REVISIONARY NOTES ON THE *SPHENOMORPHUS ISOLEPIS* COMPLEX (LACERTILIA, SCINCIDAE)

by

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With one text-figure

Taxa that have only just attained specific distinction from each other can be of great interest to students of evolution, though their classification may pose serious problems for taxonomists. For example, the sparrows *Passer domesticus* and *P. hispaniolensis* behave as good species in most parts of their shared range but hybridize in other parts. The gulls of the *Larus argentatus* complex form a ring of annectant races around the Holarctic, but their overlapping terminal segments behave as good species in western Europe.

Each of these phenomena (described by Mayr, 1963) is paralleled in Australian skinks of the genus *Sphenomorphus*, the first in the *richardsonii* complex and the second in the *isolepis* complex. Previous analyses of these complexes (Storr, 1967) were hampered by shortage of material from critical areas, but recent collections permit a reappraisal of the *isolepis* complex.

It was suggested earlier that if *S. i. isolepis* and *S. i. douglasi* should prove to be sympatric in north Kimberley, *douglasi* would have to be considered a full species, and its eastern and western segments could be racially separated. Subsequent collections of both forms by Mr W. H. Butler at Kalumburu have confirmed their sympatry in north Kimberley. However, I am now reluctant to raise *douglasi* to a full species.

As discussed below, the eastern (and typical) segment of *douglasi* is connected to typical *isolepis* by a chain of intermediate, sometimes intergrading, populations. To break this chain seems more artificial than to separate the two segments of "*douglasi*". I therefore 1) restrict *douglasi* to the eastern segment (Darwin region) and tentatively retain it as a race of *S. isolepis*, and 2) describe the western segment as a new species below.

Sphenomorphus brongersmai spec. nov.

Holotype. — R 34707 in Western Australian Museum, an adult collected by W. H. Butler on 8 December 1965 at Kalumburu, Western Australia, in 14°18'S, 126°38'E.

Diagnosis. — Closely related to *S. isolepis* but differing from all forms of that species by its much greater size and the absence or scarcity of dark

dorsal spots. Further distinguishable from *S. i. isolepis* by its darker colouring (including a black dorsolateral streak on forebody) and 6 (rather than 7) upper labials; and from *S. i. douglasi* by slight differences in lateral coloration (ground colour paler, no white flecking, dark labial bars narrower and not extending to lower jaw, and dark dorsolateral streak broader and more sharply defined from lateral spotting).

Description. — Nasals and prefrontals separated, usually widely. Frontal about as long as combined length of frontoparietals and interparietal. Nuchals 0 or 1 on each side. Supraoculars 4, first 2 (very rarely 3) in contact with frontal. Supraciliaries 7 or 8 (rarely 9). Upper labials invariably 6, first 3 anterior to orbit, last larger than primary temporal and occasionally equal to upper secondary. Temporals 3, primary smallest, lower secondary largest (rarely coequal largest with upper secondary). Midbody scale rows 26-31 (mean 28.1). Tail 130-171 (mean 149) % of snout-vent length.

Upper surface pale to moderately dark reddish brown, usually without pattern but occasionally specimens have 4-6 longitudinal series of blackish dashes through middle of dorsal scales. Irregular black dorsolateral streak from lores back through orbit to a little behind level of foreleg, narrow and tending to be broken before level of ear, much broader and dotted with white behind level of ear. Remainder of side of body pale brown thickly dotted with black or dark brown, upper extent of spots sharply defined from dorsal surface and aligned with upper edge of dorsolateral streak; similar but sparser markings on side of tail. Sutures between upper labials blackish brown. Lower labials and under surface whitish, except for grey under digits.

Distribution. — North Kimberley, Western Australia.

Paratypes. — Pago (WAM 1567); Kalumburu (WAM 13620-5, 13628-9, 27872-82).

Discussion

From topotypical *Sphenomorphus isolepis* of the North-West Division a chain of forms leads to *S. brongersmai* of north Kimberley. The principal links in this chain (populations or groups of populations) are briefly discussed.

1) *S. i. isolepis* of the North-West Division of Western Australia, including offshore islands from Legendre south-west to South Muiron. This form is characterized by small size (snout-vent length 34-68 mm, mean of 58 specimens 52.4), pale coloration, high number of midbody scale rows (28-32, mean 30.6), and relatively long limbs (foreleg averaging 22.6% of

snout-vent length, versus 21.0-21.5 in other forms; and hindleg averaging 32.7%, versus 31.0-31.9).

2) *S. i. isolepis* of Kimberley Division of Western Australia, including Cockatoo Island. This is as small as the previous form (snout-vent length 29-72, mean of 38 specimens 51.7). It differs mainly in its darker coloration and fewer midbody scale rows (25-30, mean 27.7).

3) *S. i. isolepis* of Northern Territory. This differs from the two previous forms mainly in its greater size (snout-vent length 40-86, mean of 32 specimens 64.6). Upper labials, as in previous forms, invariably 7.

4) *S. i. douglasi.* Similar to 3) in habitus and size (snout-vent length 42-88, mean of 56 specimens 68.2). Upper labials usually 6, occasionally 7. The black dorsolateral streak (incipient in *S. i. isolepis*) and white dotting of sides are usually well developed in *douglasi.*

5) *S. brongersmai.* In its great size (snout-vent length 42-98, mean of 20 specimens 80.9), constantly low number of labials, and marked differentiation between dorsal and lateral colour patterns, this form carries the trend away from typical *isolepis* a further and substantial stage.

Because links 2) and 5) overlap in north Kimberley, the chain must be broken to admit two (or more) species. In searching for places to break the chain, one can dismiss the differences between 1) and 2) as trivial and irrelevant (such a break being too far south to provide a solution).

A specific break between 2) and 3) would provide a solution, but the differences between the two forms are hardly those that characterize different species. It is possible that the poorly-worked Victoria River basin may eventually yield an intermediate population.

The differences between 3) and 4) are not so marked as I previously believed. Furthermore, specimens from the Adelaide River district, Oenpelli district and Milingimbi seem to be intergrades between the two forms, which I now regard as no more than weak subspecies.

The morphological gap between 4) and 5) is admittedly small compared with that separating most congeneric species of skinks, but is considerably larger than that between 2) and 3). Forms 4) and 5), i.e. *S. i. douglasi* and *S. brongersmai,* are widely separated geographically, the dry country round the head of Joseph Bonaparte Gulf at present constituting a barrier between two forms that are confined to relatively humid regions.

Additional material

The following specimens have been studied since my earlier paper. I am grateful to Mr B. L. Bolton, Miss J. M. Dixon, Dr F. H. Talbot, Miss J. Covacevich and Dr J. A. Peters for the loan of material respectively from

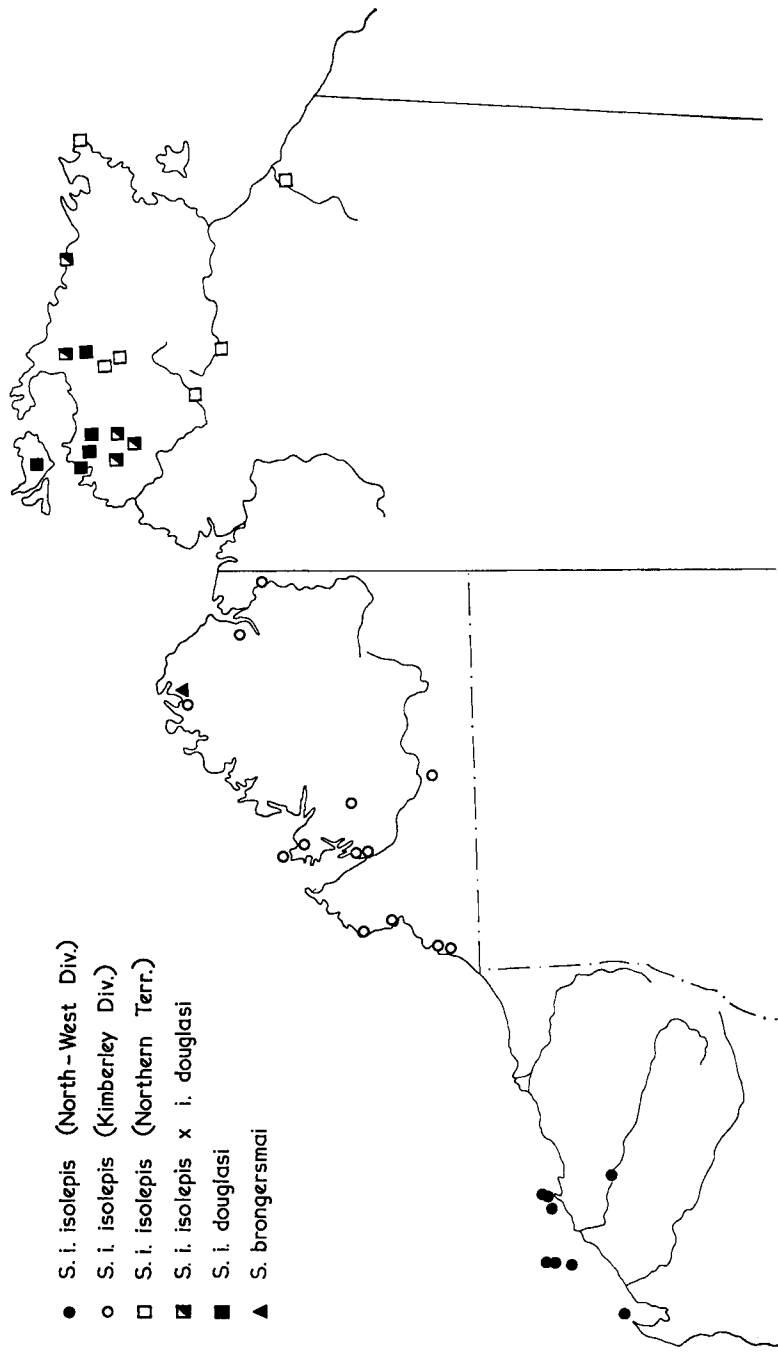

Fig. 1. Map of northern parts of Western Australia and the Northern Territory showing location of specimens of *Sphenomorphus isolepis* and *S. brongersmai*. Drawn by Margaret H. Shepherd.

the Northern Territory Administration (NTM), National Museum of Victoria (NMV), Australian Museum (AM), Queensland Museum (QM) and Smithsonian Institution (USNM).

S. i. isolepis. — Northern Territory: 12 mi. S of Yirrkala (USNM 128512); Muirella Park (NTM 5001-4, 5007); Mataranka (WAM 37107, 37110-1); Borroloola (NMV 5094, 5119-22, 5193). Kimberley Division, Western Australia: Kalumburu (WAM 27871, 34708-12); Napier Range (WAM 26804, 37011); 15 mi. S of Derby (WAM 32171); Point Coulomb (WAM 40270). North-West Division, Western Australia: Legendre Island (WAM 37323); Dolphin Island (WAM 37282-3); Angel Island (WAM 37256); Rosemary Island (WAM 37381-4); West Lewis Island (WAM 37335); Trimouille Island (WAM 37451-62); Hermite Island (WAM 37411-25); Barrow Island (WAM 40027); South Muiron Island (WAM 37238-41).

S. i. isolepis × *S. i. douglasi.* — Milingimbi (USNM 128506); 20 mi. NW of Oenpelli (NTM); Marrakai (NTM); Batchelor (WAM 37130); Howley (AM 12873).

S. i. douglasi. — Melville Island (NMV 5237); near Darwin (NMV 3382, 5158, 8214, 8499; QM 1792, 2243-4, 2621-2; NTM 4046-54, 4056; USNM 128250; WAM 32224); "Alligator River" (NMV 5207); "Northern Territory" (NMV 1219-21, 4540-1).

References

MAYR, E., 1963. Animal species and evolution. — Harvard University Press, Cambridge.

STORR, G. M., 1967. The genus Sphenomorphus (Lacertilia, Scincidae) in Western Australia and the Northern Territory. — Journ. roy. Soc. W. Aust., 50: 10-20.