

THE AUK

A QUARTERLY JOURNAL OF ORNITHOLOGY

VOL. 94

JULY 1977

No. 3

A NEW GENUS AND SPECIES OF OWL (AVES: STRIGIDAE) FROM PERU

JOHN P. O'NEILL AND GARY R. GRAVES

ABSTRACT.—A new genus and species of tiny owl of the family Strigidae is described from cloud forest in the Departamento de San Martín in northern Peru. It appears to be allied to *Glaucidium* and *Micrathene*, more closely to the latter than to the former, but generically clearly separable from both of these taxa.—*Museum of Zoology, Louisiana State University, Baton Rouge, Louisiana 70893*. Accepted 4 April 1977. Publication costs subsidized by a friend of the LSUMZ.

In 1963 the Louisiana State University Museum of Zoology had the good fortune to acquire a new genus and species of tanager from Peru, *Wetmorethraupis sterrhopteron* (Lowery and O'Neill 1964). The description of this spectacular bird was received by the ornithological world with considerable interest because the consensus of ornithologists at the time was that the world's birds were so well known that only a handful remained to be discovered. Since 1963 work in Peru alone by personnel of the Louisiana State University Museum of Zoology and by researchers at other institutions has turned up no fewer than 21 new species including four new genera (cf. Lowery and Tallman 1976).

Peru is a physiographically and ecologically complex country and many parts of the eastern slopes of the Andes are still unexplored. Because of shifting Pleistocene climatic regimes and the instability and relative recentness of the Andes (Haffer 1974), the patterns of speciation in Peru, as well as in Venezuela, Colombia, Ecuador, and Bolivia, are extremely complicated. We firmly believe that many pockets of unexplored terrain remain, especially along the eastern base of the Andes, that harbor birds still unknown to science. In this paper we describe another in the ever-lengthening series of remarkable discoveries.

In late August and early September 1976 we camped in the near pristine subtropical forest at ca. 1890 m on the eastern slopes of the Andes northwest of Rioja in the drainage of the Río Mayo in the Departamento de San Martín in northern Peru. Our exact location was at the abandoned site of an old road construction camp called Garcia at Km 386, some 10 km northeast of Abra Patricia (05°46'S, 77°41'W), the highest pass on the road that goes from the army post of Ingenio on the Río Utubamba toward Rioja. Twelve km on the Rioja end of this road were still unfinished at the time of our visit, but that section was slated to be completed by the end of 1976.

We arrived at our campsite in a pouring rain that continued to fall for more than 36 hours. During this period our field assistant, Manuel Sanchez S., managed to put up eight mist nets. He checked the nets frequently but caught nothing. The members



LONG-WHISKERED OWLET, *Xenoglaux loweryi*, adult female
A NEW GENUS AND SPECIES FROM PERU
From a watercolor painting by John P. O'Neill

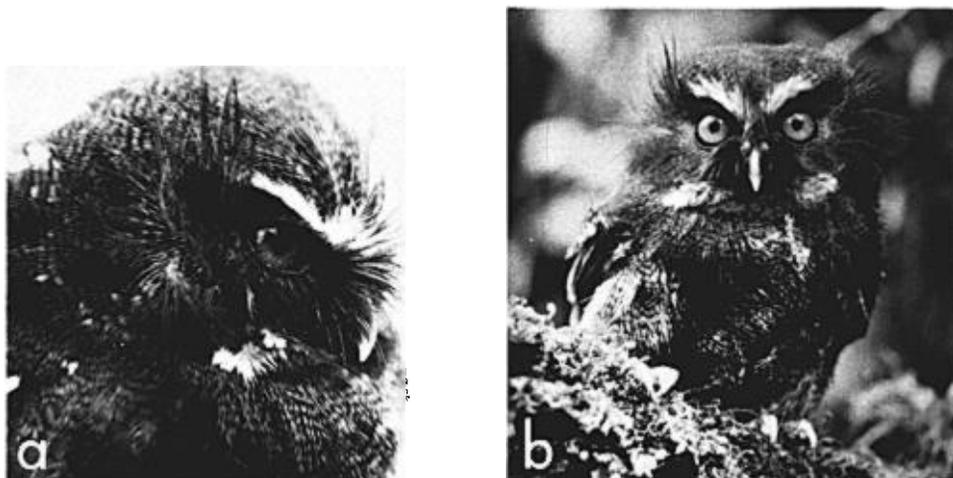


Fig. 1. A captive adult female *Xenoglaux loweryi* (LSUMZ 84002). Note the extreme development of the bristles covering the cere (a), and the delicate, filamentous feathers of the facial ruff (a and b).

of our party conferred and decided that if we captured no birds by our third day we would move to another, hopefully drier, location. We were taken by complete surprise when on the morning of that third day, Sanchez returned and opened a bag that he said contained an owl. The bird in the bag was indeed an owl but totally unlike anything any of us had ever seen. It was a tiny, bare-legged owl without ear tufts. O'Neill's immediate impression was that it was "shaped like an *Otus*, the size of a *Glaucidium*, and colored like a *Lophotrix*." To this day the little owl has remained as exciting to us as it was on that rainy day in northern Peru. The three known specimens, two females and a male, possess a combination of characters that prevents their placement in any currently recognized genus. For this strange little owl we propose the generic name

***Xenoglaux* gen. nov.**

TYPE-SPECIES: *Xenoglaux loweryi* O'Neill and Graves.

DIAGNOSIS: Small Strigidae (wing 100–105.2 mm) with no ear tufts; cere inflated, semibulbous; nostril small, circular, located near center of cere; bill small, weak, compressed, but less compressed than in *Micrathene*; head densely feathered and relatively large; feathers of pileum not arranged in rows; outer feathers of facial ruff long with distal barbs exceedingly long and decomposed to form a whiskery ruff that extends out beyond the main plumage of the head (Fig. 1 a and b); bristles at base of bill long, projecting over base of bill to cover cere, and extending upward between the eyes so as to form a vertical, fanlike "crest" (Fig. 1 a); tarsi weak, about as long as middle toe without claw; tarsi with only a few scattered bristles; toes bare; tail short, slightly rounded, composed of 12 rectrices approximately one half as long as the wing; external ear openings small, much shorter than diameter of eye, oval, symmetrical, and with no marginal flap or transverse ligament present; procoracoid more strongly rotated outward than in either *Micrathene* or *Glaucidium*; apex of scapula squared off at tip (Fig. 2 d); area between glenoid facet and acromion of scapula thinner than in either *Micrathene* or *Glaucidium*; obturator ridge of femur larger and more elevated than in either *Micrathene* or *Glaucidium*; brachial depression of humerus broader and deeper than in either *Micrathene* or *Glaucidium*; carina of sternum extremely shallow in relation to its length and width, surely the smallest of any known owl (Fig. 2 c); wing rather long, longest primaries well exceeding longest secondaries; fifth and sixth primaries, from the inside, longest; tenth primary shorter than distal secondaries; seven outer primaries with inner webs sinuated, but sinuations distinct only on distal four; first secondary, from the outside, distinctly reduced, and shorter than first primary by 11.8–13 mm (Fig. 2 b); body plumage long, soft, and dense, especially on lower underparts.

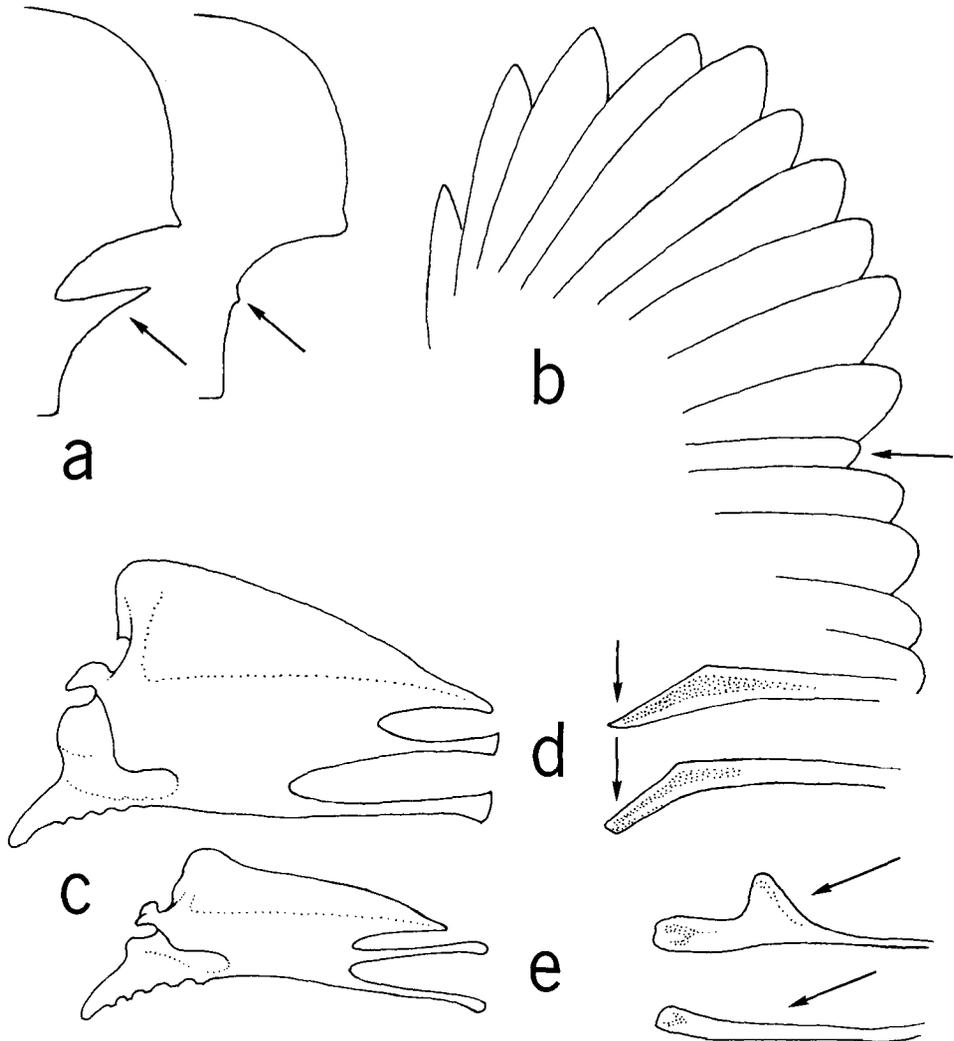


Fig. 2. Selected morphological characters of owls. (a) Dorsal view of the crania ($2\times$) of *Glaucidium brasilianum* (left) and *Xenoglaux loweryi* (right) to show two different types of the supraorbital extension of the frontal. (b) Wing of *Xenoglaux loweryi* ($\frac{2}{3}\times$) to show the greatly reduced first secondary. (c) Sterna ($2\times$) of *Glaucidium brasilianum* (upper) and *Xenoglaux loweryi* (lower); note unequal sternal notches and large, "normal" carina of *Glaucidium* versus equal sternal notches and greatly reduced carina of *Xenoglaux*. (d) Distal ends of scapulae ($2\times$) of *Glaucidium brasilianum* (upper) and *Xenoglaux loweryi* (lower); note pointed tip in *Glaucidium* and squared off tip in *Xenoglaux*. (e) Jugal of *Glaucidium brasilianum* (upper) and *Otus asio* (lower); note well-developed dorsal process in *Glaucidium* and lack of this process in *Otus*.

***Xenoglaux loweryi* sp. nov.**

LONG-WHISKERED OWLET

TYPE: Adult male (skull fully ossified); Louisiana State University Museum of Zoology no. 84000; 10 km by road northeast of Abra Patricia on road to Rioja; $05^{\circ}46'S$, $77^{\circ}41'W$, elevation approximately 1890 meters; Depto. San Martín, Perú; 23 August 1976; collected by John P. O'Neill; original number 5638.

DIAGNOSIS: Same as for the genus, of which it is the only known member.

DESCRIPTION OF HOLOTYPE: Crown, nape, back, rump, upper tail coverts, and scapulars Prout's Brown (capitalized color names are from Ridgway 1912), the feathers with numerous distinct but minute dull black bars; scapular feathers each with a distinct subterminal white spot on the outer web; lower nape with collar of large, distinct white spots; sides of neck Prout's Brown with small whitish spots that merge with the pale throat; facial ruff dull Cinnamon Brown; throat and conspicuous eyebrows whitish infused with Light Buff; upper breast Prout's Brown minutely barred with dull black, but beginning on the lower breast the feathers having some whitish coloration mixed in with the Prout's Brown, this paleness increasing posteriorly to give the belly and under tail coverts a "salt-and-pepper" effect, which is enhanced posteriorly by the widening of the spaces between the minute black bars; tertials and secondaries Clove Brown edged with Brussels Brown and with 4–5 large white spots on the inner web and 1–2 small white spots on the outer web of each feather; wing coverts Clove Brown barred and tipped with Brussels Brown; proximal greater secondary coverts with an indistinct medial and a large, distinct subterminal spot of white; lesser secondary coverts similar in color, but with white spots confined to outer edge of distal 2–3 feathers; alula, greater primary coverts, and primaries dull black; inner primaries with a large, irregular patch of white at the base of the inner web of each feather, this patch decreasing in size distally and present on outer primary only as a small spot; outer primaries with outer edge of outer web pale Brussels Brown and with 1–3 small white spots along this edge; tail dull Clove Brown, the feathers mottled and edged with Brussels Brown (see Frontispiece and Fig. 1 a and b).

PARATYPIC VARIATION: The three known specimens are fairly uniform in general appearance, but the two females have somewhat more white in the feathers of the belly so that this area has a paler overall appearance. The palest of the three, LSUMZ 84001, has a few white speckles on some of the crown feathers and 5–6 white spots on the inner webs of the rectrices. Both females have the spot over the eye larger, more in the form of a pale eyebrow, and LSUMZ 84001 has quite a bit of pale coloration mixed in with the feathers of the facial ruff, especially on the left side. The type weighed 47 g; the two females, 46 and 51 g. Sexual dimorphism is apparently slight, but in a larger sample we would expect females of this presumably insectivorous bird to average slightly larger than males, a condition present in other very small owls (Earhart and Johnson 1970). None of the three shows any evidence of molt and all have fully ossified skulls. Though not breeding at the time they were collected, all three birds showed a slight enlargement of the gonads.

COLOR OF SOFT PARTS: Irises amber-orange; eyelids dull blackish brown; bill greenish gray with yellowish tip; cere pinkish gray; tarsi and toes flesh-pink.

RANGE: So far as known, the upper subtropical zone of the valley of the Río Mayo on the eastern slopes of the eastern cordillera of the Andes in the Departamento de San Martín northwest of Rioja.

SPECIMENS EXAMINED: Three, including one adult male, the type (LSUMZ 84000), and two adult females (LSUMZ 84001 and 84002), all with partial skeletons, and all from the type locality.

MEASUREMENTS IN MILLIMETERS: Male (1, holotype): wing unflattened 105.2, tail 50.3, tarsus 17.7, middle toe without claw 17.2, culmen from anterior edge of cere 9.6. Females (2): wing unflattened 100.0, 104.6; tail 51.7, 55.4; tarsus 17.3, 17.8; middle toe without claw 17.2, 17.8; culmen from anterior edge of cere 9.6, 9.8.

ETYMOLOGY: The name *Xenoglaux* comes from the Greek words *Xenos*, strange or foreign, and *glauX*, an owl, and alludes to the peculiar expression of this tiny bird with its greatly exaggerated facial whiskers and intense, staring, amber-orange eyes that make it a true stranger among owls. The name is masculine in gender. We take pleasure in applying the specific epithet *loweryi* in honor of our mentor and friend George H. Lowery, Jr., in recognition of his influence upon us and upon neotropical ornithology.

HABITAT AND HABITS

East of Abra Patricia the newly opened road enters the watershed of the Río Mayo. Down this valley an unbroken panorama of virgin forest stretches eastward toward the Amazonian lowlands of north-central Peru. The prevailing moisture-laden winds from the east sweep the upper elevations of the range, and thus the forest at 1890 m is often shrouded in fog, soaking mist, or rain. The height of the forest canopy there is 6–9 meters in sheltered valleys but approximately 4 meters on exposed ridgetops. All forest components are covered with heavy moss jackets and laden with orchids, bromeliads, strap-leafed ferns, and bryophytes (Fig. 3). *Chusquea* bamboo forms



Fig. 3. Photograph of cloud forest at actual site where the type specimen of *Xenoglaux loweryi* was captured.

dense thickets in canopy openings and along small streams. The forest floor is matted with roots and covered by a thick, peaty humus layer. A great number of tall, slender, emergent palms (*Mauritius*?) and an occasional tree fern give the forest a distinctive and characteristic appearance unlike that of any other subtropical forest in Peru with which we are familiar. Access to this area was very difficult because of the varying terrain and the contorted, impenetrable character of the forest.

The nets in which we caught *Xenoglaux* were placed in lines along the knifelike tops of ridges. The forest along these ridgetops is slightly more open and birds going from the canopy of the forest on one side of the ridge to the canopy on the other side, as well as those that are merely working their way over the ridge, are easily captured.

All three specimens were netted during the night and the two caught on 23 August (LSUMZ 84000 and 84001) were only a few inches apart in the net and are presumed to represent a mated pair.

Although we never positively identified a free-living *Xenoglaux*, Graves saw the silhouette of a small owl and heard what he presumed to be the call notes and possibly the song of the bird. The following account is summarized from his notes.

At dusk on the evening of 23 August, Graves was returning from a net check and heard an unfamiliar series of short, widely-spaced, mellow whistles. Each note was

separated from the next by 10 seconds or more. Although in tonal quality they remotely reminded him of the rapid "whi, whi, whi" calls of *Micrathene* (cf. Peterson 1961, including associated phonographic record of bird calls), they differed totally in pattern and tempo. When the notes ceased, he imitated them, and a small owl, which appeared round-headed and tailless, fluttered into view on a mossy branch approximately 4 meters away. The owl, which was similar in silhouette to the birds that had already been netted, flew out of sight before he was able to collect it. He returned to the same area at dusk on the following evening with a flashlight and, although he heard the calls, he was not able to lure the bird into view. The bird did apparently respond to Graves' whistled imitations as he heard what he assumed to be bill-clicking in the nearby undergrowth. At about one-half hour after sundown he listened to what he presumed to be the song, a two-part affair consisting of three to five short introductory whistles, similar to the notes previously heard, followed by a series of faster, slightly higher pitched notes. Attempts to record either the call notes or the song were all unsuccessful. The mellow whistles were heard on two other evenings at 1900 and 2100 in the forest behind our camp.

REMARKS

For reasons to be discussed later we believe that *Xenoglaux* is most closely related to *Glaucidium* and *Micrathene*, the three forming a group within the family Strigidae, but with *Xenoglaux* and *Micrathene* being closer to each other than either is to *Glaucidium*. Taxonomists do not presently agree on the correct arrangement of currently recognized owl genera nor do they agree on which morphological characters are significant. In trying to determine the affinities of *Xenoglaux*, whose generic relationships are not at all obvious, we have relied heavily upon characters used in older classifications such as that of Ridgway (1914). At the same time we also looked critically at a host of skeletal characters, both cranial and postcranial.

Xenoglaux agrees with *Glaucidium* and *Micrathene* in several features: its small size; its small, simple, symmetrical ear openings; its inflated cere; its nostrils located in the center of the cere rather than at the anterior margin; the feathering of the crown, which is dense and uniform and not arranged in longitudinal rows; by the dorsally directed process on the jugal (Fig. 2 e); by the small and oblong rather than large and oval or nearly round procoracoidal foramen; by the slender and recurved acromion of the scapula; by the ventrally unossified clavicles that are attached to the sternum only by cartilage, and in certain details of plumage pattern that we will discuss later. In these respects it is unlike other genera, such as *Otus*, to which it might be suspected of being related.

The new bird differs from *Micrathene* and agrees with *Glaucidium* by having 12 rather than 10 rectrices. It agrees with *Micrathene* and differs from *Glaucidium* in having a relatively short tail. It differs from both *Glaucidium* and *Micrathene* by having the feet and most of the tarsus truly bare. It differs from all other owls by the extraordinary development of the delicate, filamentous, and sparsely-branched feathers of the facial disc. Filamentous feathers occur in the facial discs of many owls, including species of *Bubo*, *Otus*, *Ninox*, *Lophostrix*, *Glaucidium*, and *Micrathene*, among others, but in all of these they are much reduced and in some are difficult to detect without careful scrutiny. The mere presence of facial feathers of this type in the new bird is not in itself a striking feature, but we believe their great enlargement to be an important character at the generic level. The arrangement of

the long bristles at the base of the bill of the new bird is like that of many owls, but the density and development of a vertical, fanlike crest in *Xenoglaux* is unique.

Skeletal characters in which *Xenoglaux* agrees with *Micrathene* but differs from *Glaucidium* include the following: supraorbital extension of the frontal a tiny point rather than a long, slender, and obvious projection (Fig. 2 a); the head of the coracoid blunt or stocky rather than elongate; a deep furrow present between the articular surface of the glenoid facet and the acromion on the scapula; ectepicondylar prominence of humerus quite pronounced and hooked outward rather than almost flush with shaft and not hooked outward; overall dorsal shape of pelvis broad and short rather than elongate; sternal notches deep and equal in length rather than with inner pair shallow and outer pair deep (Fig. 2 c).

Neither *Micrathene* nor *Glaucidium* has truly bare tarsi as does *Xenoglaux*; the tarsi of these two genera are covered with bristles rather than with true feathers. Interestingly, most owls with bare tarsi are on islands and include such geographically separated forms as *Otus* ("*Gymnasio*") *nudipes* of Puerto Rico, *Gymnoglaux lawrenceii* of Cuba, and *Otus insularis* of the Seychelles. We believe that the presence of bare tarsi, when combined with other characters, should be considered a generic character of *Xenoglaux*.

The lack of ear tufts is also a character that alone would not be of great significance, but in combination with other characters is worth using at the generic level. Neither *Micrathene* nor *Glaucidium* has ear tufts. We do not have any explanation for the greatly reduced outermost secondary wing feather, but its presence in both wings of all three specimens of *Xenoglaux loweryi* makes us confident that it is the normal condition for the species. This feather is of a normal length in both *Micrathene* and *Glaucidium* and is probably not abnormally short in any other genus of owl.

Resemblances in plumage pattern between *Xenoglaux*, *Micrathene*, and *Glaucidium* are strong. In fact, all of the distinctive characters of pattern and color may be found in one or more species of *Glaucidium* or in *Micrathene*. The hind collar of white spots occurs also in *Micrathene* and in *Glaucidium passerinum*, *G. gnoma*, *G. minutissimum*, *G. jardinii*, *G. brasilianum*, *G. siju*, *G. perlatum*, *G. tephronotum*, and *G. brodiei*. In some of these species the collar also includes some black, and in some the collar is more or less modified into nuchal "eyespot," and in some the collar is higher up on the back or on the nape, but in all of these the effect is much the same as in the new bird. The white spots on the scapulars and upper wing coverts occur in several species of *Glaucidium* and in *Micrathene*. The barred, rather than mottled or vermiculated plumage of the new bird finds a parallel in *Glaucidium cuculoides*, *G. radiatum*, and *G. capense*; *G. brodiei* also shows a suggestion of barring, and the mode of spotting in *G. jardinii* approaches barring. The pattern of the breast and abdomen of the new bird is rather distinctive, but it shows some resemblance to that seen in *Micrathene*; in the new bird these feathers are clearly and regularly barred, with a single, rather vague, but definitely large white bar just short of the tip of many of the feathers, while in *Micrathene* the barring is more irregular, and the subapical white bar is larger but more blurred. The pattern of the rectrices of the new bird, especially that of LSUMZ 84001, with a tendency to have pale incomplete bars on the inner webs of the feathers, differs from that in most species of *Glaucidium*, but shows some approach to the pattern in *Micrathene*. The light throat patch and light eyebrows are seen in *Micrathene* and in

many species of *Glaucidium*, but these characters appear also in many other owls of diverse genera. To all these characters may be added the new bird's small size.

In summary, we believe that *Xenoglaux* is a good monotypic genus whose characters are the great enlargement of the facial plumes, the great enlargement and arrangement of the bristles at the base of the bill, the small size coupled with the truly bare tarsi and lack of ear tufts, the suite of skeletal characters outlined in the diagnosis of the genus, and the exceedingly small outermost secondary feather. As we stated earlier, *Xenoglaux* is closely allied to both *Micrathene* and *Glaucidium*, but *Glaucidium* is not so closely related to the other two as they are to each other. We recommend that *Xenoglaux* be placed after *Glaucidium* and before *Micrathene* in the Peters (1940) checklist sequence.

ACKNOWLEDGMENTS

The description of this striking new owl has been more of a group effort than the authorship would indicate. We are extremely indebted to several people who took time out from matters that had pressing deadlines in order to make detailed studies and notes for our use. Amadeo M. Rea of the University of Arizona, Tucson, was kind enough to provide us with a thorough skeletal analysis of the bird, and John Farrand, Jr., of the American Museum of Natural History, New York, expended considerable energy in making a detailed comparison of the external characteristics of many genera and species of owls, especially those not present in the LSUMZ collections. Sadie Coats Brown of the University of California, Berkeley, also kindly supplied data from her storehouse of knowledge on owls.

We continue to be most grateful for the generous and unceasing support that John S. McIlhenny of Baton Rouge has given to the LSUMZ field explorations in Peru. We also thank our associates Richard D. Semba, Manuel Sanchez S., and Douglas G. Wysham, for their help in making the field work in 1976 a success. Hugh M. Turner kindly prepared the photographs published herein and Kenneth S. Falk graciously advised us on etymological matters. We express our gratitude to Marc Dourojeanni R., Carlos Ponce P., and Antonio Brack E. of the Dirección General Forestal y de Fauna, Ministerio de Agricultura, Lima, Perú, for their interest in our work and for the issuance of scientific collecting permits. Hernando de Macedo R. and Ramón Ferreyra of the Museo de Historia Natural "Javier Prado," of Lima also helped in many ways. Robert J. Newman read the manuscript and offered many valuable suggestions. Lastly we mention that this entire project was kept secret from Professor Lowery until the proper time. We are grateful to all the people who knew but did not tell!

E. W. Mudge of Dallas generously provided funds to defray the cost of printing this description and publishing the color frontispiece.

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