

THE COMMON RAVENS OF NORTH AMERICA.

By HARRY C. OBERHOLSER.

The subspecies of the common raven, *Corvus corax* Linnaeus, are among the most difficult birds of the family Corvidae. The differences characterizing them are almost wholly those of size and proportion; and because great individual variation complicates the case, these are largely average distinctions and require series of specimens for proper elucidation. In the Old World some 16 or 17 forms are at present recognized,¹ but in North America currently only two, *Corvus corax principalis* of northern North America, with which the birds of the eastern United States are considered identical, and *Corvus corax sinuatus* of the western United States and Mexico. Another, however, has been recently described by Doctors Rothschild and Hartert as *Corvus corax clarionensis*,² from Clarion Island, in the Revillagigedo group, western Mexico, and it is now proposed to separate the bird from the eastern United States as a fourth race. By the recognition of these two additional subspecies, the measurements, characters, and distribution of the two original forms are in need of considerable readjustment, and they are, therefore, included in the discussion that follows.

The material used in the present study consists of about 400 specimens. This represents the collections of the United States National Museum, including the Biological Survey; the Academy of Natural Sciences of Philadelphia; the Museum of Comparative Zoology at Cambridge, Massachusetts; the American Museum of Natural History; the Brooklyn Museum of Arts and Sciences; Dr. Louis B. Bishop, Dr. Jonathan Dwight, Dr. L. C. Sanford, Dr. Witmer Stone; Messrs. William Brewster, John E. Thayer, A. C. Bent, and E. A. and O. Bangs. To the authorities of these museums and to the individuals here mentioned the writer is indebted for placing their specimens at his disposal.

¹For an excellent account of the Old World forms of *Corvus corax*. cf. Hartert, Vögel paläarkt. Fauna, Heft I, November, 1903, pp. 2-8; Heft VI, June, 1910, pp. XIII-XIV.

²Novit. Zool., IX, No. 2, July 25, 1902, p. 381.

All the measurements in this paper are in millimeters, and have been taken as described in the author's paper on *Butorides virescens*.¹

CORVUS CORAX PRINCIPALIS Ridgway.

C[orvus]. *corax principalis* RIDGWAY, Man. North Amer. Birds, 1887, p. 361 ("Northern North America, from Greenland to Alaska, south to British Columbia, Canada, New Brunswick, etc.").

Corvus corax var. *littoralis* HOLBOELL, in Kroyer's Tidskrift, IV, 1843, p. 390 (Greenland; Labrador) (nec *Corvus littoralis* Brehm).

Chars. subsp.—Size largest of the North American races.

*Measurements.*²—Male:³ wing, 426-457 (average, 446.5) mm.; tail, 241-259 (250); exposed culmen, 67-76 (71.3); height of bill at nostrils, 26-30 (27.7); tarsus, 66-71 (69); middle toe without claw, 45.5-54 (49).

Female:⁴ wing, 413-441 (average, 426) mm.; tail, 228.5-246.5 (250); exposed culmen, 68-72 (70.4); height of bill at nostrils, 25-27.5 (26.1); tarsus, 64-70 (66.5); middle toe without claw, 43.5-48 (45.5).

Type locality.—Saint Michael, Alaska.

Geographic distribution.—Northern North America. Breeds North to northern Greenland, Grant Land, Melville Island, Banks Land, Herschell Island, and the northern coast of Alaska; west to the western coast of Alaska, the Aleutian Islands, and Vancouver Island, British Columbia; south in the Pacific coast region to Quinault, western Washington, and in the interior to northern Mackenzie and northern Quebec (Ungava); and east to northeastern Quebec (Ungava), and Greenland.

Remarks.—This North American race is distinguished from *Corvus corax corax* Linnaeus of northern Europe by its relatively

¹Proc. U. S. Nat. Mus., XLII, 1912, p. 533.

²In part taken by Mr. Robert Ridgway; but the measurements of exposed culmen in the Bulletin of the United States National Museum, No. 50, part III, 1904, p. 259, are really those of the *total* culmen, given by mistake as exposed culmen; and there is evidently also some mistake in the height of the bill at nostrils, as this appears to be too large. Both these dimensions have, therefore, been remeasured for the present use.

³Six specimens, from Alaska.

⁴Eight specimens, from Alaska.

shorter and higher bill, less lustrous plumage, and less developed and more purplish-hued lanceolate feathers of the throat; and from *Corvus corax behringianus* Dybowski by the long third primary, which equals or is longer than the fifth, instead of being decidedly shorter. As has already been intimated, the characters which distinguish this from the other North American forms are wholly of size and proportions. The greatest differentiation occurs in Alaska, whence came the type of *Corvus corax principalis*; hence we have here used only Alaskan specimens in the comparison of racial characters. Birds from Greenland and northern Ungava are somewhat smaller than those from Alaska, but are most satisfactorily referred to this form. Examples from the western coast of British Columbia are also intermediate between the present race and *Corvus corax sinuatus*; those from western Washington are still smaller, and, indeed, almost half-way between *Corvus corax principalis* and *Corvus corax clarionensis*; but birds from both these regions are better referred to the present form than to either of the others. This applies, however, only to the coast region, since the interior birds are decidedly nearer the southern races, as elsewhere more fully explained. By the segregation of the birds from the eastern United States and by the extension of the range of *Corvus corax sinuatus* into the middle portion of Canada, the range of *Corvus corax principalis* becomes limited to the extreme northern parts of North America, excepting, as above stated, on the Pacific Coast, where it reaches southward in a relatively narrow coastal strip as far as the State of Washington.

CORVUS CORAX EUROPHILUS, subsp. nov.

Chars. subsp.—Similar to *Corvus corax principalis*, but smaller, with a relatively larger bill.

Description.—Type, adult male, No. 260039, U. S. Nat. Mus., Biological Survey collection; Ardell, Alabama, April 4, 1915; L. J. Goldman; original number, 211. Entire plumage glossy black, the secondaries and inner primaries somewhat brownish, the head, back, rump, upper tail-coverts, and breast with a slightly bluish sheen, the throat and wings with purplish reflections; bill and feet black.

MEASUREMENTS OF SPECIMENS OF *Corvus corax europhilus*.

Museum and number	Sex	Locality	Date	Collector	Wing	Tail	Exposed culmen	Height of bill at nostrils	Height of bill at base	Tarsus	Middle toe without claw
A.N.S.Phila, 3295. ¹	♂	New Jersey.....		J. Cassin.....	420	237	65	25.5	28	64.5	44
A.N.S.Phila, 34611 ¹	♂	Craig Co., Va.....	Jan. —, 1896..	J. Rouble.....	417	238	76	28	30	73.5	46.5
U.S.N.M., 208190 ¹	♂	Young Harris, Ga....	Feb. —, 1910..	W. Jenkins.....			64	25.5	26.5	66	51
	♂	Clinton Co., Pa.....	Jan. 25, 1888..		432	241	72.4	28.4		74	48
W.Brewster, 23867 ¹	♂	Asheville, N. C.....	Oct. 29, 1889..	W.E.D.Scott..	435	254	70	26	27	69	46.5
W.Brewster, 28866 ¹	♂	Asheville, N. C.....	Oct. 24, 1889..	W.E.D.Scott..	433	256	70	26.5	28	72	46
U.S.N.M., 250039 ¹	♂	Ardell, Ala. ²	April 4, 1915..	L. J.Goldman..	425	230	76	27	31	69	45
W.Brewster, 47521.	♂	Loring, Ontario.....	Mar. 8, 1897..	G. F. Dippie..	436	240	70	28	29	68	47
M.C.Z., 43901.....	♂	Eastport, N.Scotia..	Mar. 1, 1891..	W. S. Bryant..	450	262	73	27	28	73	49
M.C.Z., 41148.....	♂	St. Anthony, Newfoundland.....		O. Bryant....	437	246	74	27.5	28	66	44
W.Brewster, 44943.	♂	Eastport, N. Y.....	Mar. 10, —	H.W.Henshaw	424	241	70	26.5	27.5	67	45
A.M.N.H., 35702..	♂	Eastport, Me.....	Dec. 25, 1886..	J.Richardson..	409	231	72	27.5	28.5	67	45
W.Brewster, 48268..	♂	Swans Island, Maine.	Oct. 13, 1898..	A. G. Dorr....	432	256	72.5	27.5	29	70	44
W.Brewster, 10151.	♂	Isle au Haut, Maine.	Feb. 15, 1885..	M.A.Frazar...	429	246	68	27	28	73	48
W.Brewster, 10153.	♂	Bar Harbor, Mt. Desert I., Maine..	Jan. 3, 1886..	W. Brewster..	418	240	70	27.5	28	68	45
W.Brewster, 13549.	♂	Ilsford, Maine.....	Feb. 4, 1885..	E. S. Bowler..	436	242	70	28.5	28.5	73	47.5
W.Brewster, 46468.	♂	Horsehead Island, Penobscot Bay, Me.	April 15, 1897.	A. G. Dorr....	447	247	74	30		70	45
E.A.& O. Bangs, 635.....	♂	Nantucket, Grand Manan Island, N.B.	Mar. 15, 1877..	R. Thaxter....	380		72.5	28	28.5	72	48.5
L.B.Bishop, 27885.	♂	Marshall Co., Minn..	Dec. 2, 1889..	E. L. Brown...	413	246	67	27	28.5	69	43.5
A.C.Bent, 2109.....	♂	Aitkin, Minn.....	Feb. 20, 1889..	A. Lano.....	405	230	66	26	28	67	43
W.Brewster, 47522.	♀	Loring, Ont.....	Mar. 8, 1896..	G. F. Dippie..	425	245	70	26.5	27	68.5	43
M.C.Z., 43902.....	♀	Eastport, N. Scotia..	Mar. 1, 1891..	W. S. Bryant..	407	224	67.5	25	26	66.5	44.5

¹Used in measurement averages on page 218.²Type.

MEASUREMENTS OF SPECIMENS OF *Corvus corax europilus*—Continued.

Museum and number	Sex	Locality	Date	Collector	Wing	Tail	Exposed culmen	Height of bill at nostrils	Height of bill at base	Tarsus	Middle toe without claw
W. Brewster, 44944.	♀	Eastport, N. Y.	Mar. 10, ———	H. W. Henshaw	405	244	65	25	25.5	63	43
W. Brewster, 13541.	♀	Bechoine, Quebec. . . .	Sept. 3, 1884. . .	M. A. Frazar. . .	411	232	65.5	24	25.5	66	42
E. A. & O. Bangs, 4442.	♀	Lance au Loup, Labrador.	May 26, 1899. . .	E. Doane.	432	240	71	29	30	70	45.5
W. Brewster, 47903.	♀	Deer Island, Penobscot Bay, Me.	Spring, 1897. . .	C. L. Knight. . .	404	230	65.5	25	26	67	43
W. Brewster, 19927.	♀	Isle au Haut, Me.	Mar. 10, 1889. . .	S. W. Denton. . .	446	243	67	27.5	28	65	46
W. Brewster, 10152.	♀	Isle au Haut, Me.	Feb. 15, 1885. . .	M. A. Frazar. . .	431	234	64	27.5	28	67	42
W. Brewster, 46469.	♀	Horsehead Island, Penobscot Bay, Me.	April 15, 1897. .	A. G. Dorr.	442	244	68.5	27.5	28.5	65	43
W. Brewster, 48267.	♀	Horsehead Island, Penobscot Bay, Me.	April 11, 1898. .	A. S. Dorr.	407	229	71	24	25	64	44
W. Brewster, 19970.	♀	Ontanagon, Mich.	Oct. 8, 1881. . .	A. J. Dayan. . . .	410	234	67	25	26	63	46
A. N. S. Phila., 62377 ¹	♀	West Creek, N. J.	Feb. 16, 1897. . .	O. Cranmer. . . .	418	244	64.5	24	25.5	70	41
	♀	Clinton Co., Pa.	Jan. 25, 1888. . .		407	241	67		25	64	38.5
W. Brewster, 28869 ¹	♀	Asheville, N. C.	Oct. 29, 1889. . .	W. E. D. Scott. . .	399	227	67.5	24	25.5	65	43
W. Brewster, 28868 ¹	♀	Asheville, N. C.	Oct. 29, 1889. . .	W. E. D. Scott. . .	422	243	66	25	26	65	42
State Mus. N. C.		Topton, N. C.		A. D. Mills.	410	237			27	65	
A. M. N. H., 55383.		Near Mt. Pinnacle, Pickens Co., S. C.	Jan. 27, 1889. . .	L. M. Loomis. . . .	406	237	68	27	28.5	69	43
A. N. S. Phila., 3314.		New Jersey		J. Cassin.	440	262	71	28	27.5	73	48.5
M. C. Z., 17739.		Smith's Landing, N. J.	Nov. —, 1852. . .	J. Cassin.	397	241	65	26	28	64	46
W. Brewster, 394.		Tyngsboro, Mass.		W. Perhan.	431	255	73	27	28	71	43.5
U. S. N. M., 18831.		Lake Abitibi, Ont.	Oct. —, 1860. . .	C. Drexler.	430	246	69	27.5		68	43
W. Brewster, 48510.		Deer Isle, Penobscot Bay, Me.	Spring, 1897. . .	C. L. Knight. . . .	430	249	71	29.5	30	74.5	47

¹Used in measurement averages on page 218.

Measurements.—Male:¹ wing, 417-435 (average, 427) mm.; tail, 230-256 (242.7); exposed culmen, 64-76 (70.5); height of bill at nostrils, 25.5-28.4 (26.6); tarsus, 64.5-74 (69.8); middle toe without claw, 44-51 (46.7).

Female:² wing, 399-422 (average, 411.5) mm.; tail, 227-244 (238.8); exposed culmen, 64.5-67.5 (66.3); height of bill at nostrils, 24-25 (24.5); tarsus, 64-70 (66); middle toe without claw, 38.5-43 (41.1).

Type locality.—Ardell, Cullman County, north central Alabama.

Geographic distribution.—Eastern United States and southeastern Canada. Breeds north to Lance au Loup, southern Labrador; central Quebec; and Lake Abitibi, central Ontario; west to Marshall County, Minnesota; and Copeland, western Arkansas; south to Copeland and Newport, northern Arkansas; Nashville, central Tennessee; Ardell, north central Alabama; Chattanooga, southeastern Tennessee; Young Harris and Toccoa, northeastern Georgia; and Mount Pinnacle and Caesar's Head, northwestern South Carolina; east to northwestern South Carolina; Tryon and Grandfather Mountain, western North Carolina; Cobbs Island, eastern Virginia; Tuckerton, eastern New Jersey; Commack Hill, Long Island, New York;² South Manchester, central Connecticut;² Tyngsboro, eastern Massachusetts;³ Bar Harbor, southeastern Maine; Grand Manan Island, southwestern New Brunswick; Eastport, Nova Scotia; and St. Johns, eastern Newfoundland.

Remarks.—The status of the ravens inhabiting the eastern United States has long been doubtful. The fairly good series of specimens now available shows that the birds from this region are apparently best treated as a separate subspecies. They are, to be sure, to a certain extent intermediate between *Corvus corax principalis* and *Corvus corax sinuatus*; and, furthermore, from either of these two races are separated by only average characters, but the same thing is true of all the other races. In the measurement averages here given, only specimens from Pennsylvania and New Jersey southward to Alabama are included, and these together are considered typical. Examples from New York, New England, central

¹Seven specimens, from Alabama, Georgia, North Carolina, Virginia, Pennsylvania, and New Jersey.

²Four specimens, from North Carolina, New Jersey, and Pennsylvania.

³Not breeding.

Ontario, Nova Scotia, New Brunswick, Newfoundland, and even the southern Labrador coast are intermediate between the bird from the southern Allegheny Mountains and *Corvus corax principalis*, but seem to be decidedly nearer the southern form. Those from Michigan and Minnesota are in like manner intermediate, but verge also somewhat toward *Corvus corax sinuatus*, though they average nearer *Corvus corax europhilus*.

There is apparently no name available for this race, as *Corvus carnivorus* Baird,¹ adopted from Bartram, is clearly a synonym of *Corvus corax sinuatus*, as explained under that race.²

Detailed measurements of specimens are given in the table on pages 216-217.

CORVUS CORAX SINUATUS Wagler.

C[orvus]. sinuatus WAGLER, Isis, 1829, p. 748 (Mexico) (ex Lichtenstein MS.).

Corvus corax sinatus RIDGWAY, Ornith. Ill., I, 1889, p. 331 (err. typ. pro *Corvus sinuatus* Wagler).

Corvus Cacalotl WAGLER, Isis, 1831, p. 527 (Mexico).

Corvus catototl BONAPARTE, Geog. & Comp. List Birds Eur. and N. Amer., 1838, p. 28 (southern parts of North America.)

Corvus major WÜRTUMBURG, Erste Reise in Nordl. Amer., 1835, p. 294 (Nebraska) (nomen nudum).

Corvus major RIDGWAY, Bull. U. S. Nat. Mus., No. 50, III, Dec. 31, 1904, p. 263 (nom. nov. pro *Corvus sinuatus* Wagler [in synonymy]).

Corvus nobilis GOULD, Proc. Zool. Soc. Lond., V, 1837, (Dec. 5, 1837) p. 79 (Mexico).

C[orvus]. splendens BONAPARTE, Proc. Zool. Soc. Lond., 1837 (June 14, 1838), p. 115 (nomen nudum, but probably a lapsus calami for *Corvus nobilis* Gould).

C[orvus]. lugubris AGASSIZ, Proc. Bost. Soc. Nat. Hist., II, 1846, p. 188 (nomen nudum).

Corvus carnivorus BAIRD, Rep. Explor. & Surv. R. R. Pac., IX, 1858, p. 560 (Fort Randall, South Dakota).

Corvus lugubris BAIRD, Rep. Explor. & Surv. R. R. Pac., IX, 1858, p. 560 (in synonymy), p. 561 (in text) (nom. nov. pro *Corvus carnivorus* Baird).

¹Rep. Explor. & Surv. R. R. Pac., IX, 1858, p. 560.

²Cf. *postea*, p. 221.

Chars. subsp.—Similar to *Corvus corax europophilus*, but wing and middle toe shorter, and bill decidedly smaller.

*Measurements.*¹—Male:² wing, 415.5-459.5 (average, 434) mm.; tail, 223-254 (239); exposed culmen, 64-70 (66.8); height of bill at nostrils, 23-26 (24.4); tarsus, 68-73 (71.5); middle toe without claw, 41-56 (46.5).

Female:³ wing, 419-432 (average, 422) mm.; tail, 236-252 (246.5); exposed culmen, 63-71 (66.3); height of bill at nostrils, 24-25 (24.5); tarsus, 65-73.5 (70); middle toe without claw, 44.5-47 (46.5).

Type locality.—Orizaba, Vera Cruz, Mexico.⁴

Geographic distribution.—Middle western Canada, middle western United States, and Mexico, to Honduras. Breeds north to Slave River and Fort Simpson, southwestern Mackenzie; west to Sicamous, Shuswap, and Okanagan, central southern British Columbia; northeastern Washington (probably); Fort Sherman, Idaho; western Wyoming; western Colorado; Fort Wingate, western New Mexico; San Luis Mountains, Mexican Boundary Line, southwestern New Mexico; San Pedro River, at the Mexican Boundary Line, southeastern Arizona; Quitovaquita, southwestern Arizona; Guaymas, western Sonora; Mazatlan, western Sinaloa; and Tepic; south to Tehuantepec, Oaxaca; Guatemala; and northern Honduras; east to northern Honduras; Vera Cruz, Mexico; San Antonio, central Texas; the Canadian River, central Oklahoma; Fort Riley, eastern Kansas; Fort Randall, central southern South Dakota; and Ramsey County, central northern North Dakota.

Remarks.—Compared with *Corvus corax principalis*, this race is smaller, with a particularly small bill, which is relatively as well as actually more slender. As will be noticed in the geographic distribution above given, the range of this form has been restricted in southwestern North America by the recognition of *Corvus corax clarionensis* as a bird of the mainland as well as the islands off the southwestern coast; and extended by the inclusion of a large area in middle Canada, the birds inhabiting which are much nearer this southern race than to

¹Cf. footnote on p. 214, under *Corvus corax principalis*.

²Nine specimens, from Guatemala, central and southern Mexico.

³Five specimens from Guatemala, central and southern Mexico.

⁴Here for the first time definitely fixed.

Corvus corax principalis. Birds from central southern British Columbia are clearly the present form; in fact, specimens examined are practically typical, as indeed also are the few seen from southwestern Mackenzie. There is not yet sufficient material available to determine the northeastern limits of the range of *Corvus corax sinuatus* in Manitoba. Although no specimens have been examined from the northeastern part of the State of Washington, the raven inhabiting that region belongs probably to the present race.

This western raven was originally described by Wagler¹ from a specimen taken in Mexico. In view of the multiplication of races in North America, and since the specimen on which Wagler's name was based probably came from eastern Mexico, we hereby designate Orizaba, Vera Cruz, Mexico, as the type locality. Concerning none of the other synonyms above cited in the synonymy of *Corvus corax sinuatus* is there any question, excepting perhaps *Corvus carnivorus* Baird.² This is a composite name, adopted from Bartram, whose specific names, of being non-binomial, are unacceptable; and the status of course, this one must be determined, therefore, solely by the use made of it by Baird, since he first gave it nomenclatural status. His account³ includes all four of the North American races here recognized, all of which he considers as belonging to a single form, and which he called the "common North American raven." The name *Corvus carnivorus* is certainly unavailable for the bird from the eastern United States, since Baird's text was evidently all written before he had seen a specimen of that form, and his characters were undoubtedly drawn entirely from western birds. The only specimen of the eastern raven that he was able to see at all was a specimen from New Jersey, and notice of that he subsequently inserted in a footnote.⁴ It is also indicated by his text that neither can the name be legitimately used for *Corvus corax principalis* Ridgway, a view evidently taken by Mr. Ridgway in describing the latter subspecies. Since most of Baird's specimens are referable to the bird now called *Corvus corax sinuatus*, which is the commonest and best known North American form, it seems most logical

¹*Corvus sinuatus* Wagler, Isis, 1829, p. 748.

²Rep. Explor. & Surv. R. R. Pac., IX, 1858, p. 560.

³Loc. cit.

⁴Loc. cit., p. 561.

MEASUREMENTS OF SPECIMENS OF *Corvus Corax clarionensis*

Museum and number	Sex	Locality	Date	Collector	Wing	Tail	Exposed culmen	Height of bill at nostrils	Height of bill at base	Tarsus	Middle toe without claw
A.M.N.H., 131669 ¹	♂	Cerros Island, Lower California..	Mar. 12, 1911.	H.E. Anthony, C.H. Townsend	421	228	65	25	26.5	69.5	43
U.S.N.M., 117507 ¹..	♂											San Benedicto Island, Mexico....	Mar. 10, 1889..	C.H. Townsend	395	213	63	24	65	46.5
U.S.N.M., 139471 ¹ ..	♂	Santa Catalina Island, California..	April 26, 1892.	C.P. Streater..	412	225	64.5	24	64.5	46	
A.B. Howell ¹	♂	Santa Catalina Island, California. ²	Feb. 17, 1910..	.....	365	216	65	.....	69	42	
A.M.N.H., 131671 ¹	♂	Abrejos Point, Lower California..	Mar. 16, 1911.	H.E. Anthony, C.H. Townsend	412	231	66.5	25	26	73	43
A.M.N.H., 131670 ¹	♂											Abrejos Point, Lower California..	Mar. 16, 1911.	P.I. Osburn, C.H. Townsend	383	202	67	24	26.5	69.5	44
U.S.N.M., 139464.	♂	Pahrump Valley, California.....	Feb. 24, 1891..	A. K. Fisher..	421	230	64	24	69	47	
U.S.N.M., 83910....	♂	Glendale, Nev.....	Nov. 18, 1867..	R. Ridgway...	413	243	65	23	70	43.5	
U.S.N.M., —.....	♂	Narrows, Oregon....	June 8, 1917...	G.G. Cantwell.	410	230	63	22.5	63	45	
E. A. & O. Bangs, 15903 ¹ ..	♀	Cerros Island, Lower California..	April 5, 1906..	.....	395	219	63	23.5	25	67	41
A.C. Bent, 3349 ¹..	♀											Santa Cruz Island, California.....	Dec. 7, 1907...	C. B. Linton..	379	218	63	22	23.5	66	42.5
A.C. Bent, 3348 ¹ ...	♀	Santa Cruz Island, California.....	Dec. 4, 1907...	C. B. Linton..	408	235	63.5	23.5	25.5	68	43
L.B. Bishop, 18517 ¹	♀	San Clemente Island, California..	Mar. 15, 1907..	C. B. Linton..	387	220	59	23	24.5	67.5	41
L.B. Bishop, 18516 ¹	♀	San Clemente Island, California..	Jan. 24, 1907..	C. B. Linton..	395	218	62	23.5	25	68.5	40
J. Dwight, 20477 ¹ ..	♀	San Clemente Island, California..	Jan. 23, 1907..	C. B. Linton..	396	222	63	22.5	23.5	67	40.5
U.S.N.M., 117508 ¹ ..	♀	San Benedicto Island, Mexico....	Mar. 10, 1889..	C.H. Townsend	412	229	61	23.5	66	47.5	

¹Used in measurement averages on p. 224.

²Measured by Mr. A. B. Howell.

MEASUREMENTS OF SPECIMENS OF *Corvus Corax clarionensis*—Continued

Museum and number	Sex	Locality	Date	Collector	Wing	Tail	Exposed culmen	Height of bill at nostrils	Height of bill at base	Tarsus	Middle toe without claw
U.S.N.M., 117509 ¹ ..	♀	San Benedicto Island, Mexico....	Mar. 10, 1889..	C.H. Townsend	390	215	61	23	.....	63	39
U.S.N.M., 135459 ¹ ..	♀	San Clemente Island, California..	Aug. 28, 1894..	E. A. Mearns..	402	219	58	21.5	.....	66	45
U.S.N.M., 135458 ¹ ..	♀	San Clemente Island, California..	Aug. 25, 1894..	E. A. Mearns..	379	207	58	21.5	.....	67.5	40
U.S.N.M., 135457 ¹ ..	♀	San Clemente Island, California..	Aug. 25, 1894..	E. A. Mearns..	383	215	57	21.5	.....	64	45.5
A. B. Howell ¹	♀	Santa Catalina Island, California ² .	May 25, 1908..	.....	371	217	65	.....	.....	67	42
A. B. Howell ¹	♀	Santa Catalina Island, California ² .	Feb. 11, 1910..	.....	370	210	68	.....	.....	70	46
A.M.N.H., 131672 ¹ ..	♀	{San Bartolome, Lower California.}	Mar. 14, 1911..	{H.E. Anthony, C.H. Townsend}	387	216	61.5	24.5	25.5	69	39
U.S.N.M., 86431 ¹ ..	♀	{Porto Borlandra, near La Paz, Lower California.}	Feb. 4, 1882...	L. Belding....	395	224	64	23	.....	64.5	41.5
U.S.N.M., 203325 ¹ ..	♀	{Santa Anita, Lower California.....}	Jan. 12, 1906..	{E. W. Nelson, C. A. Goldman}	383	216	60	21.5	.....	65	42
U.S.N.M., 139463..	♀	Lone Willow Spring, California.....	Jan. 14, 1891..	E. W. Nelson..	406	220	61.5	22	.....	64	41
U.S.N.M., 183943..	♀	Warren's Well, California.....	May 16, 1902..	F. Stephens...	370	208	56.5	21	.....	61.5	38
U.S.N.M., 139465..	♀	Pahrump Valley, Nevada.....	Feb. 24, 1891..	A. K. Fisher..	397	218	60	22	.....	66	42.5
U.S.N.M., 139467..	♀	Wells, Nevada.....	Oct. 18, 1890..	V. Bailey.....	396	232	61	22.5	.....	64	41
U.S.N.M., 12920...	♀	Pt. Tejon, Cal.....	.....	J. Xantus.....	410	233	62	22.5	.....	66	42
U.S.N.M., 139470..	♀	Umatilla, Oregon...	Oct. 17, 1890..	C.P. Streator..	397	228	60.5	24.5	.....	67	42
U.S.N.M., 107413..	Humboldt Bay, Cal.	Dec. 7, 1885...	C.H. Townsend	377	218	59.5	24	.....	64	42
U.S.N.M., 6857.....	San Rafael River, Utah.....	.....	E. G. Beckwith	407	225	60	22	.....	66	41

¹Used in measurement averages on p. 224.

²Measured by Mr. A. B. Howell.

to restrict Baird's *Corvus carnivorus* to this race rather than to *Corvus corax clarionensis* from the southwest, specimens of which formed a part of the material available to Professor Baird. Since the specimen best agreeing with his description, and the one with which he made his chief comparisons is No. 5186, U. S. Nat. Mus., an adult male, from Fort Randall, South Dakota, taken, October 18, 1856, it seems proper to consider this the type, and Fort Randall, South Dakota, therefore, the type locality. The name, of course, thus becomes a synonym of *Corvus corax sinuatus* Wagler.

CORVUS CORAX CLARIONENSIS Rothschild and Hartert.

Corvus corax clarionensis ROTHSCHILD and HARTERT, Novit. Zool., IX, No. 2, July 25, 1902, p. 381 (Clarion Island, Revillagigedo Islands, Mexico).

Chars. subsp.—Resembling *Corvus corax sinuatus*, but wing, tail, and other parts smaller, particularly the bill.

Measurements.—Male:¹ wing, 365-421 (average, 398) mm.; tail, 202-231 (219.2); exposed culmen, 63-67 (65.2); height of bill at nostrils, 24-25 (24.4); tarsus, 64.5-73 (68.4); middle toe without claw, 42-46.5 (44.1).

Female:² wing, 370-412 (average, 389.5); tail, 207-235 (218.8); exposed culmen, 57-68 (61.7); height of bill at nostrils, 21.5-24.5 (22.7); tarsus, 63-70 (66.6); middle toe without claw, 39-47.5 (42.2).

Type locality.—Clarion Island, Revillagigedo Islands, Colima, Mexico.

Geographic distribution.—Southwestern United States and extreme northwestern Mexico. Breeds north to Umatilla, central northern Oregon; west to Narrows, central northern Oregon; Fort Klamath, central southern Oregon; Humboldt Bay, northwestern California; the Santa Barbara Islands, southwestern California; and Cerros Island, western Lower California; south to the Revillagigedo Islands, Colima, Mexico; east to Porto Bolandra, southeastern Lower California; the eastern coast of Lower California; Tucson and Apache, south-

¹Six specimens, from the Revillagigedo Islands, Lower California, and the Santa Barbara Islands, California.

²Sixteen specimens, from the Revillagigedo Islands, Lower California, and the Santa Barbara Islands, California.

eastern Arizona; San Rafael River, central Utah; Wells, north-eastern Nevada; and Umatilla, central northern Oregon.

Remarks.—This race is so much smaller than *Corvus corax principalis* or *Corvus corax europhilus*, particularly so far as the bill is concerned, that no further comparison is necessary. It was originally described by Doctors Rothschild and Hartert¹ from a specimen taken on Clarion Island in the Revillagigedo group, and has been recently recorded by Mr. Ridgway² from the Santa Barbara Islands, California. It is undoubtedly worthy of recognition as a subspecies, but it has, however, much more of a geographic range than hitherto supposed. Birds from Lower California certainly belong to the same form; while those from California, Nevada, all but the coast region of Oregon, as well as most of Arizona and Utah, are so very little larger, though somewhat verging toward *Corvus corax sinuatus*, that they are certainly referable to *Corvus corax clarionensis*. No specimens from the coast region of Oregon have been examined, and they also may belong under the present race.

Measurements of specimens, including some of those from the mainland of the western United States and Lower California, are given in the table on pages 222 and 223.

¹Novit. Zool., IX, No. 2, July 25, 1902, p. 381.

²Bull. U. S. Nat. Mus., No. 50, part III, 1904, p. 265.