

## PROCEEDINGS

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NEW AMERICAN MUSTELIDS OF THE GENERA  
MARTES, GULO, AND LUTRA.

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The mustelid genera *Martes* (subgenus *Pekania*), *Gulo*, and *Lutra* have been somewhat neglected by taxonomists and students of geographic distribution owing, no doubt, to the fact that few complete specimens have been available for study. The reason for the shortage of material is readily understood. The skins of all of these animals have a very high commercial value as furs and too intensive trapping for the market resulted in their extermination, or reduction to small numbers, before museum collectors entered the field. As in many other widely ranging groups, however, the skulls rather than the skins present the most reliable index to specific and subspecific differentiation. Fortunately a considerable number of these essential parts, available at little or no cost, have been obtained from trappers, in some cases in series affording unusual opportunities for determining the range of individual variation and the stability of characters.

The otters, of many kinds, are marvelously adapted to a life spent largely in salt or fresh waters, according to species, and this adaptation, including the procurement of food in an element harboring few competitors and few natural enemies, places them among the most successful of mammalian families, as attested by their nearly world-wide distribution. But they are unable to cope with the intensive use of death-dealing devices and the unfavorable modification of habitat introduced by civilized man.

The river otters are represented in Canada and the United States, including Alaska, by the *Lutra canadensis* group, which proves to be highly plastic, as shown by the number and dispersal of recognizable forms. The southern limit of the group is nominally near the Mexican border, but otters, formerly numerous, have been extinguished over vast areas to the northward. Farther south in Mexico, Central and South America, it is



replaced by a tropical group, *Lutra annectens* and allied forms. The *L. canadensis* group differs notably from its Mexican and Central American congeners in external characters. The rhinarium is large and naked to a broad, wedge-shaped line connecting points well behind the posterior plane of the nostrils, instead of small and hairy along the upper side to within this plane as in *annectens*. The webs between the toes of the fore and hind feet are hairy, instead of naked, on the under side. The skulls are very similar in general form and the teeth in sculpture, but the rostrum and palate are longer and the premolars less closely crowded in *canadensis* than in *annectens*.

*Lutra destructor* Barnston (Canad. Nat. and Geolog., vol. 8, p. 152, figs. 1-6, 1863) was based on two specimens from Michipicoten, Lake Superior, Ontario, which had been sent by the author to the Smithsonian Institution, where they were entered in the mammal catalogue October 17, 1861. These specimens were overlooked in the collection until recently detected by Dr. Remington Kellogg, to whom I am indebted for bringing them to my attention. Barnston did not fix a type or definite locality, merely assigning the animal to the "region of North-eastern America." One of the specimens, number 4445/5128, a rather young female, now consisting of the skeleton including skull is designated as lectotype. The skin that originally accompanied the skeleton can not be found. *Lutra destructor* Barnston must be placed in the synonymy of *Lutra canadensis canadensis* Schreber, which ranges from the Atlantic coast west to Lake Superior.

The present paper is based mainly upon a study of skulls of the mustelid genera mentioned in the collections of the U. S. National Museum. Lists of specimens examined, therefore, refer to skulls only unless otherwise indicated.

For the loan of pertinent material for comparison my thanks are due to Dr. H. E. Anthony and Mr. G. H. H. Tate, American Museum of Natural History.

### ***Martes pennanti columbiana*, subsp. nov.**

BRITISH COLUMBIA FISHER.

*Type*.—From Stuart Lake, near headwaters of Fraser River, British Columbia. No. 56953, ♂ adult, skull only, U. S. National Museum (Biological Survey collection); collected by W. E. Traill, 1893.

*Distribution*.—Rocky Mountain region from northern British Columbia south, formerly, at least, to central Idaho; east, mainly in southern Canada, grading toward *Martes pennanti pennanti* in Manitoba.

*Characters*.—Color about as in *M. p. pennanti* of eastern Canada and the northeastern United States, and *Martes pennanti pacifica* of central Washington. Skull somewhat larger, more elongated than either; palate decidedly longer, usually extending farther posteriorly beyond molars but relatively rather narrow at constriction; rostrum and maxillary tooth row usually longer; carnassials usually larger; premolars less closely crowded.

*Measurements*.—An adult male from Alturas Lake, Sawtooth Range, Idaho: Total length, 1,013 mm.; tail vertebrae, 395; hind foot, 128. *Skull*



(type): Greatest length, 131.1; condylobasal length, 120.8; breadth of rostrum (just behind roots of canines), 24.5; interorbital breadth, 26.7; zygomatic breadth, 79.4; breadth of braincase (across mastoid processes), 58.9; palatal length (gnathion to palation), 65.7; palatal constriction, 11; maxillary tooth row (alveoli), 45; crown length (outer side) of upper carnassial, 12.8; crown width of upper carnassial, 7.5. Average of five adult male topotypes: Greatest length, 131.4 (130.5–132.1); condylobasal length, 120.7 (118.3–121.7); breadth of rostrum, 24.9 (23.8–26); interorbital breadth, 27.4 (27–28.6); zygomatic breadth, 79.5 (77.8–82.5); breadth of braincase, 56.9 (55.1–59.9); palatal length, 64.8 (63.8–66); palatal constriction, 11 (10.4–11.8); maxillary tooth row, 43.5 (42.1–45.1); crown length of upper carnassial, 12.8 (12.4–13.7); crown width of upper carnassial, 7.4 (7.3–7.5). Average of five adult female topotypes: Greatest length 108 (106.6–108.9); condylobasal length, 103.3 (100.3–106.1); breadth of rostrum, 19.9 (18.6–20.4); interorbital breadth, 22.9 (21.8–23.6); zygomatic breadth, 58.6 (56.6–60.2); breadth of braincase, 47.3 (45.5–49); palatal length, 54.6 (53.4–56.8); palatal constriction, 10.3 (9.9–11); maxillary tooth row, 38 (36.7–39.4); crown length of upper carnassial, 10.9 (10.5–11.3); crown width of upper carnassial, 6.2 (5.6–6.4).

*Remarks.*—Rhoads (Trans. Amer. Philos. Soc., n. s., vol. 19, p. 434, 1898) the first reviser of the fishers of North America, quoting Pennant, fixed the type region of *M. pennanti* as "New York and Pennsylvania." *Martes pennanti* is much less readily subdivisible into geographic races than many other species with transcontinental ranges. No very reliable color differences are apparent, and differential cranial characters are slight. The skull of *M. p. pacifica* is similar in size to that of typical *pennanti*, but usually differs noticeably in the greater breadth of the rostrum and the more widely spreading zygomata. The skull of *M. p. columbiana* is larger and may usually be distinguished from those of the other forms by the greater length of the palate. Specimens from east of the Rocky Mountains appear to grade toward *pennanti*.

*Specimens examined.*—Total number, 95, as follows:

Alberta: Fort Smith 1; Peace River (35 miles north of Big Island), 2; Prairie Creek (250 miles west of Edmonton), 2.

British Columbia: Fort Grahame, Finlay River, 5; Lightning Lake, upper Skagit River, 3; Stuart Lake (type locality), 71; Tacla Lake, 6.

Manitoba: Cross Lake, 2; Oxford House, 2.

Idaho: Alturas Lake, Sawtooth Mountains, 1 (skin and skull).

### ***Gulo luscus vancouverensis*, subsp. nov.**

#### VANCOUVER ISLAND WOLVERINE.

*Type.*—From Great Central Lake, Vancouver Island, British Columbia. No. 211499, ♂ old adult, skull only, U. S. National Museum (Biological Survey collection), collected by W. R. Kent, March 27, 1913. X-catalogue number 14081.

*Distribution.*—Restricted to Vancouver Island.

*Characters.*—Very similar to typical *Gulo luscus* of Hudson Bay and to



the animal inhabiting the British Columbia mainland, but smaller. Skull compared with that of typical *luscus*: Very similar in general form, but smaller in general dimensions, although relatively rather broad across zygomata; palate distinctly narrower in front of interpterygoid fossa; interpterygoid fossa narrower; zygomata relatively broader and heavier; audital bullae noticeably smaller; palatopterygoids more developed as trenchant descending wings than usual in *luscus*; symphysis of mandible relatively shorter; dentition about the same, but relatively rather heavy, the premolars large and closely crowded.

*Measurements*.—No external measurements available. *Skull* (type): Greatest length, 161.8 mm.; condylobasal length, 146.4; zygomatic breadth, 104.9; breadth of braincase (across mastoid processes), 83.9; interorbital breadth, 40.2; breadth across postorbital processes, 48.6; postorbital constriction, 33.7; palatal constriction, 16.8; maxillary toothrow (alveoli), 50.3; crown length (outer side) of upper carnassial, 21.4; diameter upper canine (antero-posterior), 11.6. Skull of an old adult female from Elk River, Vancouver Island: Greatest length, 146; condylobasal length, 131.9; zygomatic breadth, 90.7; breadth of braincase, 75.1; interorbital breadth, 34.3; breadth across postorbital processes, 42.7; postorbital constriction, 29; palatal constriction, 16.5; maxillary toothrow, 45.6; crown length of upper carnassial, 18.4; diameter upper canine, 9.8.

*Remarks*.—Several nominal species of wolverine have been described from the mainland. While the small number of skins examined are fairly uniform in color pattern, wide range of individual variation is shown in about 80 skulls examined from numerous localities. In making general comparisons I have not succeeded in segregating the named forms, but it is possible that several slightly differentiated geographic races may be referable to a single species. *Gulo luscus vancouverensis* is closely allied to the mainland animal, but appears to differ in combination of cranial dimensions.

*Specimens examined*.—Two, both from Vancouver Island.

### ***Lutra canadensis preblei*, subsp. nov.**

MACKENZIE OTTER.

From near McTavish Bay, Great Bear Lake (on canoe route from Lake Hardisty), Mackenzie. No. 147413, ♂ adult, skull only, U. S. National Museum (Biological Survey collection); collected by E. A. Preble, August, 1903. Original number 4894.

*Distribution*.—Mackenzie River basin and east to Hudson Bay; south to Alberta, Saskatchewan and Manitoba.

*Characters*.—Very similar to *Lutra canadensis canadensis* of eastern Canada, but skull larger; nasals longer, extending farther posteriorly beyond ends of maxillae (as shown by sutures visible in young); audital bullae more flattened, less inflated and projecting below level of basioccipital; dentition heavier. Compared with that of *Lutra canadensis interior* of Nebraska, the skull is very similar in size and general form, but audital bullae decidedly flatter, less rounded, less inflated and therefore less projecting below level of basioccipital; dentition lighter.



*Measurements.*—*Skull of type:* Condylbasal length, 116.7 mm.; zygomatic breadth, 79.2; breadth of braincase (across mastoid processes), 69; height of braincase (over audital bullae), 39.9; interorbital breadth, 25.6; postorbital constriction, 19; palatal constriction, 14.3; maxillary tooth row (alveoli), 37.3; crown length (outer side) of upper carnassial, 11.3; crown width of upper carnassial, 9.6. An adult female from Slave River, 10 miles below mouth of Peace River, Alberta: Condylbasal length, 111.1; zygomatic breadth, 71.8; breadth of braincase, 67; height of braincase, 38.5; interorbital breadth, 26.5; postorbital constriction, 22; palatal constriction, 14; maxillary tooth row, 36.2; crown length of upper carnassial, 11.6; crown width of upper carnassial, 9.1.

*Remarks.*—Specimens from Oxford House and other localities in Manitoba grade toward typical *canadensis*, but in size are more properly referable to the present form. Farther south *L. c. preblei* undoubtedly intergrades with *L. c. interior*, to which form examples from Elk River, Minnesota, appear to be assignable.

*Specimens examined.*—Total number, 36, as follows:

Alberta: Henry House, 1; Slave River, 1; Whitemud, 1.

Mackenzie: Fort Liard, 1; McTavish Bay, Great Bear Lake (type locality), 1; Fort Resolution, 1; Fort Smith, 1.

Manitoba: Cross Lake, 1; Oxford House, 23; Norway House, 5.

***Lutra canadensis optiva*, subsp. nov.**

MONTAGUE ISLAND OTTER.

*Type.*—From Zaikof Bay, Montague Island, Alaska. No. 137320, ♂ adult, skin and skull, U. S. National Museum (Biological Survey collection); collected by Charles Sheldon, 1905. X-catalogue number 5462.

*Distribution.*—Montague and Hinchinbrook islands and adjacent Kenai Peninsula.

*Characters.*—General color rather dull, near vandyke brown (Ridgway, 1912). Similar to *L. c. preblei* of the Mackenzie River basin, but skull somewhat larger, more angular; zygomata heavier; basioccipital region flatter, less bulging between audital bullae; audital bullae usually still flatter, less projecting below level of basioccipital; dentition heavier. Skull similar in general to that of *L. c. pacifica* of the high Cascade Mountain region of Washington, but relatively broader, less elongated; braincase less highly arched; audital bullae decidedly flatter.

*Measurements.*—*Skull of type:* Condylbasal length, 116 mm.; zygomatic breadth, 79.7; breadth of braincase (across mastoid processes), 72.6; height of braincase (over audital bullae), 40; interorbital breadth, 27.8; postorbital constriction, 20.1; palatal constriction, 15; maxillary tooth row (alveoli), 38.2; crown length (outer side) of upper carnassial, 12.9; crown width of upper carnassial, 10.3. An adult female from Cape Elizabeth, Kenai Peninsula: Condylbasal length, 111.7; zygomatic breadth, 75.3; breadth of braincase, 67.8; height of braincase, 38; interorbital breadth, 25.9; postorbital constriction, 18.6; palatal constriction, 13.6; maxillary



tooth row, 37; crown length of upper carnassial, 12.3; crown width of upper carnassial, 8.8.

*Remarks.*—Several mammals are known only from Montague Island, but the otters of the adjacent mainland agree closely with the insular animal. *L. c. optiva* requires no close cranial comparison with typical *canadensis* of eastern Canada, which is decidedly smaller with conspicuously larger, more inflated audital bullae.

*Specimens examined.*—Total number, 16, all from Alaska, as follows:

Cape Elizabeth, Kenai Peninsula, 10; Hinchinbrook Island, 1; Kenai Peninsula (without exact locality), 3; Montague Island (type locality), 2.

***Lutra canadensis yukonensis*, subsp. nov.**

YUKON VALLEY OTTER.

*Type.*—From Unalakleet, Norton Sound, Alaska. No. 21480, ♀ adult, skull only, U. S. National Museum; collected by E. W. Nelson, fall of 1879. Original number 112.

*Distribution.*—Bering Sea coast, Alaska Peninsula, Kuskokwim and Yukon river drainage, east to central Yukon, Canada.

*Characters.*—Similar to *L. c. preblei* of the Mackenzie River basin, but skull distinctly smaller; audital bullae more rounded and inflated. Compared with *L. c. optiva* of Montague Island the skull is smaller; mastoid processes less deflected downward, less hook-like; audital bullae more inflated; dentition lighter.

*Measurements.*—*Skull of type*: Condylbasal length, 105.3 mm.; zygomatic breadth, 73.8; breadth of braincase (across mastoid processes), 65.3; height of braincase over audital bullae, 39.5; interorbital breadth, 24.9; postorbital constriction, 21.1; palatal constriction, 15; maxillary tooth row, 34.9; crown length (outer side) of upper carnassial, 13; crown width of upper carnassial, 8.8.

*Remarks.*—A few specimens from widely dispersed localities appear to be referable to the form here described. Specimens from the Alaska Peninsula grade toward *L. c. optiva* in cranial characters. In color, however, the two forms appear to be nearly identical.

*Specimens examined.*—Total number, 16, as follows:

Alaska: Between Portage Bay and Becharof Lake, 5; Becharof Lake, 1 (skin and skull); Frosty Peak, Alaska Peninsula, 1; Kuskokwim River (East Fork, 1; base of Mount Sischoo, 1), 2; Mission, 1; Nushagak River, 1 (skin only); Ruby, 1; Tanana River, 1; Unalakleet, 1.

Yukon: Pelly River (mouth MacMillan River), 1.

***Lutra canadensis kodiacensis*, subsp. nov.**

KODIAK ISLAND OTTER.

*Type.*—From Uyak Bay, Kodiak Island, Alaska. No. 98142, adult, skull only (probably ♀), U. S. National Museum (Biological Survey collection); collected by C. Hart Merriam (found and presented to Merriam by George Bird Grinnell), July, 1899.

*Distribution.*—Kodiak and Afognak islands, Alaska.



*Characters*.—Similar to *L. c. yukonensis* and *L. c. optiva*, but skull somewhat higher and narrower than either; braincase less inflated laterally, more highly and narrowly arched; incisive foramina larger, more widely open; basioccipital region more inflated, bulging downward between audital bullae; audital bullae rather flat, much as in *optiva*; dentition medium.

*Measurements*.—*Skull of an adult, probably male, from Kodiak Island*: Condylbasal length, 116 mm.; zygomatic breadth, 74.4; breadth of braincase (across mastoid processes), 66.5; height of braincase (over audital bullae), 40.5; interorbital breadth, 24.2; postorbital constriction, 21; palatal constriction, 15.3; maxillary tooth row (alveoli), 37; crown length (outer side) of upper carnassial, 12.4; crown width of upper carnassial, 9.1. *Type* (probably female): Condylbasal length, 111.5; zygomatic breadth, 72.2; breadth of braincase, 65.9; height of braincase, 40.6; interorbital breadth, 24.3; postorbital constriction, 21.3; palatal constriction, 14.5; maxillary tooth row, 36.7; crown length of upper carnassial, 11.6; crown width of upper carnassial, 9.

*Remarks*.—This insular race is based on skulls only picked up by various collectors at different times from F. Bischoff in 1860 and C. Hart Merriam in 1899, to more or less fragmentary material dug out of the kitchen middens of former human inhabitants by A. Hrdlicka in 1934. All of the skulls agree in a combination of cranial details that sets them somewhat apart from the other subspecies. A skull from the neighboring island, Afognak, is larger with heavier dentition than any of those available from Kodiak Island, but is provisionally referred to the same form.

*Specimens examined*.—Total number, 15, all from Alaska, as follows: Afognak Island, 1; Kodiak Island, 14 (including Uyak Bay, 2; Lake Karluk, 1).

***Lutra canadensis extera*, subsp. nov.**

NAGAI ISLAND OTTER.

*Type*.—From Nagai Island, Shumagin Islands, Alaska. No. 12485, adult, skull and other parts of skeleton (probably ♂), U. S. National Museum; collected by W. H. Dall, 1872.

*Distribution*.—Known only from Nagai Island.

*Characters*.—Cranium low with strongly developed sagittal crest. In general resembling that of *L. c. yukonensis*, but braincase with sides more gradually tapering to a narrower postorbital constriction; palatal shelf narrower behind molars; mastoid processes more strongly deflected downward and inward; audital bullae flatter, more deeply excavated along inner sides; dentition similar, but rather light. Compared with *L. c. kodiacensis* the braincase is slightly lower and flatter, with sides tapering more evenly to a narrower postorbital constriction; palatal shelf narrower behind molars; audital bullae similarly flat, but more deeply excavated along inner sides; dentition lighter.

*Measurements*.—*Skull of type*: Condylbasal length, 112.3 mm.; zygomatic breadth, 74.7; breadth of braincase (across mastoid processes), 67.6;



height of braincase (over audital bullae), 40.3; interorbital breadth, 24.3; postorbital constriction, 19.4; palatal constriction, 13.7; maxillary tooth row (alveoli), 35; crown length (outer side) of upper carnassial, 11.5; crown width of upper carnassial, 8.5.

*Remarks.*—*L. c. extera* is based on a single skull, with parts of skeleton. Close alliance to *yukonensis* is indicated, but the characters pointed out appear to be beyond the probable range of individual variation and therefore distinctive.

***Lutra canadensis evexa*, subsp. nov.**

STUART LAKE OTTER.

*Type.*—From Stuart Lake, near headwaters of Fraser River, British Columbia. No. 47018, ♂ adult, skull only, U. S. National Museum (Biological Survey collection), collected by W. E. Traill, 1892.

*Distribution.*—Western slope of Rocky Mountains in central British Columbia.

*Characters.*—A medium-sized subspecies, with vault of cranium high and evenly rounded. Skull similar in size to that of *L. c. preblei* but braincase more highly and usually more narrowly arched; basioccipital region more bulging downward between audital bullae; mastoid processes more strongly deflected downward, more hook-like; dentition about the same. Skull closely resembling that of *L. c. pacifica* of western Washington, but decidedly smaller; braincase relatively and usually actually more highly arched; dentition lighter. Compared with that of *L. c. optiva* the skull is distinctly smaller; braincase higher; basioccipital region more bulging downward between audital bullae; bullae much more inflated; dentition lighter.

*Measurements.*—*Skull of type*: Condylbasal length, 113.4 mm.; zygomatic breadth, 78; breadth of braincase (across mastoid processes), 69.5; height of braincase (over audital bullae), 44.5; interorbital breadth, 25.4; postorbital constriction, 22.9; palatal constriction, 14.6; maxillary tooth row, 37.5; crown length (outer side) of upper carnassial, 11.4; crown width of upper carnassial, 8.9. An adult female topotype: Condylbasal length, 107.8; zygomatic breadth, 74.9; breadth of braincase, 63.9; height of braincase, 40.4; interorbital breadth, 22.8; postorbital constriction, 21.1; palatal constriction, 13.9; maxillary tooth row, 35.2; crown length of upper carnassial, 11.3; crown width of upper carnassial, 8.8.

*Remarks.*—*L. c. evexa* requires no close comparison with its insular geographic neighbor, *L. periclyzomæ*, which exceeds it in size and differs in important cranial details. It is based on a series of 36 skulls, mainly of adults of both sexes, all from the type locality and affording an unusual opportunity for the study of individual variation.

***Lutra canadensis nexa*, subsp. nov.**

NEVADA OTTER.

*Type.*—From near Deeth, Humboldt River, Elko County, Nevada. No. 210572, ♂ adult, skin and skull, U. S. National Museum (Biological



Survey collection), collected by R. F. Dietz, December 19, 1915. X-catalogue number 13275.

*Distribution*.—Humboldt and upper Snake River basins in southeastern Oregon, southern Idaho and northern Nevada, and probably adjoining western slopes of Rocky Mountains.

*Characters*.—A medium-sized, comparatively light-colored subspecies, with cranium broad, low, smoothly rounded and weakly developed. Color of type (winter pelage): Upper parts near mikado brown (Ridgway, 1912) in general tone, the tips of longer hairs somewhat lighter and producing an indistinctly grizzled effect; under parts overlaid with much lighter brown, paling gradually anteriorly to silvery grayish on throat, cheeks, and lips; feet light brownish; tail above about like back, somewhat paler below. Similar in general to *L. c. brevipilosus* of the lower Sacramento-San Joaquin River drainage, California, but apparently paler; skull more weakly developed, less angular; braincase usually lower and broader; postorbital processes of both frontals and jugals shorter and less prominent; mastoid processes less deflected downward, less hook-like; bullae and dentition about the same. Color paler and skull decidedly smaller, less angular, than in *L. c. pacifica* of the Cascade Mountain region of Washington; braincase similar in height, but skull differing otherwise in about the same details as from *brevipilosus*. Similar in size to *L. c. interior*, of Nebraska, but color paler and skull less angular; zygomatics more slender; postorbital processes of frontals and jugals shorter, more weakly developed; audital bullae less inflated; dentition about the same. Resembling *L. c. sonora* of the Verde River drainage, Arizona, but skull less angular; postorbital processes shorter; lambdoid crest less developed (projecting and trenchant in *sonora*); audital bullae less inflated, less projecting below plane of basioccipital; maxillary tooth row longer; dentition, especially the upper molars, somewhat heavier.

*Measurements*.—*Skull of type*: Condylbasal length, 113.7 mm.; zygomatic breadth, 75; breadth of braincase (across mastoid processes), 71.2; height of braincase (over audital bullae), 42.6; postorbital constriction, 20.6; palatal constriction, 15.2; maxillary tooth row, 37.7; crown length (outer side) of upper carnassial, 12.6; crown width of upper carnassial, 10. An adult female from Humboldt River, near Golconda, Nevada: Condylbasal length, 111.4; zygomatic breadth, 70.7; breadth of braincase, 69; height of braincase, 40.6; interorbital breadth, 23.6; postorbital constriction, 21.4; palatal constriction, 14.4; maxillary tooth row, 37.6; crown length of upper carnassial, 12.3; crown width of upper carnassial, 9.3.

*Remarks*.—Coloration is not, as a rule, very dependable as a basis for distinguishing the subspecies of *L. canadensis*, but skins examined of the present form exhibit somewhat lighter brownish tones than of those inhabiting regions along the Pacific coast or farther east. The skull is characterized by weak development and lack of angularity as shown by the low lambdoid crest, slender zygomatics and short postorbital processes.

*Specimens examined*.—Total number, 12, as follows:

Idaho: Birch Creek, 2 (skins and skulls); Bruneau, 1 (skin and skull); Hagerman, 1 (skin only); Sawtooth, 2 (1 skin and 1 skull).



Nevada: Deeth, 2 (1 skin and skull (type) and 1 skull only); Golconda, 3 (2 skins and skulls).

Oregon: Rome, Owyhee River, 1.

***Lutra canadensis texensis*, subsp. nov.**

TEXAS OTTER.

*Type*.—From 20 miles west of Angleton, Brazoria County, Texas. No. 156849, ♂ adult, skull only, U. S. National Museum (Biological Survey collection); collected by B. V. Lilly, March, 1908. X-catalogue number 7047.

*Distribution*.—Lower Mississippi River Valley in Louisiana and doubtless Mississippi, and west in the Gulf coast region at least to Bay City, Texas.

*Characters*.—A medium-sized, rather light brown subspecies, with short pelage and moderately broad skull. Color (topotype): Upper parts near verona brown (Ridgway, 1912), becoming somewhat lighter on top of head and neck; under parts a mixture of lighter browns, changing to silvery gray on throat and lips, this color extending upward over cheeks; feet near mikado brown; tail above like back, somewhat paler below. Resembling *L. c. interior*, but color apparently lighter, pelage shorter; skull very similar but mastoid processes less strongly turned downward; audital bullae distinctly less fully inflated, less projecting below level of basioccipital; dentition about the same. Compared with *L. c. vaga*, pelage similarly short, but color lighter brown; skull broader; braincase about equal in height, but decidedly broader, more rounded and inflated; basioccipital broader; palate broader behind molars; bullae less inflated; dentition nearly the same. Similar in size to *L. c. sonora* of the Verde River region, Arizona; skull more smoothly rounded, less angular; braincase more abruptly inflated behind postorbital constriction, as viewed from above; mastoid processes less strongly turned downward, less hook-like; basioccipital region more inflated, tending to bulge between bullae; bullae flatter, less projecting below level of basioccipital; maxillary tooth row longer; dentition decidedly heavier.

*Measurements*.—*Skull of type*: Condylbasal length, 112.3; zygomatic breadth, 73.8; breadth of braincase (across mastoid processes), 69.1; height of braincase (over audital bullae), 42.2; interorbital breadth, 24.6; postorbital constriction, 19.5; palatal constriction, 15.8; maxillary tooth row, 38; crown length (outer side) of upper carnassial, 12.8; crown width of upper carnassial, 9.9. An adult female topotype: Condylbasal length, 109.8; zygomatic breadth, 69.4; breadth of braincase, 66.3; height of braincase, 39.7; interorbital breadth, 24.1; postorbital constriction, 17.9; palatal constriction, 14.2; maxillary tooth row, 36.6; crown length of upper carnassial, 12.6; crown width of upper carnassial, 9.3.

*Remarks*.—*L. c. texensis* is closely allied to *L. c. interior* of Nebraska and *L. c. vaga* of Florida, and doubtless intergrades with both. It agrees with *vaga* in shortness of pelage, but skins examined are lighter colored; cranial details shown in skulls from northern Louisiana suggest a closer approach to *interior*.



*Specimens examined*.—Total number, 9, as follows:

Louisiana: Morgan City, 1; Tallulah, 4 (2 skins with skulls).

Texas: Angleton (type locality, 20 miles west) 3 (1 skin only); Bay City, 1 (skin and skull).

***Lutra mira*, sp. nov.**

PRINCE OF WALES ISLAND OTTER.

*Type*.—From Kasaan Bay, Prince of Wales Island, Alaska. No. 127888, ♂ young adult, skull only, U. S. National Museum (Biological Survey collection); collected by W. H. Osgood, May, 1903. Original numbr 2290.

*Distribution*.—Alexander Archipelago and probably adjacent mainland, southeastern Alaska.

*Characters*.—Size largest of the *L. canadensis* group. Color of an October specimen uniform vandyke brown (Ridgway, 1912) above, and near verona brown below, thinly overlaid with grayish on under side of neck and cheeks, becoming more distinctly gray on upper lip. Skull very large, the braincase broad, relatively low and flat; audital bullae very flat. Skull similar in general to those of *L. c. preblei* and *L. c. optiva*, but contrasting strongly in much greater size. Compared with *L. periclyzomæ*, of the Queen Charlotte Islands, a departure in combination of cranial characters is exhibited as follows: Size much larger; nasal region less depressed, the nasals shorter, less extended posteriorly beyond maxillae; incisive foramina narrower, less broadly oval; palate with a small, pointed posterior median projection (absent in *periclyzomæ*); outer side of upper carnassial less deeply emarginate.

*Measurements*.—*Skull of type*: Condylbasal length, 127.7 mm.; zygomatic breadth, 84.8; breadth of braincase (across mastoid processes), 80.1; height of braincase (over audital bullae), 42.2; interorbital breadth, 31.5; postorbital constriction, 19.6; palatal constriction, 16.1; maxillary tooth row (alveoli), 38.8; crown length (outer side) of upper carnassial, 13.1; crown width of upper carnassial, 9.7. Young female (nasal sutures open) topotype: Condylbasal length, 114.9; zygomatic breadth, 71.2; breadth of braincase, 71.1; height of braincase, 49.9; interorbital breadth, 26.7; postorbital constriction, 23.4; palatal constriction, 16; maxillary tooth row, 37.9; crown length of upper carnassial, 12; crown width of upper carnassial, 10.2.

*Remarks*.—*L. mira* differs so markedly in size from the known races of *L. canadensis* that in the absence of material indicating intergradation it seems best to treat it as a full species. Owing to the proximity of islands of the Alexander Archipelago to the mainland coast it may be expected to pass gradually into a more typical form of *canadensis*.

*Specimens examined*.—Total number, 5, all from Alaska as follows: Prince of Wales Island (type locality), 4 (including 1 skin and skull); Shrubby Island, 1.



***Lutra vancouverensis*, sp. nov.**

## VANCOUVER ISLAND OTTER.

*Type*.—From Quatsino, Vancouver Island, British Columbia. No. 137775, ♂ adult, skull only, U. S. National Museum (Biological Survey collection), collected by H. O. Bergh, 1905. X-catalogue number 5517.

*Distribution*.—Definitely known only from Vancouver Island.

*Characters*.—Skull large, very broad, angular and massive; mastoid process of squamosal widely extended and shelf-like. Not very unlike that of *L. c. pacifica* in general, but much broader and heavier, with broader braincase and more widely extended mastoid processes; basioccipital broader; audital bullae flatter, less extended below level of basioccipital; dentition heavier. Skull similar in length to that of *L. periclyzomae*, but much broader and more massive; nasal region less depressed, the nasals shorter, broader, less extended beyond ends of maxillae; mastoid process of squamosal forming a broad shelf extending farther laterally, but narrowing more rapidly along margin leading to lambdoid crest (as viewed from above); incisive foramina smaller, less broadly oval; audital bullae more rounded, less flattened; dentition much heavier, the outer side of upper carnassial less deeply excavated near middle. Contrasted with that of *L. c. evexa* the skull is much larger, broader, and more massive; braincase much broader and lower; audital bullae less inflated; dentition much heavier. Differing from *L. mira* notably in smaller size.

*Measurements*.—*Skull of type*: Condylobasal length, 120 mm.; zygomatic breadth, 89.8; breadth of braincase (across mastoid processes), 77.9; height of braincase (over audital bullae), 41.1; interorbital breadth, 29.1; postorbital constriction, 20.6; palatal constriction, 15.7; maxillary tooth row, 39.5; crown length (outer side) of upper carnassial, 13.3; crown width of upper carnassial, 10.4.

*Remarks*.—Among the members of the *L. canadensis* group *L. vancouverensis* is exceeded in size only by the geographically somewhat remote *L. mira* of Prince of Wales Island, Alaska. It is treated here as a full species, but may prove to intergrade with a mainland form. The upper part of a skull apparently picked up at the head of River Inlet, on the mainland of British Columbia, agrees closely with *vancouverensis* but circumstances suggest that the locality may be erroneous.

*Specimens examined*.—Three, all from the type locality.





Goldman, Edward Alphonso. 1935. "New American mustelids of the genera Martes, Gulo, and Lutra." *Proceedings of the Biological Society of Washington* 48, 175–186.

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