ORNITHOLOGY OF GUADELOUPE ISLAND, BASED ON NOTES
AND COLLECTIONS MADE BY DR. EDWARD PALMER.

BY ROBERT RIDGWAY.

The small collection of birds transmitted to the National Museum by Dr. Palmer is very interesting, from the fact that every one of the resident species is distinct from any found on the neighboring main-land, although each has a continental representative more or less nearly related. The collection is said to include all the species of land-birds found on the island, with the exception of a humming-bird, a hawk, and two kinds of owls, no specimens of which were obtained.

While the peculiar *facies* of this local insular fauna is very strongly marked, it is a noteworthy fact that among the *Passeres*, when there is any similarity to continental forms, the closest resemblance is to the Rocky Mountain or Middle Province races, instead of those of the neighboring Pacific coast. Thus, the *Junco*, the *Thryomanes*, and the *Carpodacus* are much more like *J. annectens*, *T. bewicki leucogaster*, and *C. frontalis frontalis* than *J. oregonus*, *T. bewicki spilurus*, and *C. frontalis rhodocolpus* of the coast district. It is still more remarkable that the *Polyborus* should, while distinct from either, be more like the species from southern South America (*P. tharus*) than that from Lower California and other portions of Middle America (*P. cheriway*).

It is much to be regretted that the notes accompanying the specimens are so meagre; they only furnish the information that the position of Guadeloupe is between latitude 28° 45' and 29° 10' north, and off the coast of Lower California, two hundred and twenty miles southwest from San Diego.

The land-birds ascertained by Dr. Palmer to inhabit the island during the breeding-season are the following:—

Fam. SYLVIIDÆ.

1. *Regulus calendula obscurus nobis.*

Fam. TROGLODYTIDÆ.

2. *Salpinctes obsoletus guadeloupensis nobis.*
3. *Thryomanes brevicauda nobis.*

Fam. FRINGILLIDÆ.

4. *Carpodacus amplus nobis.*
5. *Junco insularis nobis.*
6. *Pipilo maculatus consobrinus nobis.*

Fam. TROCHILIDÆ.

7. ———? (Unidentified.)

Fam. PICIDÆ.

8. *Colaptes mexicanus rufipileus nobis*.

Fam. STRIGIDÆ.

9. ————? } (Unidentified.)
 10. ————? }

Fam. FALCONIDÆ.

11. *Polyborus lutosus nobis*.

FAM. SYLVIIDÆ.

1. *REGULUS CALENDULA OBSCURUS, nobis*.

CH.—*Adult*.—Above olive-gray, with a slight greenish cast, the primaries and tail-feathers edged with dull sulphur-yellow; both rows of wing-coverts tipped with dull grayish-white, forming two well defined bands. A distinct, broad, dull-white, orbital ring. Lower parts pale grayish-buff, the sides slightly tinged with olivaceous. *Male*, crown with a large central patch of vermilion-red, concealed or exposed at pleasure; wing, 2.15–2.20; tail, 1.85–1.95; bill, 0.25; tarsus, 0.80; middle toe, 0.38–0.40. *Female*, without the red on the crown; wing, 2.00; tail, 1.70; bill, 0.22; tarsus, 0.80; middle toe, 0.40.

Remarks.—This resident insular race of the Ruby-crowned Kinglet differs very appreciably from the continental form in the considerably darker, more plumbeous shade of the upper surface, the larger bill, and rather shorter wings and tail; the tarsis and toes are also appreciably longer. The differences may be more precisely expressed by the following table of comparative characters:—

R. CALENDULA OBSCURUS.—Wing, 2.00–2.20; tail, 1.70–1.95; bill, 0.22–0.25; tarsus, 0.80; middle toe, 0.38–0.40. Upper parts dusky brownish-gray anteriorly. *Hab.*—Guadeloupe Island.

R. CALENDULA CALENDULA.—Wing, 2.20–2.30; tail, 1.85–1.90; bill, 0.20–0.22; tarsus, 0.75; middle toe, 0.35. Upper parts light olivaceous-gray anteriorly. *Hab.*—North America in general (continental).

The comparative measurements of the two races are as follows:—

R. OBSCURUS.

Catalogue No.	Original No.	Sex and age.	Wing.	Tail.	Bill.*	Tarsus.	Middle toe.
70036	36	♂ ad.	2.15	1.85	0.25	0.80	0.38
70037	36	♂ ad.	2.15	1.85	0.25	0.80	.....
70038	36	♂ ad.	2.20	1.95	0.25	0.80	.....
70039	36	♂ ad.	2.20	1.95	.....	.....	.....
70040	37	♀ ad.	2.00	1.70	0.22	0.80	0.40

* The bill is measured from the anterior portion of the nostril, and not from the base of the culmen.

R. CALENDULA.

Catalogue No.	Sex and age.	Locality.	Wing.	Tail.	Bill.	Tarsus.	Middle toe.
1993, Mus. R. R.	♂ ad.	Alaska..	2.30	1.90	0.22	0.75	0.35
1430, Mus. R. R.	♀ ad.	Illinois..	2.20	1.85	0.20	0.75	0.35

Collector's notes.

First seen April 1. During the winter, the bird was not seen on the middle or northern portions of the island, but is supposed to remain in the warmer cañons, whence it becomes generally distributed during March. A male, closely observed during the act of singing, was seen to display the red of the crown to its full extent; this conspicuous ornament being concealed again as soon as the notes closed.

FAM. TROGLODYTIDÆ.

2. SALPINCTES OBSOLETUS GUADELOUPENSIS, *nobis*.

CH.—*Adult*.—Above dull grayish-brown, indistinctly speckled with dusky, and becoming light cinnamon-rufous on the rump; wings and tail indistinctly barred with dusky; tail-feathers, except the middle pair, broadly tipped with pale cinnamon, this preceded by a less regular and more broken black bar; the cinnamon frequently finely mottled with dusky. Chin, throat, and jugulum dull white, the jugulum distinctly streaked with dusky; rest of lower parts nearly plain dirty white, becoming light pinkish-cinnamon on the sides; crissum heavily barred with black. *Male*, wing, 2.60–2.75; tail, 2.20–2.30; bill, 0.58–0.60; tarsus, 0.80–0.90; middle toe, 0.50–0.55. *Female*, wing, 2.50–2.60; tail, 2.00–2.20; bill, 0.55–0.60; tarsus, 0.80–0.90; middle toe, 0.50–0.55.

Remarks.—The upper tail-coverts are strongly barred transversely. There is a tolerably well-defined light superciliary stripe. In No. 70049, there is a deep reddish-brown suffusion across the breast, apparently an accidental stain from contact with ferruginous earth. The differences exhibited in these insular specimens from the continental series are quite slight, but they are so constant as to demand recognition. As to colors, there is no difference beyond slightly darker shades throughout; the lower parts being soft pinkish cream-color instead of creamy-white, the other portions of a darker shade to correspond. The differences in proportions are more decided, as may be seen from the following figures:—

S. GUADELOUPENSIS.

Mus. No.	Original No.	Sex and age.	Wing.	Tail.	Bill.*	Tarsus.	Middle toe.
70043	13	♂ ad.	2.75	2.30	0.60	0.90	0.55
70044	13	♂ ad.	2.70	2.20	0.60	0.80	0.55
70045	13	♂ ad.	2.60	2.30	0.58	0.85	0.50
70046	-----	♂ ad.	2.55	2.15	0.60	0.85	0.50
70047	14	♂ ad.	2.60	2.00	0.55	0.80	0.50
70048	14	♂ ad.	2.60	2.15	0.60	0.85	0.52
70049	14	♂ ad.	2.55	2.15	0.58	0.90	0.50
70050	14	♂ ad.	2.60	2.25	0.60	0.90	0.50
70051	28	♂ ad.	2.60	2.20	0.55	0.85	0.55
70052	38	♂ ad.	2.50	2.00	0.55	0.85	0.50

S. OBSOLETUS.

Mus. R. R. No.	Original No.	Age and sex.	Locality.	Date.	Wing.	Tail.	Bill.*	Tarsus.	Middle toe.
17	-----	♂ ad.	Nevada	Mar. 25, —	2.90	2.40	0.50	0.90	0.55
.....	17a	♂ ad.	New Mexico	June 22, —	2.90	2.40	0.50	0.85	0.55

From nostril.

Collector's notes.

Eyes brown. Stomach contained caterpillars and other insects. These birds are generally distributed over the island, but are found especially in the sheltered cañons of the middle portion, where they are numerous. They also frequent the slaughter-yards, where goats are killed, to glean insects from the drying bones. Their notes are often heard early in the morning, when the birds mount some prominent rock or stump. Their general habits are not peculiar. April 5, 1875, a female was taken, with the nest and eggs. The nest was built on the ground, beneath a rock, which sheltered it from the prevailing winds; it was lined with goat's hair, and contained two fresh eggs; a third, nearly ready to be laid, was found on opening the bird. Another nest, containing three eggs, was found in a crevice of a large rock, some 5 feet high. The fissure was about 18 inches deep; and being more capacious than was necessary for accommodation of the nest, was divided by a partition, which the birds had built across it, leaving an interior space for the nest, and an aperture just large enough for the birds to pass with ease. This partition, which effectually blocked up the passage to the nest, was composed of pebbles. A third nest was discovered so far under a large solid rock, and with so small an entrance, that it could not be secured. The passage to this nest was also blocked with small stones.

3. THRYOMANES BREVICAUDA, *nobis*.

SP. CH.—*Adult*:—Above grayish hair-brown, brownest on the rump, grayest on the tail; remiges just perceptibly, and tail-feathers very distinctly, transversely barred with dusky; three lateral tail-feathers light dull gray terminally, with one or two broad dusky bars across the anterior portion of the gray. A very conspicuous white superciliary stripe from the nostril to the occiput; below this a grayish-brown stripe, covering the lore and widening on the upper posterior portion of the auriculars. Lower parts white anteriorly, passing gradually into dull ash-gray on the sides and abdomen; crissum broadly barred with black. Wing, 1.85–1.90; tail, 1.80; bill, 0.45–0.50; tarsus, 0.70–0.75; middle toe, 0.50.

Remarks.—This Wren appears to bear about the same relation to *T. bewicki leucogaster* that *Junco insularis* does to *J. annectens*; and it is a curious fact that the analogue of each should be the form from the interior of the continent instead of that from the neighboring coast. This insular form is much grayer than the *T. bewicki spilurus* of California and Western Mexico, and presents other decided differences from all the continental forms. The following measurements of specimens of the two forms show how greatly they differ in dimensions and proportions; the difference from *T. bewicki leucogaster* is still more conspicuous.

T. BREVICAUDA.

Nat. Museum No.	Original No.	Age and sex.	Wing.	Tail.	Bill. *	Tarsus.	Middle toe.
70041	15	.....	1.90	1.80	0.50	0.70	0.50
70042	15	.....	1.85	1.80	0.45	0.75	0.50

T. BEWICKI SPILURUS.

249	.....	.....	2.00	2.00	0.40	0.80	0.45
1276	.....	.....	2.30	2.50	0.40	0.80	0.48

* From nostril.

Collector's notes.

Iris brown. Stomach contained remnants of some small black insects which feed upon the blossoms of the White Sage. The bird is resident upon the island, but not numerous. Their motions are very quick; their general habits restless, impatient, and shy. Their almost incessant activity, together with their shyness, renders them difficult to secure. They live in the brush, being rarely seen on trees.

FAM. FRINGILLIDÆ.

4. CARPODACUS AMPLUS, *nobis*.

SP. CH.—*Adult*.—Above, bark brownish-gray, the feathers indistinctly darker centrally, the wing- and tail-feathers edged with paler brownish-gray. Lower parts dull white, conspicuously streaked with brownish-gray. *Male*, frontal band (about 0.15–0.30 wide), superciliary stripe back to the ends of the auriculars, cheeks (anterior half of the maxillary region), chin, throat, breast, and patch on lower part of the rump bright crimson. Wing, 3.30–3.35; tail, 2.80–2.90; bill, from nostril, 0.42–0.45; depth of bill, 0.42–0.50; breadth of bill, 0.32–0.35; tarsus, 0.80; middle toe, 0.60–0.65. *Female*, lacking the red, each feather of the lower parts having a distinct central streak. Wing, 3.10–3.25; tail, 2.60–2.90; length of bill, 0.40–0.45; depth, 0.40–0.48; breadth, 0.32–0.38; tarsus, 0.75–0.85; middle toe, 0.58–0.65. *Young*.—Similar in plumage to the adult female, but light edges to wing- and tail-feathers broader and more inclining to fulvous.

Remarks.—The upper mandible is nearly black, the lower much lighter, a purplish horn-color in the male, almost white in the female; the feet are brownish-black. In the male, the back is just appreciably glossed with a faint red tinge, and the shade of the red markings varies from a deep harsh carmine or true crimson to almost a red-lead hue. The coloration is exactly like that of *C. frontalis* from the Rocky Mountains, except that the tints are all darker; but the size is in every way so much greater that no comparison is needed, as the following measurements will demonstrate.

C. AMPLUS.—Wing, 3.10–3.35; tail, 2.60–2.90; bill, 0.40–0.45 from nostril, 0.40–0.50 deep, 0.32–0.38 wide; tarsus, 0.75–0.85; middle toe, 0.58–0.65.

C. FRONTALIS.—Wing, 2.85–3.10; tail, 2.50–2.80; bill, 0.30–0.35 from nostril, 0.30 deep, 0.25–0.27 wide; tarsus, 0.65–0.70; middle toe, 0.50.

C. AMPLUS.

Catalogue No.	Original No.	Sex and age.	Wing.	Tail.	Length of bill.*	Depth of bill.	Breadth of bill.	Tarsus.	Middle toe.
70004	8	♂ ad.	3.30	2.90	0.45	0.42	0.32	0.80	0.60
70005	8	♂ ad.	3.35	2.80	0.42	0.45	0.32	0.80	0.62
70006	8	♂ ad.	3.30	2.85	0.42	0.45	0.35	0.80	0.65
70007	8	♂ ad.	3.35	2.90	0.45	0.50	0.35	0.80	0.65
70008	8	♂ ad.	3.30	2.85	0.42	0.50	0.35	0.80	0.65
70009	8	♂ ad.	3.30	2.90	0.45	0.48	0.35	0.80	0.62
70010	7	♂ ad.	3.10	2.60	0.40	0.40	0.32	0.75	0.58
70011	7	♂ ad.	3.20	2.75	0.45	0.45	0.35	0.85	0.65
70012	7	♂ ad.	3.25	2.90	0.45	0.48	0.38	0.80	0.60
70013	39	— juv.	.....	.....	.....	.....	.....	.....	.....
70014	40	— juv.	.....	.....	.....	.....	.....	.....	.....

* From nostril.

C. FRONTALIS.

Catalogue No., Mus. R. I.	Sex and age.	Locality.	Date.	Wing.	Tail.	Length of bill.	Depth of bill.	Breadth of bill.	Tarsus.	Middle toe.
51	♂ ad.	Utah	June 7, —	3.10	2.80	0.30	0.30	0.25	0.65	0.50
346	♀ ad.	Cape St. Lucas	Dec. 3, —	2.85	2.50	0.35	0.30	0.27	0.70	0.50

Collector's notes.

Iris brown. Legs purplish dusky. Bill of the newly-fledged birds greenish-yellow below. This bird is very numerous during winter in the warm cañons of the central and southern portions of the island. They feed extensively upon soft buds and tender vegetation generally, as well as upon seeds, and are destructive to the grain, which they husk out of its envelope in the same manner as Canarybirds do. During winter, they avoid the vicinity of dwelling-houses, but in summer can scarcely be kept out. During warm afternoons, they often congregate about the springs to bathe. This is the principal songster of the island; the notes are fine, and quite equal to those of the Canary. Newly-fledged young were taken May 5. A completed nest, though without eggs, was found April 21; it was in the crevice of a rock, shaded and hidden by shrubbery. The parents deserted it in consequence of my visit.

5. JUNCO INSULARIS, *nobis*.

SP. CH.—*Adult*.—Head, neck, jugulum, and upper parts gray, the tint of a light ash hue on the gular region, dark slate on the pileum, overlaid with a wash of hair-brown on the back and wings, and becoming almost black on the lores. Lower parts white medially; the entire sides light cinnamon. Three lateral tail-feathers with white patches, on the outer occupying most of the feather; on the third reduced to an elongated spot on the inner web. *Male*, wing, 2.70–2.85; tail, 2.50–2.60; bill, 0.35–0.38; depth, 0.25–0.27; tarsus, 0.80–0.85; middle toe, 0.55–0.60. *Female*, wing, 2.50–2.65; tail, 2.30–2.45; bill, 0.35–0.38; depth, 0.25; tarsus, 0.80–0.85; middle toe, 0.55–0.60. *Young*.—Above, brownish-gray, browner on the back, the feathers indistinctly streaked centrally with dusky; wing-coverts indistinctly tipped with pale fulvous-gray; jugulum and sides light grayish-fulvous, marked with cuneate streaks of dusky; throat pale ashy, more indistinctly streaked; abdomen dull white, without streaks; bill wholly blackish.

Remarks.—This very curious species resembles most closely in colors the *J. annectens* of the Rocky Mountains, the similarity being very great. The form and relative proportions, however, are so different that we have no hesitation in pronouncing it a very distinct species. The colors of the lower parts are exactly as in *J. annectens*, except that the lower tail-coverts, instead of being entirely white for the exposed portion, are dusky, merely bordered with dirty white. The wings and back are the same color as in *annectens*, but the nape and top of the head are considerably darker, being dusky slate instead of clear plumbeous. The comparative characters of the two species may be expressed as follows:—

J. INSULARIS.—Wing, 2.55–2.85; tail, 2.30–2.60; bill, 0.35–0.38; its

depth, 0.25–0.27; tarsus, 0.80–0.85; middle toe, 0.55–0.60. Crown and nape dark slate. Lower tail-coverts dusky, bordered with dirty white. *Hab.*—Guadeloupe Island.

J. ANNECTENS.—Wing, 3.00–3.25; tail, 2.80–3.40; bill, 0.30; its depth, 0.20; tarsus, 0.80; middle toe, 0.55–0.60. Crown and nape clear plumbeous. Lower tail-coverts pure white, dusky beneath surface only. *Hab.*—Rocky Mountains (Middle Province) of the United States.

J. INSULARIS.

Nat. Mus. No.	Original No.	Sex and age.	Wing.	Tail.	Length of bill.*	Depth of bill.	Tarsus.	Middle toe.
70015	10	♂ ad.	2.85	2.60	0.38	0.25	0.85	0.55
70016	10	♂ ad.	2.70	2.60	0.35	0.25	0.85	0.55
70017	10	♂ ad.	2.70	2.50	0.35	0.25	0.80	0.55
70018	10	♂ ad.	2.75	2.55	0.35	0.27	0.85	0.60
70020	9	♂ ad.	2.50	2.40	0.35	0.25	0.82	0.58
70021	9	♂ ad.	2.60	2.40	0.35	0.25	0.80	0.55
70022	9	♂ ad.	2.60	2.30	0.35	0.25	0.82	0.55
70023	9	♂ ad.	2.55	2.45	0.38	0.25	0.85	0.60
70024	9	♂ ad.	2.65	2.40	0.32	0.25	0.80	0.55
70025	35	— ad.	2.55	2.45	0.35	0.25	0.80	0.55
70026	79	— juv.						
70027	49	— juv.						

* From nostril.

J. ANNECTENS.

No. Mus. R. R.	Sex and age.	Locality.	Date.	Wing.	Tail.	Length of bill.	Depth of bill.	Tarsus.	Middle toe.
415	♂ ad.	Arizona . . .	Nov. 2, —	3.25	3.40	0.30	0.20	0.80	0.60
417	♀ ad.	Wyoming . .	May 28, —	3.00	2.80	0.30	0.20	0.80	0.55

Collector's notes.

Iris brown. These are the most abundant birds of the island, and are so tame that they may be killed with a stick, or captured in a butterfly-net. While I was looking for insects under stones and logs, these birds would sometimes join in the search, and hop almost into my hands. They gathered chiefly ants and their eggs. At times, they even enter the houses, picking up anything edible they can find. Numbers boarded the schooner as we neared the island, and made themselves perfectly at home, roaming over every part of the vessel in search of food. Like the Linnets (*Carpodacus*), they are fond of bathing in the springs during warm weather. In flight, the tail is spread, displaying the white lateral feathers; and when angry, the whole plumage is ruffled. A nest with eggs was found April 12, on the summit of Mount Augusta, the highest point of the island, altitude 3,500. It was placed in a small crevice in the face of a rock.

6. *PIPILO MACULATUS CONSOBRINUS, nobis.*

CH.—*Adult male*:—Head, neck, jugulum, and entire upper parts black; outer webs of scapulars white, usually narrowly bordered with black; both rows of wing-coverts tipped with white, forming two well-defined bands; tertials and middle portion of primaries slightly edged with white; inner webs of two or three lateral tail-feathers with a terminal

white patch, about 0.75–0.90 wide on the outer feather, the outer web of which is also edged with white. Lower parts white medially, the entire sides deep rufous; crissum ochraceous. Wing, 3.10–3.25; tail, 3.50–3.80; bill, 0.38–0.40; tarsus, 1.05–1.10; middle toe, 0.70–0.75; hind claw, 0.50–0.55. *Adult female*.—Similar in plumage to the male, but the deep black replaced by dull brownish-black; white spots on the tail-feathers more restricted. Wing, 2.90–2.95; tail, 3.25–3.65; bill, 0.35–0.40; tarsus, 1.00–1.05; middle toe, 0.60–0.65; hind claw, 0.50–0.55.

Remarks.—The feathers of the gular region are ash-gray or light plumbeous at their roots; there is no indication of white on the side of the forehead nor on the base of the primaries; the feathers between the rufous of the sides and the white below it have longitudinal black spots in every specimen.

This race is somewhat intermediate between *P. oregonus* and *P. carmani*, but seems to be most like the latter. The sexes are more nearly alike than in any other of the races of *P. maculatus*, the female being as dark as, if not darker than, that of *P. megalonyx*, while the male is decidedly less intensely black than in that form and *P. oregonus*. Compared with a specimen from the vicinity of San Francisco, California, the adult males of this series agree quite nearly in size, and the extent of the white patches on the tail-feathers; but they differ in being dull-, instead of intense coal-black, in having the white streaks on the outer interscapulars very small, and in the much longer hind claw.

P. CONSOBRINUS.

Nat. Mus. Cat. No.	Original No.	Sex and age.	Wing.	Tail.	Bill.	Tarsus.	Middle toe.	Hind claw.
70028	5	♂ ad.	3.10	3.50	0.40	1.08	0.70	0.50
70029	5	♂ ad.	3.20	3.70	0.40	1.05	0.75	0.55
70030	5	♂ ad.	3.25	3.80	0.40	1.10	0.75	0.55
70031	5	♂ ad.	3.15	3.65	0.38	1.10	0.75	0.50
70032	5	♂ ad.	3.20	3.65	0.38	1.10	0.72	0.55
70033	16	♀ ad.	2.95	3.65	0.40	1.10	0.60	0.50
70034	16	♀ ad.	2.90	3.25	0.38	1.05	0.65	0.55
70035	16	♀ ad.	2.90	3.25	0.35	1.00	0.60	0.50
		♀ ad.	2.90	.....	0.35	1.00	0.65	0.50

P. OREGONUS.

No Mus. R. R.	Sex and age.	Locality.	Date.	Wing.	Tail.	Bill.	Tarsus.	Middle toe.	Hind claw.
466	♂ ad.	San Francisco, Cal.....		3.35	4.00	0.40	1.05	0.75	0.45

P. MEGALONYX.

465	♀ ad.	Fort Tejon, Cal.....	Nov. 13, —	3.30	4.10	0.35	1.10	0.70	0.50
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P. CARMANI.

2169	♀ ad.			2.85	3.30	0.35	1.05	0.65	0.40
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Collector's notes.

Iris orange. Not abundant; found chiefly in the woods of the central portion of the island. When startled, they emit a short whistle of three or four syllables. They frequent brushwood, fallen logs, fences, etc., rather than trees. Insects as well as seeds are generally found in their stomachs. Their method of scratching among fallen leaves is curious: they make a jump forward, at the same instant strike back with both feet.

FAM. PICIDÆ.

7. COLAPTES MEXICANUS RUFIPILEUS, *nobis*.

CH.—*Adult female*.—Above grayish-brown, becoming bright tawny on the forehead, lores, and maxillary region; dorsal region and wings, except primaries and primary-coverts, marked with transverse bars of black; rump and upper tail-coverts pinkish-white, the latter marked with transverse, somewhat oval, spots of black. Tail black, the basal two-thirds of the under surface vermilion-red; shafts of the primaries deep vermilion, their inner webs light vermilion basally, dull grayish-brown, glossed with red, toward ends. Head and throat, except as described, dull ash-gray; jugulum with a transverse crescent of black, bounded anteriorly by pale brownish-pink; rest of lower parts light brownish-pink, thickly marked with circular and cordate spots of black. Wing, 5.90–6.25; tail, 4.75–5.30; bill, from nostril, 1.35–1.60.

Remarks.—In the closed tail, only about half an inch of red is exposed on the under surface beyond the lower coverts, the remaining 2.50 being uniform black. The main differences from the continental form consist in the longer bill, more pinkish rump, and bright tawny forehead. In the latter feature, the resemblance is closer to *C. chrysoides*, the crown and nape having about the same gradation from bright cinnamon-tawny anteriorly to dull grayish-cinnamon posteriorly. It differs from true *C. mexicanus* as follows:—

C. MEXICANUS RUFIPILEUS.—Wing, 5.90–6.25; tail, 4.75–5.30; bill, 1.35–1.60. Black of the tail occupying the terminal 2.40–2.50 inches; crown cinnamon-color, becoming bright tawny anteriorly; rump pale pink or pinkish white. *Hab*.—Guadeloupe.

C. MEXICANUS MEXICANUS.—Wing, 6.65–6.95; tail, 5.50–5.90; bill, 1.15–1.25. Black of the tail occupying the terminal 1.90–2.00 inches; crown brownish-gray, becoming browner anteriorly; rump pure white. *Hab*.—Western Province of North America (continental).

C. RUFIPILEUS.

Nat. Mus. No.	Original No.	Sex and age.	Wing.	Tail.	Bill.*
70000	3	♀ ad.	6.25	5.30	1.40
70001	3	♀ ad.	5.90	4.75	1.60
70002	3	♀ ad.	6.25	5.25	1.35

* From nostril.

C. MEXICANUS.

Mus. R. R.	Sex and age.	Locality.	Wing.	Tail.	Bill.
2016	♂ ad.	Washington Territory	6.95	5.90	1.25
2017	♀ ad.	do.....	6.65	5.50	1.15

Collector's notes.

Rare, and apparently only found in the pine-woods of the north end of the island.

FAM. STRIGIDÆ.

Two kinds of owls were seen on the island, but as no specimens of either were obtained it is quite impossible to indicate the species.

FAM. FALCONIDÆ.

S. POLYBORUS LUTOSUS (*Ridgw.*)

Polyborus lutosus RIDGWAY, Bull. U. S. Geol. & Geog. Survey of the Territories (F. V. Hayden), No. 6, second series, p. 459.

SP. CH.—Wing, 15.00–16.40; tail, 10.50–11.65; culmen, 1.25–1.35; tarsus, 3.50–3.75; middle toe, 1.80–2.10. *Adult*.—Pileum, lesser wing-coverts, secondaries, primary-coverts, alula, terminal portion of primaries, entire lining of the wing (including axillars), and terminal band on the tail (1.00–1.60 wide) blackish-brown, sometimes almost black; auriculars, cheeks, and throat dirty whitish, or light isabella-color. Rest of the plumage marked with transverse bars of brownish-black, or dark brown, and brownish white, or light isabella-color, the bars most regular on the lower surface (and often the upper tail-coverts), where they extend uninterruptedly from the foreneck to the crissum, the bars of the two colors being about equal in width, the dark ones fainter on the crissum, narrower and more distant on the foreneck; on the middle and greater wing-coverts they are similar to those on the abdomen; on the interscapulars the dark ones are much wider than the light ones, and nearly black; on the scapulars dark brown prevails, the lighter bars being almost obliterated. The basal half or more of the outer five or six primaries are isabella-white, transversely mottled, or raggedly barred, with grayish and dusky, the shafts clear yellowish-white. Tail, except dusky terminal band, marked with ragged transverse bars of brownish-gray and isabella-white, of equal widths, the bars of the two colors separated by a narrower zigzag bar of dusky. *Immature*.—Remiges and rectrices the same as in the adult, but the terminal band of the tail narrower and less sharply defined; pileum and lesser wing-coverts dark brown, the feathers with lighter brown edges (these sometimes worn off); back and scapulars dull grayish brown, the latter plain, the former usually slightly variegated with lighter borders and tips to the feathers. Lower parts light grayish-brown, with longitudinal dashes of dirty whitish; upper tail-coverts dull grayish-brown, tipped with dirty whitish, and sometimes barred with the same, the feathers with darker shaft-streaks; lower tail-coverts very indistinctly marked in much the same manner. Auriculars, cheeks, and throat plain dirty white, as in the adult. *Pullus*.—General color light isabella-color, or brownish-white, with an umber-brown patch over the scapula, connected with one over the radius and ulna; pileum uniform umber-brown.

Remarks.—In the adult plumage, all the contour-feathers have distinctly black shafts, especially on the lower surface and upper tail-coverts; on the tibiæ and anal-region, the dark bars are smaller and more faint than elsewhere, and incline to a sagittate form; the feathers of the lining of the wing are sometimes narrowly tipped with light isabella-color, or tawny-brown, and the transverse bars are faintest and

most confused on the upper portion of the rump. In both adult and immature stages there is considerable variation, but all within the limits of the above diagnosis.

List of specimens.

Nat. Mus. No.	Coll. No.	Sex and age.	Date. (1875.)	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.	Remarks.
69980	22	—juv.	.....	15.75	11.25	1.30	3.70	1.95	No. 66989, "Eye brown; legs and cere dead white, with a bluish tinge." No. 66990, "Legs light yellow; cere, etc., salmon-color."
69981	30	♀juv.	.....	15.50	11.25	1.30	3.50	1.90	
69982	31	—ad.	.....	16.00	10.80	1.35	3.70	2.00	
69983	32	—ad.	.....	15.50	10.65	.....	3.60	1.90	
69984	18	♀ad.	May 10	16.40	11.65	1.30	3.65	2.10	
69985	25	—juv.	.....	16.10	11.25	1.25	3.65	2.00	
69986	17	—juv.	.....	15.80	10.75	1.25	3.60	2.05	
69987	23	—ad.	May 10	15.75	11.00	1.30	3.50	1.90	
69988	27	—juv.	.....	15.50	10.50	1.30	3.65	1.90	
69989	21	♂juv.	.....	15.00	10.50	1.25	3.55	1.80	
69990	20	♂juv.	.....	15.50	11.00	1.30	3.65	2.05	
69991	33	♂juv.	.....	15.50	10.60	1.30	3.60	1.95	
69992	26	—ad.	.....	15.80	11.00	1.30	3.50	1.95	
69993	24	♀ad.	.....	15.50	10.60	1.25	3.60	2.00	
69994	29	—juv.	.....	15.50	11.00	1.30	3.75	1.90	
69995	19	—ad.	.....	15.75	11.00	1.25	3.60	1.90	
69996	48	—pull.	May 10	.....	.....	.....	.....	.....	
69997	48	—pull.	May 10	.....	.....	.....	.....	.....	
69998	48	—pull.	May 10	.....	.....	.....	.....	.....	
69999	34	—pull.	Apr. 11	.....	.....	.....	.....	.....	

This species resembles the *P. tharus* much more than it does the *P. cheriway*, but it is nevertheless so very distinct as not to need actual comparison. The tail is entirely different in its markings, the darker bars being much wider than the light ones (twice as wide) on the middle feathers, while each is bordered with a narrower zigzag bar of dusky; the lighter markings are moreover light isabella-color, instead of white, as in *P. tharus*, in which white forms the ground-color, over which cross very narrow bars of grayish-brown. The rump and upper tail-coverts are very indistinctly barred, brown being the prevailing color, while in *P. tharus* this region is white, narrowly barred with grayish-brown. The ground-color of the lower parts is light isabella-color, with imperfect, more or less sagittate, bars of brown, whereas in *P. tharus* these portions are black, crossed with narrow, regularly transverse, bars of brownish-white. The throat is light isabella-color, while in *P. tharus* it is white. Other differences might be mentioned, but they are too numerous. Briefly, the more conspicuous differences between the three species may be contrasted as follows:—

P. LUTOSUS.—*Scapulars plain dusky brown. Tibiæ and flanks light isabella-color, barred with dark brown. Wing-coverts (middle and greater) marked with wide bars of brown and pale isabella-color, of equal width. Tail-coverts and rump with broad bars of light isabella-color and grayish-brown. Tail with broad bars of pale isabella-color and grayish-brown, separated by zigzag lines of dusky. Abdomen isabella-color, with small sagittate bars of dark brown.*

P. THARUS.—*Scapulars barred grayish-white and black. Tibiæ and flanks nearly uniform blackish-brown. Wing-coverts brown, narrowly barred with whitish. Tail-coverts and rump white, with narrow bars of grayish-brown. Tail white, with narrow bars of brownish-gray. Abdomen blackish-brown, with transverse bars of whitish.*

P. CHERIWAY.—*Scapulars plain brownish-black. Tibiæ and flanks plain black. Wing-coverts plain blackish. Tail-coverts and rump plain white, without bars. Tail as in P. tharus. Abdomen plain black.**

* The characters in *italics* are those common to the adult and young plumage.

Four young birds taken from the same nest differ remarkably in size and general development, the smallest being apparently just hatched, while the largest is nearly one-third grown, with well-developed feathers in the wings and tail. The other specimens were intermediate. The collector, remarking upon this disparity, believes that they were hatched successively, the female having commenced incubation as soon as the first egg was laid. This is after the manner of the American Cuckoos (*Coccyzus*); but a similar case among the raptorial birds is so exceptional that the present instance is very remarkable.

The local name of this bird is given by the collector as "Calalie", by which is probably meant *Queleli*, a name by which several vultures, besides hawks of the group to which the present species belongs, are known in portions of Mexico and California. It is stated to be the most conspicuous, and in one sense most notable, bird of the island, from its abundance, its size, and the damage it does to the flocks of goats. A good idea of its daring and its ferocity may be gathered from the collector's memoranda:—

Collector's notes.

"The 'Calalie' is abundant on every part of the island; and no bird could be a more persistent or more cruel enemy of the poultry and domestic animals. It is continually on the watch, and in spite of every precaution often snatches its prey from the very doors of the houses. The destruction of the wild goats is not so great, as these animals are better able to protect themselves than the tame ones. No sooner is one kid born—while the mother is in labor with the second—than the birds pounce upon it; and should the old one be able to interfere, she is also assaulted. No kid is safe from their attacks. Should a number be together, the birds unite their forces, and, with great noise and flapping of their wings, generally manage to separate the weakest one and dispatch it. They sometimes fasten upon the tongue when the poor creature opens its mouth to bleat, and have been known to tear it out, leaving the animal to perish, if not otherwise destroyed. Sometimes the anus is the point of first attack. The birds are cruel in the extreme, and the torture sometimes inflicted upon the defenseless animals is painful to witness. They occasionally, when pressed by hunger, attack full-grown goats; numbers harass it together from all sides at once, and soon put it to death. A 'burro' (jackass) which had accidentally become wedged among some rocks, was once furiously attacked and lost its eyes before assistance reached it. Even when food is plenty, they often attack living animals instead of contenting themselves with the carcasses of those already dead, seeming to delight in killing. Should one of their own number be disabled or wounded, it is instantly dispatched by the rest. Hundreds of the birds have been destroyed by the inhabitants, both with poison and fire-arms, without noticeable diminution of their numbers. They are said to lay three eggs, speckled like a gull's. When surprised or wounded, they emit a loud, harsh scream, something like that of the Bald Eagle. In fighting among themselves, they make a curious gabbling noise; and under any special excitement the same sounds are given forth, with an odd motion of the head, the neck being first stretched out to its full length and then bent backward till the head almost rests upon the back. The same odd motions are made and similar noises emitted when the birds are about to make an attack upon a kid.

"Besides the principal sources of food-supply already indicated, the birds have other means of subsistence. They eat small birds, mice,

shell-fish, worms, and insects. To procure the latter, they resort to plowed fields, where they scratch the ground almost like domestic fowls.

"They are tough, strong birds, requiring a heavy charge of shot to bring them down."

COLYMBIDÆ.

9. COLYMBUS ARCTICUS PACIFICUS (*Lawr.*)

One specimen, in adult breeding-plumage, washed ashore, dead.

Nat. Mus. No.	Original No.	Sex and age.	Date.
70003	47	♂ ad.	May 20, —

PLATE 30.

(*Herpetotheres cachinnans*.)

- Fig. 1. Head, showing outline of bill, form of crest, and other external features.
2. One-half of the skull seen from above, showing superciliary process of the lachrymal.
3 Supramaxillary and nasals, showing nostril.
4. Mandible.
5. Coracoid apparatus. a = scapular process of the coracoid.
[All natural size.]

1.

2.

3.

4.

5.

PLATE 31.

(*Herpetotheres cachinnans*.)

Fig. 1. Sternum, under view.

2. Foot.

[Natural size.]

1.

2.