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New Genera of East Indian Squirrels

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The faunal lists of mammals published by Ellerman and Morrison-Scott (1951) and Chasen (1940) together cover the range of the tree squirrel genus *Callosciurus,* and in these two works the genus *Callosciurus* is conservatively recognized to have 17 species. Thomas (1915) had earlier proposed that a large block of forms now included in *Callosciurus* be recognized as constituting a separate genus, *Tomeutes,* with [*pygerythrus*] *lokroides* as the type species. The characters on which he proposed to base this generic name were limited to the shape of the baculum, or os penis. He found the shaft of the baculum to be short and thick in the ones for which he proposed the name *Tomeutes,* longer and more slender in other forms of *Callosciurus.* Pocock (1923, p. 217) followed Thomas (1915) in the use of *Tomeutes,* but he found that the forms *notatus* and *vittatus* (Chasen, 1940, recognized *vittatus* as the southwest Sumatran subspecies of the species *notatus*) were intermediate between the *Callosciurus* type and the *Tomeutes* type. Other authors have consequently refused *Tomeutes* generic status.

Seeking to determine whether a skull character might exist which reflects relationships similar to those suggested by the baculum, the writer found evidence that distinguishes most of the forms of *Callosciurus* reported to have stout, short bacula. In other species of *Callosciurus* the chamber of the auditory bulla, internal to the tympanum, is traversed by a thin, bony septum, or baffle. Externally this is generally evident as a palpable but slight constriction of the bullar chamber into anterior and posterior lobes. Often the bone of the bulla is somewhat translucent, and the transbullar septum is quite visible externally as an opaque line. When strong light shines through the audi-

tory meatus, the septum is revealed externally as a linear shadow through even quite opaque bone. In the Malaysian species *lowi, tenuis, jentinki, brookei,* and *hippurus* as recognized by Chasen (1940) and the named forms *steeri, mollendorffi, hoogstralli, juvencus, mindanensis,* and *philippinensis* of the Philippine Islands, the transbullar septum forks very broadly, making almost a T instead of a Y shape. The two tines of this fork extend to the externally visible edge of the bulla and thus wall off a third lobe of it. The third lobe thus demarked may be inflated anteromesially beyond the limits of the corresponding portion of the bilobar bullae of *Callosciurus.* Or the third lobe may be incipient and uninflated. In either case one finds that a Y-shaped transbullar bony septum divides the chamber of the auditory bulla into three compartments, or into two inflated compartments and a third incipient one.

All the forms with this peculiar anteromesial lobe of the bulla and in which the baculum is also known, would fit properly into Thomas' (1915) genus *Tomeutes* on characters of the baculum. However, the type species for the generic name *Tomeutes* is *Sciurus lokroides,* and the name *Tomeutes* is available only for a group that would include the species *Sciurus lokroides* Hodgson, 1836. The named form *lokroides* is recognized at present as a subspecies of the species *Callosciurus pygerythrus* (Ellerman and Morrison-Scott, 1951, p. 487), and neither *lokroides* nor other subspecies of *pygerythrus* share this described character of the auditory bulla. It is proposed, therefore, to recognize this natural group of East Indian squirrels which are distinguished by the peculiar anteromesial lobe of the auditory bulla by the name that follows.

SUNDASCIURUS,[1] NEW GENUS

Sciurus lowi Thomas, 1892, from Sarawak is designated as the type species.

Within the genus *Sundasciurus* a sharp dichotomy is evident. The species *lowi, tenuis, jentinki,* and *brookei* are quite small squirrels. They are definitely characterized by having the peculiar third lobe of the auditory bulla inflated. Their temporal ridges form no sagittal crest. The species *hippurus* and the named forms *steeri, mollendorffi, hoogstralli, juvencus, mindanensis,* and *philippinensis* are rather large

[1] The prefix "Sunda-" refers to the Sunda geographic area which is the collective name for the islands of the Sunda Shelf, which extend from the Malay Peninsula to Java and Borneo, the principal range of the genus.

squirrels, substantially larger than those of the first group. This second group is generally characterized by the fact that the third lobe is only incipient (i.e., uninflated), but *juvencus* is exceptional to this. The temporal ridges form a sagittal crest in adults of the second group. Because of the trenchant differences between the above two species groups of squirrels, it is proposed that these be recognized as of subgeneric separation and that the second group be recognized as a subgenus of *Sundasciurus* with the following name.

ALETESCIURUS,[1] NEW SUBGENUS

Sciurus hippurosus Lyon, 1907, is designated as the type species for *Aletesciurus.*

DIAGNOSES: The subgenus *Sundasciurus* is distinguishable by the following characters (1) small size (greatest skull length ranging from about 30 to 40 mm.); (2) the conspicuously inflated, peculiar third lobe of the auditory bulla; and (3) absence of sagittal crest. The subgenus *Aletesciurus* is characterized by these characters: (1) relatively large size (greatest skull length ranging from about 50 to 60 mm.); (2) presence of Y- or T-shaped external lines that separate a peculiar third lobe of the bulla, usually not inflated; and (3) a sagittal crest in adults.

A complication in some individuals of each subgenus, but particularly frequent in *Aletesciurus hippurus,* is the absence of the transbullar septum, which means that the base or leg of the Y or T is missing. The top of it remains in all individuals, however, fencing off the unique chamber, whether inflated or not, and distinguishes them from other Callosciurini.

Material from the Chicago Natural History Museum of *juvencus, hoogstralli, mollendorffi, steeri, mindanensis,* and *philippinensis* was generously lent to the writer by Curator Philip Hershkovitz, and material of *brookei* and *jentinki* from the United States National Museum was considerately lent by Dr. David H. Johnson.

In the pygmy squirrels of the East Indies, genus *Nannosciurus,* one might be impressed with the fact that the species *melanotis* possesses a striking color pattern, whereas *whiteheadi, exilis, concinnus,* and *surrutilus* are rather uniformly dull, rusty olive in color and lacking in ornamentation except for the long gray ear tufts of *whiteheadi.* Pocock (1923, p. 225) showed also that the baculum of *melanotis* differs from

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[1] The prefix "alete-" is from the Greek adjective *aletes* meaning roving or vagrant and refers to the peculiarity of this subgenus of having spread farther (into the Philippine Islands) than other squirrels of the Sunda area.

that of *exilis* and *whiteheadi* by the fact that the blade has a straight, smooth upper margin instead of a convex and serrulated one and a broadly rounded tip instead of an attenuated one.

The skulls of these tiny squirrels are, of course, very fragile. Because the animals are diurnal, they are usually collected with shot which tends to break the skulls. Consequently it has probably not happened earlier that someone had for study so good a skull series of the patterned and patternless pygmy squirrels of the East Indies as is available to the writer in the acquisitions of Richard Archbold in the American Museum of Natural History. Through the courtesy of Dr. David H. Johnson a skull series of the Bornean species *whiteheadi* were borrowed from the United States National Museum, and through the courtesy of Miss Barbara Lawrence a skull series of *concinnus* from Basilan were borrowed from the Museum of Comparative Zoölogy.

The number and character of skull differences between the patterned species *Nannosciurus melanotis* and the patternless species are of such importance as to require the recognition of a new genus. As *melanotis* is the type species of *Nannosciurus*, the other species constitute a distinct group which may be known by the following name.

EXILISCIURUS,[1] NEW GENUS

This name reëmphasizes the small size of pygmy squirrels. The species *Sciurus exilis* S. Müller, 1838, is designated as the type species.

DIAGNOSIS: *Exilisciurus* characteristically has no transbullar septa in the auditory bulla, but *Nannosciurus* characteristically has one. In *Exilisciurus* the lateral lip of the infraorbital foramen does not project out from the wall of the rostrum and serve as a masseteric tubercle as it does in *Nannosciurus*. In *Exilisciurus* the maxillary tooth rows converge posteriorly, whereas they are approximately parallel in *Nannosciurus*. In *Exilisciurus* the upper fourth premolar is characteristically smaller than the upper third molar, whereas in *Nannosciurus* that premolar is as large as that molar or larger. In *Exilisciurus* the second molar is characteristically the largest upper cheek tooth, but the first molar is characteristically largest in *Nannosciurus*. In *Nannosciurus* a finger of the premaxillary bone projects posteriorly into the maxillary on each side of the incisive foramina for a distance exceeding or approximating the length of the incisive foramen; in *Exilisciurus* such

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[1] The prefix "exili-" is from the Latin adjective *exilis* meaning small, slender, feeble.

projections are only incipient and rarely attain a length approximating that of the incisive foramen.

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BIBLIOGRAPHY

CHASEN, FREDERICK N.
1940. A handlist of Malaysian mammals. Bull. Raffles Mus., no. 15, xx+ 209 pp.

ELLERMAN, J. R., AND T. C. S. MORRISON-SCOTT
1951. Checklist of Palaearctic and Indian mammals, 1758 to 1946. London, British Museum (Natural History), 810 pp.

LYON, M. W.
1907. Notes on some squirrels of the *Sciurus hippurus* group with descriptions of two new species. Smithsonian Misc. Coll., vol. 50, pp. 24–29.

MÜLLER, SALOMON
1838. Over eenige nieuwe Zoogdieren van Borneo, Semnopithecus frontatus, S. rubicundus, S. chrysomelas, Potamophilus barbatus, etc. Tijdschr. Natuurl. Geschied. Physiol., vol. 5, pp. 134–150.

POCOCK, R. I.
1923. The classification of the Sciuridae. Proc. Zool. Soc. London, pp. 209–246.

THOMAS, OLDFIELD
1892. On some new Mammalia from the East Indian Archipelago. Ann. Mag. Nat. Hist., ser. 6, vol. 9, pp. 250–254.
1915. The penis-bone, or "baculum," as a guide to the classification of certain squirrels. *Ibid.*, ser. 8, vol. 15, pp. 383–387.