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A new subspecies of *Jackyhosersaur* Hoser, 2013 from north-west Australia.

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ABSTRACT

As part of an ongoing audit of Australian reptiles, specimens of the endemic Western Australian dragon species, *Jackyhosersaur superba* (Storr, 1974), known to most herpetologists as "*Diporiphora superba* Storr, 1974" were inspected from all parts of the known range. A population from the Manning Creek Gorge area of the Kimberley in Western Australia were found to be morphologically divergent and so are formally described herein as a new subspecies.

Keywords: Lizards; taxonomy; nomenclature; Agamidae; Western Australia; *Diporiphora*; *Jackyhosersaur; superba*; *newsubspecies*; *jackyhoserae.*

INTRODUCTION

As stated in the abstract, as part of an ongoing audit of Australian reptiles, specimens of the endemic Western Australian dragon species, *Jackyhosersaur superba* (Storr, 1974) were inspected from all parts of the known range. A population from the Manning Creek Gorge area of the Kimberley in Western Australia were found to be morphologically divergent and so are formally described herein as a new subspecies.

The relevant species was originally described as "*Diporiphora superba* Storr, 1974" and was treated as being of the genus *Diporiphora* Gray, 1842 by most herpetologists until Hoser (2013) showed that the species was sufficiently different to be recognized as a new genus *Jackyhosersaur* Hoser, 2013.

Jackyhosersaur was differentiated both by significant morphological differences and molecular divergence.

Little has been published about "*Diporiphora superba* Storr, 1974" since its original description, save for accounts in field guides on reptiles (e.g. Hoser, 1989, Wilson and Knowles, 1988, Cogger, 2014 and Wilson and Swan 2017) and as a single sample in published molecular phylogenies.

Weigel (1989) published details of his keeping and breeding the taxon in his government-backed privately owned zoo in New South Wales, Australia.

MATERIALS AND METHODS

While this is self evident from both abstract and introduction, I mention that inspection of specimens of this species has been over a 20 year period. The holotype (via photos) of "*Diporiphora superba* Storr, 1974" provided to me by the Western Australian Museum has been inspected and carefully matched by myself with specimens from the north-west of the range of the putative species (AKA Mitchell Plateau), which I have inspected on numerous occasions.

In other words it is consistent with that form.

In fact it appears that there may be several distinct forms within *Jackyhosersaur superba* (Storr, 1974) as currently recognized, even though all occur within close geographical proximity, being restricted to the high rainfall parts of the West Kimberley Region. Significant is that the species appears to be reasonably common and different populations are in close proximity to one another without obvious biogeographical barriers stopping gene flow between them.

However within this distribution, the genus has a distinct habitat partition with agamids of similar size of several species stopping spread of population beyond this confined region for many millions of years.

Within this region, populations appear to be in wetter habitats and often proximal to permanent water which while important at the present time, was even more so at times of glacial minima, when the local climate was much drier than at present and presumably vegetation also much less dense.

This means that extant populations may in fact be larger and more widespread than in recent geological time (as in during the height of the last glacial maximum).

The most distinctive form within the species as recognized appears to be within a relative outlier population from Manning Creek Gorge in the west Kimberley region.

While the distribution of this form is proximal to those to the north in the Prince Regent Nature Reserve or the west on the coast in areas near the Charnley River, it is uncertain if the most recent connection was via an overland route (more or less in a direct line), or alternatively via the relevant river basins, which would have meant a far greater distance.

In any event and regardless of the nature of the most recent connection between the populations, on the basis of its differences, the population from Manning Creek Gorge is herein afforded taxonomic recognition at the subspecies level.

In terms of the scientific description below, the formal description in accordance with the *International Code of*

Zoological Nomenclature (Ride *et al*. 1999) is based on healthy adult specimens in life.

It should be noted that unless mandated by the *International Code of Zoological Nomenclature* or relevant subsequent publication, the spelling of the scientific names should not be altered.

There are no conflicts of interest in the preparation of this paper and relevant museum staff across Australia are thanked for their assistance's in this and other relevant scientific projects myself and colleagues have engaged in over the last 40 years, most of whom have done an excellent job in this regard.

The conservation significance of timely recognition of potentially threatened taxa is important and best explained via the papers of Hoser (2019a, 2019b), which means I have absolutely no hesitation whatsoever in publishing the scientific description within this paper.

Relevant references relevant to the taxonomy and nomenclature adopted in this paper include the following: Cogger (2014), Cogger *et al*. (1983), Gray (1842, 1845), Hoser (1989, 2013, 2019a, 2019b), Ride *et al*. (1999), Storr (1974), Weigel (1989), Wells and Wellington (1984, 1985), Wilson and Knowles (1988) and sources cited therein.

JACKYHOSERSAUR SUPERBA JACKYHOSERAE SUBSP. NOV.

LSIDurn:lsid:zoobank.org:act:1217C5AC-4A71-4000-9925-5BD9FC4CE979

Holotype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number: 32066 collected at Manning Creek Gorge, Kimberley Region, Western Australia, Australia, Latitude 16.32 S., Longitude 125.54 E. This facility allows access to its specimens.

Paratype: A preserved specimen at the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R94825 collected at Manning Creek Gorge, Kimberley Region, Western Australia, Australia, Lat. 16.48 S., Long. 125.91 E.

Diagnosis: *Jackyhosersaur superba jackyhoserae subsp. nov*. is similar in most respects to the nominate form except for the presence of obviously whitish upper labials, not seen in the nominate form and also an olive green to brown dorsal colouration with yellowish brown head. While nominate *Jackyhosersaur superba superba* come in a variety of dorsal colours, including yellowish, green or olive-green to brown, those of similar colour to this species have distinctly lighter green or yellow on the lower flanks, which is not the case in this subspecies.

The genus J*ackyhosersaur* Hoser, 2013, monotypic for the species originally described as "*Diporiphora superba* Storr, 1974" is readily separated from all other *Diporiphora* Gray, 1842, the genus it was until 2013 assigned to, on the basis of the following suite of characters: Keels of the dorsal scales are parallel to the vertebral line; gular and ventral scales (excluding chin shields) are weakly to strongly keeled; no gular fold; no indication of spines or a fold behind the ear; usually greenish or greenish yellow above, yellow below and without pale dorsolateral stripes; there is sometimes a brown vertebral stripe present; the adpressed hind limb reaches about the eye; the hindlimb is about 70-100 per cent of the snout-vent length, the tail is about 300 to 400 percent of the snout-vent length; there are four preanal pores.

A photo of *J. superba jackyhoserae subsp. nov.* in life is seen in Wilson and Knowles (1988) at page 215 middle right.

A photo of *J. superba superba* in life is seen in Cogger (2014) page 737 top left and also Hoser (1989) at page 61 (top), incorrectly labelled as being from Kunnanurra. It is in fact from Mitchell Plateau. This subspecies is also seen on the front cover of Wilson and Swan (2017) and in Storr, Smith and Johnstone (1983) plate 9, bottom right.

Distribution: The subspecies *J. superba jackyhoserae subsp. nov*. is known only from the Manning Creek Gorge in the Kimberley Region of Western Australia. Specimens found to the south-west of here may also be of this subspecies. The nominate form occupies the rest of the known range for the species, centred on the Mitchell Plateau, further north, also in the west Kimberley, north-west Western Australia, Australia as well as escarpment areas to the north of there and including one or more offshore islands.

Conservation threats: None known at present, but if the Australian government persists with its "Big Australia Policy", that being a long-term aim to increase the human population in Australia to over 100 million people by year 2150 (from the present 25 million as of 2019), all sorts of unforseen threats to the survival of this subspecies may emerge.

Jackyhosersaur Hoser (2013) is a divergent lineage as compared to other Australian agamid genera and due to the restricted range of the entire genus I recommend further research on the genus and potential future conservation threats in line with the previous paragraph, including by direct human activities as well as potential threats caused by changed vegetation regimes, introduced pests and potential pathogens, including those introduced via the legal importation of foreign reptiles by government-owned zoos and associated business entities.

Etymology: As for the genus *Jackyhosersaur* Hoser, 2013, the subspecies *J. superba jackyhoserae subsp. nov*. is named in honour of my younger daughter Jacky Hoser, of Melbourne, Victoria, Australia, aged 18 as of May 2019 in recognition of her excellent work in reptile education, working with Snakebusters, Australia's best reptile shows since shortly after birth.

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