Feresuta a new genus of West Australian snake and the formal description of a new species in the same genus.

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Received 12 April 2018, Accepted 10 May 2018, Published 20 June 2018.

ABSTRACT
Small elapid snakes in Australia, many with generally black heads, have been assigned to various genera as outlined by Hoser (2012a, 2012b). That genus-level arrangement is maintained herein and has been supported by more recently published molecular studies such as Pyron et al. (2013). One nominate species has been excluded from the more recent treatise by Hoser (2012b) and that was “Denisonia monachus Storr, 1964”. Phylogenetically it sits between the genera Suta Worrell, 1961 and Hulimkai Hoser, 2012. The divergence between both is however sufficient to warrant placement in a new genus. The new genus is formally named according to the rules of the International Code of Zoological Nomenclature (Ride et al. 1999) as Feresuta gen. nov.. “Denisonia monachus Storr, 1964” as formally described by Storr clearly constitutes at least two species level taxa. The nominate form is from southern Western Australia. The second from the Hamersley Ranges in Western Australia is formally named as a new species according to the rules of the International Code of Zoological Nomenclature (Ride et al. 1999). Two central Australian populations of “Denisonia monachus Storr, 1964” are also formally described herein as new subspecies. The species Hulimkai punctata (Boulenger, 1896) (see Hoser, 2012a for an explanation), is clearly separated into two divergent populations. The second is herein formally described as a new subspecies, namely H. punctata divergens subsp. nov.. Similar applies for H. fasciata (Rosén, 1905). The unnamed Pilbara population is herein formally named as a new subspecies H. fasciata ruber subsp. nov.. Further studies may necessitate elevation of one or more subspecies to full species.

Keywords: Taxonomy; nomenclature; snake; Western Australia; Northern Territory; Queensland; Hamersley Ranges; Australia; genus; Suta; Hulimkai; Denisonia; new genus; Feresuta; species; monachus; punctata; fasciata; new species; hamersleyensis; new subspecies; centralis; interiorensis; divergens; ruber.
I note that there is no question that the type specimen for Rosén’s species is of the south-western Australian form of the species. While the type locality is given as “West Australia” and on the surface it is clear anywhere in the State of Western Australia, the original description matches the southern form of H. fasciata and not that from the Pilbara. It is also significant that the other well-known species formally named by Rosén from “West Australia”, *Egernia inornata Rosén, 1905*, is only found in the region to the south and west of the Pilbara and it can also reasonably be assumed that both relevant types lodged at his museum were collected from the same general locality.

**MATERIALS, METHODS AND RESULTS**

As already inferred, inspection of numerous specimens, live, in jars in museums and via photos with accurate locality data, as well as a perusal of the limited published literature on the putative taxa was conducted over some decades. I have also collected extensively in the relevant regions in Australia, including caught in situ the taxa formally described herein.

This is all mentioned here, even though it could be described as trite. This is because there is no doubt that a well-known bunch of law-breaking haters and online trolls, known as the Wüster gang will emerge to allege I have no experience at all with the said taxa and that all my evidence is either “non-existent”, “fabricated” or “stolen”, (see for example Kaiser (2012a, 2012b, 2013, 2014a, 2014b) and Kaiser et al. (2013), the latter “paper” perhaps should be better known as “Wüster and others he can “add” to his authors list”, however none of the inevitable claims by the haters are in fact the case.

Obviously I should note that morphological divergence on its own is not regarded by myself as sufficient grounds to assign the relevant populations to a new species, subspecies or genera. However there are other important grounds.

The relevant species and subspecies populations are separated by well defined areas of unsuitable habitat and by all available evidence are evolving as if separate species.

Critically important is that each population is also reproductively isolated and evolving as separate evolutionary units, with zero likely prospect of interbreeding or introgression and so must be regarded as fully separate species or subspecies.

Hence the formal scientific descriptions below.

The genus-level group named herein is also of sufficient molecular divergence as to warrant being formally named. This is in addition to morphological divergence.

I also note that, notwithstanding the theft of relevant materials from this author in an illegal armed raid on 17 August 2011, which were not returned in breach of undertakings to the court (Court of Appeal Victoria 2014 and Victorian Civil and Administrative Tribunal (VCAT) 2015), I have made a decision to publish this paper.

This is in view of the conservation significance attached to the formal recognition of unnamed taxa and on the basis that further delays may in fact put these presently unnamed or potentially improperly assigned taxa at greater risk of extinction.

This comment is made noting the extensive increase in human population in Australia, with a conservative forecast of a four-fold increase in human population in the next 100 years (from 25 million to 100 million) and the general environmental destruction across the continent as documented by Hoser (1991), including low density areas without a large permanent human population. I also note the abysmal environmental record of various Australian National, State and Local governments in the relevant Australian regions over the past 200 years as detailed by Hoser (1989, 1991, 1993 and 1996).

While there are numerous bibliographic references to the putative taxa cited above, only the most relevant are cited herein. The most important ones in terms of the taxonomic decisions herein, and taken into consideration along with the physical evidence of the snakes themselves are: Bouleguer (1896), Cogg (2014), Hoser (1989, 2012a, 2012b), Mengden (1983), Pyron et al. (2013), Rosén (1905a, 1905b), Smith (1980), Storr (1964, 1981), Storr, Smith and Johnstone (2002), Wells and Wellington (1984, 1985), Wilson and Knowles (1993) and Swan (2017), Worrell (1961a,b, 1963) and sources cited therein.

In terms of the descriptions, the spelling of the names should not be altered in any way unless mandatory under the rules of the *International Code of Zoological Nomenclature* (Ride et al, 1999) or any other relevant ICZN code in force.

**FERESUTA GEN. NOV.**

**Type species:** *Feresuta hamersleyensis sp. nov.*

**Diagnosis:** The genus *Feresuta gen. nov.* are separated from all other Australian elapid snakes by the following suite of characters: A smooth-scaled snake; the head has a conspicuous dark upper surface or hood that has an unbroken black area, including being black between the eye and the snout, which contrasts strongly with the paler colour of the neck and body, no labial barring (as in no dark and light bars); the body lacking a darker vertebral zone; no subcaudals; 15 mid-body rows; anal and subcaudals are all single; frontal more than 1.5 times as broad as the supraocular; three or more solid maxillary teeth following the fang; belly lacks a series of crescent-shaped, transverse black bars; ventrals are also smooth and lack keels or notches; the tail is normal in shape and not paddle shaped like seen in marine species.

**Distribution:** Most of Western Australia, excluding most of the northern third, as well as most of the western two thirds of South Australia and nearby parts of central Australia in the Northern Territory.

**Etymology:** Fere means “nearly” or “not quite” in Latin. So the genus implies that the subject species are “not quite Suta”.

**Content:** *Feresuta hamersleyensis sp. nov.* (type species) (this paper), *F. monachus* (Storr, 1964)

**FERESUTA HAMERSLEYENSIS SP. NOV.**

**Holotype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R51654 collected from near Mount Bruce in the Hamersley Ranges, Western Australia, Australia, Latitude 22.36 S., Longitude 118.09 E. The Western Australian Museum, Perth, Western Australia, Australia allows access to its holdings.

**Paratypes:** Two preserved specimens in the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers: R54338 and R62460 also collected from near Mount Bruce in the Hamersley Ranges, Western Australia, Australia.

**Diagnosis:** *Feresuta hamersleyensis sp. nov.* is readily separated from the other species in the genus *F. monachus* (Storr, 1964) including all subspecies, by the presence of 2 secondary temporals versus one in *F. monachus*. Adult *F. hamersleyensis sp. nov.* exceed 400 mm in snout-vent length, whereas this is not the case in *F. monachus*. *F. hamersleyensis sp. nov.* is significantly larger and more robust than *F. monachus*.

**FERESUTA MONACHUS INTERIORENSIS SUBSP. NOV.**

**Holotype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R56142 from the Pilbara.

**Paratypes:** Two preserved specimens in the Western Australian Museum, Perth, Western Australia, Australia, specimen numbers: R53443 and R62460 also collected from near Mount Bruce in the Hamersley Ranges, Western Australia, Australia.

**Diagnosis:** *Feresuta hamersleyensis sp. nov.* is readily separated from all of nominate *F. monachus*, *F. hamersleyensis sp. nov.*, and *F. monachus centralis subsp. nov.* by the presence of a pale spot, usually bounded by black in front of each eye, which is sometimes very indistinct.

**FERESUTA MONACHUS CENTRALIS SUBSP. NOV.**

**Holotype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R54338 and R62460 also collected from near Mount Bruce in the Hamersley Ranges, Western Australia, Australia.

**Diagnosis:** *Feresuta hamersleyensis sp. nov.* is readily separated from the other species in the genus *F. monachus* (Storr, 1964) including all subspecies, by the consistent presence of orange in the region between the eye and the snout and/or orange on the upper surface of the head.

The two species of snake within the genus *Feresuta gen. nov.* as defined herein, namely *Feresuta hamersleyensis sp. nov.* and *F. monachus* (Storr, 1964) are separated from all other Australian elapid snakes by the following suite of characters: A smooth-scaled snake; the head has a conspicuous dark upper surface or hood that has an unbroken black area, including being black between the eye and the snout, which contrasts strongly with the paler colour of the neck and body, no labial barring (as in no dark and light bars); the body lacking a darker vertebral zone; no subcaudals; 15 mid-body rows; anal and subcaudals are all single; frontal more than 1.5 times as broad as the supraocular; three or more solid maxillary teeth following the fang; belly lacks a series of crescent-shaped, transverse black bars; ventrals are also smooth and lack keels or notches; the tail is normal in shape and not paddle shaped like seen in marine species.

**Distribution:** *Feresuta hamersleyensis sp. nov.* is as far as is known, restricted to the Hamersley Ranges, Australia.

**Etymology:** The species *Feresuta hamersleyensis sp. nov.* is named in reflection of where the taxon is found.

**FERESUTA MONACHUS INTERIORENSIS SUBSP. NOV.**

**Holotype:** A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R22084 collected from the Warburton Mission, Western Australia, at the western side of the Warburton Ranges, Australia, Latitude 26.08...
hamersleyensis sp. nov. is significantly larger and more robust than F. monachus (Storr, 1964), by the presence of 2 secondary temporals versus one in F. monachus (all subspecies). Adult F. hamersleyensis sp. nov. exceed 400 mm in snout-vent length, whereas this is not the case in F. monachus. Feresuta monachus centralis subsp. nov. is significantly larger and more robust than F. monachus. Feresuta monachus centralis subsp. nov. is readily separated from all of nominate F. monachus, F. hamersleyensis sp. nov., and F. monachus interiorensis subsp. nov. by the presence of a pale spot, usually bounded by black in front of each eye, which is sometimes very indistinct.

Distribution: Feresuta monachus interiorensis subsp. nov. is believed to be restricted to the general vicinity of the the Macdonnell Ranges and nearby areas in central Australia.

Etymology: F. monachus centralis subsp. nov. is believed to be restricted to the general vicinity of the Macdonnell Ranges and nearby areas in central Australia.

FERESUTA MONACHUS CENTRALIS SUBSP. NOV.

Holotype: A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R31983 collected from 2 km south of Whim Creek in Western Australia, Australia, specimen number: R538 collected from Marble Bar in Western Australia, Australia, specimen number: R31983 collected from 2 km south of Whim Creek in Western Australia, Australia, specimen number: R538 collected from Marble Bar in Western Australia, Australia, Latitude 21.10 S., Longitude 119.44 E.

The Western Australian Museum, Perth, Western Australia, Australia is a government-owned facility that allows access to its holdings.

Paratypes: 1/ A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R48040 collected at Mount Isa, Queensland, Australia, Latitude 20.44 S., Longitude 139.29 E.

The Australian Museum, Sydney, New South Wales, Australia is a government-owned facility that allows access to its holdings.

Paratypes: 1/ A preserved specimen at the Northern Territory Museum, Australia, specimen number: R01155 collected at Mount Isa, Queensland, Australia, Latitude 20.44 S., Longitude 139.29 E.

2/ A preserved specimen at the Northern Territory Museum, Australia, specimen number: R01155 collected at Mount Isa, Queensland, Australia, Latitude 20.44 S., Longitude 139.29 E.

3/ A preserved specimen at the Northern Territory Museum, Australia, specimen number: R01155 collected at Mount Isa, Queensland, Australia, Latitude 20.44 S., Longitude 139.29 E.

Diagnosis: Hulimkai punctata divergens subsp. nov. is readily separated from nominate H. punctata punctata (Boulenger, 1896) by the fact that in H. punctata punctata all of the dorsal body scales are either black centered or black tipped, which is not the case in Hulimkai punctata divergens subsp. nov.

Hulimkai punctata (both subspecies) are readily separated from all other species of Hulimkai Hoser, 2012 and Suta Worrell, 1961 by a body with 15 or 17 mid body rows (versus 19-21 in Suta) and a body lacking numerous irregular, narrow, or sometimes broken dark cross-bands as seen in H. fasciata (Rosén, 1905).

H. fasciata has 17 mid body rows, versus 15 in H. punctata. Hulimkai punctata divergens subsp. nov. is depicted on page 934 at top left in Cogger (2014).

H. punctata divergens is depicted on page 344, middle right of Wilson and Knowles (1998) and also page 591 at centre of Wilson and Swan (2017).

Distribution: Hulimkai punctata divergens subsp. nov. occurs throughout the drier tropical third of Australia, bounded in the east by wetter parts of north-east Queensland and in the west by the arid zone between the Kimberley and Pilbara.

h. punctata punctata is restricted to the Pilbara region of Western Australia.

Etymology: Hulimkai punctata divergens subsp. nov. is named in reflection of the fact that this taxon is divergent from the nominate form morphologically and also by distribution.

HULIMKAI FASCIATA RUBER SUBSP. NOV.

Holotype: A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R31983 collected from 2 km south of Whim Creek in Western Australia, Australia, Latitude 20.52 S., Longitude 117.50 E.

The Western Australian Museum, Perth, Western Australia, Australia is a government-owned facility that allows access to its holdings.

Paratypes: 1/ A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R31983 collected from 2 km south of Whim Creek in Western Australia, Australia, Latitude 20.52 S., Longitude 117.50 E.

2/ A preserved specimen in the Western Australian Museum, Perth, Western Australia, Australia, specimen number: R41568 collected at Mount Isa, Queensland, Australia, Latitude 20.44 S., Longitude 139.29 E.

Diagnosis: Hulimkai fasciata ruber subsp. nov. (formerly placed by most authors, including Cogger 2017 in the genus Suta Worrell, 1961) is readily separated from H. fasciata fasciata by having a...
dorsal colour pattern consisting of semi-distinct irregular dark brown markings on a rich reddish brown background colour, the area of lighter colour being significantly greater than the darker. By contrast H. fasciata has a defined and large irregular blackish markings overlaying a light-brown to yellowish brown body. The darker markings occupy an area equal to or larger than the lighter areas.

H. fasciata fasciata is also characterised by a thick well defined dark line running from the snout, through the eye, to the back of the head and continuing onto the upper neck, where it merges on each side of the neck with a dark large body blotch. By contrast Hulimkai fasciata ruber subsp. nov. has an ill-defined and usually broken line running from the snout, through the eye and to the back of the head and it does not split into blotches on the neck. In rare cases where it may appear to be continuous, the line tends to form broken blotches, separated by light zones and in no way resembles the thick bar seen in H. fasciata fasciata.

Hulimkai are separated from all species within Suta as defined by Cogger (2017) by having 15 or 17 mid body rows, versus 19-21 in Suta. The numerous irregular, narrow, dark cross-bands as seen in H. fasciata are not seen in the other species in the genus, namely H. punctata (Boulenger, 1896).

H. fasciata has 17 mid body rows, versus 15 in H. punctata. Hulimkai fasciata ruber subsp. nov. is depicted in Storr, Smith and Johnstone (2002), plate 48 top photo, alongside H. fasciata fasciata at plate 48 bottom photo. H. fasciata fasciata is also depicted in Wilson and Swan (2017) at page 589 bottom.

Distribution: H. fasciata ruber subsp. nov. is confined in general to the Pilbara region of Western Australia. The nominate form of H. fasciata fasciata occupies the rest of the range for the species, being generally south and south-east of the Pilbara in Western Australia, and including the far south, north-west and far west of the State. H. fasciata is an endemic species to Western Australia.

Etymology: The scientific name refers to the reddish-brown colouration of this subspecies.

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CONFLICT OF INTEREST

There are no conflicts of interest in terms of this paper and the author.