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A NEW SPECIES OF *LEIOLOPISMA* (LACERTILIA: SCINCIDAE) FROM WESTERN AUSTRALIA, WITH NOTES ON THE BIOLOGY AND RELATIONSHIPS OF OTHER AUSTRALIAN SPECIES

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SUMMARY

Leiolopisma baudini n. sp. is described on the basis of a single specimen from the vicinity of Point Culver, Western Australia. The new species is quite distinct and relatively primitive. Its closest living relative appears to be *L. entrecasteauxii* from southeastern Australia. Brief notes are provided on certain aspects of habitat, female reproduction and colour hues of most of the mainland Australian and Tasmanian species of *Leiolopisma,* and these data are used to support Rawlinson's (1974b and 1975) suggestion that the Australian species of the genus, at least, form two subgroups. A key is also provided to the described species of *Leiolopisma* from mainland Australia and Tasmania.

INTRODUCTION

During the course of a botanical survey in the area just west of Point Culver, Western Australia in October 1973, Mr Michael J. Brooker collected a number of reptiles which were subsequently lodged in the Western Australian Museum, Perth. Among these was a single specimen of an undescribed species of *Leiolopisma.* I discovered this specimen in 1976 during the course of an examination of the skinks in the Western Australian Museum and the curator of that collection, Dr Glen Storr, has kindly allowed me to borrow the specimen in order to describe the species. The species is interesting for three reasons. First, it is only the second species of *Leiolopisma* to be discovered in Western Australia. Second, it appears to be one of the two most primitive species known in the genus (along with *L. spenceri* — see Greer 1974 and 1980). Third, it appears to form a species pair with *L. entrecasteauxii* from southeast Australia and with this species provides yet another example of speciation in a once continuously distributed mesic temperate population following the loss of connecting habitat at the head of the Great Australian Bight.

In describing the new species, I take the opportunity to publish a few personal observations on other Australian *Leiolopisma* and to offer additional evidence for dividing the Australian species into two groups (Rawlinson 1974b and 1975). I also provide an updated key to the species of *Leiolopisma* occurring on mainland Australia and Tasmania.

METHODS

Definitions of head scales follow Taylor (1935) except that the supraciliary scale row is taken to end with the last scale contacted by both the fourth supraocular and the palpebral row. The preoculars are indicated by small dots in Figure 1.

Records of the Australian Museum, 1982, **Volume 34 Number 12,** 549-573, Figures 1-7.

Paravertebral scales are counted from the first scale completely posterior to an imaginary line drawn along the posterior edge of the thighs (held perpendicular to the long axis of the body) forward to and including the anteriormost nuchal.

Subdigital lamellae are counted from the first enlarged scale just beyond the edge of the sole of the foot to and including the last scale on the toe.

Scale size (in *L. pretiosum)* is taken as the width of a typical mid-dorsal body scale.

The longitudinal stripes are described in terms of their relationship to the longitudinal scale rows at midbody. For these purposes the scale rows are numbered sequentially beginning with the paravertebral scale row and counting laterally.

Limbs are measured by extending the limb perpendicular to the body and holding it against the free end of a ruler with the end of the ruler in contact with the body at the axilla or base of the tail. The measurement includes the claw and is made to the nearest 0.5 mm. All measurements relate to specimens fixed in 10-20 percent formalin and stored in 75 percent ethanol.

For those species for which I collected a large number of specimens at a single locality without any conscious bias as to size or sex, I have allocated the individuals of both sexes to one of three maturity groups — immature, transitional or mature — by visual inspection of the gonad and, in females, the oviduct. This is an admittedly crude method of evaluating the state of maturity, but it led to very few equivocal cases. This was no doubt due to the apparent synchrony of many life history events in these temperate animals.

The method of statistical comparison of two regression lines follows Snedecor and Cochran (1969). All other statistical procedures follow Simpson, Roe and Lewontin (1960). The 0.05, 0.01 and 0.001 levels of significance are indicated by one, two and three asterisks, respectively.

Leiolopisma baudini n sp.
Figs 1-3

HOLOTYPE: Western Australian Museum R44969; collected "west of Point Culver", Western Australia at 124°32'E and 32°53'S by Mr Michael G. Brooker on 28 October 1973. Sex: male.

DIAGNOSIS: *Leiolopisma baudini* can be distinguished from all other species of *Leiolopisma* (*sensu* Greer 1974) by the following combination of characters: supranasal scales present; frontoparietal scales paired, and two anterior loreals, one above the other.

Leiolopisma baudini can be distinguished from all other Australian *Leiolopisma* except *L. coventryi, L. entrecasteauxii* and *L. spenceri* by the paired frontoparietals. It can be distinguished from *L. coventryi* by the presence of supranasals, two anterior loreals and striped colour pattern; from *L. entrecasteauxii* by supranasals, two anterior loreals and the light lateral line involving scale rows 5 and 6 (instead of rows 6 and 7), and from *L. spenceri* by the two anterior loreals, lower number of longitudinal scale rows at midbody (26 vs 37-48) and deep instead of depressed head and body.

DESCRIPTION OF HOLOTYPE: A moderately sized (SVL = 48 mm), olive-brown skink with moderately deep head and body and bluntly rounded snout, well developed pentadactyl limbs and distinct narrow dorsolateral and lateral light stripes.

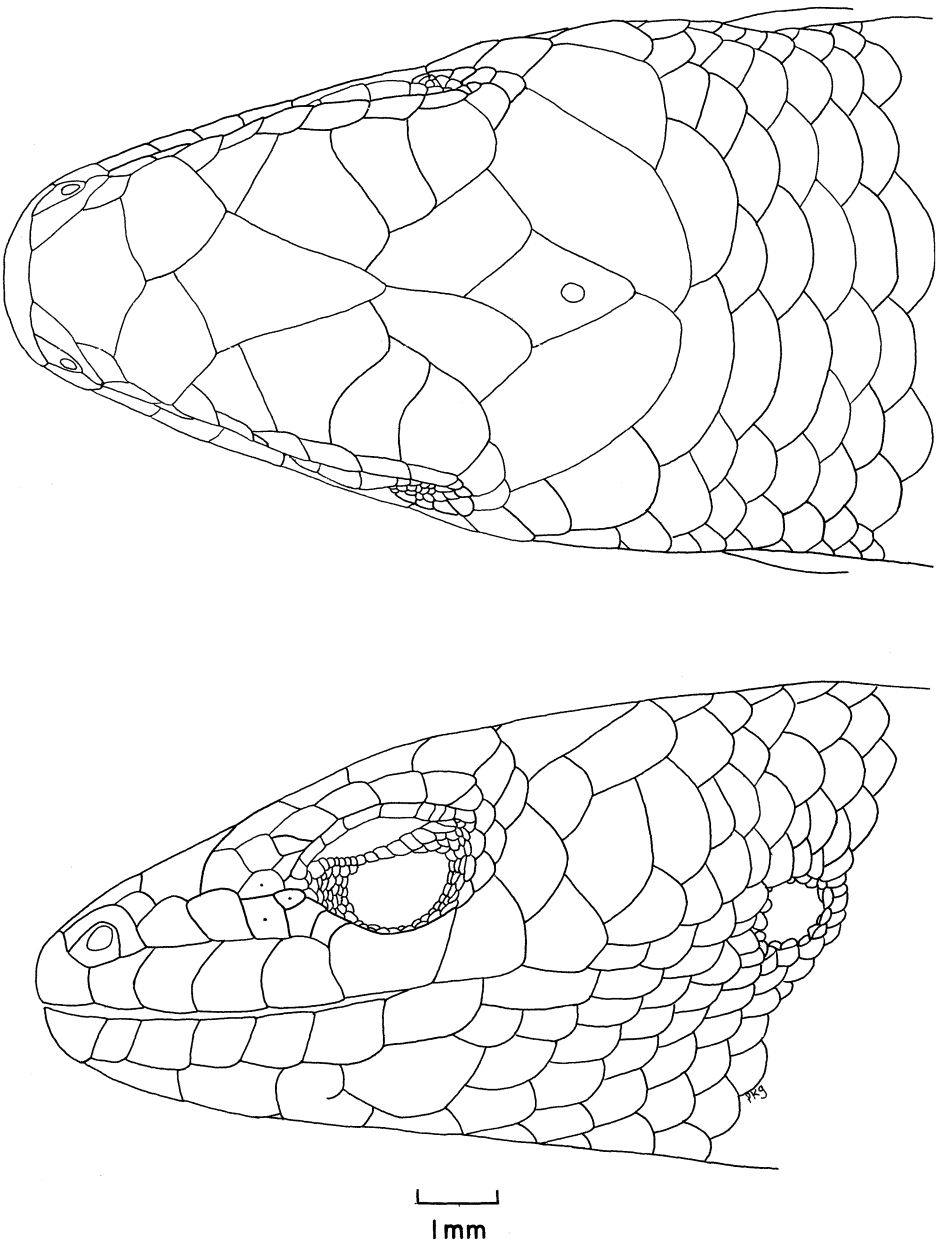

Fig. 1. Dorsal and lateral views of the head of the holotype of *Leiolopisma baudini* (W.A.M. R 44969). The preocular scales are indicated by small dots.

Rostral wider than deep, its suture with frontonasal virtually straight in dorsal view; frontonasal about one-and-two-fifths as wide as long, in contact with rostral for a distance equivalent to approximately one-third its maximum width; prefrontals large, in broad medial contact; frontal approximately one-and-a half times as long as wide; supraoculars four, anterior two in contact with frontal; frontoparietals and interparietal distinct, each frontoparietal as long as interparietal and slightly narrower, but all three scales approximately equal in area; parietal eye spot large, situated in posterior part of interparietal; parietals meet behind interparietal, left parietal contacted posterolaterally by two upper temporals and a nuchal and the right contacted by a single upper temporal and a nuchal; transversely enlarged nuchals, three on left side and two on right.

Nasal relatively small with nostril in posterodorsal corner; supranasals separated medially, each fused to postnasal to form a wide, strap-like scale bordering the nasal dorsally and posteriorly; two anterior loreals, upper approximately half size of lower; posterior loreal single, approximately equal in size to lower anterior loreal; preoculars three, anterior two largest, posterior one very small[1]; presuboculars two, subequal; supraciliaries 7-6; primary temporals 2-1; secondary temporals 2-2, each larger than any primary; supralabials 7-8, fifth and sixth situated below centre of eye on left and right sides, respectively; infralabials 7-7; postmental wider than long, in contact with first two infralabials on each side, followed by pair of chin scales in medial contact; lower eyelid movable with large clear window sharply delineated from uniformly small surrounding palpebrals; external ear opening circular, approximately one-third size of palpebral disc, without enlarged lobes or spines; tympanum moderately deeply sunk.

Scales mostly smooth but mid-dorsal body scales with two to three very low, broad, rounded "keels" or alternatively, with three to four striae; longitudinal scale rows at midbody 26; paravertebral scales 53; medial pair of preanals moderately larger than immediately adjacent preanals; each preanal overlaps scale medial to it and is in turn overlapped by scale lateral to it; fourth toe covered above by single row of scales and below by 22-23 smoothly rounded lamellae; scales in medial three rows of subcaudals subequal in size.

Snout-vent length 48 mm; tail length 55 mm, of which 35 mm is regenerated; length of fore and rear legs, 13 and 16 mm, respectively; limbs would overlap if adpressed to body.

Presacral vertebrae 28; phalangeal formula of manus and pes 2.3.4.5.3 and 2.3.4.5.4, respectively.

In preservative the ground colour is olive brown dorsally and pale bluish grey ventrally. A distinct white dorsolateral stripe begins on the mid-neck and extends posteriorly through the centre of the third midbody scale row and onto the base of the tail where it becomes diffuse. A similar lateral stripe begins on the posterior labials and extends posteriorly through the ear, above the insertion of the foreleg, through the lower part of the fifth and the upper part of the sixth midbody scale rows and ends abruptly at the rear leg. Dark brown pigment coalesces along the lateral edges of the six dorsalmost scale rows resulting in seven narrow and poorly defined dark longitudinal lines, the outer two of which on each side enclose the dorsolateral white stripe; similar dark lines run along the top half of the fifth longitudinal scale row and along the common border of the sixth and seventh scale rows to enclose the white lateral stripe.

[1]This small posterior preocular is fused to the lower (larger) of the two anterior preoculars in most specimens of *L. baudini's* close relatives, e.g. *L. entrecasteauxii* (Table 1).

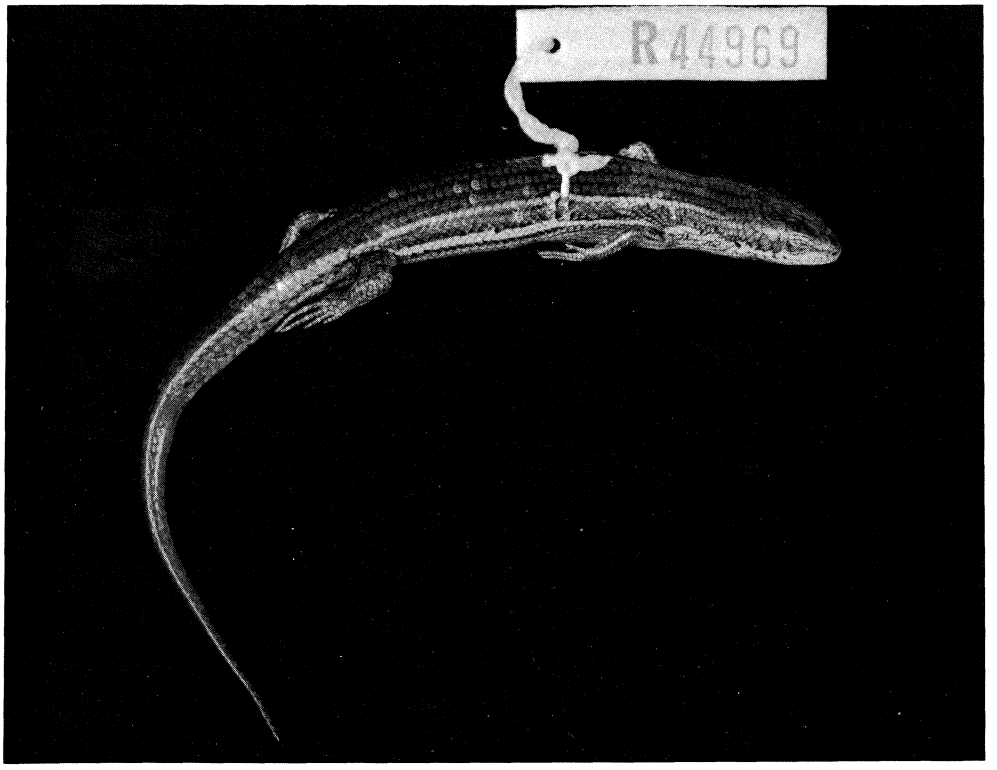

Fig. 2. The holotype of *Leiolopisma baudini* (W.A.M. R 44969). The SVL of the specimen is 48 mm.

Fig. 3. The head of the holotype of *Leiolopisma baudini* (W.A.M. R 44969).

TABLE 1. Comparison of certain morphometric and colour pattern characters in *Leioloposma baudini* and two of the most geographically proximate populations of its closest living relative *Leiolopisma entrecasteauxii*.

Character	*L. baudini* Western Australia N = 1	*L. entrecasteauxii* Eyre Peninsula and islands N = 6	*L. entrecasteauxii* Southeastern South Australia N = 31
Midbody scale rows			
Range	26	25-31	28-33
Mean	26	28.3	30.9
Mode	26	28,30	30
SD	—	1.86	1.11
Paravertebral scales			
Range	53	56-59	53-62
Mean	53	57.5	58.5
SD	—	1.05	2.55
Subdigital lamellae on fourth toe			
Range	22-23	18-24	17-23
Mean	22.5	21.2	20.7
SD	—	1.94	1.58
Supraciliaries			
Range	6-7	5-7	4-6
Mean	6.5	6.2	5.3
Mode	—	7	5
Snout-vent length (mm)			
Range	48	27-62	35-57
Frequency that small posterior preocular scale is distinct (see text)	1.00	0.33	0.03
Midbody scale rows covered by dorsal-lateral light stripe	3	3-4	3-4
Midbody scale rows covered by lateral light stripe	5-6	6-7	6-7

The top of the head is light olive brown with faint reticulations posteriorly. On the side of the head there is a very faint, diffuse brown streak just below the canthus, and the labials are immaculate except for one or two small brown spots posteriorly. The entire venter is immaculate.

HABITAT AND DISTRIBUTION: The only known specimen of *Leiolopisma baudini* was found on the ground in an open sandy area within a few feet of a vegetated dune immediately behind the beach in an area just west of Point Culver (Fig. 4). The vegetation was low (1 metre or less) and dense and consisted mainly of *Acacia cyclopis,* with some *Pimelea rosea* and *Scaevola crassifolia* (Mr Michael Brooker, pers. comm. in letter of 10 July 1978).

The type locality is just west of where the Baxter Cliffs swing inland to form the Wylie Scarp and the Israelite (coastal) Plain (Mr Michael Brooker, pers. comm. in letter of 22 November 1976) and in essence is at the extreme northern end of the Israelite Plain. Habitats similar to the type locality probably occur more or less continuously along the Israelite Plain to the south and perhaps also in several isolated siliaceous sand dune patches between Point Culver and Twilight Cove to the northeast (Nelson 1974). The area between Israelite Bay and Twilight Cove appears to be relatively little explored due to its inaccessibility, but if *Leiolopisma baudini* has a continuous distribution anywhere it is likely to be here.

ETYMOLOGY: The new species is named for Nicolas Baudin, Commander-in-Chief of a French voyage of discovery along the western and southern coasts of Australia between 1801 and 1803.

COMPARISON WITH SIMILAR SPECIES: *Leiolopisma baudini* is most similar to *L. entrecasteauxii* (Figs 5-6), a species that is widespread in southeast Australia including Tasmania and the islands of Bass Strait (Fig. 4). Both species have a short deep head and body, well developed limbs, and a dorsal colour pattern featuring light and dark longitudinal stripes (although the colour pattern may be subdued in some populations of *L. entrecasteauxii*). Both species also have distinct frontoparietals, a primitive feature that sets them apart from all other Australian *Leiolopisma* except *L. coventryi* which lacks light and dark stripes and *L. spenceri* which has a depressed body and a higher number of longitudinal scale rows at midbody (37-48 versus 25-33).

Leiolopisma entrecasteauxii has a wide geographic distribution and a broad habitat range and hence for the purposes of comparison, I have emphasized populations from the western part of the distribution. Unfortunately, however, *L. entrecasteauxii* appears to occur only in low densities in widely scattered populations in the extreme western part of the range, i.e. from the Coorong in South Australia west to Eyre Peninsula and its associated islands, and it is only in the extreme southeast corner of South Australia that one encounters the species in large numbers over wide areas. For the purpose of comparison, therefore, I have presented data (Table 1) for both the six specimens known from Eyre Peninsula and its associated islands and for 31 specimens from Beachport (N = 17) and Port Macdonnell (N = 14), the two largest samples available from southeast South Australia (see Specimens Examined section).

Table 1 shows that the Eyre Peninsula area specimens are morphometrically closer to *L. baudini* than are the specimens from southeast South Australia. This is especially evident in the number of midbody scale rows and the number of supraciliaries. The similarity is also evident in at least one other feature: the degree of separation between the nasal and postnasal. In the westernmost known specimen of *L.*

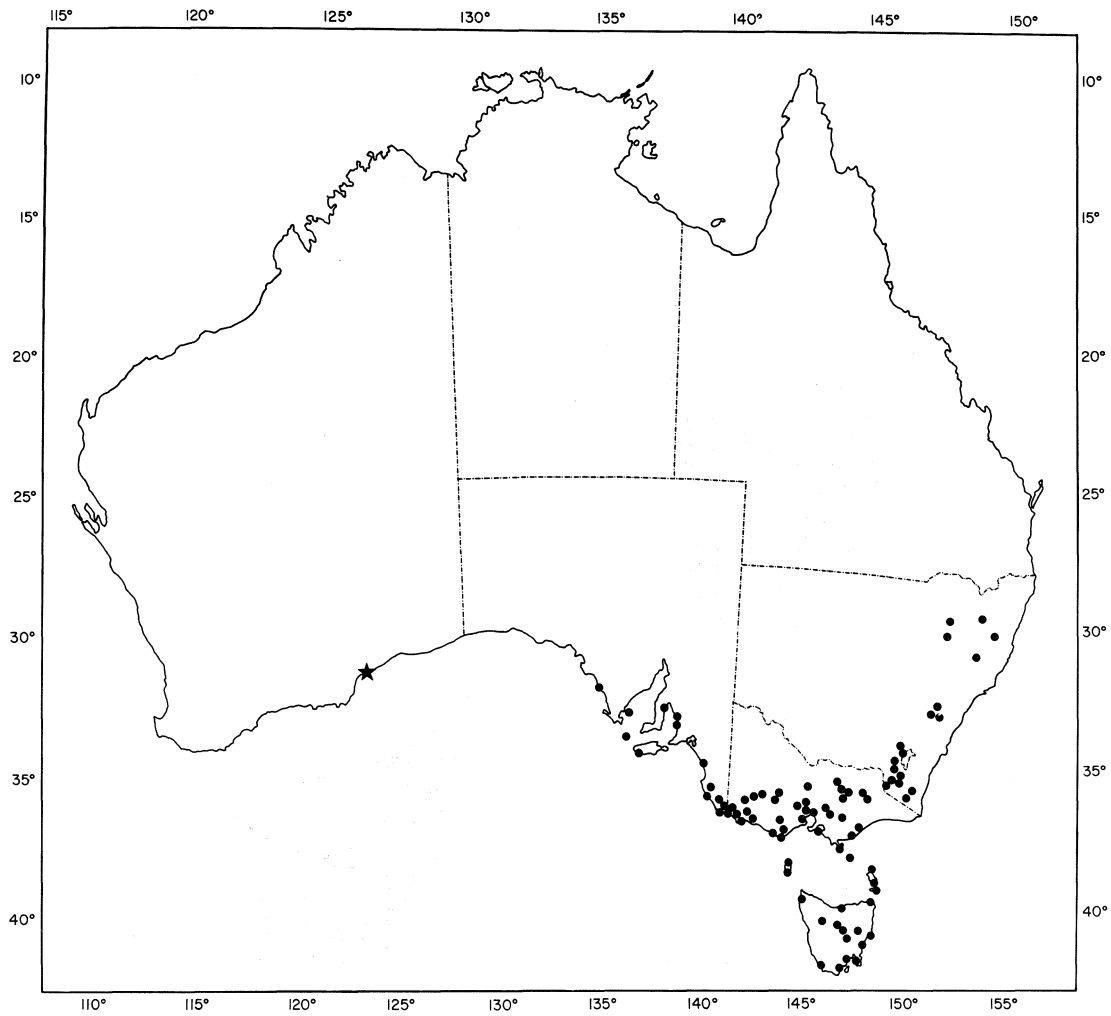

Fig. 4. Map of Australia showing the distribution of *Leiolopisma baudini* (star) and its nearest living relative *L. entrecasteauxii* (dots).

entrecasteauxii (from Pearson Island), the nasal is separated posteriorly from the postnasal by a well developed suture. This suture is also quite distinct, although often reduced in extent, in other Eyre Peninsula area specimens, but in the specimens from southeastern South Australia it is usually obscure or nonexistent. Despite the similarity between *L. baudini* and the westernmost *L. entrecasteauxii,* the new species can be distinguished from both these and other *L. entrecasteauxii* by its distinct supranasals and two anterior loreals and perhaps also by its broadly meeting prefrontals and the position of the dorsolateral and lateral light stripes.

Superficially *L. baudini* might be confused with either *L. trilineatum* or *L. duperreyi* (the recognition of this species is justified below) as both taxa have a deep head and body and some degree of light and dark striping. *L. baudini* differs from these two species, however, in having distinct supranasals, two anterior loreals, paired instead of fused frontoparietals, and a shorter body.

RELATIONSHIPS: The closest living relative of *Leiolopisma baudini* is probably *L. entrecasteauxii.* The basis for this presumed relationship is a difficult to quantify, but nonetheless immediately recognizable, similarity in size, shape and colour pattern. Both species, for example, have a short deep head and deep body, well developed limbs and a dorsal colour pattern of light and dark stripes. In addition, both species are ground dwelling and occur in temperate Australia (Fig. 4).

Between the two species, *L. baudini* appears to be the primitive and *L. entrecasteauxii* the derived form: *L. baudini* has the supranasal and postnasal completely distinct from the nasal whereas *L. entrecasteauxii* has the supranasal and postnasal partially or completely fused to the nasal. *L. baudini* may also be more primitive than *L. entrecasteauxii* in having two anterior loreals instead of one[1] and the prefrontals in broad contact. These features plus the separate frontoparietals and deep head and body mark *L. baudini* as one of the most generally primitive species in the genus *Leiolopisma* (along with *L. spenceri* — see Greer 1974 and 1980).

SPECIMENS EXAMINED: The following specimens of *Leiolopisma entrecasteauxii* from South Australia were examined for the purposes of detailed comparison with *L. baudini:* British Museum (Natural History) 1923 11.11.37 — Pearson Island; South Australian Museum R 5768 — Elliston; R 10209 — Flinders Island; R 11181 — 11182 — South Neptune Island; R 15990 — Reevesby Island; Australian Museum R 74819 — 74832 — Port MacDonnell; R 74872 — 74888 — Beachport.

NOTES ON THE BIOLOGY OF MAINLAND AUSTRALIAN AND TASMANIAN *LEIOLOPISMA*

During the course of field work in southwestern and southeastern Australia in the period 1975-1980, I made observations on all the species of *Leiolopisma* except *L.*

[1]The phylogenetic significance of the two anterior loreals in lygosomines is not clear as yet. The evidence for its being primitive is that it occurs in the moderately primitive representatives of two major groups of lygosomines: the *Eugongylus* group, of which *Leiolopisma* is a member, and the *Sphenomorphus* group (for the diagnosis and contents of these two groups see Greer 1979). The evidence against two anterior loreals being primitive — and hence the evidence for its being derived — is that it does not occur in *Mabuya,* the most generally primitive genus of lygosomines, nor does it occur in scincines, the most primitive subfamily of skinks. Two anterior loreals have been observed in the following species of *Leiolopisma: duperreyi* (A.M. R57916, S.A.M. R6142, 12518, 12771, 12852, 16268c), *entrecasteauxii* (N.M.V. D 50886), *ocellatum* (A.M. R 4154), *otagense* (Hardy 1977), *platynotum* (A.M. R 52755, 65772) and *telfairi* (U.S.N.M. 163179).

palfreymani — a species confined to a virtually inaccessible rock in the Southern Ocean south of Tasmania. In this section I briefly summarize those observations that are either new or bear on the problem of species groups in this fauna.

The observations generally fall into three categories — habitat, female reproduction and colour hues — although additional observations are provided for a few species. The species discussed are arranged alphabetically in two species groups as suggested by Rawlinson (1974b). These species groups are discussed further in the following section.

I should like to point out that some of the topics I discuss below have been treated by Pengilley (1972) in an as yet unpublished Ph.D. thesis. I am informed by the author that the result of this thesis will be published.

The *Baudini* Species Group

Leiolopisma coventryi

As Rawlinson (1975) has provided extensive natural history notes for this southeast Australian species, I will make only a few supplementary observations based on 105 specimens comprising four samples collected by myself and others at three localities: 9.3 km SE of the Nimmitabel Post Office via the Monaro Hwy, N.S.W. (N = 20, 30 November 1975); WNW slope of Mt. Tallarook, Brown Range, Vic. (N = 24, 21 December 1975 and N = 37, 26 December 1976), and 2 km N of Mt. St. Leonard, Vic. (N = 24, 22 December 1975, the type locality). All the individuals I have seen have either been on the ground or on rotting logs on the ground in open forest. Rawlinson (1975) notes that *L. coventryi* ". . . restricted . . . its activity to logs and litter at or close to ground level (within 1-2 m)."

Data on the size, sex, state of maturity and litter sizes for the four samples from the three localities are given in Table 2. Two interesting observations emerge from these data. First, females appear to attain a larger absolute size than males in all three populations[1]. This is a general trend in small Australian skinks (pers. obs.), but its basis (differential growth versus differential mortality) has not been determined as yet for any Australian species.

Second, there is geographic variation in both body size and litter size. Pairwise comparisons (t test) between the three populations with regard to mean SVL of gravid females with countable ovarian eggs or developing young and mean litter size (based on these same females) revealed the following statistically significant differences: for body size, Mt. St. Leonard ($\overline{X}$ = 45.4, SD = 3.31, N = 10) > Mt. Tallarook ($\overline{X}$ = 42.0, SD = 2.77, N = 21 > Nimmitabel ($\overline{X}$ = 40.8, SD = 2.97, N = 10) and for litter size Mt. St. Leonard ($\overline{X}$ = 2.1, SD = 0.88, N = 10) < Nimmitabel ($\overline{X}$ = 2.9, SD = 0.57, N = 10). The most interesting aspect of this variation is the combination of large body size and small litter size in the Mt. St. Leonard population. I have no explanation for this relationship, but I suspect that microclimatic differences are important as the Mt. St. Leonard locality appeared to be wetter and perhaps cooler than the other localities. A similar relationship holds for a population of *L. pretiosum* living in the very cool climate on the summit of Mt. Wellington, Tasmania (see below).

Rawlinson (1975) noted that *L. coventryi* is live-bearing with a litter size of 1-7 ($\overline{X}$ = 3.0, N = 15). In the four samples I collected, the 41 females with countable enlarged

TABLE 2. Comparison of body size (SVL in mm), state of maturity and litter size in four samples of *Leiolopisma coventryi* collected from three localities. Sample sizes in parentheses.

	9.3 km SE of Nimmitabel, N.S.W. 30/11/1975	Mt. Tallarook, Vic. 21/12/1975	Mt. Tallarook, Vic. 26/12/1976	2 km N of Mt.St.Leonard, Vic. 22/12/1975
Size of unsexed specimens	41(1)[1]	—	—	22-26(4)
Size of immature specimens				
♂♂	—	27(1)	26-28 (5)	—
♀♀	27 (1)	27-29 (5)	25-29 (3)	34 (1)
Size of transitional specimens				
♂♂	—	—	—	—
♀♀	—	—	—	33-42 (3)
Size of mature specimens				
♂♂	35-41 (5)	35-40 (11)	36-43 (10)	—
♀♀	37-48 (13)	36-45 (7)	37-47 (19)	39-54 (16)
Size of gravid females				
Range	37-48 (13)	38-45 (5)	37-47 (19)	39-54 (15)
Mean	40.2	41.6	41.7	45.6
SD	2.95	3.21	2.83	3.94
Litter size				
Range	2-4 (10)	2-4 (5)	1-4 (16)	1-3 (100)
Mean	2.9	2.8	2.4	2.1
SD	0.57	0.84	0.72	0.77

1. The gonads and genital ducts of this specimen were undifferentiated.

ovarian eggs or developing young ranged in size from 37 to 54 mm SVL ($\bar{X}$ = 42.5) and had 1-4 ovarian eggs or young ($\bar{X}$ = 2.5). There was no significant correlation between female size and litter size (r = 0.16, NS). It is interesting to note that all but three of the 53 females judged to be mature were gravid. The exceptions were two females from the 1975 Mt. Tallarook population (SVLs = 36 and 40 mm) and one from the Mt. St. Leonard population (SVL = 46 mm).

Finally, it may be noted that there was no indication of ventral colour in any of the specimens in the four samples discussed above. Rawlinson (1975) also makes no mention of ventral colour in the specimens he examined.

1. I did not obtain any males when I collected at the Mt. St. Leonard locality, but Rawlinson (1975) gives data showing that the largest female in the type series had a SVL of 51.0 mm (N = 28), whereas the largest male had a SVL of only 43.5 mm (N = 8).

Leiolopisma duperreyi

Leiolopisma trilineatum is currently treated as a single species with two disjunct populations, one in the southwestern corner of Australia and the other in the southeastern (Fig. 9 in Greer 1980). The two populations differ, however, in two characters, and these differences suggest to me that two species are involved. The southwestern population, to which the name *L. trilineatum* may be restricted, has a subdued or diffuse dorsal colour pattern and a lower number of paravertebral scale rows and the southeastern population, for which the name *L. duperreyi* is available, has a distinct colour pattern and a higher number of paravertebral scales (Table 3).

TABLE 3. Comparison between *Leiolopisma duperreyi* and *L. trilineatum* in the number of paravertebral scale rows. Note that there is a sexual dimorphism within each species and a difference between the two species within each sex.

		♂♂		♀♀
L. duperreyi	Range:	57-62		62-66
	$\bar{X}$:	59.6	t = 9.87***	64.1
	SD:	1.50		1.33
	N:	18		20
		t = 6.65***		t = 8.26***
L. trilineatum	Range:	54-59		56-61
	$\bar{X}$:	56.3	t = 6.65***	59.8
	SD:	1.55		1.97
	N:	20		25

I have seen only 11 *L. duperreyi* in the field and all were on the ground in open habitats such as woodlands, shrublands or heathlands. Rawlinson (1974a) notes that in Tasmania *L. duperreyi* is restricted to open areas which contain low tussock grasses and heaths and that it may ascend these plants to bask.

Rawlinson (1974a) reported that the species is oviparous and that in Tasmanian specimens clutch size was 4-8 ($\bar{X}$ = 5.5, N = 11). In order to extend these observations, I examined the collections in the Australian Museum and the South Australian Museum for gravid females. I found one female with enlarged ovarian eggs that was collected on 17 November and eleven females with oviducal eggs that were collected in the period 3 November–"February" in different years. The gravid females ranged in size from 54 to 71 mm SVL ($\bar{X}$ = 60.1) and contained 3-7 eggs ($\bar{X}$ = 4.8). There was no significant correlation between female size and clutch size (r = 0.42, NS).

Rounsevell (1978) reported that all the specimens in a large series of hatchlings from a single commual nest (N = 63) had a "bright orange throat-patch". I have also noted a rosy-orange throat colour in larger specimens.

Leiolopisma entrecasteauxii

This species is restricted to southeastern Australia and Tasmania (Fig. 4). I have seen several hundred individuals and in my experience the species is largely ground-dwelling, although it often ascends low rocks and logs in order to bask (also see Rawlinson 1974a).

The species is live-bearing (Harrison and Weekes 1925 and Weekes 1930) with a reported litter size in Tasmanian animals of 1-7 ($\bar{X}$ = 4.1, N = 56, Rawlinson 1974a). I have examined the Australian Museum and South Australian Museum collections for gravid females and have found 45 females from throughout the range with either yolking ovarian eggs or oviducal young. These females ranged in size from 45 to 65 mm SVL ($\bar{X}$ = 54.2) and had litters of 1 to 7 ($\bar{X}$ = 4.4). There was a significant, positive correlation between female size and litter size (r = 0.61***).

Two colour patterns occur in what is now considered a single species: one with distinct light longitudinal stripes (Fig. 5) and the other with only indistinct stripes or none at all (Fig. 6). In some areas only one colour pattern occurs. All the South Australian and far western Victorian populations, for example, appear to lack stripes whereas all the Tasmanian and New England Tableland populations appear to have them (pers. obs.). In the striped populations, mature males usually have red in the anterior part of the lower light lateral stripe and no bright ventral hues. In some faintly striped or unstriped populations, however, males "develop an irregular red mid-lateral stripe during late summer and autumn only. Often this red colouring is limited to the axillary region. At the same time, the underside of the body and tail becomes bright pink to red, but the chin and throat, as far as I have seen (approx. 50-60 specimens, from at least 6 populations) always remain white" (Mr Mark Hutchinson, pers. comm. in letter of 3 December 1979, describing his experience in Victoria). In contrast to the lack of throat colour and the presence of ventral body colour in these animals, I can note having seen two faintly striped animals from the highlands of southeastern New South Wales (collected by Mr Graham Hardy) which had a distinct reddish wash on the throat but clear venters. It is not clear whether these two pattern types — striped vs faintly striped or unstriped — represent distinct species or simply morphs of one species. The two forms are very similar in morphometric characters, hence future taxonomic work may be most profitable if it focuses on biochemical characters and field biology.

Leiolopisma metallicum

I collected 168 specimens of this species from 13 localities in Tasmania in the period 4-15 December 1975. My observations for these specimens support Rawlinson's (1974a) observation that "fallen logs, the trunks and lower limbs of trees and rock surfaces are all used for basking sites during activity, but most of the time is spent at or close to ground level". I found this species and *L. pretiosum* together in large numbers at two localities and at both I noticed that *L. metallicum* was usually on the ground while *L. pretiosum* was usually on logs.

The state of sexual maturity and size of the specimens I collected are given in Table 4. The most interesting observation to be made on these specimens is that every mature female (N = 83) except one was gravid with early term oviducal young. This indicates that almost all mature females mate and reproduce and that there is a notable degree of synchrony in reproduction. The one non-gravid female was a relatively small specimen (SVL = 48 mm).

L. metallicum is a live-bearing species (Weekes 1930) with a reported litter size of 1-7 ($\bar{X}$ = 3.9, N = 44; Rawlinson 1975). In my specimens there was a significant positive correlation (r = 0.81***, N = 75) between female SVL ($\bar{X}$ = 53.4, range = 42-66 mm) and brood size ($\bar{X}$ = 3.9, range = 2-8).

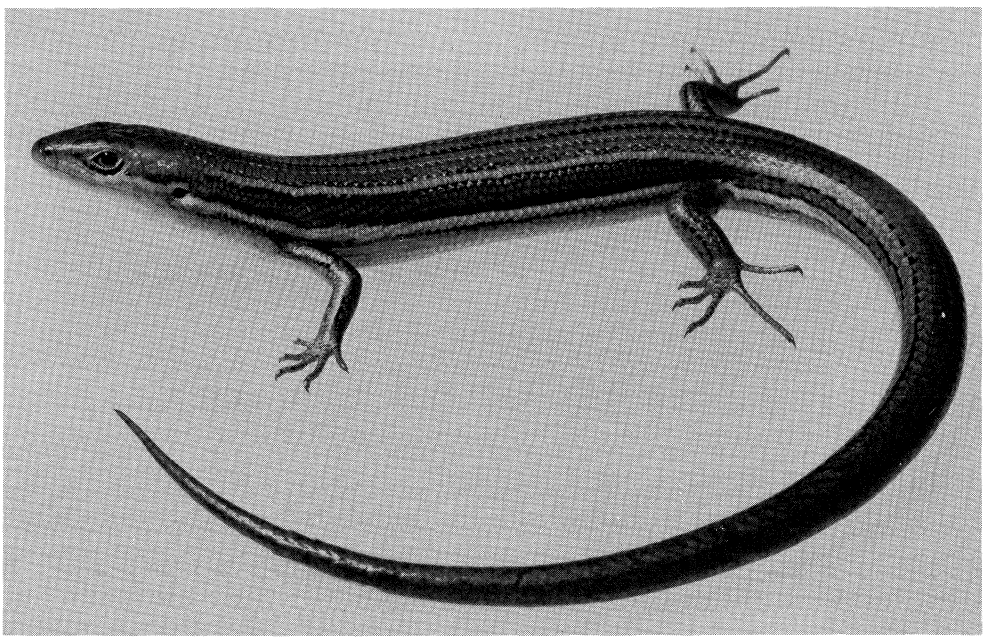

Fig. 5. The strongly patterned form of *Leiolopisma entrecasteauxii*. The specimen is from approximately 4 km SSW of Woodside East, Vic.

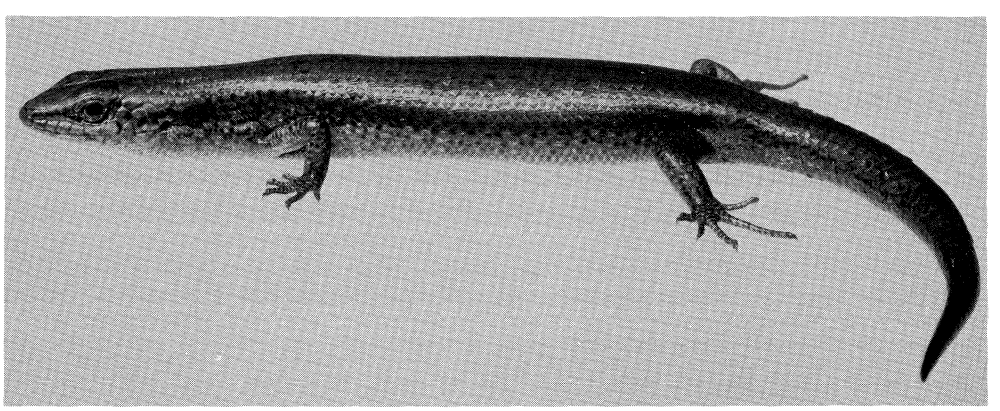

Fig. 6. The weakly patterned form of *Leiolopisma entrecasteauxii*. The specimen is from Shooters Hill, Oberon, N.S.W.

Many but not all of the specimens in my collection had a metallic rose colour on the venter from the level of the forelegs posteriorly onto the base of the tail. The colour occurred in specimens of all sizes in both sexes.

TABLE 4. Data on state of sexual maturity and body size in 168 specimens of *Leiolopisma metallicum* collected in Tasmania in the period 4-15 December 1975. Sample sizes are given in parenthesis.

Maturity	SVL (mm)
Immature	
♂♂	29-34 (12)
♀♀	28-40 (8)
Transitional	
♂♂	37 (1)
♀♀	42-44 (2)
Mature	
♂♂	41-60 (62)
♀♀	42-66 (83)

Leiolopisma platynotum

I have seen only eight individuals of this southeastern Australian (Fig. 9 in Greer 1980) species in the field, and all were on the ground in open woodland or heathland. In addition S. J. Copland (field register on file in the Department of Reptiles and Amphibians in the Australian Museum) noted the position of 15 specimens collected by him and all were on the ground. It would appear therefore that the species is predominantly ground dwelling.

I have found five gravid females in the collections of the Australian Museum. All held shelled oviducal eggs which indicates that the species is oviparous. Three of the females were collected between 15 November and 10 December in different years; another was collected in "November" and another in "January". The females ranged in size from 65 to 80 mm SVL ($\bar{X}$ = 71.6) and contained 3-9 eggs ($\bar{X}$ = 5.4). There was a significant positive correlation between female size and clutch size (r = 0.98**).

My observations plus Copland's indicate that reddish-orange throat colour occurs in most individuals regardless of sex or state of maturity but that the colour is probably most extensive and intense in mature males. The species is commonly known as the "Red-throated Skink".

Leiolopisma trilineatum

I collected 40 specimens of this southwestern Australian species (Fig. 9 in Greer 1980) from seven localities in the period 19-28 October 1976. All specimens were found on the ground, generally under cover. Rubbish tips sited on sandy soils in heathland or sclerophyll shrubland were especially productive.

The animals in my collection were readily separable into two geographic groups on the basis of size: one from around Esperance (two localities) which comprised generally larger animals and the other from the Albany–Augusta area (five localities) which comprised generally smaller animals (Table 5). All but one of the 12 females judged to be mature were gravid. The exception, the largest specimen in the collection (SVL = 72 mm), had enlarged oviducts that appeared to be in preovulatory condition but small ovaries that contained only small, unyolked follicles.

TABLE 5. Data on state of sexual maturity and body size in 40 specimens of *Leiolopisma trilineatum* from two different areas in southwestern Australia collected in the period 19-28 October 1976. Sample sizes are given in parentheses.

Maturity	SVL (mm)	
	Vicinity of Esperance	Albany — Augusta area
Immature		
♂♂	49-52 (3)	37-42 (3)
♀♀	38 (1)	39-42 (3)
Transitional		
♂♂	51 (1)	—
♀♀	52-55 (3)	43 (1)
Mature		
♂♂	51-66 (6)	44-62 (7)
♀♀	60-72 (5)	54-65 (7)

The collections of the Australian Museum and the Western Australian Museum were examined for gravid females. Five were found with enlarged ovarian eggs. These females were collected in the period 19-24 October (N = 4) and 5 February (N = 1) in different years. An additional thirteen females were found with shelled oviducal eggs indicating that the species is oviparous. These females were collected in the period 19 October–9 February in different years. The 18 gravid females ranged from 51 to 66 mm SVL ($\bar{X}$ = 59.6) and contained 3-6 eggs ($\bar{X}$ = 4.5). There was a significant positive correlation between female size and clutch size (r = 0.58*).

The only ventral colouration I have noted in this species is a pink to deep salmon reddish wash on the chin and throat (Fig. 4 in Greer 1980). The between-population variability of this colour suggests that it may be seasonally and/or geographically variable. In the vicinity of Esperance, for example, the earliest visited (19-21 October) and easternmost locality, none of the specimens (N = 19) showed any sign of throat colour. At Albany, however, a few days later (24 October) and further west, some but not all (N = 9) showed throat colour, and at Augusta, a few days later again (27-28 October) and still further west, all the specimens (N = 9) had throat colour.

The *Spenceri* Species Group

Leiolopisma greeni

In describing this endemic Tasmanian species Rawlinson (1975) discussed many aspects of its natural history, and the following observations are made to complement and extend Rawlinson's account. I collected 51 specimens from two nearby localities on the northern edge of the Central Pleateau in 1975: the vicinity of Mickey's Creek, 2.2 km N of Breona by road (N = 1, 5 December, approx. 1180 m) and along Halfmoon Creek from its exit from Pine Lake to a point about 500 m downstream (N = 50, 13 December, approx. 1150m). All specimens seen were on the grey doleritic rocks that form the edge of the creeks and often cover them in bare "rock fields". Most of the animals were in the vicinity of the creeks but in the rock fields a few were 50-100 m away from where the creek would be heard flowing under the rocks. When alarmed, most animals fled into crevices between the boulders, but a few jumped into the creek.

Along Halfmoon Creek the animals were relatively common and we often saw 3 to 6 individuals of various sizes in close proximity. We did not observe any aggressive intraspecific interactions, but we did note a young adult *L. greeni* give way to a larger *L. ocellatum,* the only specimen of this species that we saw at this locality.

Most of the specimens we saw were sedentary, generally basking, but on occasion they would dash out to chase a passing insect. We observed one young adult, however, foraging downstream along the edge of Halfmoon Creek for 25 m or so, occasionally entering the water to get from one rock to another.

I took the body and associated air temperatures (1 cm above the lizard's location) with a Schultheis Thermometer of 16 relatively large and undisturbed basking individuals along Halfmoon Creek in the period 13:30-17:30 hrs. At the beginning of this period there were only a few clouds but these increased gradually and by the end of the period it was nearly completely overcast. A few animals were still to be seen out on the warm, west facing rock surfaces at the end of the time, however. The body temperatures of the animals ranged from 24.3–32.3°C ($\bar{X}$ = 27.4, SD = 2.50) and air temperatures ranged from 15.1–22.4°C ($\bar{X}$ = 18.3, SD = 2.27). The greatest difference between body and air temperature was 14.0°C. Rawlinson (1975) reported a mean preferred temperature for the species of 28.9°C.

Rawlinson (1975) noted that the species is live-bearing with a litter size of 3 (N = 3) and birth in early March. In my collection immature males ranged from 30 to 53 mm SVL ($\bar{X}$ = 39.5, SD = 7.39, N = 14) and immature females 39 to 55 ($\bar{X}$ = 46.3, SD = 6.06, N = 6); mature males ranged from 55 to 67 mm ($\bar{X}$ = 62.5, SD = 3.70, N = 15) and mature females 54 to 72 mm($\bar{X}$ = 63.1, SD = 4.88, N = 15). Half (N = 8) the mature females were gravid. All had early term oviducal young and those with countable litters ranged in size from 62 to 68 mm SVL ($\bar{X}$ = 64.7, N = 4) and had 2-3 ($\bar{X}$ = 2.3, N = 4) young. The remaining mature females (N = 8), which did not differ from the gravid females in size (SVL = 60-72 mm, $\bar{X}$ = 63.6, SD = 4.87 vs 54-70 mm, $\bar{X}$ = 63.0, SD = 4.99), had neither corpora lutea nor developing follicles. However, these females did have large collapsed oviducts and were probably the mothers of what appeared to be the youngest age class (SVLs = 30-33 mm, $\bar{X}$ = 31.4, SD = 1.52, N = 5). These observations suggest that the females may reproduce biennially. Biennial reproduction would not be surprising in *L. greeni* as it is the "only species of reptile in Australia which is restricted to alpine areas" (Rawlinson 1975), and biennial

reproduction is well known in other reptiles inhabiting areas with short, cool growing seasons (Fitch 1970).

None of my specimens showed any trace of ventral colour, but a greenish or coppery irridescence in the dorsal colour was evident in certain light.

Leiolopisma ocellatum

I collected 32 specimens of this endemic Tasmanian species from nine localities in the period 4-15 December 1975. All specimens were collected in open habitats with low rocky outcrops and most were found on rocks.

The species is viviparous (Weekes 1930) with a reported litter size of 4 (N = 2; Rawlinson 1975). The size classes of the three categories of sexual maturity in my collection are given in Table 6. All females judged to be mature (N = 13) were gravid with early stage young. The nine females with countable litters plus two gravid females in the collections in the Australian Museum (both collected 14 January 1978) ranged in size from 58 to 71 mm ($\overline{X}$ = 64.4) SVL and had litters of 2-4 ($\overline{X}$ = 2.6). There was a significant positive correlation between female size and litter size (R = 0.83**).

None of the living specimens I have seen had any trace of ventral colour.

Leiolopisma pretiosum

I collected 54 specimens of this endemic Tasmanian species at four widely scattered localities in the period 7-15 December 1975: 8.7 km S of Buckland (9 December; approx. 320 m; N = 3); 26.8 km S of Wilmot Post Office (15 December; approx. 780 m; N = 11); 17.4 km N of Breona (4 December; approx. 990 m; N = 18), and the summit of Mt. Wellington (7-8 December; 1270 m; N = 32).

The Mt. Wellington locality is the highest and most southern of the four and the animals from there differ from those at the other three localities in several interesting ways. First, the Mt. Wellington animals attain a larger body size than the others (see all four measures of body size assessed in Table 7). They do not show, however, a significant concomitant increase in litter size ($\overline{X}$ = 2.40, SD = 1.01, N = 9 vs $\overline{X}$ = 2.00, SD = 0.50, N = 9; t = 1.06; NS). Second, the Mt. Wellington animals have more numerous and smaller body scales than the others. The regression line for mid-dorsal scale size vs snout-vent length has a slope of 0.036 and an intercept of -0.007 for the Mt. Wellington animals (F = 103.37***) and a slope of 0.052 and an intercept of -0.294 for the other animals (F = 92.04***). The slopes of these two lines are significantly different (F = 7.07***). Lizards from cooler climates generally have smaller body scales than their relatives from warmer climates (Regal 1975), and this relationship seems to apply in these populations. Third, none of the Mt. Wellington animals showed any colour hues, whereas many but not all of the sexually mature animals from the other localities had a pink wash on the venter over the posterior part of the body and the base of the tail.

I took cloacal temperatures on most of the Mt. Wellington animals, and these are of interest due to the relatively cool ambient temperatures to which the lizards were exposed. The summit of Mt Wellington is an open habitat consisting of low open heath and rock outcrops. At the time the specimens were collected and their temperatures recorded (8 December; 14:00-16:00 hrs) the weather was mostly clear but very windy and cool and the animals observed were basking — primarily on the base of the rocks. I took the body temperatures (with a Schultheis Thermometer) of 30

TABLE 6. Data on state of sexual maturity and body size in 32 specimens of *Leiolopisma ocellatum* collected in Tasmania in the period 4-15 December 1975. Sample sizes are given in parentheses.

Maturity	SVL (mm)
Immature	
♂♂	34-37 (3)
♀♀	38 (2)
Transitional	
♂♂	50-54 (2)
♀♀	49-56 (3)
Mature	
♂♂	54-74 (9)
♀♀	58-71 (13)

TABLE 7. Data on body size (SVL in mm), state of maturity, litter size and number of scale rows at midbody in four samples of *Leiolopisma pretiosum* from four localities. Sample sizes are given in parentheses.

Character	8.7 km S of Buckland (320 m)	26.8 km S of Wilmot (780 m)	17.4 km N of Breona (990 m)	Summit of Mt. Wellington (1270 m)
Size of unsexed specimens	—	—	—	24 (1)
Size of immature specimens				
♂♂	—	31 (1)	34-35 (3)	44-49 (2)
♀♀	—	—	32 (1)	42-49 (5)
Size of mature specimens				
♂♂	48-49 (2)	44-50 (5)	44-51 (9)	55-62 (13)
♀♀	44 (1)	45-50 (5)	46-50 (6)	51-63 (10)[1]
Size of gravid females				
Range	44 (1)	45-50	46-50	51-63
Mean	—	48.0 (5)	47.4 (5)	57.1 (9)
Litter size				
Range	?	2-3	1-2	2-4
Mean	?	2.2 (5)	1.8 (4)	2.4 (9)
Number of longitudinal scale rows at midbody				
Range	32-34	32-36	33-36	36-42
Mean	32.7 (3)	33.9 (11)	34.5 (18)	39.1 (32)
SD	—	1.22	1.02	1.58

1. Does not include one badly mangled gravid female.

individuals which were both relatively large and undisturbed. I also took the air temperatures 1 cm above the basking site (always a rock) for each lizard. Body temperatures ranged from 22.6–31.8°C ($\bar{X}$ = 27.3, SD = 2.06) and air temperatures 13.2–19.9°C ($\bar{X}$ = 17.6, SD = 1.59). The greatest difference between a body temperature and the air temperature was 18.6°C. Rawlinson (1974) states that the voluntary minimum activity temperature for the species is 21.5°C, the voluntary maximum activity temperature 37.2°C and the mean 29.1°C.

L. pretiosum is a live-bearing skink (Lucas and Frost 1894 and Weekes 1930) with a reported litter size of 2-4 ($\bar{X}$ = 2.9, N = 8; Rawlinson 1974a). The young are stated to be born in February (Rawlinson 1974a). In my collection all but one of the females judged to be mature (N = 22) were gravid. The exception was a specimen of 49 mm SVL from 17.4 km N of Breona. This animal had well-developed oviducts but only unyolked follicles and no corpora lutea. In the 19 gravid females with countable ovarian eggs or oviducal young that I have examined (14 specimens collected personally plus two already in the collections in the Australian Museum), there was a significant (r = 0.51*) positive correlation between female SVL ($\bar{X}$ = 52.2, range = 45-63 mm) and brood size ($\bar{X}$ = 2.2, range = 1-4).

Leiolopisma spenceri

As Rawlinson (1974b) has given detailed natural history notes for this southeast Australian endemic, I will make only a few supplementary observations based largely on preserved specimens.

Rawlinson (1974b) reports that the species is ". . . restricted to dead trees or rocky outcrops in montane wet sclerophyll forests and rocky outcrops in subalpine woodlands. The exposed surfaces of the trees or rocks are used for basking and foraging sites during activity, while crevices are used for shelters when inactive". My own much more limited experience supports these observations.

Rawlinson (1974b) reported litter sizes of 1-3 ($\bar{X}$ = 1.9, N = 29). I surveyed all the specimens in the Australian Museum and the Museum of Comparative Zoology for gravid females and found 13, all with developing young in the oviducts. The available dates of collection (N = 11) were between 30 November and 8 March in various years. The 13 females ranged in size from 52 to 63 mm SVL ($\bar{X}$ = 57.2) and carried 1-4 young ($\bar{X}$ = 2.5). There was a significant positive correlation between female size and litter size (r = 0.70**).

I have examined closely only 11 live specimens, but none had any ventral colour. Rawlinson (1974b) also makes no mention of ventral colour.

SPECIES GROUPS IN MAINLAND AUSTRALIA AND TASMANIAN *LEIOLOPISMA*

Rawlinson (1974b and 1975) has suggested that the Australian and New Zealand skinks now placed in the genus *Leiolopisma (sensu* Greer 1974) can be divided into two groups on the basis of the number of midbody scale rows: one group with 20-32 scale rows and the other with 38-66 scale rows. I believe Rawlinson's suggestion has merit at least for the mainland Australian and Tasmanian species and below I offer some additional characters for the two groups in this area.

The group with a low number of midbody scale rows, or to put the character in a more biologically meaningful way, the group with relatively large scales covering the body, shows the following suite of characters: 24-32 longitudinal scale rows at

TABLE 8. Comparison of certain morphometric and reproductive parameters in the two species groups in mainland Australian and Tasmanian *Leiolopisma*. Sample sizes are given in parenthesis.

	Midbody scale rows	Prefrontals meet (expressed as a frequency)	Hind limb length/snout-vent length	Tail length/ snout-vent length	Mode of reproduction	SVL of gravid ♀♀ (mm)	Brood size
baudini species group							
baudini	26 (1)	1.00 (1)	0.33 (1)	?	?	—	—
coventryi	25-29 (133)	0.00 (48)	0.31-0.39 (72)	1.10-1.51 (33)	viviparous	37-54 (41) $\bar{X}$ = 42.5	1-4 (41) $\bar{X}$ = 2.5
entrecasteauxii	25-33 (47)	0.11 (114)	0.29-0.42 (47)	1.23-1.65 (54)	viviparous	45-65 (45) $\bar{X}$ = 54.2	1-7 (45) $\bar{X}$ = 4.4
duperreyi	26-30 (30)	0.02 (46)	0.27-0.33 (39)	1.16-1.75 (10)	oviparous	54-71 (12) $\bar{X}$ = 60.1	3-7 (12) $\bar{X}$ = 4.8
metallicum	24-28 (24)	0.00 (141)	0.25-0.38 (22)	1.25-1.73 (12)	viviparous	42-66 (75) $\bar{X}$ = 53.4	2-8 (75) $\bar{X}$ = 3.9
platynotum	24-32 (30)	0.06 (31)	0.27-0.42 (41)	1.32-1.85 (18)	oviparous	65-80 (5) $\bar{X}$ = 71.6	3-9 (5) $\bar{X}$ = 5.4
trilineatum	26-30 (32)	0.11 (18)	0.28-0.36 (18)	1.57-1.76 (5)	oviparous	51-66 (18) $\bar{X}$ = 59.6	3-6 (18) $\bar{X}$ = 4.5
spenceri species group							
greeni	40-44 (16)	0.06 (51)	0.37-0.47 (25)	1.24-1.41 (17)	viviparous	62-68 (4) $\bar{X}$ = 64.8	2-3 (4) $\bar{X}$ = 2.3
ocellatum	45-58 (*)	0.09 (32)	0.33-0.43 (22)	1.26-1.38 (8)	viviparous	58-71 (11) $\bar{X}$ = 64.4	2-4 (11) $\bar{X}$ = 2.6
palfreymani	38-40 (4)	0.00 (3)	?	?	?	—	—
pretiosum	32-42 (64)	0.25 (32)	0.37-0.43 (17)	1.14-1.58 (9)	viviparous	45-63 (19) $\bar{X}$ = 52.5	1-4 (19) $\bar{X}$ = 2.2
spenceri	37-48 (98)	0.16 (67)	0.37-0.44 (21)	1.26-1.45 (28)	viviparous	52-63 (13) $\bar{X}$ = 57.2	1-4 (13) $\bar{X}$ = 2.5

* Data from Rawlinson 1975; sample size not given.

midbody; colour hues generally present in at least one sex during at least some time of year (but lacking in *L. coventryi*); relatively short limbs; largely ground-dwelling habits; a relatively large brood size (Table 8 and Fig. 7), and a significant positive interspecific correlation between mean snout-vent length of gravid females and mean brood size (r = 0.96**). This group, for which I suggest the name "*L. baudini* group" after its most primitive member (see above), comprises the following species: *baudini, coventryi, entrecasteauxii, duperreyi, metallicum, platynotum* and *trilineatum*.

The group with relatively small scales shows the following characters: 32-58 scale rows at midbody; colour hues generally lacking (but present in some *L. pretiosum*); relatively long limbs; largely saxicolous or arboreal habits; a relatively small brood size (Table 8 and Fig. 7), and no significant interspecific correlation between mean snout-vent length of gravid females and mean brood size (r = 0.50, NS). This group, the "*L. spenceri* group" after its most primitive representative (Greer 1974 and 1980), comprises: *greeni, ocellatum, palfreymani, pretiosum* and *spenceri*. The two groups also appear to differ somewhat in ecology, if general distribution is any indication. For

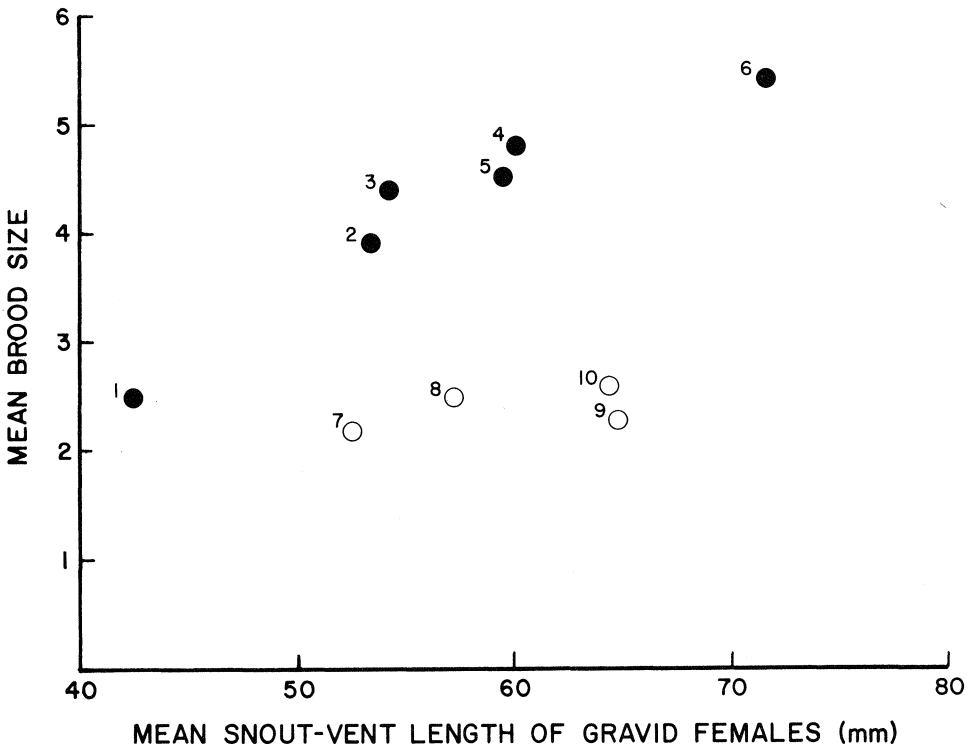

Fig. 7. Relationship between mean size (SVL) of gravid females and mean brood size for the mainland Australian and Tasmanian species of *Leiolopisma*. Black dots represent species in the *L. baudini* group (1 — *coventryi*, 2 — *metallicum*, 3 — *entrecasteauxii*, 4 — *duperreyi*, 5 — *trilineatum* and 6 — *platynotum*) and open circles represent species in the *L. spenceri* group (7 — *pretiosum*, 8 — *spenceri*, 9 — *greeni* and 10 — *ocellatum*).

example, the *L. baudini* group extends into warmer and drier habitats than the *L. spenceri* group.

Rawlinson (1974b) thought that the dichotomy in the Australian *Leiolopisma* species could be extended to the New Zealand species, but the scale counts in Hardy (1977) do not bear this out. Further comparisons between the Australian and New Zealand species would be interesting, but they are prohibited at present by a general lack of information on some of the relevant morphometric and ecological parameters in the New Zealand species, e.g. habitat, limb length, brood size relative to female size and ventral coloration.

A KEY TO THE SPECIES OF *LEIOLOPISMA* IN MAINLAND AUSTRALIA AND TASMANIA

1. Supranasals present 2

   Supranasal absent 4

2. Frontoparietals distinct 3

   Frontoparietals fused ..... *palfreymani*

3. Midbody scale rows 26 ..... *baudini*

   Midbody scale rows 37-38 ..... *spenceri*

4. Frontoparietals paired 5

   Frontoparietals fused 6

5. Size large (maximum SVL = 65 mm); supraciliaries usually 5; dorsal scales often weakly striate; colour pattern usually featuring longitudinal light stripes, albeit diffusely in some populations ..... *entrecasteauxii*

   Size small (maximum SVL = 57 mm);supraciliaries usually 6; dorsal scales smooth; colour pattern without longitudinal light stripes ..... *coventryi*

6. Midbody scale rows 24-32; if scale rows 32, supraciliaries usually 5 7

   Midbody scale rows 32-58; if scale rows 32, supraciliaries usually 6 or 7 10

7. Supraciliaries usually 6 or more; ventral colour if present a metallic rose on body; viviparous ..... *metallicum*

   Supraciliaries usually 5; ventral colour if present a salmon pink to red on throat; oviparous 8

8. Size larger, up to 80 mm SVL; dorsum uniform in colour without pattern; sides with a distinct dark brown band; no longitudinal light stripes ... *platynotum*

   Size smaller, not exceeding 72 mm SVL; dorsum often with narrow dark longitudinal stripes; sides with a more diffuse brown band; longitudinal stripes usually evident albeit faintly 9

9. Longitudinal light stripes usually diffuse; paravertebrals in males 54-59, in females 56-61; southwestern Australia ..... *trilineatum*

   Longitudinal light stripes usually distinct; paravertebrals in males 57-62, in females 62-66; southeastern Australia ..... *duperreyi*

10. Colour pattern of sides no different from dorsum — uniform dark brown to almost black with uniform, pale yellow flecking ..... *greeni*

    Colour pattern of sides different from dorsum — sides darker brown 11

11. Midbody scale rows 32-42 ..... *pretiosum*

    Midbody scale rows 45-58 ..... *ocellatum*

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ADDENDUM

During the inordinately long period this paper was in press (30 months), *Leiolopisma zia* was described by Ingram and Ehmann (1981). This species is from the closed forests of southeastern Queensland and northeastern New South Wales and is a member of the *baudini* species group. It would key to *L. coventryi* in the key above but can be distinguished from this species on the basis of fewer subdigital lamellae (14–17 vs 19–23) and bright yellow colour from chest to vent (vs light grey).

Reference

Ingram, G. and H. Ehmann, 1981. A new species of scincid lizard of the genus *Leiolopisma* (Scincidae: Lygosominae) from southeastern Queensland and northeastern New South Wales. *Mem. Qld. Mus.* 20: 307–310.