

A long overdue taxonomic rearrangement of the Uromastycinae (Squamata: Sauria: Agamidae).

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ABSTRACT

For most of the past 2 centuries the entire Leiolepidinae Fitzinger, 1843. has been treated as consisting of just two genera.

These are: *Leiolepis* Cuvier, 1829 and *Uromastyx* Merrem, 1820.

Based on the molecular results of Pyron *et al.* (2013) and others, Uromastycinae Theobold, 1868 is herein recognized as a subfamily being separate from Leiolepidinae, now treated as only including the genus *Leiolepis*. Ultimately both groups may warrant full family-level recognition.

Recently, Wilms *et al.* (2009) commenced the long-awaited dissection of *Uromastyx* with the resurrection of *Saara* Gray, 1845 to accommodate the three most divergent species (as a clade) within the genus *Uromastyx* as popularly recognized.

Noting that many authors have recognized distinctive species groups and/or clades as a result of detailed studies, this paper formalizes these results by revising the taxonomy of the extant members of the subfamily Uromastycinae.

As a result, the genus *Saara* is divided into three genera, with *Centrotrachelus* Strauch, 1863 resurrected. *Centrotrachelus* is divided into two genera, the other formally named *Borgsaurus gen. nov.*

Uromastyx is divided into four genera, utilizing the existing names *Uromastyx* Merrem, 1820 and *Aporoscelis* Boulenger, 1885 for two species groups, with two new genera formally named for the first time, these being *Euanedwardssaurus gen. nov.* and *Dicksmithsaurus gen. nov.*

Euanedwardssaurus gen. nov. is divided three ways, the other subgenera being *Newmansaurus subgen. nov.* and *Dallysaurus subgen. nov.*. *Dicksmithsaurus gen. nov.* is also divided three ways, the other subgenera being *Stokessaurus subgen. nov.* and *Mooresaurus subgen. nov.*

Uromastyx is split two ways, with the monotypic subgenus *Supremeuromastyx subgen. nov.* erected to accommodate the most divergent taxon.

Noting that *Saara*, *Centrotrachelus* and *Borgsaurus gen. nov.* diverged from the other genera and species in the Uromastycinae between 25 and 29 MYA, they are herein placed in the tribe Borgsauriini *tribe nov.*

Uromastyx, *Aporoscelis*, *Euanedwardssaurus gen. nov.* and *Dicksmithsaurus gen. nov.* are placed in a the tribe Uromastyxiini *tribe nov.*

Noting that the various subgenera defined herein are believed to have diverged from one another at between 6 and 15 MYA based on a calibration of the molecular results with relevant geological and climatic events using various mathematic formulae, it is likely that some or all may eventually be recognized as full genera.

Keywords: Taxonomy; Lizards; Middle-east; Asia; Africa; Uromastycinae; Leiolepidinae; *Leiolepis*; *Uromastyx*; *Saara*; *Centrotrachelus*; new tribes; Borgsauriini; Uromastyxiini; new genera; *Borgsaurus*; *Euanedwardssaurus*; *Dicksmithsaurus*; new subgenera; *Supremeuromastyx*; *Newmansaurus*; *Dallysaurus*; *Stokessaurus*; *Mooresaurus*.

INTRODUCTION

For most of the past two hundred years the entire Leiolepidinae Fitzinger, 1843. has been treated by most publishing herpetologists as consisting of just two genera.

These are: *Leiolepis* Cuvier, 1829 and *Uromastyx* Merrem, 1820.

Based on the molecular results of Pyron *et al.* (2013) and others,

Uromastycinae Theobold, 1868 is herein recognized as a subfamily being separate from Leiolepidinae, now treated as only including the genus *Leiolepis*. Ultimately both groups may warrant full family-level recognition.

Some authors have already taken that step.

Recently, Wilms *et al.* (2009) commenced the long-awaited

dissection of *Uromastyx* with the resurrection of *Saara* Gray, 1845 to accommodate the three most divergent species (as a clade) within the genus *Uromastyx* as popularly recognized.

Noting that many authors have recognized distinctive species groups and/or clades as a result of detailed studies, this paper formalizes these results by revising the taxonomy of the extant members of the subfamily Uromastycinae.

The genus *Saara* (currently 3 recognized species) is divided into three genera, with *Centrotrachelus* Strauch, 1863 resurrected.

Centrotrachelus is divided into two genera, the other formally named *Borgsaurus gen. nov.*

Uromastyx (currently about 20 recognized species) is divided into four genera, utilizing the existing names *Uromastyx* Merrem, 1820 and *Aporoscelis* Boulenger, 1885 for two species groups.

Two new genera are formally named for the first time, these being *Euanedwardssaurus gen. nov.* and *Dicksmithsaurus gen. nov.*

Euanedwardssaurus gen. nov. is divided three ways, the other subgenera being *Newmansaurus subgen. nov.* and *Dallysaurus subgen. nov.*. *Dicksmithsaurus gen. nov.* is also divided three ways, the other subgenera being *Newmansaurus subgen. nov.* and *Dallysaurus subgen. nov.*

Uromastyx is split two ways, with the monotypic subgenus *Supremeuromastyx subgen. nov.* erected to accommodate the most divergent taxon.

Noting that *Saara*, *Centrotrachelus* and *Borgsaurus gen. nov.* diverged from the other genera and species in the Uromastycinae between 25 and 29 MYA, they are herein placed in the tribe *Borgsauriini tribe nov.*

Uromastyx, *Aporoscelis*, *Euanedwardssaurus gen. nov.* and *Dicksmithsaurus gen. nov.* are placed in a the tribe *Uromastyxiini tribe nov.*

These relatively large and iconic lizards have been subjected to numerous detailed studies over the past two centuries, including recently molecular studies that have resolved relationships between species within the relevant genera.

The material and methods used as the basis for this science-based reclassification has been inspection of live specimens at various facilities since 1993 as well as a thorough review of the scientific and other (relevant) literature.

Significant studies relevant to the taxonomy of the Uromastycinae include the following: Amer and Kumazawa (2005), Anderson (1894, 1896, 1901), Anderson (1999), Anajeva (2004), Arnold (1980, 1986, 1987), Baha El Din (1996), Bell (1825), Blanford (1874, 1881), Böhme (1978, 1982, 1988), Boulenger (1885), Cunningham (2000, 2001a, 2001b), Darevsky and Kupriyanova (1993), Denzer *et al.* (1997), Fitzinger (1826, 1843), Forsskal (1775), Frahm (2006), Fris and Thulin (1984), Geniez *et al.* (2004), Gray (1845), Haas and Werner (1969), Hall (1999), Handl (2002), Hardwicke and Gray (1827), Harris *et al.* (2007), Heyden (1827), Honda *et al.* (2000), Joger (1986, 1987), Joger and Gray (1997), Joger and Lambert (1996), Kevork and Al-Uthman (1972), Khalaf (1959), Khan (1980), Knapp (2004), Kocher *et al.* (1989), Lanza (1988), Largen and Spawls (2006), Leviton *et al.* (1992), Lichtenstein (1823), Löhr (2004), Macey *et al.* (1997, 2000), Maddison *et al.* (1984), Mateo *et al.* (1998), Merrem (1820), Mertens (1956, 1962), Minton (1966), Moody (1980, 1987), Müller (1921, 1951), Murray (1884), Ninni (1933), Nylander (2002), O'Shaughnessy (1880), Page (2001), Palumbi *et al.* (1991), Parker (1930, 1932, 1942), Peters (1971), Rastegar-Pouyani (2005), Pyron *et al.* (2013), Reeder (2003), Saleh (1997), Schätti (1989), Schätti and Desvoignes (1999), Schätti and Gasperetti (1994), Schleich *et al.* (1996), Schmitz (2003), Schmitz *et al.* (2001, 2005), Seuffer *et al.* (1998), Sindalco and Jeremcenco (2008), Straunch (1863), Steindachner (1899), Swofford (2002), Tourenq (2005), Watrous and Wheeler (1981), Vernet *et al.* (1998), Wermuth (1967), Wilms (1995, 1998, 2001, 2005, 2007a, 2007b), Wilms and Böhme (2000a, 2000b, 2000c, 2001, 2007), Wilms and Hulbert (1995, 2000), Wilms and Müller (1998), Wilms and Schmitz (2007), Wilms *et al.* (2002a, 2002b, 2003, 2009), Yang *et al.* (1994), Zari (1999) and sources cited therein.

Because of the detail of descriptions within the just cited material,

and the fact that the major recent works by Wilms and others are widely available on the internet, most of this information is not unnecessarily repeated here. This paper instead concentrates on providing proper Zoological Code compliant descriptions of the relevant species groups.

While this paper does not specifically deal with the Leiolepidinae, I should make mention of some key studies into this group including a number that attempted to deal with or resolve taxonomic matters, these including Ananjeva *et al.* (2001), Aranyavalai *et al.* (2004), Bobrov and Semenov (2008), Böhme (2013, 2012), Boistel *et al.* (2011), Boulenger (1885, 1890), Chan-ard *et al.* (1999), Cox *et al.* (1998), Darevsky and Kupriyanov (1993), de Rooij (1915), Gray (1835), Grismer (2008, 2011), Grismer and Grismer (2010), Grismer *et al.* (2002, 2007), Hall (2009), Hardwicke and Gray (1827), Hartmann *et al.* (2012), Hien *et al.* (2001), Lim and Ng (1999), Macey *et al.* (2000), Manthey and Grossmann (1997), Manthey and Schuster (1999), Mertens (1951), Meshaka (2011), Pauwels and Chimsuncharat (2007), Pauwels *et al.* (2000, 2003), Sang *et al.* (2009), Smith (1935), Sworder (1933), Taylor (1963), Ziegler and Nguyen (2010) and sources cited therein.

NOTES ON TAXA NAMED HEREIN

The format of the descriptions is as follows: It commences with a new diagnosis for the subfamily Uromastycinae, followed by one for each genus, including those already formally described and for which their names were already available for use by others within the rules of the Zoological Code (Ride *et al.* 1999). Each new genus-level diagnosis will in effect separate each of the relevant genera from one another. After these there will be formal diagnosis and definitions according to the rules of the Zoological Code for each of the newly named tribes.

In the event a later author seeks to merge one or more taxon groups (taxa) described within this paper, the order of priority should be by page priority in terms of this paper; that is the first name listed is the first to be used. Gender, spellings and the like of names or other perceived errors should not be altered in any way unless mandated by the Zoological Code, even if apparently wrong in the original descriptions herein, including by derivation or gender.

SUBFAMILY UROMASTYCINAE THEOBOLD, 1868.

(Terminal taxon: *Lacerta aegyptia* Forskal, 1775)

Diagnosis: The lizard subfamily *Uromastycinae* Theobold, 1868 is most easily defined as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation is arranged in distinct whorls.

For the tribe *Uromastyxiini tribe nov.* these whorls are not separated by intercalary scales dorsally.

For the tribe *Borgsauriini tribe nov.* these whorls are separated by 1-6 rows of intercalary scales dorsally.

In further detail the subfamily Uromastycinae is defined as follows: Tympanum large, vertically elliptic and distinct. Incisors large, uniting in the adult into one or two cutting-teeth, separated from the molars by a toothless interspace. Body depressed, without crest. No gular pouch; a transverse gular fold. Tail short, depressed, covered with whorls of large spinose scales. Praeanal and femoral pores present.

The head is small, feebly depressed, with a short snout and obtuse canthus rostralis; nostril large, directed backwards, nearer the end of the snout than the eye; upper head-scales smooth, much larger than those on the body, smallest on supraorbital region; occipital not enlarged; labials small and numerous. Neck strongly plicate. Limbs short and thick; hind limb with spinose conical tubercles; digits short and armed with strong claws. Scales on upper surface of body very small, on belly larger, fiat, smooth, juxtaposed or subimbricate.

Distribution: Species until now placed in the genus *Uromastyx* (now placed in the tribe *Uromastyxiini tribe nov.*) inhabit a range stretching through most of North Africa and the Middle East, ranging as far east as Iran. The three species found further east in dry habitats in southwest Asia, ranging from Iran to north-western

India have more recently been placed in the genus *Saara* (Borgsauriini tribe nov.).

Content: *Uromastyx* Merrem, 1820 (type genus); *Aporoscelis* Boulenger, 1885; *Borgsaurus* gen. nov.; *Centrotrachelus* Strauch, 1863; *Dicksmithsaurus* gen. nov.; *Euanedwardssaurus* gen. nov.; *Saara* Gray, 1845.

GENUS UROMASTYX MERREM, 1820.

Type species: *Lacerta aegyptia* Forskal, 1775.

Diagnosis: The lizard genus *Uromastyx* Merrem, 1820 has until recently been diagnosed as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation arranged in distinct whorls, which are not separated by intercalary scales dorsally. The fact that the whorls on the tail are not separated by intercalary scales dorsally divides *Uromastyx* and all other species in the tribe Uromastyxiini tribe nov. from the genera within the tribe Borgsauriini tribe nov..

With *Uromastyx* as recognized by other authors to date, herein divided into four genera, corresponding with well-established species group lineages, the genus is best diagnosed by defining what separates species within each of the four genera formerly treated as being within *Uromastyx*.

Each of the four genera are hereby defined as follows:

The genus *Uromastyx* is defined and separated from all other Uromastyxiini tribe nov. as follows, being one or other of: Has preanofemoral pores; tail long, approx. 48-103% of SVL, and when viewed from above it appears to be elongated (as opposed to disc-shaped); the last 2-5 tail whorls formed of continuous scales rows; 238-391 scales at midbody, 112-193 ventrals between gular and inguinal fold, (subgenus *Uromastyx*); or: Without preanofemoral pores; tail long, approx. 71-94% of SVL; 22-27 whorls on the tail; body scales small, approx. 297-301 scales around the midbody; 121-122 scales between gular and inguinal fold (subgenus *Supremeuromastyx* subgen. nov.).

The genus *Aporoscelis* Boulenger, 1885 is separated from all other Uromastyxiini tribe nov. by lacking preanofemoral pores and having a relatively short tail, being about 35-53% of the SVL and having 9-14 whorls on the tail.

Wilms *et al.* (2009) noted "With the exception of *Uromastyx thomasi*, *U. princeps* is distinguished from all other taxa in the genus (as defined by them) by its significantly shorter tail. From *U. thomasi* it is distinguished by the absence of preanofemoral pores."

The genus *Edwardssaurus* gen. nov. is best defined by separation of each of the described subgenera. Therefore each diagnosis given herein separates not just the subgenus from others within the genus, but also from all other Uromastyxiini tribe nov. species. *Edwardssaurus* gen. nov. are defined by one of the following three suites of characters:

1/ Has preanofemoral pores; the tail is long being 48-75% of SVL, from above the tail has an elongated appearance; the last 2-5 tail whorls are formed of continuous scales rows; 138-227 scales at midbody; 68-112 ventrals between gular and inguinal fold; tail with 16-21 whorls (subgenus *Edwardssaurus* subgen. nov.), or:

2/ Has preanofemoral pores; the tail is long being 48-103% of SVL, viewed from above it appears to be elongated; the last 12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening without enlarged scales (subgenus *Newmansaurus* subgen. nov.), or:

3/ Lacks preanofemoral pores; the tail is long being 71-94 % of SVL; 22-27 tail whorls; body scales larger, approx. 143-227 scales at midbody; 66-100 scales between gular and inguinal fold (subgenus *Dalysaurus* subgen. nov.).

The genus *Dicksmithsaurus* gen. nov. best defined by separation of each of the described subgenera. Therefore each diagnosis given herein separates not just the subgenus from others within the genus, but also from all other Uromastyxiini tribe nov. species. *Dicksmithsaurus* gen. nov. are defined by one of the following three suites of characters:

1/ Has preanofemoral pores; the tail is long being 48-103% of SVL, and when viewed from above it appears to be elongated; the last

12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening has enlarged scales (subgenus *Dicksmithsaurus* subgen. nov.), or:

2/ Has preanofemoral pores; the tail is short being 25-35% of the SVL and when viewed from above it appears to be disk-shaped (subgenus *Stokessaurus* subgen. nov.), or:

3/ Has preanofemoral pores; the tail is long being 70-98% of the SVL, and when viewed from above it appears to be an elongated shape; the last 2-5 tail whorls formed of continuous scales rows; 138-227 scales at midbody, 68-112 ventrals between gular and inguinal fold; tail with 20-24 whorls (subgenus *Mooressaurus* subgen. nov.).

Comment: It is likely that further studies will result in *Supremeuromastyx* subgen. nov. being elevated to full genus status, with the current designation being at the most conservative available.

The morphological differences between the nominate species and other *Uromastyx* are significant.

Distribution: Northern Egypt, through the Middle-east to Iran for the subgenus *Uromastyx* and known from two locations only in the Western Sahara Desert for *Supremeuromastyx* subgen. nov..

Content: *Uromastyx aegyptia* (Forskal, 1775) (type species); *U. leptieni* Wilms and Böhme, 2000; *U. microlepis* Arnold, 1980; *U. occidentalis* Mateo, Geniuz, Lopez-Jurado and Bons, 1999.

SUBGENUS UROMASTYX MERREM, 1820.

Type species: *Lacerta aegyptia* Forskal, 1775.

Diagnosis: The subgenus *Uromastyx* Merrem, 1820, is separated from the other subgenus *Supremeuromastyx* subgen. nov. by the following suite of characters: Specimens have preanofemoral pores; a long tail that is approx. 48-103% of SVL, and when viewed from above it appears to be elongated (as opposed to disc-shaped); the last 2-5 tail whorls are formed of continuous scales rows; 238-391 scales at midbody, 112-193 ventrals between gular and inguinal fold.

This is contrasted with *Supremeuromastyx* subgen. nov. which is defined as having no preanofemoral pores; a long tail, being approx. 71-94% of SVL; 22-27 whorls on the tail; body scales small, approx. 297-301 scales around the midbody; 121-122 scales between gular and inguinal fold (subgenus *Supremeuromastyx* subgen. nov.).

The two subgeneric diagnoses also separate each subgenus from all other species and genera within the tribe Uromastyxiini tribe nov..

Distribution: The three species within the subgenus *Uromastyx* Merrem, 1820 have the following distributions:

Uromastyx aegyptia (Forskal, 1775) the type species is found in northern Egypt east of the river Nile, the Sinai Peninsula, Palestina and extreme northwestern Saudi Arabia (Wadi Sawawin / Jabal as Sinfa). The border between the ranges of the taxa *U. aegyptia* and *U. microlepis* Arnold, 1980 is obviously east of Wadi Araba in Palestina and Jordan and east of Wadi Sawawin in the Jabal as Sinfa region of Saudi Arabia.

Uromastyx microlepis Arnold, 1980 is found in the deserts and semideserts of Arabia (Saudi Arabia, Yemen, Oman, United Arab Emirates, Qatar, Kuwait), in Jordan, Syria, Iraq and coastal Iran.

Uromastyx leptieni Wilms and Böhme, 2000 is known from east of the Hajar al-Gharbi mountains in northern Oman (from the vicinity of Muscat up to the Musandam peninsular), and from north-eastern United Arab Emirates. The westernmost locality is near Abu Dhabi Airport.

SUBGENUS SUPREMEUROMASTYX SUBGEN. NOV.

Type species: *Uromastyx occidentalis* Mateo, Geniuz, Lopez-Jurado and Bons, 1999.

Diagnosis: The subgenus *Supremeuromastyx* subgen. nov. is separated from *Uromastyx* Merrem, 1820, by the following suite of characters:

No preanofemoral pores; a long tail, being approx. 71-94% of SVL; 22-27 whorls on the tail; body scales small, approx. 297-301 scales around the midbody; 121-122 scales between gular and inguinal fold (subgenus *Supremeuromastyx* subgen. nov.).

This is contrasted with the diagnosis for the subgenus *Uromastix* which are defined as follows:

Preanofemoral pores present; a long tail that is approx. 48-103% of SVL, and when viewed from above it appears to be elongated (as opposed to disc-shaped); the last 2-5 tail whorls are formed of continuous scales rows; 238-391 scales at midbody, 112-193 ventrals between gular and inguinal fold (subgenus *Uromastix*). The two subgeneric diagnoses also separate each subgenus from all other species and genera within the tribe Uromastixiini *tribe nov.*

Distribution: Known only from the type locality and from Udei Sfa (45 km west of Maatal Laj, 22°22'N 15°32'W; in the Western Sahara, North Africa, Genez *et al.* 2004).

Ertmology: The name *Supremeuromastix* in two parts refers to (a) the magnificence of the species monotypic for the subgenus and (b) the obvious close affinity with the nominate subgenus *Uromastix*.

Content: *Uromastix (Supremeuromastix) occidentalis* Mateo, Geniuz, Lopez-Jurado and Bons, 1999 (monotypic).

GENUS *APOROSCELIS* BOULENGER, 1885.

Type species: *Uromastix princeps* O'Shaughnessy, 1880.

Diagnosis: The genus *Aporoscelis* Boulenger, 1885 is separated from all other Uromastixiini *tribe nov.* by lacking preanofemoral pores and having a relatively short tail, being about 35-53% of the SVL and having 9-14 whorls on the tail.

Wilms *et al.* (2009) noted "With the exception of *Uromastix thomasi*, *U. princeps* is distinguished from all other taxa in the genus (as defined by them) by its significantly shorter tail. From *U. thomasi* it is distinguished by the absence of preanofemoral pores."

Distribution: Found in the Somalian provinces of Sanaag, Bari, Nogal and Mudug.

Content: *Aporoscelis princeps* (O'Shaughnessy, 1880) (monotypic).

GENUS *EDWARDSSAURUS* GEN. NOV.

Type species: *Uromastix dispar* Heyden, 1827.

Diagnosis: The genus *Edwardssaurus gen. nov.* is best defined by separation of each of the described subgenera.

Therefore each diagnosis given herein separates not just the subgenus from others within the genus, but also from all other Uromastixiini *tribe nov.* species.

Edwardssaurus gen. nov. are defined by one of the following three suites of characters:

1/ Has preanofemoral pores; the tail is long being 48-75% of SVL, from above the tail has an elongated appearance; the last 2-5 tail whorls are formed of continuous scales rows; 138-227 scales at midbody; 68-112 ventrals between gular and inguinal fold; tail with 16-21 whorls (subgenus *Edwardssaurus subgen. nov.*), or:

2/ Has preanofemoral pores; the tail is long being 48-103% of SVL, viewed from above it appears to be elongated; the last 12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening without enlarged scales (subgenus *Newmansaurus subgen. nov.*), or:

3/ Lacks preanofemoral pores; the tail is long being 71-94% of SVL; 22-27 tail whorls; body scales larger, approx. 143-227 scales at midbody; 66-100 scales between gular and inguinal fold (subgenus *Dallysaurus subgen. nov.*).

The lizard subfamily *Uromastycinae* Theobald, 1868 is most easily defined as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation is arranged in distinct whorls.

For the tribe Uromastixiini *tribe nov.* these whorls are not separated by intercalary scales dorsally.

For the tribe Borgsauriini *tribe nov.* these whorls are separated by 1-6 rows of intercalary scales dorsally.

In further detail the subfamily Uromastycinae is defined as follows: Tympanum large, vertically elliptic and distinct. Incisors large, uniting in the adult into one or two cutting-teeth, separated from the molars by a toothless interspace. Body depressed, without crest.

No gular pouch; a transverse gular fold. Tail short, depressed, covered with whorls of large spinose scales. Praeanal and femoral pores present.

The head is small, feebly depressed, with a short snout and obtuse canthus rostralis; nostril large, directed backwards, nearer the end of the snout than the eye; upper head-scales smooth, much larger than those on the body, smallest on supraorbital region; occipital not enlarged; labials small and numerous. Neck strongly plicate. Limbs short and thick; hind limb with spinose conical tubercles; digits short and armed with strong claws. Scales on upper surface of body very small, on belly larger, fiat, smooth, juxtaposed or subimbricate.

Distribution: Northern Africa, including those countries that abut and include the Sahara Desert as well as the immediately nearby Middle East and lower Arabian Peninsula.

Etymology: Named in honour of Euan Edwards, currently of the Gold Coast, Queensland, Australia, for his immense contributions to herpetology world-wide, including considerable behind the scenes logistical support for herpetologists and scientists in several countries (including myself), including extensive fieldwork in Australia, the United States of America, Madagascar and Africa and gaining access to various institutions, collections, diagnostic facilities and the like, spanning some decades. Also of note is that it was in August 1993, when in Florida, USA that I was with Euan Edwards when he first showed me live specimens of "*Uromastix*" from the genus now named in his honour that were on view at the 1993 Orlando Reptile Expo.

Content: *Edwardssaurus dispar* (Heyden, 1827) (type species); *E. acanthinura* (Bell, 1825); *E. benti* (Anderson, 1894); *E. flavifasciata* (Mertens, 1962); *E. hodhensis* (Trape *et al.*, 2012); *E. maliensis* (Joger and Lambert, 1996); *E. nigriventris* (Rothschild and Hartert, 1912); *E. ocellata* (Lichenstein, 1823); *E. shobraki* (Wilms and Schmitz, 2007); *E. yemenensis* (Wilms and Schmitz, 2007).

SUBGENUS *EDWARDSSAURUS* SUBGEN. NOV.

Type species: *Uromastix dispar* Heyden, 1827.

Diagnosis: The subgenus *Edwardssaurus subgen. nov.* is defined by the following suite of characters:

Has preanofemoral pores; the tail is long being 48-75% of SVL, from above the tail has an elongated appearance; the last 2-5 tail whorls are formed of continuous scales rows; 138-227 scales at midbody; 68-112 ventrals between gular and inguinal fold; tail with 16-21 whorls (subgenus *Edwardssaurus subgen. nov.*).

The other two subgenera within *Edwardssaurus gen. nov.* are defined as follows: one or other of:

1/ Has preanofemoral pores; the tail is long being 48-103% of SVL, viewed from above it appears to be elongated; the last 12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening without enlarged scales (subgenus *Newmansaurus subgen. nov.*), or:

2/ Lacks preanofemoral pores; the tail is long being 71-94% of SVL; 22-27 tail whorls; body scales larger, approx. 143-227 scales at midbody; 66-100 scales between gular and inguinal fold (subgenus *Dallysaurus subgen. nov.*).

Distribution: North Africa.

Etymology: See for genus *Edwardssaurus gen. nov.*

Content: *Edwardssaurus (Edwardssaurus) dispar* (Heyden, 1827) (type species); *E. (Edwardssaurus) acanthinura* (Bell, 1825); *E. (Edwardssaurus) flavifasciata* (Mertens, 1962); *E. (Edwardssaurus) hodhensis* (Trape *et al.*, 2012); *E. (Edwardssaurus) maliensis* (Joger and Lambert, 1996); *E. (Edwardssaurus) nigriventris* (Rothschild and Hartert, 1912).

SUBGENUS *DALLYSAURUS* SUBGEN. NOV.

Type species: *Aporoscelis benti* Anderson, 1894.

Diagnosis: The subgenus *Dallysaurus subgen. nov.* is defined by the following suite of characters:

Lacks preanofemoral pores; the tail is long being 71-94% of SVL; 22-27 tail whorls; body scales larger, approx. 143-227 scales at midbody; 66-100 scales between gular and inguinal fold (subgenus *Dallysaurus subgen. nov.*).

The other two subgenera within *Edwardssaurus gen. nov.* are

defined as follows: one or other of:

1/ Has preanofemoral pores; the tail is long being 48-75% of SVL, from above the tail has an elongated appearance; the last 2-5 tail whorls are formed of continuous scales rows; 138-227 scales at midbody; 68-112 ventrals between gular and inguinal fold; tail with 16-21 whorls (subgenus *Edwardssaurus subgen. nov.*).

2/ Has preanofemoral pores; the tail is long being 48-103% of SVL, viewed from above it appears to be elongated; the last 12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening without enlarged scales (subgenus *Newmansaurus subgen. nov.*).

Distribution: The southern Arabian Peninsula.

Etyymology: Named in honour of Gavin Dally, in 2014 the long-serving collection manager at the Natural Sciences Museum and Art Gallery of the Northern Territory, Darwin, NT, for his many services to zoology.

Content: *Edwardssaurus (Dallysaurus) benti* (Anderson, 1894) (type species); *E. (Dallysaurus) shobraki* (Wilms and Schmitz, 2007); *E. (Dallysaurus) yemenensis* (Wilms and Schmitz, 2007).

SUBGENUS NEWMANSAURUS SUBGEN. NOV.

Type species: *Uromastix ocellata* Lichtenstein, 1823.

Diagnosis: The subgenus *Newmansaurus subgen. nov.* is defined by the following suite of characters:

Has preanofemoral pores; the tail is long being 48-103% of SVL, viewed from above it appears to be elongated; the last 12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening without enlarged scales (subgenus *Newmansaurus subgen. nov.*).

The other two subgenera within *Edwardssaurus gen. nov.* are defined as follows: one or other of:

1/ Has preanofemoral pores; the tail is long being 48-75% of SVL, from above the tail has an elongated appearance; the last 2-5 tail whorls are formed of continuous scales rows; 138-227 scales at midbody; 68-112 ventrals between gular and inguinal fold; tail with 16-21 whorls (subgenus *Edwardssaurus subgen. nov.*).

2/ Lacks preanofemoral pores; the tail is long being 71-94% of SVL; 22-27 tail whorls; body scales larger, approx. 143-227 scales at midbody; 66-100 scales between gular and inguinal fold (subgenus *Dallysaurus subgen. nov.*).

Distribution: North-east Africa, including North-west Somalia, Djibouti, Eritrea, Northern Sudan, South East Egypt, Ethiopia (near the Somalian border).

Etyymology: Named in honour of Chris Newman of the United Kingdom, Chairman of the Federation of British Herpetologists in recognition of many years work, lobbying for the rights of private reptile keepers in the UK.

Content: *Edwardssaurus (Newmansaurus) ocellata* (Lichtenstein, 1823) (monotypic).

GENUS DICKSMITHSAURUS GEN. NOV.

Type species: *Uromastix macfadyeni* Parker, 1932.

Diagnosis: The genus *Dicksmithsaurus gen. nov.* is best defined by separation of each of the described subgenera, (within *Dicksmithsaurus gen. nov.*). Therefore each diagnosis given herein separates not just the subgenus from others within the genus, but also from all other *Uromastyxiini tribe nov.* species.

Dicksmithsaurus gen. nov. are defined by one of the following three suites of characters:

1/ Has preanofemoral pores; the tail is long being 48-103% of SVL, and when viewed from above it appears to be elongated; the last 12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening has enlarged scales (subgenus *Dicksmithsaurus subgen. nov.*), or:

2/ Has preanofemoral pores; the tail is short being 25-35% of the SVL and when viewed from above it appears to be disk-shaped (subgenus *Stokessaurus subgen. nov.*), or:

3/ Has preanofemoral pores; the tail is long being 70-98% of the SVL, and when viewed from above it appears to be an elongated shape; the last 2-5 tail whorls formed of continuous scales rows; 138-227 scales at midbody, 68-112 ventrals between gular and inguinal fold; tail with 20-24 whorls (subgenus *Mooressaurus subgen. nov.*).

The lizard genus *Uromastix* Merrem, 1820 (now divided to include other genera including *Dicksmithsaurus gen. nov.*) has until recently been diagnosed as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation arranged in distinct whorls, which are not separated by intercalary scales dorsally. The fact that the whorls on the tail are not separated by intercalary scales dorsally divides *Uromastix* and all other species in the tribe *Uromastyxiini tribe nov.* (including *Dicksmithsaurus gen. nov.*) from the genera within the tribe *Borgsauriini tribe nov.*

Distribution: *Dicksmithsaurus subgen. nov.* are only known from north-west Somalia, eastern Egypt, Israel, Saudi Arabia and north-west Yemen.

Stokessaurus subgen. nov. are only positively known from coastal Oman.

Mooressaurus subgen. nov. are only positively known from South Algeria, Mali, Niger and South-west Libya.

Etyymology: Named in honour of wealthy Australian businessman Dick Smith, the former owner of the electronics stores "Dick Smith Electronics". In Hoser (1991) I wrote of the ecological and social disasters likely to arise should Australian overpopulation get worse than it was at the time.

Since then the Australian government has worsened the environmental destruction by paying people to breed, with various ridiculous "baby bonus" schemes, which make old fashioned prostitution (sex for cash) seem poor by comparison.

As a result, Australia is beset by overcrowding in the cities and ongoing extinctions of fauna. This is a pattern being replicated worldwide.

For advocating a cessation of the population growth policies of Australian governments, I have faced malicious criminal charges and repeatedly been held up for public hatred.

Dick Smith, protected from harassment by government-backed henchmen posing as law-enforcement agents due to his immense personal wealth has taken up the environmental challenges caused by overpopulation. To his credit he has made a number of television shows spreading the message of population restraint. It is therefore fitting that a wild animal taxon group threatened by this very overpopulation (outside Australia in this case) be named in his honour.

Content: *Dicksmithsaurus macfadyeni* (Parker, 1932) (type species); *D. alfredschmidti* (Wilms and Böhme, 2001); *D. geyri* (Müller, 1922); *D. ornata* (Heyden, 1827); *D. philbyi* (Parker, 1938); *D. thomasi* (Parker, 1930).

SUBGENUS DICKSMITHSAURUS SUBGEN. NOV.

Type species: *Uromastix macfadyeni* Parker, 1932.

Diagnosis: The subgenus *Dicksmithsaurus subgen. nov.* is best defined by separation of each of the described subgenera, (within *Dicksmithsaurus gen. nov.*) including for *Dicksmithsaurus subgen. nov.* each diagnosis given herein therefore separating not just the subgenus from others within the genus, but also from all other *Uromastyxiini tribe nov.* species.

Dicksmithsaurus subgen. nov. are defined by the following suite of characters:

Has preanofemoral pores; the tail is long being 48-103% of SVL, and when viewed from above it appears to be elongated; the last 12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening has enlarged scales (subgenus *Dicksmithsaurus subgen. nov.*).

The other two subgenera within *Dicksmithsaurus gen. nov.* are diagnosed and defined as follows:

1/ Has preanofemoral pores; the tail is short being 25-35% of the SVL and when viewed from above it appears to be disk-shaped (subgenus *Stokessaurus subgen. nov.*), or:

2/ Has preanofemoral pores; the tail is long being 70-98% of the SVL, and when viewed from above it appears to be an elongated shape; the last 2-5 tail whorls formed of continuous scales rows; 138-227 scales at midbody, 68-112 ventrals between gular and inguinal fold; tail with 20-24 whorls (subgenus *Mooressaurus subgen. nov.*).

The lizard genus *Uromastyx* Merrem, 1820 (now divided to include other genera including *Dicksmithsaurus gen. nov.*) has until recently been diagnosed as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation arranged in distinct whorls, which are not separated by intercalary scales dorsally. The fact that the whorls on the tail are not separated by intercalary scales dorsally divides *Uromastyx* and all other species in the tribe *Uromastyxiini tribe nov.* (including *Dicksmithsaurus gen. nov.*) from the genera within the tribe *Borgsauriini tribe nov.*

Distribution: *Dicksmithsaurus subgen. nov.* are only known from north-west Somalia, eastern Egypt, Israel, Saudi Arabia and north-west Yemen.

Etymology: See for the genus *Dicksmithsaurus gen. nov.*

Content: *Dicksmithsaurus (Dicksmithsaurus) macfadyeni* (Parker, 1932) (type species); *D. (Dicksmithsaurus) ornata* (Heyden, 1827); *D. (Dicksmithsaurus) philbyi* (Parker, 1938).

SUBGENUS STOKESSAURUS SUBGEN. NOV.

Type species: *Uromastix thomasi* Parker, 1932.

Diagnosis: The genus *Dicksmithsaurus subgen. nov.* is best defined by separation of each of the described subgenera, (within *Dicksmithsaurus gen. nov.*) including for *Stokessaurus subgen. nov.* each diagnosis given herein therefore separating not just the relevant subgenus from others within the genus, but also from all other *Uromastyxiini tribe nov.* species.

Stokessaurus subgen. nov. are defined by the following suite of characters:

1/ Has preanofemoral pores; the tail is short being 25-35% of the SVL and when viewed from above it appears to be disk-shaped (subgenus *Stokessaurus subgen. nov.*).

The other two subgenera within *Dicksmithsaurus gen. nov.* are diagnosed and defined as follows:

1/ Has preanofemoral pores; the tail is long being 48-103% of SVL, and when viewed from above it appears to be elongated; the last 12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening has enlarged scales (subgenus *Dicksmithsaurus subgen. nov.*).

2/ Has preanofemoral pores; the tail is long being 70-98% of the SVL, and when viewed from above it appears to be an elongated shape; the last 2-5 tail whorls formed of continuous scales rows; 138-227 scales at midbody, 68-112 ventrals between gular and inguinal fold; tail with 20-24 whorls (subgenus *Mooressaurus subgen. nov.*).

The lizard genus *Uromastyx* Merrem, 1820 (now divided to include other genera including *Dicksmithsaurus gen. nov.*) has until recently been diagnosed as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation arranged in distinct whorls, which are not separated by intercalary scales dorsally. The fact that the whorls on the tail are not separated by intercalary scales dorsally divides *Uromastyx* and all other species in the tribe *Uromastyxiini tribe nov.* (including *Stokessaurus subgen. nov.*) from the genera within the tribe *Borgsauriini tribe nov.*

Distribution: Only positively known from coastal Oman.

Etymology: Named in honour of Paul Stokes, of Melbourne, Victoria, Australia. Through his role as owner of the retail pet store "Amazing Amazon" in Springvale Road, Glen Waverley, Paul and his team have made a positive contribution to animal welfare by going the extra mile in terms of helping clients properly care for their pet reptiles and fish. Private ownership of animals is an important first step in fostering a desire for people to want to conserve wild animals as outlined in Hoser (1991).

Content: *Dicksmithsaurus (Stokessaurus) thomasi* (Parker, 1930) (monotypic).

SUBGENUS MOORESAURUS SUBGEN. NOV.

Type species: *Uromastix geyri* Müller, 1922.

Diagnosis: The subgenus *Dicksmithsaurus subgen. nov.* is best defined by separation of each of the described subgenera, (within *Dicksmithsaurus gen. nov.*) including *Mooressaurus subgen. nov.*

Therefore each diagnosis given herein separates not just the subgenus from others within the genus, but also from all other *Uromastyxiini tribe nov.* species.

Mooressaurus subgen. nov. are defined by the following suite of characters:

Has preanofemoral pores; the tail is long being 70-98% of the SVL, and when viewed from above it appears to be an elongated shape; the last 2-5 tail whorls formed of continuous scales rows; 138-227 scales at midbody, 68-112 ventrals between gular and inguinal fold; tail with 20-24 whorls (subgenus *Mooressaurus subgen. nov.*).

The other two subgenera within *Dicksmithsaurus gen. nov.* are diagnosed and defined as follows:

1/ Has preanofemoral pores; the tail is short being 25-35% of the SVL and when viewed from above it appears to be disk-shaped (subgenus *Stokessaurus subgen. nov.*).

2/ Has preanofemoral pores; the tail is long being 48-103% of SVL, and when viewed from above it appears to be elongated; the last 12-21 tail whorls formed of continuous scale rows; anterior margin of ear opening has enlarged scales (subgenus *Dicksmithsaurus subgen. nov.*).

The lizard genus *Uromastyx* Merrem, 1820 (now divided to include other genera including *Dicksmithsaurus gen. nov.*) has until recently been diagnosed as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation arranged in distinct whorls, which are not separated by intercalary scales dorsally. The fact that the whorls on the tail are not separated by intercalary scales dorsally divides *Uromastyx* and all other species in the tribe *Uromastyxiini tribe nov.* (including *Mooressaurus subgen. nov.*) from the genera within the tribe *Borgsauriini tribe nov.*

Distribution: Only positively known from South Algeria, Mali, Niger and South-west Libya.

Etymology: Named in honour of Ben Moore, of Melbourne, Victoria, Australia. Through his role as manager of the retail pet store "Amazing Amazon" in Springvale Road, Glen Waverley, Ben Moore and his team have made a positive contribution to animal welfare by going the extra mile in terms of helping clients properly care for their pet reptiles and fish. Private ownership of animals is an important first step in fostering a desire for people to want to conserve wild animals as outlined in Hoser (1991).

Content: *Dicksmithsaurus (Mooressaurus) geyri* (Müller, 1922) (type species); *D. (Mooressaurus) alfredschmidti* (Wilms and Böhme, 2001).

GENUS SAARA GRAY, 1845.

Type species: *Uromastix hardwickii* Gray, 1827.

Diagnosis: All lizards in the tribe *Borgsauriini tribe nov.* are defined as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation arranged in distinct whorls, which are separated by 1-6 rows of intercalary scales dorsally.

It is the separation of the whorls on the tail by 1-6 rows of intercalary scales dorsally that separates this tribe from *Uromastyxiini tribe nov.* and also until now was the sole diagnostic character used to define and separate the genus *Saara* Gray, 1845 from other similar species.

With the genus *Saara* being divided three ways in this paper, it is best to define each genus as newly defined herein as follows:

Saara Gray, 1845 is now distinguished from the genera *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.* by having 2-6 rows of keeled intercalary scales separating each tail whorl dorsally. *Saara* is further separated from the genera *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.* by having a tail with 29-36 primary whorls (as opposed to less than 28 for the other two genera) and dorsal scalation interspersed with irregular, only slightly enlarged, tubercular scales as opposed to dorsal scalation with transverse rows of conspicuously enlarged tubercular scales in *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.*

Centrotrachelus Strauch, 1863 is distinguished from the genera *Saara* Gray, 1845 and *Borgsaurus gen. nov.* by having 1-2 rows of unkeeled intercalary scales separating each tail whorl dorsally and having 8-13 preanofemoral pores. *Centrotrachelus* is further distinguished by having slightly enlarged scales at front edge of ear opening and 7-10 scales in a transverse row on the dorsal surface of the tail base.

Borgsaurus gen. nov. is distinguished from the genera *Saara* Gray, 1845 and *Centrotrachelus* Strauch, 1863 by having 1-2 rows of unkeeled intercalary scales separating each tail whorl dorsally and having 14-20 preanofemoral pores. *Borgsaurus gen. nov.* is further separated by having no enlarged scales at the front edge of the ear opening and 12 scales in a transverse row on the dorsal surface of the tail base.

Distribution: Afghanistan, Pakistan and India.

Content: *Saara hardwickii* Gray, 1827 (monotypic).

GENUS CENTROTRACHELUS STRAUCH, 1863.

Type species: *Centrotrachelus asmussi* Strauch, 1863.

Diagnosis: All lizards in the tribe Borgsauriini *tribe nov.* are defined as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation arranged in distinct whorls, which are separated by 1-6 rows of intercalary scales dorsally.

It is the separation of the whorls on the tail by 1-6 rows of intercalary scales dorsally that separates this tribe from Uromastyxiini *tribe nov.* and also until now was the sole diagnostic character used to define and separate the genus *Saara* Gray, 1845 from other similar species.

With the genus *Saara* being divided three ways in this paper, it is best to define each genus as newly defined herein as follows:

Centrotrachelus Strauch, 1863 is distinguished from the genera *Saara* Gray, 1845 and *Borgsaurus gen. nov.* by having 1-2 rows of unkeeled intercalary scales separating each tail whorl dorsally and having 8-13 preanofemoral pores. *Centrotrachelus* is further distinguished by having slightly enlarged scales at front edge of ear opening and 7-10 scales in a transverse row on the dorsal surface of the tail base.

Saara Gray, 1845 is now distinguished from the genera *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.* by having 2-6 rows of keeled intercalary scales separating each tail whorl dorsally. *Saara* is further separated from the genera *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.* by having a tail with 29-36 primary whorls (as opposed to less than 28 for the other two genera) and dorsal scalation interspersed with irregular, only slightly enlarged, tubercular scales as opposed to dorsal scalation with transverse rows of conspicuously enlarged tubercular scales in *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.*

Borgsaurus gen. nov. is distinguished from the genera *Saara* Gray, 1845 and *Centrotrachelus* Strauch, 1863 by having 1-2 rows of unkeeled intercalary scales separating each tail whorl dorsally and having 14-20 preanofemoral pores. *Borgsaurus gen. nov.* is further separated by having no enlarged scales at the front edge of the ear opening and 12 scales in a transverse row on the dorsal surface of the tail base.

Distribution: Afghanistan, Pakistan and Southern Iran.

Content: *Centrotrachelus asmussi* Strauch, 1863 (monotypic).

GENUS BORGSAURUS GEN. NOV.

Type species: *Centrotrachelus loricatus* Blanford, 1874.

Diagnosis: All lizards in the tribe Borgsauriini *tribe nov.* are defined as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation arranged in distinct whorls, which are separated by 1-6 rows of intercalary scales dorsally.

It is the separation of the whorls on the tail by 1-6 rows of intercalary scales dorsally that separates this tribe from Uromastyxiini *tribe nov.* and also until now was the sole diagnostic character used to define and separate the genus *Saara* Gray, 1845 from other similar species.

With the genus *Saara* being divided three ways in this paper, it is best to define each genus as newly defined herein as follows:

Borgsaurus gen. nov. is distinguished from the genera *Saara* Gray, 1845 and *Centrotrachelus* Strauch, 1863 by having 1-2 rows of unkeeled intercalary scales separating each tail whorl dorsally and having 14-20 preanofemoral pores. *Borgsaurus gen. nov.* is further separated by having no enlarged scales at the front edge of the ear opening and 12 scales in a transverse row on the dorsal surface of the tail base.

Centrotrachelus Strauch, 1863 is distinguished from the genera *Saara* Gray, 1845 and *Borgsaurus gen. nov.* by having 1-2 rows of unkeeled intercalary scales separating each tail whorl dorsally and having 8-13 preanofemoral pores. *Centrotrachelus* is further distinguished by having slightly enlarged scales at front edge of ear opening and 7-10 scales in a transverse row on the dorsal surface of the tail base.

Saara Gray, 1845 is now distinguished from the genera *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.* by having 2-6 rows of keeled intercalary scales separating each tail whorl dorsally. *Saara* is further separated from the genera *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.* by having a tail with 29-36 primary whorls (as opposed to less than 28 for the other two genera) and dorsal scalation interspersed with irregular, only slightly enlarged, tubercular scales as opposed to dorsal scalation with transverse rows of conspicuously enlarged tubercular scales in *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.*

Distribution: Iraq and south-west Iran.

Etymology: Named in honour of Matt Borg of Mount Cottrell, on the outskirts of Melbourne, Victoria, Australia in recognition for his many services to Australian herpetology and wildlife conservation. This has most notably been through the breeding of enormous quantities of rodents used to feed collections of wildlife held for research and educational purposes. This includes food eaten by the many species held and used by Snakebusters, Australia's best reptile shows.

Content: *Borgsaurus loricatus* Blanford, 1874 (monotypic).

TRIBE UROMASTYXIINI TRIBE NOV.

(Terminal taxon: *Lacerta aegyptia* Forskal, 1775)

Diagnosis: The lizard subfamily Uromastycinae Theobald, 1868 is most easily defined as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation is arranged in distinct whorls.

For the tribe Uromastyxiini *tribe nov.* these whorls are not separated by intercalary scales dorsally.

For the tribe Borgsauriini *tribe nov.* (the only other tribe in the subfamily Uromastycinae) these whorls are separated by 1-6 rows of intercalary scales dorsally.

In further detail the tribe Uromastyxiini *tribe nov.* is also defined as follows:

Tympanum large, vertically elliptic and distinct. Incisors large, uniting in the adult into one or two cutting-teeth, separated from the molars by a toothless interspace. Body depressed, without crest. No gular pouch; a transverse gular fold. Tail short, depressed, covered with whorls of large spinose scales. Praeanal and femoral pores present.

The head is small, feebly depressed, with a short snout and obtuse canthus rostralis; nostril large, directed backwards, nearer the end of the snout than the eye; upper head-scales smooth, much larger than those on the body, smallest on supraorbital region; occipital not enlarged; labials small and numerous. Neck strongly plicate. Limbs short and thick; hind limb with spinose conical tubercles; digits short and armed with strong claws. Scales on upper surface of body very small, on belly larger, fiat, smooth, juxtaposed or subimbricate.

Distribution: Species until now placed in the genus *Uromastix* (now placed in the tribe Uromastyxiini *tribe nov.*) inhabit a range stretching through most of North Africa and the Middle East, ranging as far east as Iran. The three species found further east in

dry habitats in southwest Asia, ranging from Iran to north-western India have more recently been placed in the genus *Saara* (Borgsauriini *tribe nov.*).

Content: *Uromastix* Merrem, 1820 (type genus); *Aporoscelis* Boulenger, 1885; *Dicksmithsaurus gen. nov.*; *Euanedwardssaurus gen. nov.*.

TRIBE BORSAURIINI TRIBE NOV.

(Terminal taxon: *Centrotrachelus loricatus* Blanford, 1874)

Diagnosis: All lizards in the tribe Borgsauriini *tribe nov.* are defined as follows:

Acrodont dentition, with the premaxillary bone forming in adult specimens a sharp, tooth-like structure replacing the incisive teeth. Tail scalation arranged in distinct whorls, which are separated by 1-6 rows of intercalary scales dorsally.

It is the separation of the whorls on the tail by 1-6 rows of intercalary scales dorsally that separates this tribe from Uromastixiini *tribe nov.* and also until now was the sole diagnostic character used to define and separate the genus *Saara* Gray, 1845 from other similar species.

With the genus *Saara* being divided three ways in this paper (the trio being the entire content of this new tribe), it is best to define each genus as newly defined herein as follows:

Borgsaurus gen. nov. is distinguished from the genera *Saara* Gray, 1845 and *Centrotrachelus* Strauch, 1863 by having 1-2 rows of unkeeled intercalary scales separating each tail whorl dorsally and having 14-20 preanofemoral pores. *Borgsaurus gen. nov.* is further separated by having no enlarged scales at the front edge of the ear opening and 12 scales in a transverse row on the dorsal surface of the tail base.

Centrotrachelus Strauch, 1863 is distinguished from the genera *Saara* Gray, 1845 and *Borgsaurus gen. nov.* by having 1-2 rows of unkeeled intercalary scales separating each tail whorl dorsally and having 8-13 preanofemoral pores. *Centrotrachelus* is further distinguished by having slightly enlarged scales at front edge of ear opening and 7-10 scales in a transverse row on the dorsal surface of the tail base.

Saara Gray, 1845 is now distinguished from the genera *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.* by having 2-6 rows of keeled intercalary scales separating each tail whorl dorsally. *Saara* is further separated from the genera *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.* by having a tail with 29-36 primary whorls (as opposed to less than 28 for the other two genera) and dorsal scalation interspersed with irregular, only slightly enlarged, tubercular scales as opposed to dorsal scalation with transverse rows of conspicuously enlarged tubercular scales in *Centrotrachelus* Strauch, 1863 and *Borgsaurus gen. nov.*

Distribution: *Borgsaurus gen. nov.* is found in Iraq and south-west Iran.

Centrotrachelus Strauch, 1863 is found in Afghanistan, Pakistan and Southern Iran.

Saara Gray, 1845 is found in Afghanistan, Pakistan and India.

Etymology: See for the genus *Borgsaurus gen. nov.* (above).

Content: *Borgsaurus gen. nov.* (type genus); *Centrotrachelus* Strauch, 1863; *Saara* Gray, 1845.

CONFLICT OF INTEREST

This author reports no conflict of interest in terms of any material within this paper.

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