniles (MVZ) and one, from Alameda (CAS 59257), possibly from a nonbreeding locality even when it was collected in 1899. The clean (June) juveniles have basically

TABLE 1
MEASUREMENTS OF *CERTHIA AMERICANA PHILLIPSI*

	Mean	Standard deviation	Range
Males (<i>n</i> = 14)			
Wing chord	61.9	0.73	60.6-63.3
Bill from nasofrontal hinge	20.2	0.84	19.0-22.1
Bill from nostril	12.4	0.73	11.1-13.6
Females (<i>n</i> = 10)			
Wing chord	57.8	1.54	55.0-59.8
Bill from nasofrontal hinge	18.0	0.66	16.9-19.3
Bill from nostril	10.6	0.55	9.2-11.5

white underparts; under their light coats of soot or dirt, the adults seem to as well.

The one specimen we have seen from San Francisco (CAS 60648, Golden Gate Park) is badly sooted and cannot be assessed. Of 16 specimens (excluding juveniles and sooted birds) from San Mateo County, one (CAS 77919, Harrison, a former locality near Pescadero) is almost white below like creepers from north of the Golden Gate. But all other specimens, and all from Santa Cruz and Monterey counties, have the underparts grayish brown, with only the chin white. Webster (1986) alluded to this difference, writing that creepers from this area are "slightly darker and less orangish dorsally, with ventral buffness a vinaceous buff." We found the difference between the creepers of the northern and central California coasts to be as great as that between any other North American subspecies, however, and certainly more obvious than that between the long-recognized *americana* and *montana* (compare Figs. 3 and 4 with Fig. 5). Therefore, we propose that the Brown Creepers of central coastal California be designated

Certhia americana phillipsi, subsp. nov.

HOLOTYPE.—First-year female, SD 46676, collected 2 miles east of Point Gorda, Monterey County, California, on 14 October 1989 by Amadeo M. Rea, prepared by Philip Unitt.

DESCRIPTION.—Chin white, contrasting with grayish brown malar region, lower throat, and rest of underparts. In this *phillipsi* differs from *occidentalis*, in which the entire underparts are essentially white (Fig. 3). Crown blackish, narrowly streaked deep buff. Back streaked whitish (along shafts and at tips of feathers) and smoke gray (similar to color 45 of Smithe 1975), lacking the golden buff tinge of the back of *occidentalis*. Rump golden cinnamon, more yellow than in *occidentalis* (Fig. 4), darker than in *montana* or *americana*. Otherwise similar to *occidentalis*. *C. a. phillipsi* differs from *C. a. albescens* and other Middle American Brown Creepers that also have dusky underparts by its browner upperparts. For measurements (not diagnostic), see Table 1.

The smoky-brown cast to the underparts of *phillipsi* is not adventitious. Though not washed, our specimens are in clean, newly acquired plumage (13 September-16 October), one of the paratypes, even on 14 October, still showing traces of molt on the anterior third of the body. All specimens of *phillipsi* in all museums show the same pattern of a white chin contrasting with the rest of the underparts.

DISTRIBUTION.—Resident in the outer Coast Range of central California, in two disjunct blocks. The northern extends from at least Purisima Creek 4 miles southeast of Half Moon Bay, San Mateo County (SD 42639, 42640, 42606, 42607) and probably the Golden Gate south at least to the Pajaro River 5 miles north of San Juan Bautista on the San Benito County line (SD 46561) and apparently into northeastern Monterey County (Roberson and Tenney 1995) and probably northwestern San Benito County in oak woodland. Brown Creepers occur in suitable habitat probably throughout San Mateo and Santa Cruz counties (D. L. Suddjian pers. comm.), in Santa Clara County all along the east slope of the Santa Cruz Mountains (W. G. Bousman pers. comm.; specimen 0.9 mile north of Redwood Estates, SD 41007). The southern block extends from Monterey (USNM 481395, 530654, 563229, 563230) south in the Santa Lucia Range through Monterey and San Luis Obispo counties south at least to the east fork of Morro Creek at the north base of Cerro Alto (SD 48966). In 1994 a pair nested in planted conifers around a golf course in Santa Maria, northwestern Santa Barbara County (J. Chavez pers. comm.).

The Brown Creeper has extended into the Diablo Range of eastern Santa Clara and southern Alameda counties, where the birds now breed in closed-canopy forest of live oaks and California laurel (*Umbellularia californica*), often with no conifers (Rogers 1995; W. G. Bousman, M. M. Rogers pers. comm.). Their habitat's being entirely native, and their absence from this area as a breeding species from 1929 to 1936 (Linsdale 1937) confirm a natural range expansion. The colonization took place before 1974, as observed by Matthiesen and Weston (1974), who reported the species as fairly common in at several locations in the Diablo Range. The origin and subspecific identity of this new population remains an open question. Rogers (1995) suggested two possibilities: southward spread of *occidentalis* or colonization by winter visitors of *zelotes* remaining to breed. We suggest yet a third possibility: colonization from the west by *phillipsi* leapfrogging the Santa Clara Valley, possibility aided by the maturation of urban trees providing new intervening habitat in the city of San Jose (where the species now nests, W. G. Bousman pers. comm.). Testing of these hypotheses through the collection of specimens remains to be done.

HABITAT.—Typically, mature forest dominated primarily by Coast redwood (*Sequoia sempervirens*), Douglas fir (*Pseudotsuga menziesii*), and tanoak (*Lithocarpus densiflora*). South of Monterey Bay the habitat includes the bristlecone fir (*Abies bracteata*). The creepers use other trees, even blue gum (*Eucalyptus globulus*), where these grow adjacent to the preferred habitat. The birds forage also in riparian woodland, of willows (*Salix spp.*), black cottonwood (*Populus trichocarpa*), white alder (*Alnus rhombifolia*), boxelder (*Acer negundo*), and California laurel. They breed in this habitat at least rarely, as confirmed in 1996 along the Pajaro River in Santa Cruz County by D. L. Suddjian (pers. comm.). At some sites, in both the core of its range (Santa Cruz County, D. L. Suddjian pers. comm.) and on the fringe (in San Luis Obispo County, Unitt pers. obs.) *Certhia a. phillipsi* occurs also in oak woodland with few or no conifers. It occupies planted stands of conifers, though these are often of species native to its range (Monterey pine, *Pinus radiata*; Monterey cypress, *Cupressus macrocarpa*). In addition to a possible spread to the east, horticultural planting of conifers may have facilitated the creeper's spread south of its historically described range (to Monterey County only; Grinnell and Miller 1944) through San Luis Obispo County and recently to extreme northwestern Santa Barbara County. Nevertheless, Suddjian (pers. comm.) finds it much more numerous in old-growth forest or mature second-growth forest (>80 years old) than in younger stands.

ETYMOLOGY.—We name this subspecies for Allan R. Phillips, in honor of his lifelong work studying the taxonomy of North and Middle American birds, and in appreciation of his having been a mentor to us. He independently called our attention to the uniqueness of the Brown Creepers of the central California coast.

TABLE 2
SPECIMENS OF MIGRANT BROWN CREEPERS FROM CALIFORNIA

Specimen	Locality	Date
<i>zelotes</i>		
SD 40756 ^a	Navarro River at Flynn Creek, Mendocino Co.	22 Sep 1978
USNM 563945	Walnut Creek, Contra Costa Co.	8 Apr 1962
MVZ 81379	Mount Diablo, Contra Costa Co.	21 Oct 1934
CAS 55643	Victorville, San Bernardino Co.	22 Dec 1904
CAS 55674	Victorville, San Bernardino Co.	22 Dec 1904
MVZ 38513	Victorville, San Bernardino Co.	28 Dec 1904
MVZ 56605	Yucaipa, San Bernardino Co.	7 Jan 1917
SBCM 36712	Rialto, San Bernardino Co.	18 Oct 1953
MVZ 10863	Riverside, Riverside Co.	8 Dec 1888
<i>montana</i>		
SD 45546	Smith River at Myrtle Creek, Del Norte Co.	11 Oct 1988
MVZ 146329	29 mi. S Needles, San Bernardino Co.	30 Dec 1926
SBCM 36719	near Yermo, San Bernardino Co.	7 Dec 1910
SBCM 51738	Hinkley, San Bernardino Co.	30 Oct 1987
SBCM 51739	Hinkley, San Bernardino Co.	30 Oct 1987
<i>americana</i>		
SBCM 36714	Cambria, San Luis Obispo Co.	26 Nov 1965
SBCM 2980	4 mi. N Needles, San Bernardino Co.	26 Nov 1960
UM 160558	2.5 mi. N Blythe, Riverside Co.	9 Feb 1939
SD 44520	7.5 mi. NW Imperial, Imperial Co.	19 Nov 1986

^a Intermediate toward *montana* in somewhat paler rump.

REMARKS

There is no overlap in underpart color between *occidentalis* and *phillipsi* over most of their ranges. Two specimens from Pescadero, San Mateo County (CAS 77917 and 77918), are pale buff below, not as dark as other specimens of *phillipsi*. Otherwise, only the two atypical specimens from Sonoma County and these two from San Mateo County suggest intergradation. Likely San Francisco Bay has been a barrier to creepers' dispersal sufficient to inhibit gene flow and maintain *occidentalis* and *phillipsi* as separate gene pools at least since the Pleistocene.

It seems odd that the distinctiveness of *phillipsi* was not pointed out long ago. For example, 12 specimens collected on 23 November 1940 at Big Pines, 9 miles west of Jamesburg, Monterey County (MVZ 80664-80675), exemplify it just as well as our more recent ones. In summer, however, the underparts of creepers throughout their range are more or less stained, obscuring their natural color.

TABLE 3
BILL LENGTHS FROM NOSTRIL OF FEMALE
CERTHIA A. MONTANA AND *C. A. AMERICANA*

Subspecies	n	Mean	Standard deviation	Range
<i>montana</i>	66	10.52	0.66	9.4-12.9
<i>americana</i>	64	9.65	0.63	8.5-11.1

NONBREEDING DISTRIBUTION

The Brown Creeper occurs annually in winter in California as a migrant away from its breeding range. Nevertheless, our study revealed only 18 specimens clearly of such migrants (Table 2). We have not included the specimens collected by Joseph Grinnell in the 1890s "near" Pasadena, Los Angeles County; since one of these was taken on 22 June, the San Gabriel Mountains were apparently close enough to Pasadena for Grinnell to label them as such. Half of the migrants are *zelotes*, as indicated by their dark chestnut rumps and dark background color of their backs. Five, however, are *montana*, which differs from *zelotes*, as mentioned above, by its broader, whiter back and crown streaks and paler, tawnier rump. *C. a. montana* breeds in the Rocky Mountain region, south to central eastern Arizona and west to northeastern Oregon. One of the California specimens, collected along the Colorado River 29 miles south of Needles, San Bernardino County, on 30 December 1926 (MVZ 146329) was previously reported by Grinnell and Miller (1944). J. D. Webster examined this specimen, identifying it as *zelotes* on its label. We agree with Grinnell and Miller's original identification of it as *montana*. Its back streaking and rump color are typical for *montana*, and the specimen closely matches one in MVZ from Anthony, Baker County, northeastern Oregon, in the range of *montana*. Another specimen of *montana* Rea collected in the breeding range of *occidentalis*, in Del Norte County along the Smith River at Myrtle Creek, on 11 October 1988. The other three specimens of *montana*, all from the central Mojave Desert and in the San Bernardino County Museum, have not been reported previously. In addition to these California specimens, Rea collected a *montana* a short distance north of the border in Oregon, 1.5 miles east-northeast of Mount Ashland, Jackson County, in the range of *zelotes*, on 15 October 1988 (SD 45623). The specimen reported as *montana* from the Colorado River by Stager (1941) is actually *americana*; see below.

Certhia a. americana, breeding in eastern Canada and the northeastern U.S. (type locality "North America"), has not been previously reported from California, except for the premature notice of it in *American Birds* (41:145, 1987). It closely resembles *montana*, especially in its relatively pale tawny rump. It differs in its tendency to a shorter bill, broader, buffier crown streaks, and rustier back. The difference in back color arises from the rusty color in the individual feathers being more extensive in *americana* than in *montana*. A pale peach-colored tint to the otherwise white underparts and supercilium is apparently unique to very fresh-plumaged *americana* but crops up in only a minority of specimens. The bill measurements of *americana* and *montana* overlap sufficiently that this character alone cannot distinguish them (Table 3); the crown streaks and back color must be used as well. The rustier back may appear in the more northern populations of *montana*, those named *idahoensis* by Webster (1986), synonymized with *montana* by Browning (1990). It would not be surprising if further study of creepers of the northern Rocky Mountains would suggest modification of these subspecies' ranges as currently described.

Phillips et al. (1964) reported *americana* as a regular winter visitor around Tucson, Arizona, and implied that it occurred as far west as the Colorado River. That it should reach southeastern California is thus not entirely unexpected. On 14 November 1986, Roger Higson began finding Brown Creepers in the cemetery at Brawley, Imperial County. He alerted Unitt, who visited the Imperial Valley on 19 November and searched for other habitat that might attract migrant creepers. In the lack of any significant riparian cottonwoods, planted lines of athel tamarisks (*Tamarix aphylla*) seemed to offer the best promise, and it was in such a line along Imler Road 7.5 northwest of Imperial that he located and collected a single first-winter creeper. The bird's gonad(s) were destroyed, but its bill is so short (9.8 mm from nostril) that it lies outside the range of males of any subspecies. It falls in the zone of overlap between female *montana* and *americana*, though closer to the latter. In breadth and buffiness of crown streaks, however, it matches *americana* (Fig. 5).

The specimen (UMMZ 160558) collected by Stager (1941) 2.5 miles north of Blythe, Riverside County, on 9 February 1939 is also *americana*, not *montana* as originally reported. The white streaks on the crown and back are tinged buffy, and the ground color of the back is rather rusty, so the bird matches many specimens of *americana* and falls outside the range of variation in *montana* in color. Its bill is short (18.3 mm from nasofrontal hinge, 13.7 mm exposed culmen, 11.9 from anterior edge of nostril), matching *americana* and apparently falling outside the range of *montana* [minimum exposed culmen given by Webster (1986) 14.0 mm].

Two other California specimens of *americana*, collected by Eugene A. Cardiff and in the San Bernardino County Museum, have not been reported previously. One is from the Colorado River near Needles, perhaps the area of California where this subspecies is most likely. The rustiness of its back is intermediate between two specimens of *americana* from Pennsylvania, and the background color of its crown is notably rusty. With an exposed culmen of 16.3 mm it has a bill in the zone of overlap between *americana* and *montana*, though near the lower limit for the latter, according to Webster's (1986) Table 2.

Another specimen of *americana* is from Cambria, San Luis Obispo County, in the habitat of *phillipsi*. In its white underparts, tawny rump, and broad white back streaks on a rusty background it is typical of *americana* and differs grossly from *phillipsi*, with which we compared it. From the nostril, its bill measures 9.9 mm, again in the zone of overlap between *americana* and *montana* (Table 3), though on the low side for the latter.

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FIG 2. Brown Creepers, dorsal view. Top, *C. a. occidentalis*; center, *C. a. zelotes*; bottom, *C. a. montana*. The pale streaks of *occidentalis* are more buffy, those of *zelotes* and *montana* more whitish. The rump of *occidentalis* and *zelotes* is darker cinnamon, that of *montana* paler tawny.



FIG 3. Brown Creepers, ventral view. Top, *C. a. occidentalis* (Del Norte County); bottom, *C. a. phillipsi* (Monterey and San Luis Obispo counties). This view shows the principal difference between the two subspecies underparts, nearly pure white in *occidentalis*, extensively brown-tinged in *phillipsi*.





FIG 4. Brown Creepers, dorsal view. Top, *C. a. occidentalis* (Del Norte County); bottom, *C. a. phillipsi* (Monterey and San Luis Obispo counties). The pale back streaks of *phillipsi* are less buff, more grayish, while the rump is a slightly more yellowish rufous.



FIG 5. Brown Creepers, dorsal view. Top, *C. a. montana*; bottom, *C. a. americana*. The pale streaks of *americana* are tinged buff, and the background color of the back is more rufous.