

## The taxonomic status of *Lerista aericeps* Storr 1986 with a diagnosis of the *Lerista orientalis* species group.

Allen E. Greer\*

### Abstract

*Lerista aericeps aericeps* Storr, 1986 is shown to be a junior synonym of *Lerista xanthura* Storr, 1976. *L. a. taeniata* Storr, 1986 is a distinct species. The *L. orientalis* species group, of which these species are members, is diagnosed and a key to the species of the group is presented.

### Introduction

*Lerista aericeps* was recently described as a new species with two subspecies: *L. a. aericeps* from the southeastern Northern Territory and southwestern Queensland and *L. a. taeniata* from the central western Northern Territory (Storr 1986). This taxonomic arrangement created a unique situation in *Lerista*: two distinctly patterned forms in one species — a plain form (*aericeps*) and a strongly laterally striped form (*taeniata*). Upon examining this situation, a different taxonomic arrangement became evident which appears to resolve the colour pattern anomaly. This new taxonomic arrangement is presented here in the slightly larger context of the *Lerista orientalis* species group to which these species appear to belong.

### The *Lerista orientalis* Species Group

The *Lerista orientalis* species group consists of four species and may be diagnosed *vis-a-vis* all other *Lerista* (Greer 1986) on the basis of the following derived characters: supraoculars three; pretemporals fused; supraciliaries five, third and fourth interdigitating with supraoculars; spectacle present; size small (maximum SVL = 53mm); supralabials six; phalangeal formula 0.2.3.4.2/0.2.3.5.3. (or less), and presacral vertebrae  $\geq 35$ . The species included are *L. muelleri*, *L. orientalis*, *L. taeniata* and *L. xanthura*. The group as a whole ranges widely throughout the central and eastern parts of arid, semi-arid and seasonably dry Australia.

Certain members of the *Lerista orientalis* species group, viz. *L. muelleri* and *L. xanthura*, have been placed into a *L. elegans* species group along with *L. christinae*, *L. distinguenda*, *L. elegans*, *L. haroldi*, *L. frosti*, *L. microtis*, *L. separanda* and *L. terdigitata* (Storr 1983; Storr *et al.* 1981). Unfortunately none of the characters used to recognise this group were cast in terms of primitive/derived characters and none appear to be derived, except perhaps for "foreleg about half as long as hindleg". However, several of these species, along with *Lerista lineata* (placed in its own group by Storr *et al.* 1981) and *L. stictopleura* (unable to be allotted to a species group by Storr 1985), can be

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\*The Australian Museum, 6-8 College Street, Sydney, N.S.W. 2000

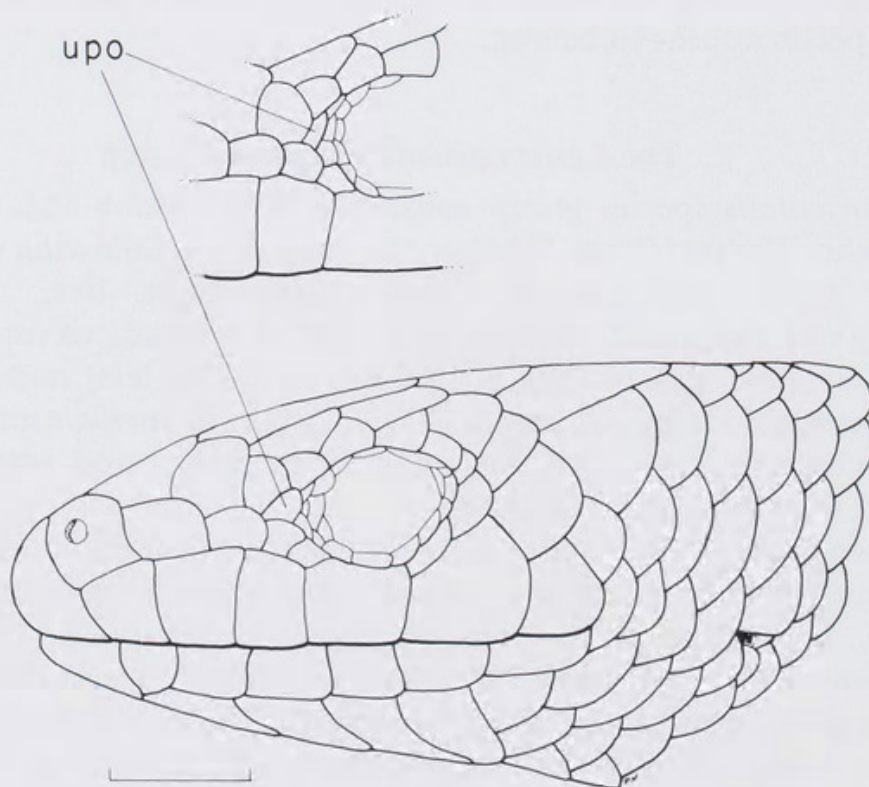


diagnosed as a lineage on the basis of the following derived characters: supraoculars three; pretemporals fused; supraciliaries four, i.e. first two supraciliaries fused; spectacle present; size small (maximum SVL = 58mm); supralabials six; phalangeal formula 0.2.4.5.3/0.2.4.5.4.(or less), and presacral vertebrae  $\geq 31$ . The species included in this version of the *L. elegans* group are *L. christinae*, *L. distinguenda*, *L. elegans*, *L. haroldi*, *L. lineata*, *L. separanda* and *L. stictopleura*. The group occurs primarily along the far west coast.

Although the *L. orientalis* and *L. elegans* groups share a large number of derived characters they can be distinguished as lineages by the former having a more reduced phalaneg formula, i.e. 0.2.3.4.2/0.2.3.5.3 and the latter having the first two supraciliaries fused. The two groups are also centered over different areas, the *L. orientalis* group over the central and eastern parts of Australia and the *L. elegans* group over the far west. Both groups are distinct in having a spectacle, a feature shared only with a few species in the *Lerista bipes* and *L. nichollsi* groups (for the distinguishing characters of which see Greer 1986).

### The Status of *Lerista aericeps*

*Lerista aericeps aericeps* appears to be conspecific with *L. xanthura*. It was diagnosed against this latter species "by its coppery head, faintly spotted back and tail, and single



**Figure 1:** The preocular region in two specimens from the same population of *Lerista xanthura* showing variation in the relative size of the upper preocular scale (upo). Top — AM R 113224 and bottom — R 113223 both from 25 km N of Poeppel Corner, Qld. In some populations the upper preocular is even more reduced than shown here. The scale is 1 mm.



**Figure 2:** Map of Australia showing the distribution of the members of the *Lerista orientalis* species group with four digits on each limb: *L. taeniata* (open circles), *L. xanthura* (closed circles), and *L. orientalis* (stars). A single symbol may cover more than one locality. The half-closed circle indicates a locality of sympatry between *L. taeniata* and *L. xanthura*.

preocular (rather than two)." However, the head colour difference is not evident to me in preserved specimens, and the spotting in the back and tail is variable with very pale and only slightly spotted (along the flanks and tail) specimens possibly being associated with relatively open habitats (e.g. AM R 26388, 26553-54 and 113222 — see Specimens Examined section), although admittedly no specimen examined other than the type of *L. xanthura* was completely patternless. The preocular configuration is also variable, ranging from two, more or less equally well-developed, preoculars to a large lower and much reduced upper preocular (Figure 1); in fact, the holotype of *L. a. aericeps* (NTM



A/S R 1568) shows virtually the two extremes on the two sides of the head. None of this colour or squamation variation is incompatible with an interpretation of there being only one species, and the name for this one species should be, by priority, *Lerista xanthura*.

Two geographically separable populations appear to be recognizable within *Lerista xanthura* on the basis of the degree of contact between the nasals. One has the nasals in contact or only narrowly separated and occurs in central eastern Western Australia, southern Northern Territory, southwestern Queensland, northeastern South Australia and northwestern New South Wales. The types of *L. xanthura* and *L. aericeps aericeps* are both members of this population, the former having the nasals in broad contact, the latter having them barely separate. The second population usually has the nasals well separated or rarely in narrow contact and occurs in southwestern New South Wales and southeastern South Australia (Figure 2).

In contrast to *Lerista a. aericeps*, *L. a. taeniata* appears to be a distinct species, recognisable by the characters given in the key and in Table 1. Examination of South Australian Museum material reveals two new locality records for *L. taeniata*: 3 km S of New Mulgaria H.S. (SAM R 19060) and 5.5 km S of Immarna Siding (SAM R 32057). The former locality also establishes *L. taeniata* as occurring sympatrically with *L. xanthura* (SAM R 19074). The widely disjunct distribution of *L. taeniata* (Figure 1) is intriguing; however, more information is needed on the distribution and microhabitat of *L. taeniata* and its congeners before the reasons for the disjunction become evident. In the meantime additional specimens should be sought in the southwest Northern Territory and northwest South Australia.

### Key to the species of the *Lerista orientalis* species group

1. Digits 4/4; premaxillary teeth 5-6 ..... 2  
    Digits 3/3; premaxillary teeth 7 ..... *muelleri*
2. Sides usually with a distinct dark lateral stripe, but if  
    lateral stripe indistinct, overall colour silver to grey;  
    midbody scalerows usually 20 ..... 3  
    Sides virtually the same colour as back, overall colour  
    sandy to beige; midbody scale rows usually 18 ..... *xanthura*
3. Dark lateral stripe only vaguely or moderately distinct  
    from dark back colour; scales on dorsum of fourth finger  
    5-8 (only 4% with 8); hindlimb 17-24% of SVL ..... *orientalis*  
    Dark lateral stripe strongly distinct from light back  
    colour; scales on dorsum of fourth finger 7-8 (only 8% with  
    7); hindlimb 27-34% of SVL ..... *taeniata*

### Specimens examined

There are some apparent errors in the localities for several of the NTM specimens used in the original description of *Lerista aericeps* and its subspecies (Storr 1986). The localities used here are those used in the NTM register and hence presumably correct.



**Table 1** Distinguishing characters between *Lerista taeniata* and *L. xanthura*.

| Character                         | <i>L. taeniata</i>                         | <i>L. xanthura</i>  | t or $\chi^2$                                     |
|-----------------------------------|--|---|---|
| Colour of flanks                  | Distinct dark stripe along length of flank | Usually no stripe; occasionally a faint suggestion of a stripe anteriorly |   |
| Midbody scale rows                | 18-20, mode 20; mean 19.4, SD .96, N 13    | 18-19, mode 18; mean 18.4, SD .48, N 61                                   | t = 5.64***                                       |
| Scales on dorsum of fourth finger |  |   | $\chi^2 = 17.41$ ***<br>(based on combined cells) |
| 5                                 | 0  | 2   |   |
| 6                                 | 0  | 39  |   |
| 7                                 | 2  | 24  |   |
| 8                                 | 12   | 2   |   |
| Presacral vertebrae               | 34-37, mean 35.4, SD 1.00, N 12            | 36-41, mean 38.6, SD .87, N 68  | t = 11.48***                                      |
| Subdigital lamellae (4th toe)     | 15-20, mean 16.9, SD 1.35, N 14            | 14-18, mean 15.4, SD 1.00, N 59   | t = 4.72***                                       |

*Lerista taeniata*

Northern Territory Museum (NTM) (all localities are in the Northern Territory): A/S R 1043: Tanami Desert (20°15'S, 131°45'E); A/S R 1565-67, 1569-72: Tanami Desert (20°34'S, 130°38'E); A/S R 1314: Sangsters Bore (20°53'S, 130°24'E); A/S R 1574-1576: 20 km E of the Granites (20°34'S, 130°38'E). A/S R 1566 is the holotype of *L. aericeps taeniata*, all other specimens except R 1565 are paratypes.

South Australian Museum R 19060: 3 km SW of New Mulgaria H.S.; R 32057: 5.5 km S of Immarna Siding.

*Lerista xanthura*

Australian Museum (AM) R 26388: near Lake Hopkins on W.A./N.T. border; AM R 26536: Near Old Andado Sta., N.T.; R 26553-54: Near Andado Sta., N.T.; R 32606: Kinchega Nat'l. Pk., N.S.W.; R 49547: Mt. Doreen, N.T.; R 52048: Barrow Creek, N.T.; R 61386: Fort Grey, N.S.W.; R 68366-70: 64.5 km E of Menindee on Ivanhoe road, N.S.W.; R 68371-80: 12.5 mi E of Menindee; R 68381: same data as R 68366-70; R 73739-40: Kinchega Nat'l. Pk. near Menindee, N.S.W.; R 87671: same data as R 32606; R 93700: 10 km N of Sandringham homestead, Qld; R 95770: Barrow Creek, N.T.; R 105992: Bineah Downs, N.S.W.; R 113223-25, 114143: 25 km N of Poeppel Corner, Qld; R 113222: 20 km N of Ethabuka Stn. headquarters, NW of Bedourie, Qld.

Northern Territory Museum (NTM) (all localities are in the N.T.): R 6445: Frewena; R 11004: Barrow Creek; A/S R 50: 16 km N of Alice Springs; A/S R 379: Andado Sta.; A/S R 1140: Kurundi Station (20°37'S, 134°50'E); A/S R 1568: 25 km S of Alice Springs (23°57'S, 133°56'E); A/S R 1573: 1 km N of Ewaninga (23°58'S, 133°55'E). Based on its locality A/S R 1568 is the holotype of *L. aericeps aericeps* not R 1565 as stated in the original description (fide P. Horner, *in litt*; R 1565 is a *L. taeniata*); all A/S specimens are paratypes of *L. a. aericeps*.



Queensland Museum (QM) (all localities in Queensland): J 26502: Cuddapan aerodrome; J 34137: Cluny; J 39572: Durrie Station via Birdsville; J 44235: 25 km N of Poeppel Corner; first three specimens are paratypes of *L. a. aericeps*.

South Australian Museum (SAM) (all localities are in South Australia unless indicated otherwise) R 3376A-B: Tennant Creek, N.T.; R 3377: Baratta Stn via Yunta; R 3378: Barrow Creek, N.T.; R 5122: Tibooburra, N.S.W.; R 11954: Old Moolawatana H.S.; R 12426A-B: Frome Downs H.S.; R 14884: Glenmanyie Bore; R 15041: Bungunnia Sta. (10 km W, 18 km N Morgan); R 15952: Farina; 16819A-G: within 3 km of Strathearn H.S.; R 17282: Wastells Dam, Billa Kalina; R 17333-35: Strathearn H.S.; R 18049: Wilpoorina Stn; R 19074: 3 km SW of New Mulgaria H.S.; R 19075: 15 km E of Frome Downs H.S.; R 20941, 20962-63: Olympic Dam area, Roxby Downs; R 24549: Cooper Creek area; R 24904: Gammon Rgs Nat. Park; R 28145: W of Marree; R 29943: 24 km along Mulga Park road, SSE Curtin Springs H.S.; R 31012-13: 7 km S of Prescott Point, Lake Eyre; R 32057: 5.5 km S of Immarna siding; R 32452, 32454: Coongie Lake.

Western Australian Museum (WAM): R 40174: 7 km SW of the Pollock Hills, W.A.; specimen is holotype of *L. xanthura*.

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