

ON MAMMALS FROM THE LAKE EYRE BASIN.

PART II⁽¹⁾—THE PERAMELIDAE.

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THALACOMYS MINOR var. MISELIUS (Finlayson).

This peculiar pale and diminutive bilby was described by the writer in 1932⁽²⁾ and attention drawn to its probable identity with *Th. leucurus* (Thomas), represented by a single unlocalized specimen in the British Museum which was acquired from an employee of the South Australian Museum prior to 1887. Apparently to this form also may be referred the specimen identified as *Th. leucurus* by A. S. LeSouef,⁽³⁾ which was taken at Mungerani in 1924, within the area now under consideration.

By the Wonkonguroo the animal is called Yallara, and is evidently a widespread and well-known form. All the specimens obtained, however, were taken near Cooncherie, where it was plentiful. Its burrows are found only in the sandhills, never on the flats, and as the entrance is blocked with loose sand when the animal is within, they are never easy to locate, and in periods of wind are indicated only by a shallow dimple on the sloping surface of the dunes. At such times the tell-tale tracks disappear also, but even with this added difficulty the Wonkonguroo boy, who obtained most of the specimens, was never long in locating a site, being guided thereto partly, I believe, by topographical peculiarities in the ridges, though these were not of an obvious kind. He seldom returned without two or three after a morning's work, and I suspect many found their way to the cooking fires of the horse boys as well. In the digging-out process most of the turns and twists of the burrow are anticipated by the diggers, who take short cuts over or across the loops, and as the entrance was usually on the steeply sloping face of the ridge, which is blanketed with drifting sand, the making of a complete section of a gallery called for more time and labour than was available. From the entrance the burrow descends steeply for about two feet, and then turns sharply, sometimes in a horizontal, sometimes in a vertical plane. On two occasions the distance from the entrance to the end was eight to ten feet in a straight line, and though there were several turns in both planes, the resultant course would not be a complete spiral.

In the case of *minor* it has been recorded that the animal lies up within a few feet of the entrance, and that the blacks capture it by stamping in the burrow behind it and thus save much of the work of digging. Whether this habit is shared by *miselius* at any time of the year is not certain, but in the two cases referred to the animal was taken at the extremity of the gallery and was evidently extending it by frantic digging when seized, and the situation of the burrows and their depth would, in most cases, defeat the stamping-in ruse. So far as could be ascertained the burrows are never provided with pop holes or ventilating shafts, and no nest or dwelling chamber was seen.

⁽¹⁾ Part I. The Dasyuridae. Trans. Roy. Soc. S. Aust., vol. lvii (1933), p. 195.

⁽²⁾ Trans. Roy. Soc. S. Aust., vol. lvi (1932), p. 168.

⁽³⁾ Aust. Zoologist, vol. vi, pt. ii (1930), p. 110.

The animals completely belied their delicate appearance by proving themselves fierce and intractable, and repulsed the most tactful attempts to handle them by repeated savage snapping bites and harsh hissing sounds, and one member of the party, who was persistent in his attentions, received a gash in the hand three-quarters of an inch long from the canines of a male. On subsequently placing this male in a wire cage trap, already occupied by a large specimen of the pallyoora—the local *pseudomys*—the rat was immediately attacked and killed by the Yallara.

Like all the local mammals—with the exception of the kangaroo—it is strictly nocturnal and was never seen abroad. The stomachs of those which were dug out (usually in the early morning) contained large quantities of the skin and fur of rodents (but no bone fragments), seeds of a *solanum* (?), and some sand. No insect fragments could be made out.

No external parasites were taken upon them, and they lacked the strong and persistent unpleasant smell of *Th. lagotis*.

As regards reproduction, it would appear that two young are usually reared at a time. The mammae are six in number and are arranged in two longitudinal rows of three a side, and of these two only have functional teats; and these are apparently the first and last in opposite rows. Of the three adult females taken, one was accompanied by two half-grown young still suckling, another with functioning mammae was unaccompanied by young, and the third carried a single naked pouch embryo.

External Characters.

On this head there is little to add to the original description. The maximum size reached may be somewhat less than in the true *minor*. Linear dimensions of the two sexes when fully adult are much the same, but males are considerably more bulky. The tail length shows rather a wide range, but fortunately the series include several examples comparable to the type of *leucurus* in point of immaturity, and these show that the differences in this respect are not important. Careful comparison of the palms of manus and soles of pes of an immature example of *miselius* (in alcohol) with the figures for *leucurus*, shows a very close agreement. In the pes the main interdigital pad is surmounted by three smooth, raised tubercles—two much larger than the other. The largest is nearly round, basally situated on the pad, and has a diameter of 2.5 mm. The second, adjoining it distally, is smaller and oblong, and the third, lying internal to them, is only about twice the size of the granules of the epidermis.

In the manus there are small but distinct smooth, round tubercles at the base of digits 2, 3, 4, 5, and on the functional digits 2, 3, 4 an intermediate tubercle lies midway between the apical and basal elements. These features not only agree with *leucurus*, but also with the only spirit specimen of the true *minor*, which I have seen—an adult male from Charlotte Waters. This specimen shows also a very distinct rhinal callous. A single example of *miselius* shows a rudimentary hallux.

Skull.

Knowledge of the cranial characters of *minor* has until now depended entirely upon the type skull of the typical variety, and as doubts have been expressed⁽⁴⁾ as to the constancy of some of its characters, a detailed comparison of the present series of nine skulls with Spencer's figures has been made. This has shown, first, that the two varieties are virtually identical and, second, that *minor* shows a much smaller range of variation, both individual sex and age, than is normal in the races of *lagotis*.

(4) Troughton, Aust. Zoologist, vol. vii, pt. iii (1932), p. 232.

Owing to the assumption of the full dentition long before maximum body size is attained, to the differing rates of molar wear, and to the slow closing of the cranial sutures, the assignation of the "adult" condition is subject to considerable vagueness amongst bandicoots, and this has been a fruitful cause of confusion in the present genus. For reasons which have just been mentioned, the age factor is less important with *minor* than with the other bilbies, but in drawing up diagnoses of the different species it seems desirable to use only those skulls in which the fourth molar shows distinct signs of wear. Although this phase of the dentition may not be reached at corresponding ages in the different forms, it nevertheless represents a stage at which a much closer approach to permanency in cranial structure is attained than in the conventionally "adult" examples, and its adoption would do something to clarify the definition of an already obscure group.

Most of the distinctions listed by Spencer have been confirmed in this present series, examination of which, however, brings to light some additional points.

The smoothly rounded brain case and absence of muscular crests and ridges from its surface, even in aged examples, is a good distinction from the races of *lagotis*, and is shown alike by the whole series; the oldest skull, in which all trace of cusps has disappeared from the molars, being quite like in this respect to one in which the tooth change is in process. In aged males slight temporal impressions are to be seen, but they do not fuse to form a sagittal crest. There is no reduction of the lambdoid, however, which is well developed in both sexes. The interorbital constriction is certainly less than in *lagotis*, but proceeds further than in the type skull. It is slightly greater in males than females.

In a lateral view the muzzle shows a slight concavity centred above the infra-orbital foramen, and in the superior and palatal views is less abruptly constricted in the region of the premolars than is *lagotis*. In adults (worn M^4) the ratio, greatest length over greatest breadth, varies from 4.8 to 5.6. The interlacrymal line is not easily drawn, owing to the poor visibility of the foramina from above, but the posterior point of the nasals falls short of it by an interval which varies from 2.0 to 4.0. The variation is individual and not due to age or sex.

The large median palatine vacuities extend from about the hinder margin of P^3 to the front or middle of M^2 ; never as far as M^3 , as stated. The posterior series consists very constantly of four vacuities (a fifth small outlier in two skulls), which are arranged symmetrically about the mid line of the palate at the four corners of a square. They average about 2 mm. in diameter and are persistent. The anterior vacuities are absent in three skulls, represented by a single perforation in one skull, and in the rest by a collateral pair (2.4-5 mm. long) between the canine and first premolar.

The relative position of the fourth molar, with reference to the posterior margin of the palate, appears to be entirely an age character in all the species, and most of the diagrams of this region, which have been published as illustrating specific characters, can be matched in any one species by selecting suitable growth stages. In the present series of *misellius*, when M^4 first appears above the bone its hinder margin is distinctly posterior to the palation; by the time it is functioning it is level with that point, and when denuded of cusps is 2.5-3.0 mm. in advance of it. M^4 , however apparently never attains so advanced a position as in the large races of *lagotis*, and the posterior palate remains pyriform in outline throughout life and never assumes a pronounced rotundity by an outgrowth of the maxillae, as in the larger species.

The anterior root of the zygoma, premaxillae and paraoccipital process are constantly as described by Spencer. The condition of the former does not seem to differ appreciably from the other species, but in the paraoccipital it is highly characteristic of *minor*, being distinctly inflated and broadened and smoothly

moulded upon the mastoid bulla, so that none of its margins or extremities are available for muscular attachments.

In the region of the bulla, it may be noted also that the foramen lacerum medium is more conspicuous than in other *peramelidae*, and is not partially overlain by the posterior extension of the pterygoid plates.

Teeth.

The upper series of one individual has been figured by Spencer⁽⁵⁾ but, as all the teeth show considerable wear, some details of crown patterns are lacking as well as the characters of the lower teeth and of the deciduous premolar.

Of the present form, the series of nine skulls covers a wide developmental range, giving a much clearer insight into the rationale of age changes than was formerly possible, and providing individuals at the same stages as Spencer's animal on the one hand, and Thomas's *leucurus* on the other. As a result of the bilateral comparisons which have thus been made possible, little doubt exists as to the specific identity of all three, and there is a strong probability (on the grounds of dentition alone) of the complete identity of var. *miselius* with *leucurus*.

The incisor formula is constantly $\frac{5}{3}$, the absence of the upper central pair in the type skull being due apparently to accidental loss. Canines are well developed in both sexes, but attain much larger dimensions in old males than in old females—one of the few sexual distinctions to be observed in the skull. The premolars decrease markedly in antero posterior length, from before backwards. The posterior premolar in the upper jaw is a relatively larger and more massive tooth than in any of the forms of *lagotis*, and departs widely from the laterally compressed triconodont condition of the anterior and median premolars, and resembles somewhat the corresponding tooth in *Isoodon macrourus* and *I. obesulus*. Its chief element is a tall sharp-edged pyramid, projecting well below the level of M^1 , and reinforced at the base, postero-internally by a shelf, antero-externally by a very small single cusp, and postero-externally by a rather larger cusp, which is sometimes duplicated. The lower P^4 is similar but weaker and narrower. The deciduous premolar in the upper series is a minute but broad-crowned, three-cusped tooth of decidedly trigonal pattern, and its lower homologue is similar but narrower. The tooth change apparently coincides with the first appearance of M^4 above the bone, and occurs at a time when the animal has attained about four-fifths of its body length and about half of its ultimate bulk. The tooth change seems to be slightly later than in the western *lagotis*, but insufficient cases of the latter have been examined to establish that properly.

The molar series of aged examples agree well with the type as figured, but the combined length of molars 1-3 is (in males) 9.5-10.3 mm. as against 12.0 mm. in Spencer's description of the type. Spencer's figures, however, give values for this measurement of 9.5-10.3 mm. also.

The height of the molar cusps and their persistence as secant structures until late in life are conspicuous features of *minor*, and, owing to the immaturity of the type, bulk large also in the descriptions of the supposed species *leucurus*. In the present series of var. *miselius*, when M^4 appears above the bone, the points of the cusps of M^1 are almost intact, whereas in a *lagotis sagitta* at the same stage (living side by side, as it were, with *miselius*) the crown of M^1 and M^2 are already smooth and concave, and M^3 retains only a remnant of its original pattern. It is important to note, however, that the final stage of *minor* is much as in *lagotis*, the molars becoming thin and shell-like, with crown surfaces sloping steeply to the lingual margins and conveying, by their obliquity, an erroneous impression of an increase in the transverse diameter of the tooth. The curvature of the molar rows, however, remains fairly constant.

⁽⁵⁾ Proc. Roy. Soc. Vict., vol. ix, pl. ii (1896).

Comparison of completely unworn molars of the present series with those of *leucurus*, as figured by Bensley,⁽⁶⁾ reveal an exact correspondence in every detail of pattern, even to the presence of a rudimentary hypocone in the upper M². The same rudiment is evidently present in two older individuals, where it is represented by a conspicuous enamel fold, closing the main transverse valley of the tooth on the lingual side, though it is no longer discreet, merging anteriorly with the spurs of the protocone. The fourth upper molar (unknown in *leucurus*) is reduced, subtriangular in section, and functionally bicuspid, the lingual cusp representing the protocone and the buccal the first mesostyle (style "B"), the paracone having been suppressed. In the newly-erupted crown there is a well-marked antero-internal shelf, connecting externally with a small, low-level (para ?) style, and a rudimentary rounded talon representing the metacone of M^{s 1-3}.

The lower molars also agree well with Bensley's figures. It is to be noted, however, that the reduction of the paracone is complete only in M² and M³. The fourth lower molar (unknown in *leucurus*) has a well-developed anterior lobe, consisting of a complete trigonid with a broad antero-external shelf. The posterior lobe is much reduced and consists of a single functional cusp, evidently the endoconid, flanked buccally by two rudiments at the cingulum level.

The conspicuously cuspidate character of the molar crowns of *minor* and *leucurus* have given rise to suggestions that these "two" species represent a more insectivorous type of dentition and a less degree of divergence from the parent *perameline* stem, than is shown by the forms of *lagotis*. So far as their present feeding habits are concerned, it is evident that there has been a lapse in the omnivorous habit, but this is reflected in the dentition chiefly by the long persistence of the cusps and the early closing of the apical foramina and not by any structural approximation to *Perameles*. The unworn molar crowns of all the bilbies exhibit an essentially similar pattern and differ chiefly in the height of the cusps. All show in about the same degree the fundamental characters which separate Bensley's subfamily Thylacomyinae from the Peramelinae proper—*viz.*: (1) great enlargement of the twin mesostyles at the expense of the outer styles; (2) absence of a functional hypocone; (3) displacement of the metacone inwards; (4) suppression of the paraconid. Such evidence as is available from the feeding habits of var. *miselius*, would tend to show that the long persistence of the cusps and their spurs may be partly due to a recently assumed and increasingly carnivorous habit, rather than to a return to an insectivorous one, since the latter, in fossorial forms, leads to the ingestion of a large proportion of grit and correspondingly greater attrition.

In the latest work of the genus,⁽⁷⁾ *Th. leucurus* is held to be a good species differing from the typical race of *minor* in the following respects: (1) smaller body size; (2) much longer tail; (3) different foot pads; (4) different molar crowns; (5) absence of a rhinal callous; (6) wholly white pes and tail and unicoloured ventral fur.

Examination of the var. *miselius* of *minor* disproves the existence of the first four, which were the most important of the structural distinctions. The matter of the rhinal callous remains uncertain. It is evidently a somewhat variable character in the smaller bilbies, and in the series of *miselius*, though it can be seen in all, its development is slight in some examples, and there still seems a possibility (*fide* plate) that it may be present in the type of *leucurus*. The remaining differences, therefore, have to do entirely with colouration of pelage. The type of *leucurus* was an alcohol preserved specimen, and though

⁽⁶⁾ A. B. Bensley, Trans. Linn. Soc. (London) (1903) (2) xi, pl. v, fig. 11, pl. vi, fig. 14.

⁽⁷⁾ Troughton (*loc. cit.*).

there is nothing in the records of the S.A. Museum which throws any light on its origin, it is possible that it may have been many years in spirit before coming into Thomas's hands, and actually represented only a faded version of the original colouration. To test the effect of preservation in alcohol upon the colouration under conditions favourable for bleaching, a half-grown specimen of *miselius* has been kept in a glass container in 50% alcohol and exposed for the greater part of the day to diffused sunlight. After three years, considerable change has taken place—change which brings the colouration appreciably nearer to that of *leucurus*, as described. The pinkish tint has been largely discharged and the tone of the dorsum is distinctly yellower than in fresh-made skins. More important, however—the dark-furred areas of the upper surface of the tail and sole of foot have faded from slate to pale buff. When immersed in spirit they are still noticeably darker than contiguous areas, but on drying are scarcely differentiated. The dark basal zone of the under-fur on dorsum and ventrum is practically unchanged, so that bicolor belly fur is practically the only distinction remaining, and though only direct comparison with the type of *leucurus* will finally decide the question, the probability of the identity of the two seems to me to be very great.

It is interesting to note in passing that the specimen of the true *minor* referred to above from the type locality, which has been kept in alcohol in the S.A. Museum for 30 years, has also faded considerably, but even so retains a much darker and richer colouration than in the fresh *miselius*, and the dark areas of pes and tail are still conspicuous on drying.

Mr. Troughton (loc. cit.), in discussing the possible distribution of *leucurus*, remarks: “. . . . it seems highly probable that *leucura* is the most northern representative of the genus. That it inhabits the more sandy central region is supported by the paler colouration . . .”

Th. lagotis in a dark blue phase occurs at least 500 miles north of the location of the present series, and it is much more probable that the pallor of *miselius* (= *leucurus*) is an adaptive response to the bleached sands of the eastern Lake Eyre Basin, and is analogous to that of *chaetocercus*, *dasyuroides*, *smynthopsis* and *caloprymnus* in the same area.

TABLE I.
External Dimensions in mm. of the forms of Thalacomys minor.

	* ⁸	* ⁸	Minor		* ⁸	+ ¹⁰
	Range in 3 ♂ of var. <i>miselius</i> with worn M ⁴ .	Range in 2 ♀ of var. <i>miselius</i> with worn M ⁴ .	+ ⁹ Range in 2 ♂ adult.	+ ⁹ Range in 3 ♀ adult.	Imm. ♂ <i>miselius</i> .	Type of <i>leucurus</i> ♂.
Head and body	241–250	247–250	245–270	200–240	160	142
Tail	155–167	142	127–160	118–152	115	116
Pes	73–75	68–69	65–73	57–62	59	55
Fourth Toe	27–29	27	—	—	22	—
Nail of Fourth toe	7–9	9	—	—	—	—
Ear (length)	65–74	62–68	87–92	71–85	49	63 (+ ¹¹)
Ear (max. brdth.)	20–28	19	—	—	14	—
Rhinarium to eye	39–43	36–40	37–41	31–39	28	—
Eye to ear	53–55	51–53	—	—	38	—
Weight (in grms.)	362–435	310–312	—	—	125	—

* (⁸) Taken from freshly killed animals.

+ (⁹) In alcohol—Spencer.

+ (¹⁰) In alcohol—Thomas.

+ (¹¹) This includes the tubular portion of the auricle below the tragoid notch and is not comparable with the rest of the series.

TABLE II.

Skull Dimensions in mm. of the Forms of Thalacomys minor.

	Range in 3 ♂ of var. <i>miselius</i> with worn M ⁴ .	Range in 3 ♀ of var. <i>miselius</i> with worn M ⁴ .	Type of ♂ <i>minor</i> .	Imm. ♂ of var. <i>miselius</i> .	Type of <i>leucurus</i> .
Basal length	62.2-66.1	60.5-62.2	66	44.0	45
Greatest length	68.5-71.5	65.5-66.8	—	—	—
Greatest breadth	31.0-33.3	28.9-29.2	34	—	22.5
Nasals length	29.0-32.2	28.3-29.6	32	19.6	18
Nasals greatest breadth	5.6-5.9	5.7-6.1	6.5	4.3	4.5
Constriction	9.3-10.3	10.7-11.0	11	9.6	10
Palate length	38.9-40.9	36.2-37.2	41	25.8	27.7
Palate: breadth inside M ²	9.1-10.1	9.1-9.3	10.5	5.8	—
Anterior palatal foramina	5.2-6.0	4.6-5.6	7	—	5.2
Facial index	218-245	225-229	—	—	—
Ms ^{1,3}	9.5-10.3	9.2-9.8	9.5 or 10.3 or 12	Ms ^{1,2} 6.8 ⁽¹²⁾	10
Front of canine to back of M ⁴	26.9-29.0	25.1-26.5	28.0	—	—
P ³	2.8-2.9	2.7-2.9	3	2.6	3
P ⁴	2.4-2.8	2.3-2.7	3	—	—

⁽¹²⁾ Third molar has been lost in preparation.

THALACOMYS LAGOTIS SAGITTA (Thomas).

Known to the Wonkonguroo as Thulka, and to the Dieri as Kapita, this animal was less plentiful than the Yallara, though by no means uncommon, and its burrows were exclusively confined to the clay pans and the less stony of the loam flats, and were never found in the sandhills. I was never free to watch the complete excavation of a burrow from beginning to end, but the blacks say that it is further distinguished from that of the Yallara in that, when occupied, it is left open at the immediate entrance and blocked at a point some feet down. It appears to be quite as nocturnal and furtive as the smaller species, and details of its life history and habits are difficult to obtain by direct observation.

The single sub-adult female taken (December) was accompanied in the burrow by two large furred pouch young, with head and body length of about 170 mm. and still apparently dependent on the mother.

Six specimens were obtained, all from the Goyder's Lagoon area, about 150 miles north of the type locality. They are the first to be examined in the flesh since Mr. Hillier took the British Museum specimen in 1903,⁽¹³⁾ and are of considerable interest, as showing that the type was not adult (or not mature) and that the animal attains much larger dimensions, both external and cranial, than was formerly supposed.

Thus, the largest male obtained has a head and body length, and pes, of 385 mm. and 104 mm., respectively, as against 316 mm. and 91 mm. for the type (also a male); and in the skull a basal length of 91.7 as against 76.5 mm. Moreover, the two examples which come nearest to the type in general dimensions

⁽¹³⁾ The animal was first obtained on Prof. J. W. Gregory's reconnaissance of the Basin in 1902, a year prior to this, and some measurements of an "adult" female, published by Mr. Dow (The Dead Heart of Australia (1906), p. 355). He comments on the small size of the animal as compared with the true *lagotis*, but his specimen, though a female, is as large or larger than the type male. Some of his measurements, however, are evidently not comparable to those conventionally used.

have an unworn M^4 , and remnants of cusp pattern on M^3 as well as the juvenile character of M^4 being in line with the posterior palate margin, and both are obviously fairly young animals.

The male affording the above measurements is identical in colouration and general characters with the rest of the series, and is evidently not of great age, as it lacks the great expansion of the temporal fossae, crest development and widening of molar crowns, characterising that condition. The oldest female obtained is at a considerably earlier stage of tooth wear than this male, so that it is not possible to determine certainly the relative size of the sexes, but evidently there is a great disparity in favour of the male.

External structural characters are much as in the typical *lagotis*; the rhinal callous is well marked even in pouch young; the substance of the upper portion of the ear is not dappled; the tail is somewhat compressed from side to side, and in older specimens terminates in a horny spur. The pelage, however, in adults and sub-adults is much shorter, more sparse and slightly coarser than in the typical *lagotis*. The general colour of the dorsum is a curious purplish shade, paler and more uniformly rufous than in *lagotis typicus*, a pale vinous wash suffusing all

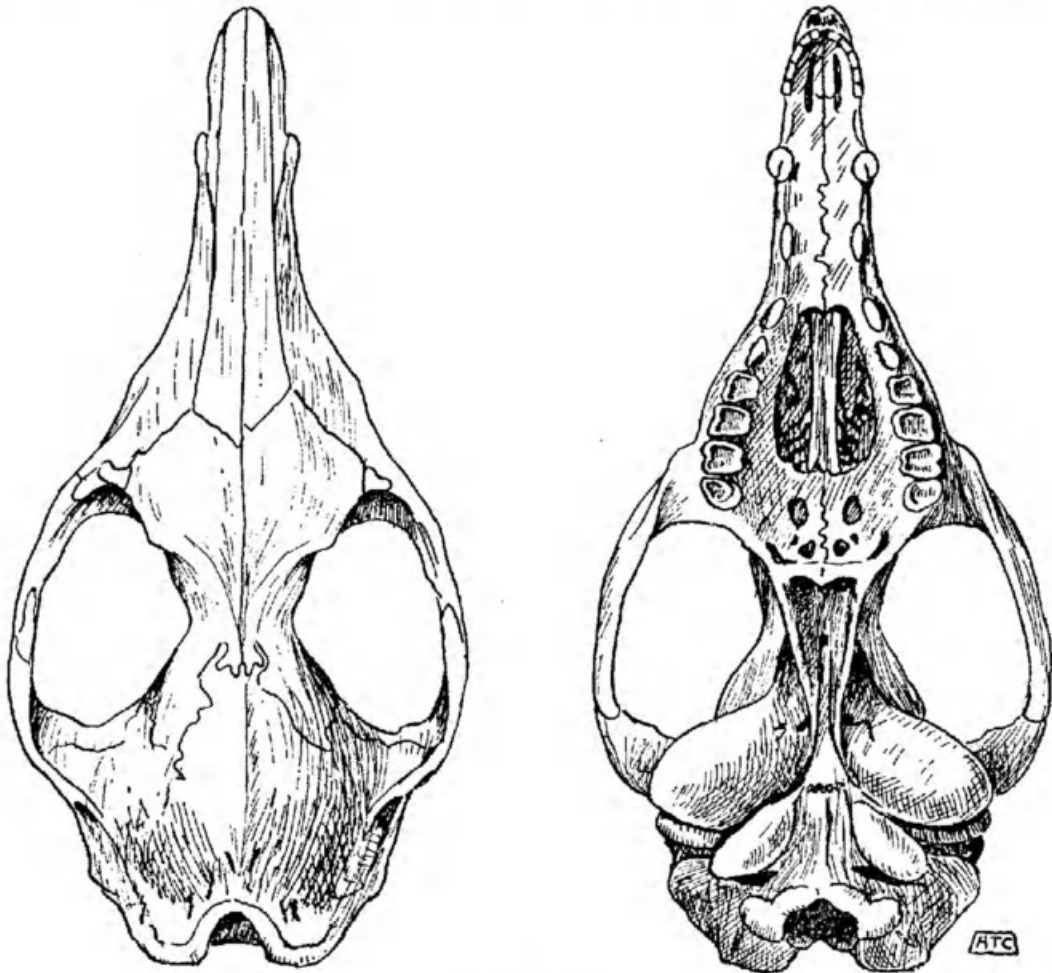


Fig. 1.

the upper surface from crown of head to base of tail, and not concentrating on the shoulders and rump as in that animal. Belly fur pure white to base and the transition to the dorsal colour rather more gradual. The pale wedge-shaped bars before and behind the hip, quite obsolete. These distinctions do not apply to all growth stages, however, and one young example (H. & B. 212 mm.) has a coat very similar to the western animal. In all, the black of the tail is intense and sharply

defined from the white. In defining his *sagitta*, Thomas wrote:—"Black band of tail is shorter instead of longer than the white end, and the feet, are paler below, the black only extending about one-third of their length under the heel." The relative length of the colour zones of the tail have been repeatedly quoted by writers in distinguishing the different forms, but never with any reference to which aspect of the tail was meant. In all the bilbies of the *lagotis* group I have examined in the flesh, the black is irregularly disposed on different surfaces, but is more extensive below than above. In the present series there is considerable variation, the black on the upper surface being equal to, greater than, or less than, the white, while below it is constantly about 50% longer than the white. The colouration of the sole is equally variable; the black ranging from less than one-third to more than two-thirds of the total length, but the colour is less intense than in the typical *lagotis*.

Skull Characters.

When compared with skulls of *lagotis* of corresponding age and sex, from south-western and west central localities, those from the Lake Eyre basin are in each case smaller, and have decidedly smaller molars, but structurally the correspondence is very close and the supposed distinctions in the palate region are not valid. Pending analysis of large series of bilbies from the western centre, however, further comment on the skull is deferred.

Sagitta was originally described as a full species, but subsequent writers have taken different views of its status: Wood-Jones,⁽¹⁴⁾ in 1923, concurring in Thomas's estimate; Longman,⁽¹⁵⁾ in 1930, evidently considering it to be a subspecies of *lagotis* only, and Troughton,⁽¹⁶⁾ 1932, taking the same view. Except for the additional skulls mentioned by Professor Wood-Jones, which evidently did not include an adult example, these estimates appear to have been based upon the distinctions which have already been published. The present series by greatly reducing the importance of these distinctions particularly in the matter of size, upon which Thomas chiefly relied, leaves little doubt as to its subspecific alliance with the western *lagotis*.

It is necessary to stress, however, that in colouration the differences, so far as they are shown by summer skins, are quite distinct—more so than might be inferred from the original description, and are of a similar kind to those which separate *Th. minor miselius* of the same district from the typical variety.

These two bilbies were the only members of the Peramelidae, of which definite records and specimens could be obtained. From a single still unsophisticated Wonkonguroo, however, and from an old man of the Dieri, accounts were obtained of two other animals, which are said still to be in the country; one of them possibly a small *perameles*, and the other, more definitely indicated by the peculiarities of its manus (and nesting habit?), as *Choeropus castanotis*.

Amongst the remaining polyprotodonts, two notable absentees seem to be *Myrmecobius fasciatus* and *Notoryctes typhlops*, both having a wide distribution west of the Basin. It is unsafe, of course, to definitely write them down as unrepresented here, without much more investigation, but it is significant that in a long residence in the country Mr. Reese, and others, have been unable to obtain definite accounts of these two highly peculiar forms from the natives. In a general account of south-west Queensland, a recent writer⁽¹⁷⁾ speaks of a mar-

⁽¹⁴⁾ Rec. S. Aust. Mus., vol. ii, No. 3 (1923), p. 333.

⁽¹⁵⁾ Memoirs. Q. Mus., vol. x, pt. 1 (1930), p. 63.

⁽¹⁶⁾ *Loc. cit.*

⁽¹⁷⁾ Mrs. Duncan Kemp—"Our Sandhill Country," Angus & Robertson Ltd., Sydney, 1933.

supial mole (Kakoma, of the local blacks) as having been common in the Moora-berrie district about 120 miles north-east of Birdsville in 1916, but scientific confirmation is lacking, and *notoryctes* was not listed as a Queensland mammal by Longman in 1930.

TABLE III.
External Dimensions of Thalacomys lagotis sagitta (in mm.) at various growth stages (from freshly killed animals).

	1 ♂ M ⁴ worn	2 ♂ M ⁴ unworn	3 ♂ M ²	Type ♂ ?	4 ♀ M ⁴ slightly worn	5 ♀ M ²	(18) 6 ♀ ?
Teeth							
Head and body	385	298	212	316	291	172	340
Tail	245	212	160	215	187	120	196
Pes	104	92	68	91	81	60	75?
Fourth toe	36	31	—	—	31	—	—
Nail of fourth toe	12	10	—	—	10	—	—
Ear (length)	84	78	56	79	78	42	74
Ear (max. breadth)	27	25	—	—	23	—	—
Rhinarium to eye	55	48	34	—	45	29	52
Eye to ear	60	51	38	—	50	28	—
Weight in grammes	1557	662	210	—	660	112	—

(18) As recorded by Dow.

TABLE IV.
Skull Dimensions of Thalacomys lagotis sagitta at various growth stages (in mm.).

	1 ♂ M ⁴ worn	2 ♂ M ⁴ unworn	3 ♂ M ²	Type ♂ ?	4 ♀ M ⁴ slightly worn	5 ♀ M ²	(18) 6 ♀ ?
Teeth							
Basal length	91.7	68.8	—	76.5	70.9	43.0	78
Greatest length	100.0	78.1	—	85	79.2	49.5	—
Greatest breadth	47.1	34.0	—	38	34.9	—	34.5
Nasals: length	45.9	34.7	25.1	40	37.0	21.0	37
Nasals: greatest breadth	9.0	6.0	5.5	7.5	6.0	4.6	3.3
Constriction	10.8	12.1	11.4	13	11.2	10.9	—
Palate: length	58.6	47.5	—	50	48.0	29.2	45.5
Palate: breadth ins. M ²	14.2	12.0	—	—	11.8	6.8	—
Ant. palatal foramina	6.8	7.8	5.9	—	7.0	—	8.5
Facial Index	229	263	—	240	278	278	—
M ^{s1.3}	12.2	12.1	—	12.5	12.7	—	11.5
C-M ⁴	40.9	34.2	—	36	34.3	—	34
P ³	3.9	3.7	3.5	—	4.0	—	3.2
P ⁴	2.9	2.8	1.7*	—	2.6	1.9*	3

(18) As recorded by Dow. * M.P.⁴



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