

A Reevaluation of the Pliocene Owl *Lechusa stirtoni* Miller

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In the course of preparing a monographic review on the paleoavifauna of the San Diego Formation, Pliocene, San Diego County, California, I reexamined the holotype of *Lechusa stirtoni* Miller (1956), a supposed new genus and species of tytonid owl described from a right coracoid, UCMF 45331. I found not only that this specimen is not a fossil, but that it cannot be distinguished from coracoids of *Tyto alba* (Scopoli), the modern Barn Owl.

Without exception, fossils recovered from the San Diego Formation exhibit an altered organic and mineral structure in contrast to modern bone, which the holotype of *L. stirtoni* does not. A scratch test for mineral hardness indicated that fossil bone is harder than calcite (hardness of 3) and possibly as hard as fluorite (hardness of 4), whereas modern bone has a hardness of something greater than gypsum (hardness of 2) yet is softer than calcite. The holotype compared best to modern bone for hardness. Fossil bone also has a coloration different from that of modern bone. Fossils range in color from reddish-brown to dark brown, and some are even blue-gray to dark blue. The coracoid of *L. stirtoni* looks nothing like other avian fossils from the San Diego Formation, although it does have the appearance of a recently prepared modern bone. Miller did not describe the circumstances under which the original collector, Joseph Arndt, secured this specimen. Fossils from the San Diego Formation are generally collected at the surface, especially after winter rains when the soft sandstone has been eroded. Presumably, the type

was salvaged from surface deposits, and this led Arndt to presume the coracoid was from the San Diego Formation, despite the specimen's obvious resemblance to modern bone. Because the holotype has neither the hardness nor the discoloration typical of fossils from the San Diego Formation and is best compared to modern bone, it is my opinion that this bone is indeed modern and not fossil.

The unique descriptive characters of the coracoid given by Miller for *L. stirtoni* are insignificant when a large comparative series of *T. alba* is used. Miller compared the coracoid to eight specimens of *T. alba*; the number of males and females was not given. I examined 14 males and 14 females of *T. alba* to establish a range of variation for the species and sex for the coracoid. Miller states "size approximately equal to . . . male of *Tyto alba pratineola*" and then gives such characters as its shorter length, heavier shaft, slightly larger triosseal canal, and the position of procoracoid process on its shaft as being unique to *L. stirtoni*. When a large comparative series is used, however, Miller's characters are well within the range of variation for *T. alba* (Table 1) and are descriptive of this bone only, not of a new genus and species. Also, characters like the slightly larger and less globular head, the procoracoid merging more gradually with the shaft, and the intermuscular line configuration and depression are all intraspecific variations. The "intangible yet observable difference" of the sterno-coracoidal process is but another intraspecific variant, with a high degree of variation.

TABLE 1. Right coracoid measurements of *Tyto alba*.

	Mean/ 14 males	Mean/ 14 females	Range for males	Range for females	" <i>Lechusa stirtoni</i> " (UCM 45331)
Length					
Internal ^a	36.49	38.41	34.8–38.5	35.8–40.6	36.2
External ^b	38.69	40.69	37.1–40.9	37.9–43.2	38.4
Width mid-shaft	4.58	4.57	4.2–4.9	4.0–5.1	4.6
Depth mid-shaft	2.88	2.93	2.5–3.1	2.6–3.3	2.9
Procoracoid to sternal facet ^c	25.87	26.98	24.3–27.6	25.6–27.8	25.5
Width neck through mid-glenoid facet	4.16	4.29	3.7–4.9	3.9–5.0	4.0
Width sternal facet	12.73	12.8	11.9–14.0	11.5–14.5	12.8

^a Head to internal end of sternal facet.

^b Head to external end of sternal facet.

^c This measurement is taken from the approximate mid-depression of the distal surface of the procoracoid to the proximal surface of the sternal facet.

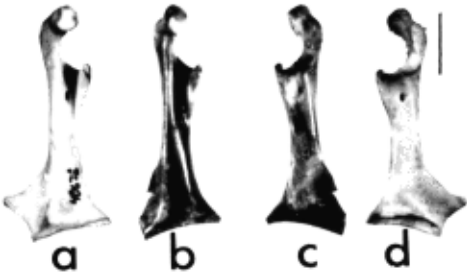


Fig. 1. Comparison of right coracoids of *Tyto alba*, a and d, and "*Lechusa stirtoni*," b and c (a and b are ventral aspect, c and d are dorsal aspect). Scale equals 1 cm.

Miller's statement (p. 620) that the pectoralis tertius muscle may have been attached farther out on an expanded process and that the intermuscular line out-swings for this reason is quite right. As the

shape of the expanded sterno-coracoidal process varies, the position and amount of out-swing of the intermuscular line also varies. *Lechusa stirtoni* Miller 1956 therefore becomes a junior subjective synonym of *Tyto alba* (Scopoli) 1769.

Most pioneers of avian paleontology were at best ill-trained in geology and the processes of fossilization. Furthermore, most collections of bird specimens were either inadequate for sufficient comparative study or inaccessible to the researcher. For these reasons the error by Miller is understandable.

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LITERATURE CITED

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Evidence for Wintering and Resident Populations of Swainson's Flycatcher (*Myiarchus swainsoni*) in Northern Suriname

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Zimmer (1938: 408) was the first to demonstrate that the nominate subspecies of Swainson's Flycatcher (*Myiarchus s. swainsoni*) of southeastern South America winters in northern South America. He based his demonstration upon specimens known to him from Guyana, Venezuela, and Colombia. Junge and Mees (1958: 106) later extended the known wintering range for these transequatorial migrants to include the island of Trinidad. The first specimens of Swainson's Flycatcher for Suriname were collected by Haverschmidt (1968: 313, 1972: 52) and assigned by him to the nominate race, which was quite understandable considering the proximity of the Guyanan locality and the extreme difficulty with which one identifies specimens of this and other species in the genus. Subsequently, I broadened the known range of wintering (or migrant?) individuals to include northern Brazil as well, but I could not agree with Haverschmidt's conclusion that his northern Suriname specimens represented a wintering population (Lanyon 1978: 531).

Mees (1968: 104) took an important series of *M. swainsoni* in extreme southern Suriname, including a fledgling still being fed by its parents, which was the first indication of a resident population of this species in the country. For reasons explained in de-

tail elsewhere (Lanyon 1978: 531) I consider Mees' specimens to be morphological intergrades between the resident population to the northwest, in southern Venezuela and western Guyana (*M. swainsoni phaeonotus*), and the resident population to the southeast, in central eastern Brazil (*M. swainsoni pelzelni*).

The assignment of Haverschmidt's specimens from northern Suriname either to this intermediate resident population, as established by Mees' specimens, or to wintering *M. s. swainsoni* from southern Brazil and Uruguay is difficult on the basis of plumage coloration alone, for this is one of those cases that gives taxonomists nightmares—one subspecies (nominate *swainsoni*) that is virtually indistinguishable in its plumage coloration from the intergrades between two other subspecies (*phaeonotus* and *pelzelni*). But one of Haverschmidt's birds had been collected on 5 January, when nominate *swainsoni* is breeding in southeastern South America. A second specimen, taken in mid-September, was in the middle of remige molt. Wintering *swainsoni* complete their wing molt on the wintering grounds, but by late August. These observations suggested that these specimens, at least, had been taken from a resident population of *M. swainsoni* in northern Suriname.