

# **A logical new genus-level taxonomy for the Xenosauridae, Anniellidae, Diploglossidae and Anguidae (Squamata:Sauria).**

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## **ABSTRACT.**

A number of recent molecular studies have highlighted divergences between currently recognized genera of lizards within the four closely associated lizard families Xenosauridae, Anniellidae, Diploglossidae and Anguidae, which share the same clade as *Heloderma*, reviewed by Hoser (2013a) and more distantly Varanidae reviewed by Hoser (2013b)

Combining the results of recent cited molecular and morphological studies the following genera as presently recognized by most herpetologists in 2014 are split:

*Xenosaurus* Peters, 1861 is divided into two, with the erection of *Eastmansaurus gen. nov.* to accommodate four species found north of the Mexican transvolcanic belt. The remaining species are in turn divided into two subgenera, the new group being *Rosanolansaurus subgen. nov.*

*Anniella* Gray, 1852 is divided into two with the erection of *Kendslider gen. nov.* to accommodate one species.

For the Diploglossidae, *Celestus* Gray, 1839 is divided three ways, using *Celestus* for the Hispaniolan group, *Siderolamprus* Cope, 1860 for the mainland species and the erection of a new genus *Toscanosaurus gen. nov.* for seven divergent species from Jamaica. *Siderolamprus* (from mainland middle America) is divided into four subgenera, including *Garyallensaurus subgen. nov.*, *Conningsaurus subgen. nov.* and *Dannybrownsaurus subgen. nov.*

*Diploglossus* Wiegmann, 1834 is divided four ways with three new genera being erected to accommodate Antilles species, namely *Artusbrevis gen. nov.*, *Masonnicolasaurus gen. nov.* and *Laurielevysaurus gen. nov.*

*Ophiodes* Wagler, 1830 is unchanged from other recent works and *Sauresia* Gray, 1852 is also recognized as valid.

The Diploglossidae are divided into two tribes, namely Diploglossiini *tribe nov.* and Toscanosauriini *tribe nov.*

For the Anguidae the following changes are made:

Within Anguinae *Ophisaurus* Daudin, 1803 is divided into four, with the resurrection of *Hyalosaurus* Günther, 1873 for the African species and the erection of *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* to accommodate various North American species.

*Dopasia* Gray, 1853 is divided into two with the erection of *Richardsonsaurus gen. nov.* to accommodate the Chinese "harti" species group.

The Anguinae is also divided into two tribes both formally named.

Within Gerrhonotinae *Elgaria* Gray, 1838 is divided into two with the erection of *Pitmansaurus gen. nov.* to accommodate the divergent taxon *Elgaria coerulea* (Wiegmann, 1828) with both genera placed in a new tribe Pitmansauriini *tribe nov.* and all other genera in the subfamily placed in Gerrhontiini *tribe nov.*

*Gerrhonotus* Wiegmann, 1828 is divided into two with the erection of *Lindholtsaurus gen. nov.* to accommodate the divergent species *Gerrhonotus parvus* Knight and Scudday, 1985 and two others.

*Mesaspis* Cope, 1878 is divided into two with the erection of *Rentonsaurus gen. nov.* to accommodate the divergent taxon *Mesaspis gadovii* (Boulenger, 1913). For the remainder, two species are placed in the subgenus *Rayplattsaurus subgen. nov.*

*Abronia* Gray, 1838 is herein regarded as paraphyletic with the adoption of all subgenera formally proposed by Campbell and Frost, 1993, (being *Abronia*, *Abaculabronia*, *Aenigmabronia*, *Auriculabronia*, *Lissabronia*, *Scopaeabronia*). In addition three new subgenera, *Elliottsaura subgen. nov.*, *Assangesaurus subgen. nov.* and *Lanisaurea subgen. nov.* are erected for species not properly accommodated within the existing divisions.

The divergent taxon, *Abronia mixteca* Bogert and Porter, 1967 is placed in its own monotypic genus, *Snowdonsaurus gen. nov.*

Noting that living Shinisauridae and Lanthanotidae are both monotypic, this paper in effect completes a thorough review of the living Varanoidea at the generic level.

**Keywords:** Taxonomy; nomenclature; genera; Xenosauridae; Anniellidae; Anguidae; Helodermatidae; *Heloderma*; *Xenosaurus*; *Anniella*; *Kendslider*; *Celestus*; *Siderolamprus*; *Sauresia*; *Wetmorena*; *Diploglossus*; *Ophisaurus*; *Dopasia*; *Hyalosaurus*; *Elgaria*; *Gerrhonotus*; *Mesaspis*; *Abronia*; *Abaculabronia*; *Aenigmabronia*; *Auriculabronia*; *Lissabronia*; *Scopaeabronia*; new tribes; Diploglossiini; Toscanosauriini; Anguini; Ophisauriini; Pitmansauriini; Gerrhonotiini; new genera; *Eastmansaurus*; *Toscanosaurus*; *Artusbrevis*; *Masonnicolasaurus*; *Laurielevysaurus*; *Binghamsaurus*; *Smythsaurus*; *Richardsonsaurus*; *Pitmansaurus*; *Lindholtsaurus*; *Snowdonsaurus*; New subgenera; *Rosanolansaurus*; *Dannybrownsaurus*; *Garyallensaurus*; *Conningsaurus*; *Rayplattsaurus*; *Elliottsaura*; *Lanisaurea*; *Assangesaurus*.

## INTRODUCTION.

The basis of this paper is to complete a genus level review of the totality of the extant Varanoidea in order to present a workable and consistent taxonomy for other scientists.

The basis of this review is by the drawing together of recent molecular studies as well as known morphological data from earlier published literature as well as examination of specimens as required.

It represents the culmination of some decades working with relevant reptile taxa and travels to various parts of the world as needed.

Hoser (2013a) corrected a long-standing anomaly in the generic arrangement of the living Helodermatidae, dividing the genus *Heloderma* Wiegmann, 1829 into two, erecting *Maxhosersaurus* Hoser, 2013 for the species *Heloderma suspectum* Cope 1869, with all other species remaining in the original genus *Heloderma*. This division was done on the basis of well-defined molecular and morphological evidence. I should also add that the division itself was in no way surprising or unexpected in hindsight. The only thing unexpected in terms of the paper (Hoser 2013a) was that no one had made this division earlier.

The only logical conclusion reached by myself has been that the few taxonomists who delved into the issue of relationships between living members of Helodermatidae inadvertently confused levels of division required at both family and genus level.

Hoser (2013b) also used molecular and morphological evidence to create a new taxonomy for living varanids.

While there were numerous new divisions within the living varanids as compared to other earlier classifications in use, these are not out of line with the relevant divergences as compared to other groups of living reptiles such as skinks, venomous snakes and the like.

The placement of all widely divergent species of living varanid into the single genus *Varanus* has been known to be ridiculous for many years.

The sooner the use of the name "*Varanus*" by taxonomists and others to define each and every extant varanid is jettisoned, the better!

The two families Shinisauridae and Lanthanotidae are both monotypic, and so there is no need or basis with which to divide the genera as they stand.

Furthermore recent molecular and morphological studies of the relatively limited populations of the living species have shown them to be very similar morphologically and genetically similar as well, meaning that there is no real prospect of either being recognized as more than one species in the near future, let alone different genera!

Relevant publications in terms of Shinisauridae include: Ahl (1930), Akeret (2011), Bobrov and Semenov (2008), Conrad (2004, 2006), Good *et al.* (1993), Grychta (1993), Haas (1960), Hecht and Costelli (1969), Hecht *et al.* (2013), Hu *et al.* (1984), Li *et al.* (2012), Lu *et al.* (2003), Macey *et al.* (1999), Mägdefrau (1987), Mägdefrau and Schildger (1993), Pyron *et al.* (2013), Sang *et al.* (2009), Shen and Li (1982), Sprackland (1996b), Visser (1989), Wilke (1985), Wölfel (2003), Zhao and Adler (1993), Zhenchang (2002), Ziegler *et al.* (2008), Zollweg (2010, 2011), Zollweg and Kühne (2013) and sources cited therein.

Relevant publications in terms of Lanthanotidae include: Auliya (2006), Boulenger (1885, 1899b), Das (2004), Das and Yaakob (2007), de Rooij (1915), Manthey and Grossmann (1997), McDowell (1967), McDowell and Bogert (1954), Mertens (1961), Miller (1966), Sprackland (1976), Steindachner (1877, 1878), Underwood (1957), Yaap *et al.* (2012) and sources cited therein.

So as inferred already, the purpose of this paper is to in effect

complete a thorough review of the living Varanoidea at the generic level.

In line with this review, I note that a number of recent molecular studies have highlighted divergences between currently recognized genera of lizards within the four closely associated lizard families Xenosauridae, Anniellidae, Diploglossidae and Anguidae, which share the same clade as *Heloderma*.

These divergences are corroborated by well-defined morphological differences.

Combined they make a strong case for the division of a number of genera.

Molecular, taxonomic and other studies relevant to the phylogeny of the Xenosauridae, Anniellidae, Diploglossidae and Anguidae include the following: Ast (2001), Böhme and Ziegler (2009), Bryson (2011), Gómez-Tuena *et al.* (2007), Macey *et al.* (1999), McDowell and Bogert (1954), Pyron *et al.* (2013), Vidal and Hedges (2005, 2009), Underwood (1957), Vidal *et al.* (2012) and sources cited therein.

Key references in terms of the Xenosauridae include the following: Ballinger *et al.* (2000a, 2000b), Barrows and Smith (1947), Bhullar (2011), Boulenger (1885), Camarillo (1998), Camarillo and José (1990), Canseco-Marquez *et al.* (2000), Cope (1867), Gray (1856), Günther (1885), Haas (1960), King and Thompson (1968), Köhler (2000), Lara-Tufiño *et al.* (2013), Lemos-Espinal and Smith (2005), Lemos-Espinal *et al.* (1996, 1998, 2000a, 2000b, 2004a), Lynch and Smith (1965), Martin (1958), Molina-Zuluaga *et al.* (2013), Nieto-Montes de Oca and Smith (2001), Nieto-Montes de Oca *et al.* (2013), Pérez Ramos *et al.* (2000), Peters (1861), Phillips (2003), Pianka and Vitt (2003), Pyron *et al.* (2013), Smith and Iverson (1993), Smith *et al.* (2000), Stuart (1941), Taylor (1949), Werler and Shannon (1961), Wilson *et al.* (2013), Woolrich-Piña and Smith (2012), Woolrich-Piña *et al.* (2012) and sources cited therein.

Key references in terms of the Anniellidae, a group recently thought (by most herpetologists) to only include two living species, includes the following: Baur (1894), Bertolotto *et al.* (2004), Bettelheim (2005), Bezy and Weight (1971), Bezy *et al.* (1977), Bhullar and Bell (2008), Boulenger (1885, 1887b), Collins and Taggart (2009), Conrad and Norell (2008), Fischer (1886a, 1886b), Gorman (1957), Gray (1852a, 1852b), Grinnell and Camp (1917), Hallermann (1998), Hunt (1983, 2008a, 2008b), Jennings *et al.* (1992), Klauber (1932, 1940), Limer (2007), Parham and Papenfuss (2009), Papenfuss and Parham (2013), Pearse and Pogson (2000), Pianka and Vitt (2003), Sanchez-Pacheco and Mellink (2001), Pyron *et al.* (2013), Shaw (1940, 1953), Smith and Taylor (1950), Sprackland (1996a), Stebbins (1985), Van Denburgh (1905b), Wermuth (1969), Zweifel (1958) and sources cited therein.

Key references in terms of the Diploglossidae include the following: Avila *et al.* (2013), Avila-Pires (1995), Barbour (1909, 1910, 1919), Barbour and Ramsden (1919), Barbour and Schreie (1937), Blackburn (1999), Borges-Nojosa and Caramaschi (2003), Brongersma (1946), Bauer *et al.* (1995), Bérnills *et al.* (2001), Bocourt (1873, 1874, 1881), Böhme and Fischer (1998), Borges-Nojosa and Caramaschi (2003), Boulenger (1885, 1886, 1887a, 1894, 1895, 1898, 1913a), Caldeira Costa *et al.* (2009), Campbell and Camarillo (1994), Campos-Rodríguez and López-Vidal (2007), Canseco-Marquez *et al.* (2000), Castro-Herrera and Vargas-Salinas (2008), Cei (1993), Cochran (1927, 1939, 1941), Coleman (1997), Cope (1861, 1862, 1863, 1867, 1868a, 1879, 1885a, 1894), Cocteau and Bibron (1838), Cousens (1956), Dirksen and De la Riva (1999), Dirksen *et al.* (1995), Duellman (1963), Duméril and Bibron (1839), Fischer (1886a, 1886b, 1886c, 1888), Fugler (1989), Gallardo (1966), Garman (1887, 1888), Genise (1983), Good (1992), Good *et al.* (1993), Grant (1940a, 1940b, 1951), Gray (1831, 1839, 1845, 1852a, 1852b), Günther (1885), Hallermann and Böhme (2002), Hallowell (1856a), Hamdan *et*

*al.* (2013), Henderson (1988a, 1988b, 1988c), Henderson and Schwartz (1984), Hidalgo (1982), Inchaustegui *et al.* (1985), Joseph-Ouni (2005), Kahl (1981), Köhler (2000, 2008), Köhler *et al.* (2004, 2005, 2013), Lee (1996, 2000), Liner (1994), Kronauer (1999), Lotzkat *et al.* (2010), Myers (1973), McCranie and Wilson (1996), Mertens (1939), Montanelli and Chebez (1997), Montero *et al.* (1995), Oliveira Lula Salles *et al.* (2010), O'Shaughnessy (1874a, 1874b), Parker (1924), Peracca (1890, 1891), Pérez-Higareda *et al.* (2002), Peters (1874, 1878), Peters and Donoso-Barros (1970), Pianka and Vitt (2003), Powell (1999), Powell and Henderson (2003), Powell and Inchaustegui (2009), Powell *et al.* (1996, 1999), Prigioni *et al.* (2011), Pyron *et al.* (2013), Reuss (1834), Ribeiro *et al.* (2012), Rivero (1978), Rodrigues (2003), Rodríguez Schettino *et al.* (2013), Savage and Lips (1993), Savage *et al.* (2008), Schmidt (2011), Schmidt (1928, 1933), Schmidt and Inger (1951), Schwartz (1964, 1965, 1970, 1971), Schwartz and Henderson (1985, 1991), Schwartz and Inchaustegui (1976), Schwartz and Jacobs (1989), Schwartz *et al.* (1979), Shaw (1802), Sferco and Haro (1991), Silva-Soares *et al.* (2011), Sites *et al.* (2011), Slevin (1928), Smith (1942), Smith and Taylor (1950), Spix (1825), Stejneger (1904), Strahm and Schwartz (1977), Taylor (1956), Thomas (1971), Thomas and Hedges (1989, 1998), Tittel (2013), Townsend *et al.* (2005), Underwood (1959, 1964), Vanzolini (1958), Villa and Occhipinti (1988), Villa and Wilson (1988), Vitt (1985), Vrcibradic *et al.* (2011), Wagler (1828), Weinland (1863), Werler and Campbell (2004), Werner (1901, 1910), White and Powell (1996), Wiegmann (1834), Wiens and Slingluff (2001), Wilson and McCranie (2001, 2002), Wilson and Vogel (2000) Wilson *et al.* (1986), and sources cited therein.

Within the Gerrhonotidae there are two main divisions, these being the Anguinae and the Gerrhonotinae.

Key references in terms of the Anguinae include the following: Ahmed *et al.* (2009), Alfermann and Völkl (2004), Ali (1950), Allen (1932), Al-Quran (2009), Anderson (1999), Arakelyan *et al.* (2011), Arnold (2002), Bain and Truong (2002), Bar and Haimovitch (2012), Baran *et al.* (1988), Bartlett and Bartlett (1999), Bauer (2007), Berroneau *et al.* (2010), Berthold (1840), Beshkov and Nanev (2006), Best (1965), Bird (1936), Bischoff (2002), Bischoff and Bischoff (1980), Blair (1950, 1961), Blyth (1854), Bobrov (1995), Bobrov and Semenov (2008), Bogosian *et al.* (2012), Born (1883), Boulenger (1887a, 1885, 1891, 1899a), Broggi (1978), Brygoo (1988), Bryson and Graham (2010), Burt (1935), Campbell and Frost (1993), Campbell *et al.* (1998), Campden-Main (1970), Canova and Marchesi (2007), Capula and Luiselli (1993), Capula *et al.* (1993, 1999), Ceirans (2004), Cevik (1999), Clark (1994), Clark and Clark (1970), Cogălniceanu *et al.* (2013), Collins and Taggart (2009), Conant and Collins (1991), Conrad and Norell (2008), Conrad *et al.* (2011), Cope (1880, 1900), Covaciu-Marcov *et al.* (2007, 2008, 2009), Coues (1871), Cox *et al.* (1998), Crother *et al.* (2012), Darevsky and Sang (1983), Das (2004), Das and Yaakob (2007), Davies (1967), de Rooij (1915), Disi *et al.* (2001), Dixon (2000), Dossenbach and Ganz (1977), Dujsebayaeva (2010), Duméril and Bibron (1839), Dundee and Rossman (1989), Elmerg (1995), Enge (1994a, 1994b), Engemann *et al.* (1993), Escoriza and del Mar Comas (2011), Esser (2011), Evans (1905), Fitch (1989), Forcart (1950), Fouquette and Delahoussaye (1966), Franklin (2005), Frazer (1949), Frick (1997), Fritz (2011), Frynta *et al.* (1997), Girolla (1996), Gollmann and Gollmann (2008), Gravenhorst (1851), Gray (1845, 1853), Grillitsch and Cabela (1990), Günther (1873, 1885), Gvođiik *et al.* (2010, 2013), Hallowell (1956b, 1956c), Hartweg and Tihen (1946), Henle (1985), Holman (1965, 1966, 1971a, 1971b, 1971c, 1971d, 1971e, 1971f), Hraoui-Bloquet *et al.* (2002), Inger *et al.* (1990), Jablonski (2011), Jablonski and Meduna (2010), Johnson and LaDuc (1994), Kasapidis *et al.* (1996), Kasperek (1990), Ka'stler *et al.* (2013), Keskin *et al.*

(2013), Kishida (1930), Klembara (1979), Kovatscheff (1903), Kumlutas *et al.* (2004), Kwet (2010, 2013), Lalremsanga *et al.* (2010), Langerwerf (1980), Lantermann and Lantermann (2010), Laufer *et al.* (2007), Lenz (2012), Leptien (2010), Leviton *et al.* (1992), Leydig (1886), Lidth De Juede (1905), Lin *et al.* (2003), Liner (2007), Linné [= Linnaeus, C.] (1758, 1766), Liu-Yu (1970), Lönnberg (1894), Luiselli (1992), Luiselli *et al.* (1994), Macey *et al.* (1999), Malkmus (1982, 1995a, 1995b), Malkmus *et al.* (2002), Manthey (1983), Manthey and Grossmann (1997), Mateo *et al.* (1998), Mayer *et al.* (1991), McConkey (1952, 1955, 1957), Mellado and Mateo (1992), Mertens (1959), Milto (2010), Mitchell (1994), Mitchell and Reay (1999), Mocquard (1905a, 1905b), Musters and In den Bosch (1982), Necas *et al.* (1997), Neill (1949), Nguyen *et al.* (2011), Nikolsky (1897), Noble and Mason (1933), Nöllert *et al.* (1986), Obst (1980), Ochsenbein (2013), Pallas (1775), Palmer (1968, 1987, 1988, 1992), Palmer and Braswell (1995), Pawlowski and Krämer (2009), Petrov *et al.* (2006), Petzold (1971), Pianka and Vitt (2003), Plessas (2002), Pollini (1818), Polovic and Cadenovic (2014), Pottier *et al.* (2008), Pous *et al.* (2011), Pyron *et al.* (2013), Rastegar-Pouyani *et al.* (2008), Rifai *et al.* (2005), Risso (1826), Roitberg *et al.* (2000), Rutschke *et al.* (2005), Saikia *et al.* (2007), Sang *et al.* (2009), Schleich *et al.* (2006), Schlüter (2005a, 2005b), Schmidt (1953), Schneider (1986), Schultschik and Steinartz (1996), Schwartz and Henderson (1991), Sehnaal and Schuster (1999), Shaw and Nodder (1800), Shoop and Ruckdeschel (1997), Sindaco and Jeremcenko (2008), Sindaco *et al.* (2000), Smith (1935, 1951), Smith and Leonard (1934), Sos (2007, 2008), Sos and Herczeg (2010), Stains (1954), Stejneger (1910, 1919), Stèpànek (1937), Strugariu *et al.* (2008, 2009), Stumpel and Bert van der Werf (2012), Szabo and Vörös (2014), Szczerbak (2003), Teran-Juarez (2008), Thanou *et al.* (2014), Tonge (1986), Tóth *et al.* (2002), Trapp (2005, 2007), Venugopal (2010), Vervust *et al.* (2009), Wall (1908), Wallin (2001), Wermuth (1969), Werner (1894, 1931), Werner (1988), Wiens and Slingluff (2001), Wilgers *et al.* (2006), Wirth (2011a, 2011b), Wütschert (1984), Yang (1984), \*agar *et al.* (2014), Zhong (1993) and sources cited therein.

Key references in terms of the Gerrhonotinae include the following: Akeret (2006), Alvarez (1982), Ariano-Sanchez and Melendez (2014), Asams *et al.* (1999), Baird (1859), Baird and Girard (1852), Banta *et al.* (1996), Bauer *et al.* (1995), Beolens *et al.* (2011), Bille (2001), Blackburn (1994), Blainville (1835), Blair (1950), Blatchley (1893), Bocourt (1872, 1873a, 1873b), Bogert and Porter (1967), Boulenger (1885, 1887c, 1913b), Bradley and Deacon (1966), Brodie and Savage (1993), Bryson and Graham (2010), Bryson and Lazcano (2005), Bryson *et al.* (2005), Burt (1933), Campbell (1982, 1984), Campbell and Brodie (1999), Campbell and Frost (1993), Campbell and Vannini (1989), Campbell *et al.* (1998), Castiglia *et al.* (2010), Chiszar *et al.* (2004), Conant and Collins (1991), Collins and Taggart (2009), Conroy *et al.* (2005), Contreras-Arquieta (1989), Cope (1866, 1864, 1867, 1868b, 1878, 1885a, 1885b, 1900), Crother (2012), Davis and Dixon (1961), Degenhardt *et al.* (1996), del Campo (1939), Dixon (2000), Dixon and Lemos-Espinal (2010), Dugés (1893), Duméril and Bibron (1839), Dunn (1936), Dunn and Emlen (1932), Espinoza *et al.* (1999), Fitch (1934, 1936, 1938, 1973), Flesch *et al.* (2010), Flores-Villela and Canseco-Marquez (2004), Flores-Villela and Sanchez-H (2003), Flury (1949), Franzen and Haft (1999), Fugler and Webb (1956), García-Bastida *et al.* (2013), Gebhart (2010), Gehlbach and Collette (1957), Gloyd and Smith (1942), Good (1994, 1988, 1995), Good and Schwenk (1985), Good and Wiedenfeld (1995), Good *et al.* (1993), Gray (1838, 1845), Grinnell and Camp (1917), Grismer (1988, 2001), Grismer and Hollingsworth (2001), Günther (1885), Gutsche (2012), Hammerson (2007), Hartweg and Tihen (1946), Hidalgo (1983), Jones and Lovich (2009), Karges and Wright (1987), Kahl *et al.*

(1980), Kerster and Smith (1955), Knight and Scudday (1985), Köhler (2000), Langner (2014), Lais (1976a, 1976b, 1976c), Lambertz and Graba (2011), Langerwerf (1979), Langner (2007, 2013a, 2013b, 2014), Lemos-Espinal *et al.* (2004b), Leoza-Corichi and Flores-Villela (1995), Liner (1994, 2007), Liner *et al.* (1973), Martin (1958), McCoy (1970), McCranie and Wilson (1999, 2001), McDiarmid *et al.* (1976), Medica (1965), Mertens (1952), Murphy and Smith (2013), Nussbaum *et al.* (1983), O'Shaughnessy (1873), Otvos (1977), Pachmann (2012), Painter and Jennings (1998), Pérez-Higareda *et al.* (2002), Peters (1876), Peters and Donoso-Barros (1970), Peterson *et al.* (2004), Pianka (2012), Pianka and Vitt (2003), Pyron *et al.* (2013), Quintero-Díaz *et al.* (1999), Ramirez-Bautista *et al.* (1998a, 1998b), Rochester *et al.* (2010), Sanchez-Herrera and López-Forment (1980), Savage and Villa (1986), Schmidt (1991, 1992), Schmidt and Shannon (1947), Schlüter (2007), Siebenrock (1892, 1895), Skilton (1849), Smith (1942, 1946, 1986), Smith and Alvarez Del Toro (1963), Smith and Smith (1981), Smith and Taylor (1950), Smith *et al.* (2002, 2003), Stebbins (1958, 1985), Stejneger (1893, 1890, 1902, 1907), Sunyer and Köhler (2007), Taylor (1953, 1956), Tihen (1944, 1948, 1949a, 1949b, 1954), Trapp (2012), Valdez-Lares *et al.* (2013), Van Denburgh (1895, 1898, 1905a), Vazquez Diaz and Quintero Díaz (2005), Vesely and Köhler (2001), Vindum and Arnold (1997), Waddick and Smith (1974), Wagler (1833), Webb (1970, 1984), Webb and Hensley (1959), Werler and Shannon (1961), Werning (2012, 2013), Wiegmann (1828, 1834), Wilson and McCranie (2003), Wilson *et al.* (2013), Woodbury (1945), Zaldivar-Riveron and Nieto-Montes de Oca (2001, 2002), Zaldivar-Riveron *et al.* (2005), Zweifel (1954, 1958) and sources cited therein.

As a result of the above, the following genera as presently recognized by most herpetologists in 2014 are split according to the rules of the Zoological Code (Ride *et al.* 1999).

These are as follows:

*Xenosaurus* Peters, 1861 is divided into two, with the erection of *Eastmansaurus gen. nov.* to accommodate four species found north of the Mexican transvolcanic belt. The species from the Atlantic versant of Mexico remain in the genus as do those from the Pacific coast region of the Sierra Madre del Sur in Guerrero and Oaxaca, although the latter group are placed in a newly named and defined subgenus *Rossnolansaurus subgen. nov.*

*Anniella* Gray, 1852 is divided into two with the erection of *Kendslider gen. nov.* to accommodate one species.

For the Diploglossidae the following changes are made.

*Celestus* Gray, 1839 is divided three ways, using *Celestus* for the Hispaniolan group, *Siderolamprus* Cope, 1860 for the mainland species and the erection of a new genus *Toscanosaurus gen. nov.* for divergent species from Jamaica. *Siderolamprus* (from mainland Middle America) is divided into four subgenera, including *Garyallensaurus subgen. nov.*, *Conningsaurus subgen. nov.* and *Dannybrownsaurus subgen. nov.*

*Diploglossus* Wiegmann, 1834 is divided four ways with three new genera being erected to accommodate Antillean species, namely *Artusbrevis gen. nov.*, *Masonnicolasaurus gen. nov.* and *Laurielevysaurus gen. nov.*

*Ophiodes* Wagler, 1830 is also recognized unchanged from other recent works.

*Sauresia* Gray, 1852 is also recognized as valid.

The Diploglossidae are also placed into two new tribes, namely Diploglossiini *tribe nov.* and Toscanosauriini *tribe nov.* both formally named herein according to the Zoological Code (Ride *et al.* 1999).

For the Anguinae the following changes are made:

Within Anguinae *Ophisaurus* Daudin, 1803 is divided into four,

with the resurrection of *Hyalosaurus* Günther, 1873 for the African species and the erection of *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* to accommodate North American species.

*Dopasia* Gray, 1853 is divided into two with the erection of *Richardsonsaurus gen. nov.* to accommodate the Chinese "harti" species group.

The Anguinae is also divided into two tribes.

Within Gerrhonotinae *Elgaria* Gray, 1838 is divided into two with the erection of *Pitmansaurus gen. nov.* to accommodate the divergent taxon *Elgaria coerulea* (Wiegmann, 1828) with both genera placed in a new tribe Pitmansauriini *tribe nov.* and all others in the subfamily placed in the newly named and defined nominate tribe.

*Gerrhonotus* Wiegmann, 1828 is divided into two with the erection of *Lindholtsaurus gen. nov.* to accommodate the divergent species *Gerrhonotus parvus* Knight and Scudday, 1985 and two others.

*Mesaspis* Cope, 1878 is divided into two with the erection of *Rentonsaurus gen. nov.* to accommodate the divergent taxon *Mesaspis gadovii* (Boulenger, 1913). For the remainder, two species are placed in the subgenus *Rayplattsaurus subgen. nov.*

*Abronia* Gray, 1838 is herein regarded as paraphyletic with the adoption of all subgenera formally proposed by Campbell and Frost, 1993, (being *Abronia*, *Abaculabronia*, *Aenigmabronia*, *Auriculabronia*, *Lissabronia*, *Scopaeabronia*). In addition three new subgenera, *Assangesaurus subgen. nov.*, *Elliottsaura subgen. nov.* and *Lanisaurea subgen. nov.* are erected for species not properly accommodated within the existing divisions.

The divergent taxon, *Abronia mixteca* Bogert and Porter, 1967 is placed in its own monotypic genus, *Snowdonsaurus gen. nov.*

#### UNLAWFUL THEFT OF MATERIALS AND DATA.

I also note the following: In 2006 an online petition sponsored by a group of animal-hating pseudoscientists including Wolfgang Wüster, Mark O'Shea, David John Williams, Bryan Fry and others posted at: <http://www.aussiereptileclassifieds.com/phpPETITION> (Hunter *et al.* 2006) called for my successful wildlife education business (Snakebusters®) and all my other herpetological activity to be shut down by the government of Victoria, Australia. These men were successful in that after a ruthless five-year campaign, on 17 August 2011, 11 heavily armed police and wildlife officers conducted a highly illegal and violent raid on our family home and research facility. Myself, my wife and two young daughters were criminally assaulted without provocation, arrested at gunpoint and held captive in the kitchen of the house during the nine hour raid. This was while the facility was ransacked. Besides the unspeakable acts of deliberately killing captive snakes and criminal damage to cages and household goods, the raiding officers illegally shut down our business and effectively placed myself under house arrest at gunpoint for some months after the raid.

An application by myself to the Supreme Court of Victoria led to the re-opening of our unlawfully shut down wildlife education business although the long term damage to the enterprise was irreparable.

Of greater relevance here is that at the time of the raid, research files spanning more than 40 years were taken and never returned, including materials and records relevant to this and other scientific papers.

Material taken included all the computers, disks, hard drives, backups, cameras, books, scientific literature and other forms of information storage at the facility. All were loaded into the back of a truck and trailer and carted off.

Faced with the dilemma of deciding whether to spend another forty years gathering data, by which time I may be dead from old age, being aged 52 as of 2014, or publishing the relevant paper/s with minimal available data, I have opted to publish. Underlying this motivation has been an increasing concern that a delay to formally identify and name undescribed biodiversity may lead to its extinction before another scientist gets around to the matter.

I concur with the statements of Engstrom *et al.* (2002) who wrote: "The documentation of this diversity must be seen as an activity that is done not just for posterity but for immediate action and protection."

A number of authors including Kaiser (2012a, 2012b, 2013 and 2014), Kaiser *et al.* (2013), Naish (2013) and Wüster *et al.* (2014a, 2014b), all part of the group of people effectively controlled by Wüster, have been highly critical of the fact that I have assigned names to unnamed clades of snakes. Their unscientific and childish attacks, continued incessantly on social media such as Facebook and Twitter are rejected herein as destabilizing the nomenclature, impeding the progress of science and putting the very existence of species at risk.

Their ridiculous comments and false and defamatory statements are systematically rebutted by Hoser (2013b).

I also note that many taxa formally named by myself for the first time in earlier publications (e.g. Hoser 2000a, 2000b) are in fact threatened species.

Therefore I note the sensible remarks of Engstrom *et al.* (2002) as a perfectly reasonable explanation for the publishing of taxon descriptions for such unnamed groups. This remains the case even if a sizeable amount of my original research, files, photos and data have been stolen and therefore cannot be relied upon and incorporated into these contemporary publications.

While speaking about thefts, the following authors, namely Wallach *et al.* (2009), Baig *et al.* 2012., Bates *et al.* (2013), Reynolds *et al.* (2013a, 2013b and 2014), Hedges *et al.* (2014), Thomas *et al.* (2014), Schleip (2014), Pyron and Wallach (2014) and Pyron *et al.* (2014) all close associates of serial criminal Wolfgang Wüster, (based on Wales, UK) have all engaged in an attempted theft of my own research spanning some decades by publishing so-called papers that knowingly and deliberately step outside the zoological code to rename species and genera previously named by myself using the scientific method.

The deliberate creation of junior synonyms and promoting them as valid is a breach of numerous sections of the rules as spelt out in Ride *et al.* (1999), and both unscientific and unethical. It is also criminal activity in law and therefore subject to both criminal and civil sanctions.

#### NOTES ON TAXA NAMED HEREIN.

In the event a later author seeks to merge one or more taxon 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.

#### XENOSAURUS PETERS, 1861.

The genus as known to date, monotypic for the extant (living) Xenosauridae has long been known to fit within two phylogenetic groups. These are found on either side of the Mexican transvolcanic belt (Bhullar, 2011).

The differences between the two species groups are significant both morphologically and in terms of molecular divergence and so it is a no-brainer that they should be split into two genera within the family Xenosauridae.

This is especially noting that based on geological evidence the two groups split somewhere between 10-19 MYA (Gómez-Tuena *et al.* 2007).

The new unnamed genus for species north of the Mexican transvolcanic belt is herein described as *Eastmansaurus gen. nov.* and it accommodates the four species found north of the Mexican transvolcanic belt.

Species found south of the Mexican transvolcanic belt were also found by Bhullar (2011) to split into two major clades, although less divergent from one another, than that group from the north. One of these is described herein as a new subgenus on the basis it clearly diverged from the other group more than 5 MYA, and most likely about 7-8 MYA.

The species from the Sierra Madre del Sur in Guerrero and Oaxaca form a distinctive morphological and phylogenetic group as does the group from the Atlantic versant of Mexico. The Atlantic group forms the nominate subgenus, whereas the other group is herein defined as the subgenus *Rossnolansaurus subgen. nov.*

*Xenosaurus* is defined by Peters, 1861 and again by Boulenger, 1885 (the more detailed of the two descriptions), the Boulenger diagnosis being for the family Xenosauridae.

Therefore the genus is not formally redefined herein, but if need be can be defined by a process of elimination of species from *Eastmansaurus gen. nov.*

The same applies in terms of the nominate subgenus *Xenosaurus*, which can be defined by eliminating species within *Rossnolansaurus subgen. nov.*

As already inferred, species not within *Eastmansaurus gen. nov.* and the *Xenosaurus* subgenus *Rossnolansaurus subgen. nov.* remain within *Xenosaurus* and the nominate subgenus. Those species (as currently recognized) are *Xenosaurus grandis* (Gray 1856) (type species), *X. arboreus* Lynch and Smith, 1965 and *X. rackhami* Stuart, 1941.

Some species identified within this paper within the genera *Xenosaurus* and *Eastmansaurus gen. nov.* are in fact composite.

#### GENUS EASTMANSAURUS GEN. NOV.

**Type species:** *Xenosaurus platyceps* King and Thompson, 1968.

**Diagnosis:** *Eastmansaurus gen. nov.* are separated from *Xenosaurus* Peters, 1861 as defined by Boulenger (1885), p. 250 under the heading Xenosauridae, by the following two combinations of characters:

*Eastmansaurus gen. nov.* are separated from all *Xenosaurus* except *X. agrenon*, in that the largest supraoculars are not, or only slightly, wider than long (largest supraoculars distinctly wider than long in the other taxa), and in usually having 2 postrostral scales on each side of the midline (1 medial and 2-3 lateral postrostral scales between the medial postrostral and nasal scales on each side in the other taxa). Secondly, *Eastmansaurus gen. nov.* differs from *X. agrenon*, *X. grandis*, *X. penai* and *X. rackhami* by having a venter that is immaculate or with only diffuse, scattered dark specks on the sides (usually distinct, dark scattered scales and crossbars on the venter in the other taxa) and the postorbital region rounded, lacking a canthus temporalis demarcated by enlarged or well-defined scales. In the other taxa, the canthus temporalis varies from weak (yet distinct) to well developed, and consists of a longitudinal postorbital series of enlarged scales distinctly set off from the smaller granular temporal scales.

*Eastmansaurus gen. nov.* may be further distinguished from *X. phalaroanthereon* and *X. rectocollaris* by having the postorbital and zygomatic ridges widely separated from each other by an intervening row of scales (postorbital and zygomatic ridges usually in contact [in most *X. phalaroanthereon*; in all *X. rectocollaris*]) and by having more lamellae under the fourth toe

(23-26,  $\bar{x}$  = 24.3,  $n$  = 25; 19-22,  $\bar{x}$  = 19.4,  $n$  = 16, in *X. phalaroanthereon*; 20-22,  $\bar{x}$  = 20.5,  $n$  = 11, in *X. rectocollaris*). *Xenosaurus* are separated from *Eastmansaurus gen. nov.* by having only one small, lateral postrostral scale between the enlarged, medial postrostral and the nasal scale (lateral postrostral absent or medial and lateral postrostrals undivided on one or both sides in most specimens) and largest supraoculars hexagonal, distinctly wider than long. In *Eastmansaurus gen. nov.*, there are 2-3 small lateral postrostrals between the medial postrostral and the nasal scale, and the largest supraoculars are rounded, only slightly wider than long.

**Distribution:** A small region north of the Mexican transvolcanic belt, Mexico.

**Etymology:** Named in honour of David Harold Eastman (born 29 September 1945), a well known Australian corruption whistleblower.

He was a former public servant from Canberra, Australia who first came to the attention of authorities when he alleged police involvement in the illegal drugs trade in Canberra.

Subsequent to this in 1995 he was convicted of the murder of Australian Federal Police Assistant Commissioner Colin Winchester and was sentenced to life imprisonment without parole.

Eastman was found guilty by a Canberra court of shooting Winchester twice in the head at point blank range in the driveway of Winchester's home in Deakin, Australian Capital Territory on 10 January 1989. The evidence against Eastman was described at the time as circumstantial at best.

Winchester and other Federal Police had been actively involved in the illegal drug trade, including growing large marijuana crops in southern New South Wales, Australia (Hoser 1999).

Evidence suggests that Winchester was wrongly charged and convicted. Notable is that for a sizeable part of his 85 day criminal trial, he was effectively denied legal representation (Hoser 1999).

In part as an upshot of the publication of a book called *Victoria Police Corruption* (Hoser 1999) a new inquiry relating to Eastman's wrongful conviction was announced in August 2012.

In 2014, the inquiry, headed by Justice Brian Ross Martin, confirmed the contents of the books *Victoria Police Corruption* (1 and 2) were correct. He found that there had been "a substantial miscarriage of justice", Eastman "did not receive a fair trial", the forensic evidence on which the conviction was based was "deeply flawed" and recommended the conviction be quashed.

This did in fact happen on 22 August 2014 and on that date he was formally released from jail.

However that Winchester had not been guilty of the murder was first revealed by Hoser (1999).

In that book, there was a long section detailing the framing of Eastman and circumstances surrounding the event. Part of it read as follows:

"Although senior public servant David Eastman was eventually convicted of Winchester's murder, there is little doubt that he was not the actual murderer. Rather he was just framed by Police to fit the part. To convict him the AFP spent over a million dollars in surveillance on him, falsified a series of other charges against him and by all objective accounts had trouble building much of a case against him. The AFP had Eastman under 24 hour surveillance from 13 January, 1989 to 7 August 1990, several periods in 1992 and at other times. Some of the tapping of his phones was illegal, including that of Eastman's private conversations with his lawyers. Police harassment of his lawyers forced them to stop acting for him, leaving him unrepresented at critical times, thereby assisting Police in

eventually convicting him. A number of Canberra-based journalists who have attempted to investigate the Winchester/Eastman matter have been warned off by Police and others from looking too closely, while there have been allegations of harassment against those who have attempted to pursue the matter.

It is widely thought that other corrupt elements within the AFP or associates conspired to have Winchester murdered, for reasons that even now are not clear. For example during the inquest into Winchester's death, AFP Detective Commander Ric Ninness made a number of false and unsubstantiated comments about Eastman in a crude attempt to paint him as a man of bad character. Ninness stated that Eastman broke the law whenever he wanted to, was violent and had driven neighbors from their homes, assaulted court staff and other matters. All allegations, many of which were repeatedly reported by so-called investigative journalists in the media were later found to be false and baseless. Shortly after Winchester's murder, Ninness even took upon himself to call Eastman and tell him that the AFP was after him and no one else, even though the media had speculated organized crime was behind the Winchester murder. It has since been alleged that Ninness decided to fit Eastman with the crime after the two had a falling out after Eastman was charged by Federal Police with assault. Eastman had said the allegation was false and was seeking to have the charge dropped at the time of the Winchester murder.

In 1989, a senior Federal Police officer admitted that there were five other good lines of investigation other than Eastman, although it later transpired that all were deliberately played down. One line of investigation not pursued was evidence from other Federal Police that Mafia interests had fallen out with him and that a contract had been put on his life some months earlier. This information was known to the AFP some time before Winchester's murder, but was not acted on. Noel Sharp told the inquest that in November 1988, he was told by an Italian crime figure that Winchester was going to be butchered. John Doohan backed up Sharp's allegations."

Noting that an Eastman had been a law-abiding man acting in the public interest and had his life destroyed by a wrongful murder conviction, it is only fair and reasonable that he be honoured via a patronym name for a magnificent lizard genus, so that others may be made aware of the Eastman story and hopefully become more vigilant against corruption in police and other arms of government.

**Content:** *Eastmansaurus platyceps* (King and Thompson, 1968) (type species); *E. mendozai* (De Oca, Garcia-Vazquez, Zuniga-Vega and Schmidt-Ballardo, 2013); *E. newmanorum* (Taylor, 1949); *E. tzacualtipantecus* (Woolrich-Pina and Smith, 2012).

#### **SUBGENUS ROSSNOLANSAURUS SUBGEN. NOV.**

**Type species:** *Xenosaurus agrenon* King and Thompson, 1968.

**Diagnosis:** *Rossnolansaurus subgen. nov.* is a subgenus within *Xenosaurus* Peters, 1861.

*Rossnolansaurus subgen. nov.* are separated from all other *Eastmansaurus gen. nov.* and *Xenosaurus* Peters, 1861 by the following suite of characters:

It is a relatively small and stocky Xenosaurid lizard with a head that is broadly thick and triangular. Head is approximately 0.87 times as wide as long; 0.55 times as wide as high and .025 times the snout-vent length. Canthus temporalis is weak, consisting of a longitudinal postorbital series of slightly enlarged scales distinctly set off from smaller granular temporal scales. Dorsal head scales are rugose, not forming a distinct pattern. The rostral is about equal to or slightly less than the width of the mental. The nostril is confined to a single large scale. Supralabials 11-13 on each side, totalling 23-26 scales, convex and moderately keeled in the orbital region. Infralabials 9-11 on

each side totalling 18-21, flat sided, becoming strongly keeled posteriorly. Supraorbital semicircles consist of a series of rugose, strongly keeled scales, that may be in contact mid dorsally or separated by a single row of scales. Superciliaries and suboculars terminate at the anterior corner of the orbit. A longitudinal series of 3-4 enlarged hexagonal, wider than long supraoculars are present. Suboculars are separated from the supralabials by a longitudinal series of scales that originate in the loreal region and terminate behind the orbits, or may curve up to the canthus temporalis. Temporal region with large, rounded conical tubercles separated from each other and the canthus temporalis by 1-4 rows of minute granules. Tympanum is covered with a thick membrane with small, granular scales. Mental followed by two large chinshields posteriorly, each in contact with one or two infralabials on each side, followed posteriorly by two rows of enlarged scales that lie over the mandibles. The throat and gular region are covered with small elongate granular scales that are arranged in oblique longitudinal rows. Gular fold is well developed. An additional weak fold extends from the retroarticular region of the jaw to the scapular region. The chest is covered with flat, relatively large scales arranged in an oblique transverse series, but not separated midventrally. There are 32-38 transverse rows of scales between the axilla and groin and 19-22 scales per row at the widest part of the belly. The preanal scales are slightly enlarged, separated from the ventrals by 2-3 rows of smaller scales. A well-developed fold extends from the axilla to the groin. The tubercles above the lateral fold are primarily arranged in oblique longitudinal rows, and secondarily in transverse rows. Paravertebral rows of tubercles are also present. The enlarged tubercles on the dorsal surface of the arm are separated from each other by 1-2 rows of minute granules. Tubercles on the dorsal surface of the legs are about equal to those on the arms, but more widely spread. The tail is an average of 0.87 times the snout-vent length.

Total length is up to about 186 mm, with a snout vent length to about 99 mm, head length to 25.3 mm, head width to 22.7 mm, and head depth to 12.1 mm.

Dorsal ground colour is medium to dark brown; transverse light bands are usually present, but may be reduced to a row of spots; dark nape-spot is W-shaped and rounded posteriorly; the venter usually has dark bars present, but these may be reduced or absent.

The ground colour of the head is dark brown. The ventral edge of the posterior supralabials is black. A light brown subocular stripe extends caudal to the neck where it swings toward the midline and usually fuses with the one on the opposite side. The light subocular stripe is bordered above by a dark brown to black subcanthus temporalis stripe that ends abruptly above the tympanum. The dark brown to black W-shaped mark on the neck is bordered cranially by the subocular stripe and caudally by a sharp ill-defined light brown chevron. The trunk ground colour is medium to dark brown. The trunk pattern consists of three to four black edged medium brown crossbands between the axilla and the groin, which may be continuous across the midline or broken into blotches. In some specimens the dark edges to the crossbands are broken into diffuse spots which are fused into a crude reticulate pattern. Sometimes the dark edges of the crossbands and the derived black reticulatum are so broad and dense that only remnants of the light crossbands remain as light blotches. The tubercles within these light blotches are light brown to white. The tail is alternately banded with light brown and dark brown to black crossbands. Ventrally the dark bands usually have light centers or contain a primary light spot. There are usually more than six ventral dark bars, but these are sometimes faded, obscure or even absent.

**Distribution:** Mexico in the vicinity of the Sierra Madre del Sur in Guerrero and Oaxaca, as in the region of the Pacific drainages south of the Mexican transvolcanic belt

**Etymology:** Named in honour of Ross Nolan of Ringwood, Victoria, Australia in recognition of his civic ethics in being a whistleblower of corruption. He exposed corruption in the Victorian Liberal Party and their private army, including heavily armed and highly corrupt Victorian Police Officers and a totally corrupt judiciary appointed by the politicians. They follow orders given to them to railroad innocent people and ensure that police protected thugs and criminals remain untouched by the law.

As a result of his blowing the whistle on the corruption, Liberal Party luminaries in Melbourne organised a campaign to discredit him via the Murdoch-controlled "hate press" (known best for the illegal phone hacking scandal in the UK) the end result being a total destruction of Nolan's life and distinguished career as an aviation engineer. Nolan's speciality was the development of "Flying Cars". Notable is that the first commercially available flying car for sale in the United States was announced in 2014 for a sale price of about \$150K Australian. A different model by another company, the Terrafugia Transition selling at roughly \$300K Australian was set to be sold in March 2015 after several launch delays.

**Content:** *Xenosaurus* (*Rossnolansaurus*) *agrenon* King and Thompson, 1968 (type species); *X.* (*Rossnolansaurus*) *penai* Perez-Ramos, De La Riva and Campbell, 2000; *X.* (*Rossnolansaurus*) *phalaroanthereon* Nieto-Monties De Oca, Campbell and Flores-Villela, 2001; *X.* (*Rossnolansaurus*) *rectocollaris* Smith and Iverson, 1993.

#### **ANNIELLA GRAY, 1852.**

Until now, the genus *Anniella* Gray, 1852 has been treated as monotypic for the living members of the family Anniellidae.

With just two recognized species within the genus, namely *Anniella pulchra* Gray, 1852 and *A. geronimensis* Shaw, 1940, both of which are morphologically similar, there was little reason to consider splitting the genus.

However Parham and Papenfuss (2009) published a molecular phylogeny for *Anniella* Gray, 1852 which showed that the species *Anniella pulchra* Gray, 1852 was in fact composite. This was followed by a paper by the same authors in 2013 (Papenfuss and Parham 2013), which formally named four new species, all created by the five-way division of *A. pulchra*.

The species *A. geronimensis* Shaw, 1940 is however significantly divergent from the other five (see for example Bezy *et al.* 1977 for details) and is therefore herein placed in a new monotypic genus that is formally described below.

Of relevance however is that the familial arrangement of the relevant species (now placed in two genera) remains unchanged.

*Anniella* Gray, 1852 therefore contains five species, namely: *Anniella pulchra* Gray, 1852 (type species); *A. alexandrae* Papenfuss and Parham, 2013; *A. campi* Papenfuss and Parham, 2013; *A. grinnelli* Papenfuss and Parham, 2013 and *A. stebbinsi* Papenfuss and Parham, 2013.

The new genus *Kendslider* *gen. nov.* contains just one species, namely that which was originally described as *Anniella geronimensis* Shaw, 1940.

#### **GENUS KENDSLIDER GEN. NOV.**

**Type species:** *Anniella geronimensis* Shaw, 1940.

**Diagnosis:** Living Anniellidae, including both genera *Anniella* Gray, 1852 and *Kendslider* *gen. nov.* are diagnosed and separated from all other lizard genera as follows: Tongue villose, smooth and bifid anteriorly. Teeth large, few, fang-like, with short swollen base. Palate toothless. Skull approaching the ophidian type, i. e. lacking the praesphenoidal vacuity and consequently the interorbital septum, and the bones which constitute the brain-case firmly united; no columella cranii, no squamosals; postorbital arch ligamentous; pterygoids in contact with sphenoid; an infraorbital fossa; praemaxillary single; nasal

and frontal divided; parietal single; prae- and postorbital in contact, separating the frontal from the border of the orbit. Body vermiform. Eyes and ears concealed. Scales soft, cycloid-hexagonal and strongly imbricate.

The genera *Anniella* and *Kendslider gen. nov.* are further defined as follows: Head much depressed, snout cuneiform; eyes concealed under several small scales resembling lids; rostral large, in contact with the nasal, separated from the frontal by a pair of praefrontals; frontal large, heptagonal, broader than long, its posterior border forming a suture with a nearly equally large interparietal, the posterior border of which is emarginated to receive a small occipital; parietals are very small; a larger anterior and two smaller posterior supraoculars; nostril pierced in a large nasal resembling an anterior labial; five upper labials, first very small, situated below the nasal, on the lower surface of the snout; second in contact with the prefrontal, second with a loreal, third with the oculars, fourth small; mental pentagonal, followed by a pair of large postmentals; six lower labials. Scales smooth, hexagonal, twenty-four (or twenty-six) round the middle of the body, No enlarged anal scales. Tail ending obtusely, when intact measuring one third (or two fifths) of the total length. Silvery, the scales edged with brown; a narrow brown vertebral line.

Adult snout vent length is usually about 130 mm with a 60 mm tail (entire).

*Kendslider gen. nov.* are differentiated from *Anniella* by having a frontal region that steeply slopes downwards in lateral profile, giving rise to a sharply pointed rostrum (versus a frontal region shallowly sloping downwards in lateral profile, giving rise to an acutely rounded rostrum in *Anniella*); fourth supralabial is largest (versus the second in *Anniella*); 24-26 rows of scales around the mid-body (versus 28-30 in *Anniella*); 4-6 rows between the upper lateral stripes (versus 10-12 in *Anniella*); tail length 29-37% of the total length (versus 34-42% in *Anniella*); 72-86 dorsal caudal scales (versus 80-94 in *Anniella*).

In colouration specimens of *Kendslider gen. nov.* are as follows: it is a light copper to silvery grey dorsally with a grayish head and darkly mottled. There are 7-8 brown to black lateral stripes running the length of the body along the scale margins, often reduced to 6 or 7 stripes on the tail. The dorsum is generally immaculate except for the dark vertebral stripe extending the length of the body and tail. Lighter paravertebral lines are sometimes present. Ventral scales are greyish with darkened edges. Preanal scales are immaculate.

**Distribution:** The species (and genus) is found along the coastal Aeolian dune regions of north-western Baja, California from about 6 km north of Colonia Guerrero, south to just south of Punta Baja at the northern edge of Bahia Rosario, Baja California. It is also known from the immediately adjacent Pacific Islands of San Geronimo within Baha Rosario and San Martin.

**Etymology:** Named in honour of Brian Kend, of Palos Verdes Estates in Los Angeles County, California, United States of America in recognition of his efforts in herpetology. This is most notably when writing and publishing a book on Australian pythons in the 1990's. This was at a time, predating widespread use of the internet and when there was very little widely available information available in books or elsewhere on the diagnostics and captive husbandry for most species (Kend 1997).

The slider part of the genus name reflects the movement habits of the species on open sand.

**Content:** *Kendslider geronimensis* (Shaw, 1940) (monotypic).

#### DIPLOGLOSSIDAE BOUCOURT, 1873.

Diploglossids are often treated as a subfamily of the Anguinae, with which they share many traits.

Using the diagnosis for Anguinae in Boulenger (1895) as a co-

diagnosis for this family (he included these species in the family), the Diploglossids are identified as those species within the greater Anguinae with one or other of the following three suites of characters:

1/ No lateral fold and four pentadactyle limbs.

2/ No lateral fold and four mono or didactyle limbs.

3/ No lateral fold and external rudiments of the hind limbs only; lateral teeth conical.

Diploglossids differ from Anguinae in particular by the following combination of features:

Skink-like in habitus; limbs present but variously reduced; body covered by cycloid scales that are underlain by osteoderms having a distinctive, peaked, gliding surface (the basal non-sculptured surface); a thin, pointed, "quill pen-shaped" anterior end of surangular; frontal bones paired; frontal and maxillary bones in contact; and lacking palatine and pterygoid teeth and any evidence of a lateral fold.

Based on the molecular and morphological studies cited already, the Family Diploglossidae is accorded the following taxonomic arrangement:

*Celestus* Gray, 1839 is divided three ways, using *Celestus* for the Hispaniolan group, *Siderolamprus* Cope, 1860 for the mainland species and the erection of a new genus *Toscanosaurus gen. nov.* for divergent species from Jamaica. *Siderolamprus* (from mainland Middle America) is divided into four subgenera, including *Garyallensaurus subgen. nov.*, *Conningsaurus subgen. nov.* and *Dannybrownsaurus subgen. nov.*

*Diploglossus* Wiegmann, 1834 is divided four ways with three new genera being erected to accommodate Antilles species, namely *Artusbrevis gen. nov.*, *Masonnicolasaurus gen. nov.* and *Laurielevysaurus gen. nov.*

*Sauresia* Gray, 1852 is also recognized as valid.

*Ophiodes* Wagler, 1830 is also recognized unchanged from other recent works.

Because, excluding the newly defined genera, all above-named genera have been defined previously, there is no need to redefine them here. However in the absence of a proper diagnosis, the genus *Siderolamprus* is formally redescribed here. The other (previously named and recognized) genera are also in effect defined several times in this paper, as part of other formal descriptions. The new genera are also formally defined below.

Divided genera are also in effect defined in the diagnoses for the new genera and/or subgenera.

The Diploglossidae are also placed into two new tribes, namely Diploglossiini *tribe nov.* and Toscanosauriini *tribe nov.* both formally named herein according to the Zoological Code (Ride *et al.* 1999).

#### GENUS *SIDEROLAMPRUS* COPE, 1860.

**Type species:** *Siderolamprus enneagrammus* Cope, 1860.

**Diagnosis:** Species assigned to the Diploglossidae including those of this genus are defined as having the following unique suite of characters:

No lateral fold. Scales roundish-rhomboidal, arranged quincuncially on the back, forming more or less regular vertical series on the flanks. Limbs may be well developed or not so, ranging from pentadactyle to didactyle. Teeth in the other genera are with conical or subspherical crowns. Palate toothless. Exceptional to this within the family is the genus *Ophiodes* Wagler, 1828 where there are external rudiments of the hind limbs only and the lateral teeth are conical, but other characteristics are as for the family.

Further diagnostic information for the Diploglossidae within a broad definition of the Anguinae, treated as including this family is in Boulenger (1885), pages 265-266.



Diploglossids differ from Anguids in particular by the following combination of features:

Skink-like in habitus; limbs present but variously reduced; body covered by cycloid scales that are underlain by osteoderms having a distinctive, peaked, gliding surface (the basal non-sculptured surface); a thin, pointed, "quill pen-shaped" anterior end of surangular; frontal bones paired; frontal and maxillary bones in contact; and lacking palatine and pterygoid teeth and any evidence of a lateral fold.

Species included within the genus *Celestus* Gray, 1839 as defined by Savage and Lips (1993) are separated from other Diploglossidae by having four limbs and claws present; claws exposed for most of their length; 5 fingers and toes; an auricular opening. This includes species within *Toscanosaurus gen. nov.* and *Siderolamprus* Cope, 1860 (both treated by Savage and Lips (1993) as being within the same genus.

*Toscanosaurus gen. nov.* (described below) are separated from all other Diploglossidae by the following suite of characters: claw sheaths are absent; frontal anteriorly in contact with a single shield; fore limb as least as long as the skull; two pairs of shields between the rostral and the azygos praefrontal; interparietal smaller than parietals; caudal scales not keeled or only feebly keeled; canthus rostralis obtuse; 46 to 56 scales round the body; occipital either larger or not larger than the interparietal; ear opening at least as large as eye-opening; tail compressed. Some specimens also have dorsals with a cross elevation and marginal depression, making rows of pits.

All the Hispaniolan species of *Celestus* have a pair of dark paramedian stripes from the nape onto the anterior trunk (absent or weakly expressed in some populations); even *C. marcanoii* (Schwartz and Inchaustegui, 1976) has lines on the neck. However no Jamaican species of *Toscanosaurus gen. nov.* has this pattern and this readily separates the genus.

*Siderolamprus* Cope, 1860 are separated from *Celestus* Gray, 1839 by having 31-33 rows of scales around the body versus 36-42 in *Celestus* and 46-56 in *Toscanosaurus gen. nov.*

*Siderolamprus* Cope, 1860, *Celestus* Gray, 1839 and *Toscanosaurus gen. nov.* are all separated from *Diploglossus* Wiegmann, 1834 by having no nasal-rostral contact, as opposed to there being nasal-rostral contact in *Diploglossus*.

**Distribution:** Middle America.

**Content:** *Siderolamprus enneagrammus* Cope, 1860 (type species); *S. adercus* (Savage, Lips and Ibanez, 2008); *S. atitlanensis* (Smith, 1950); *S. bivittatus* (Boulenger, 1895), *S. cyanochloris* (Cope, 1894); *S. hylaius* (Savage and Lips, 1993); *S. ingridae* (Werler and Campbell, 2004); *S. legnotus* (Campbell and Camarillo, 1994); *S. montanus* (Schmidt, 1933); *S. orobius* (Savage and Lips, 1993); *S. rozellae* (Smith, 1942); *S. scansorius* (McCranie and Wilson, 1996).

#### **SUBGENUS GARYALLENSAURUS SUBGEN. NOV.**

**Type species:** *Diploglossus montanus* Schmidt, 1933.

**Diagnosis:** *Garyallensaurus subgen. nov.* are separated from all other *Siderolamprus* Cope, 1860 by the following suite of characters: Frontal shield bordered anteriorly by three plates (two prefrontals and a frontonasal); small dark spots on dorsum and flanks, sometimes with large, dark-outlined, lime-green light spots on flanks.

All other mainland *Siderolamprus* are diagnosed by having the frontal shield bordered anteriorly by a single large plate (fused prefrontals and frontoparietal).

Species within the nominate subgenus *Siderolamprus* are separated from congeners (excluding *Garyallensaurus subgen. nov.*) by having 14-18 lamellae under 4th toe as opposed to 20-27 in all other species.

Species within the nominate subgenus *Siderolamprus* are also characterized by a pattern of a pair of distinct dorsolateral light stripes or alternatively a dorsum that is light brown, sharply

contrasting with darker flanks that may either be uniform or marked with large light spots.

Species within the subgenus *Conningsaurus subgen. nov.* (described below) are separated from the subgenus *Dannybrownsaurus subgen. nov.* (described below) by having 78 or more transverse rows of ventral scales; 73-81 transverse rows of dorsal scales; the caudal scales lack a distinct median keel.

By contrast *Dannybrownsaurus subgen. nov.* are characterized by having 77 or fewer transverse rows of ventral scales; 65-73 transverse rows of dorsal scales; the caudal scales have a distinct median keel.

*Conningsaurus subgen. nov.* are found only in humid lowland forests of the Atlantic slope below 500 m in altitude, versus uplands above the 1200 m contour, and usually in isolated areas, for all other species of *Siderolamprus*.

Species assigned to the Diploglossidae including those of this subgenus (*Garyallensaurus subgen. nov.*) are defined as having the following unique suite of characters:

No lateral fold. Scales roundish-rhomboidal, arranged quincuncially on the back, forming more or less regular vertical series on the flanks. Limbs may be well developed or not so, ranging from pentadactyle to didactyle. Teeth in the other genera are with conical or subspherical crowns. Palate toothless. Exceptional to this within the family is the genus *Ophiodes* Wagler, 1828 where there are external rudiments of the hind limbs only and the lateral teeth are conical, but other characteristics are as for the family.

Further diagnostic information for the Diploglossidae within a broad definition of the Anguidae, treated as including this family is in Boulenger (1885), pages 265-266.

Diploglossids differ from Anguids in particular by the following combination of features:

Skink-like in habitus; limbs present but variously reduced; body covered by cycloid scales that are underlain by osteoderms having a distinctive, peaked, gliding surface (the basal non-sculptured surface); a thin, pointed, "quill pen-shaped" anterior end of surangular; frontal bones paired; frontal and maxillary bones in contact; and lacking palatine and pterygoid teeth and any evidence of a lateral fold.

Species included within the genus *Celestus* Gray, 1839 as defined by Savage and Lips (1993) are separated from other Diploglossidae by having four limbs and claws present; claws exposed for most of their length; 5 fingers and toes; an auricular opening. This includes species within *Toscanosaurus gen. nov.* and *Siderolamprus* Cope, 1860 (both treated by Savage and Lips (1993) as being within the same genus.

*Toscanosaurus gen. nov.* (described below) are separated from all other Diploglossidae by the following suite of characters: claw sheaths are absent; frontal anteriorly in contact with a single shield; fore limb as least as long as the skull; two pairs of shields between the rostral and the azygos praefrontal; interparietal smaller than parietals; caudal scales not keeled or only feebly keeled; canthus rostralis obtuse; 46 to 56 scales round the body; occipital either larger or not larger than the interparietal; ear opening at least as large as eye-opening; tail compressed. Some specimens also have dorsals with a cross elevation and marginal depression, making rows of pits.

All the Hispaniolan species of *Celestus* have a pair of dark paramedian stripes from the nape onto the anterior trunk (absent or weakly expressed in some populations); even *C. marcanoii* (Schwartz and Inchaustegui, 1976) has lines on the neck. However no Jamaican species of *Toscanosaurus gen. nov.* has this pattern and this readily separates the genus.

*Siderolamprus* Cope, 1860 are separated from *Celestus* Gray, 1839 in having 31-33 rows of scales around the body versus 36-42 in *Celestus* and 46-56 in *Toscanosaurus gen. nov.*

*Siderolamprus* Cope, 1860, *Celestus* Gray, 1839 and *Toscanosaurus* gen. nov. are usually also separated from *Diploglossus* Wiegmann, 1834 by having no nasal-rostral contact, as opposed to there being nasal-rostral contact in *Diploglossus*.

**Distribution:** West Honduras in a zone of 915-1370 m elevation.

**Etymology:** Named in honour of Gary Allen, book distributor, based in Western Sydney, NSW, Australia. In the face of illegal threats to his business from corrupt government officials within the NSW National Parks and Wildlife Service (NPWS), he distributed and sold many thousands of copies of the first three books published by myself (Hoser, 1989, 1991, 1993), which in combination caused public outrage at the corrupt practices within the NPWS. This led to wildlife laws and procedures being radically changed in all parts of Australia and with dramatically improved conservation outcomes.

Included in this was the legal right (for the first time in 20 years) of private individuals to be able to keep live reptiles as pets without fear of imprisonment.

This is a legacy that as of 2014 continues and would not have happened without the bravery of Gary Allen and importantly others involved in fighting for what was right. This notably included Fia Cumming, of Canberra, perhaps the best investigative journalist in Australia at the time and Charles Pierson the brave (some would say foolish) publisher, who dared to publish the three books, in particular the third of the trio, (Hoser, 1993).

What is not widely known is that it was Pierson who approached myself to write and publish the book *Smuggled: The Underground Trade in Australia's Wildlife* in 1993; not the other way around. Therefore herpetologists and wildlife conservationists worldwide should be ever grateful for the immense personal sacrifices made by Charles Pierson, Gary Allen and Fia Cumming.

It is therefore also fitting that prominent reptile taxa be named in honour of the trio.

**Content:** *Siderolamprus* (*Garyallensaurus*) *montanus* (Schmidt, 1933) (monotypic).

#### **SUBGENUS CONNINGSOSAURUS SUBGEN. NOV.**

**Type species:** *Diploglossus rozellae* Smith, 1942.

**Diagnosis:** *Garyallensaurus* subgen. nov. (described above) are separated from all other *Siderolamprus* Cope, 1860 by the following suite of characters: Frontal shield bordered anteriorly by three plates (two prefrontals and a frontonasal); small dark spots on dorsum and flanks, sometimes with large, dark-outlined, lime-green light spots on flanks.

All other mainland *Siderolamprus* are diagnosed by having the frontal shield bordered anteriorly by a single large plate (fused prefrontals and frontoparietal).

Species within the nominate subgenus *Siderolamprus* are separated from congeners (excluding *Garyallensaurus* subgen. nov.) by having 14-18 lamellae under 4th toe as opposed to 20-27 in all other species.

Species within the nominate subgenus *Siderolamprus* are also characterized by a pattern of a pair of distinct dorsolateral light stripes or alternatively a dorsum that is light brown, sharply contrasting with darker flanks that may either be uniform or marked with large light spots.

Species within the subgenus *Conningsosaurus* subgen. nov. (described here) are separated from the subgenus *Dannybrownsaurus* subgen. nov. (described below) by having 78 or more transverse rows of ventral scales; 73-81 transverse rows of dorsal scales: the caudal scales lack a distinct median keel.

By contrast *Dannybrownsaurus* subgen. nov. are characterized by having 77 or fewer transverse rows of ventral scales; 65-73

transverse rows of dorsal scales; the caudal scales have a distinct median keel.

*Conningsosaurus* subgen. nov. are found only in humid lowland forests of the Atlantic slope below 500 m in altitude, versus uplands above the 1200 m contour, and usually in isolated areas, for all other species of *Siderolamprus*.

Species assigned to the Diploglossidae including those of this subgenus (*Garyallensaurus* subgen. nov.) are defined as having the following unique suite of characters:

No lateral fold. Scales roundish-rhomboidal, arranged quincuncially on the back, forming more or less regular vertical series on the flanks. Limbs may be well developed or not so, ranging from pentadactyle to didactyle. Teeth in the other genera are with conical or subspherical crowns. Palate toothless. Exceptional to this within the family is the genus *Ophiodes* Wagler, 1828 where there are external rudiments of the hind limbs only and the lateral teeth are conical, but other characteristics are as for the family.

Further diagnostic information for the Diploglossidae within a broad definition of the Anguillidae, treated as including this family is in Boulenger (1885), pages 265-266.

Diploglossids differ from Anguillids in particular by the following combination of features:

Skink-like in habitus; limbs present but variously reduced; body covered by cycloid scales that are underlain by osteoderms having a distinctive, peaked, gliding surface (the basal non-sculptured surface); a thin, pointed, "quill pen-shaped" anterior end of surangular; frontal bones paired; frontal and maxillary bones in contact; and lacking palatine and pterygoid teeth and any evidence of a lateral fold.

Species included within the genus *Celestus* Gray, 1839 as defined by Savage and Lips (1993) are separated from other Diploglossidae by having four limbs and claws present; claws exposed for most of their length; 5 fingers and toes; an auricular opening. This includes species within *Toscanosaurus* gen. nov. and *Siderolamprus* Cope, 1860 (both treated by Savage and Lips (1993) as being within the same genus.

*Toscanosaurus* gen. nov. (described below) are separated from all other Diploglossidae by the following suite of characters: claw sheaths are absent; frontal anteriorly in contact with a single shield; fore limb as least as long as the skull; two pairs of shields between the rostral and the azygos praefrontal; interparietal smaller than parietals; caudal scales not keeled or only feebly keeled; canthus rostralis obtuse; 46 to 56 scales round the body; occipital either larger or not larger than the interparietal; earopening at least as large as eye-opening; tail compressed. Some specimens also have dorsals with a cross elevation and marginal depression, making rows of pits.

All the Hispaniolan species of *Celestus* have a pair of dark paramedian stripes from the nape onto the anterior trunk (absent or weakly expressed in some populations); even *C. marcanoii* (Schwartz and Inchaustegui, 1976) has lines on the neck. However no Jamaican species of *Toscanosaurus* gen. nov. has this pattern and this readily separates the genus.

*Siderolamprus* Cope, 1860 are separated from *Celestus* Gray, 1839 by having 31-33 rows of scales around the body versus 36-42 in *Celestus* and 46-56 in *Toscanosaurus* gen. nov..

*Siderolamprus* Cope, 1860, *Celestus* Gray, 1839 and *Toscanosaurus* gen. nov. are usually also separated from *Diploglossus* Wiegmann, 1834 by having no nasal-rostral contact, as opposed to there being nasal-rostral contact in *Diploglossus*.

**Distribution:** Middle America.

**Etymology:** Named in honour of Neil Conning of Melbourne, Victoria, Australia. In the late 1980's and early 1990's he ran a typesetting business in North Melbourne called Bookset. At the time, which predated desktop publishing, typesetting was an

essential part of the tedious pre-publication process of books. Conning did an excellent job in terms of the books published by Charles Pierson (see above).

Typesetters were the unsung heroes of book publishing, never receiving the accolades and kudos of authors or publishers and yet they were an essential part of the whole process.

It is fitting therefore that the essential contribution to herpetology and wildlife conservation in general by Conning be recognized herein.

**Content:** *Siderolamprus (Conningsaurus) rozellae* (Smith, 1942) (type species); *S. (Conningsaurus) hylaius* Savage and Lips, 1993.

**SUBGENUS DANNYBROWNSAURUS SUBGEN. NOV.**

**Type species:** *Celestus cyanochloris* Cope, 1894.

**Diagnosis:** *Garyallensaurus subgen. nov.* are separated from all other *Siderolamprus* Cope, 1860 by the following suite of characters: Frontal shield bordered anteriorly by three plates (two prefrontals and a frontonasal); small dark spots on dorsum and flanks, sometimes with large, dark-outlined, lime-green light spots on flanks.

All other mainland *Siderolamprus* are diagnosed by having the frontal shield bordered anteriorly by a single large plate (fused prefrontals and frontoparietal).

Species within the nominate subgenus *Siderolamprus* are separated from congeners (excluding *Garyallensaurus subgen. nov.*) by having 14-18 lamellae under 4th toe as opposed to 20-27 in all other species.

Species within the nominate subgenus *Siderolamprus* are also characterized by a pattern of a pair of distinct dorsolateral light stripes or alternatively a dorsum that is light brown, sharply contrasting with darker flanks that may either be uniform or marked with large light spots.

Species within the subgenus *Conningsaurus subgen. nov.* (described above) are separated from the subgenus *Dannybrownsaurus subgen. nov.* (described here) by having 78 or more transverse rows of ventral scales; 73-81 transverse rows of dorsal scales; the caudal scales lack a distinct median keel.

By contrast *Dannybrownsaurus subgen. nov.* are characterized by having 77 or fewer transverse rows of ventral scales; 65-73 transverse rows of dorsal scales; the caudal scales have a distinct median keel.

*Conningsaurus subgen. nov.* are found only in humid lowland forests of the Atlantic slope below 500 m in altitude, versus uplands above the 1200 m contour, and usually in isolated areas, for all other species of *Siderolamprus*.

Species assigned to the Diploglossidae including those of this subgenus (*Garyallensaurus subgen. nov.*) are defined as having the following unique suite of characters:

No lateral fold. Scales roundish-rhomboidal, arranged quincuncially on the back, forming more or less regular vertical series on the flanks. Limbs may be well developed or not so, ranging from pentadactyle to didactyle. Teeth in the other genera are with conical or subspherical crowns. Palate toothless. Exceptional to this within the family is the genus *Ophiodes* Wagler, 1828 where there are external rudiments of the hind limbs only and the lateral teeth are conical, but other characteristics are as for the family.

Further diagnostic information for the Diploglossidae within a broad definition of the Anguillidae, treated as including this family is in Boulenger (1885), pages 265-266.

Diploglossids differ from Anguillids in particular by the following combination of features:

Skink-like in habitus; limbs present but variously reduced; body covered by cycloid scales that are underlain by osteoderms having a distinctive, peaked, gliding surface (the basal non-

sculptured surface); a thin, pointed, "quill pen-shaped" anterior end of surangular; frontal bones paired; frontal and maxillary bones in contact; and lacking palatine and pterygoid teeth and any evidence of a lateral fold.

Species included within the genus *Celestus* Gray, 1839 as defined by Savage and Lips (1993) are separated from other Diploglossidae by having four limbs and claws present; claws exposed for most of their length; 5 fingers and toes; an auricular opening. This includes species within *Toscanosaurus gen. nov.* and *Siderolamprus* Cope, 1860 (both treated by Savage and Lips (1993) as being within the same genus.

*Toscanosaurus gen. nov.* (described below) are separated from all other Diploglossidae by the following suite of characters: claw sheaths are absent; frontal anteriorly in contact with a single shield; fore limb as least as long as the skull; two pairs of shields between the rostral and the azygos praefrontal; interparietal smaller than parietals; caudal scales not keeled or only feebly keeled; canthus rostralis obtuse; 46 to 56 scales round the body; occipital either larger or not larger than the interparietal; ear opening at least as large as eye-opening; tail compressed. Some specimens also have dorsals with a cross elevation and marginal depression, making rows of pits.

All the Hispaniolan species of *Celestus* have a pair of dark paramedian stripes from the nape onto the anterior trunk (absent or weakly expressed in some populations); even *C. marcanoii* (Schwartz and Inchaustegui, 1976) has lines on the neck. However no Jamaican species of *Toscanosaurus gen. nov.* has this pattern and this readily separates the genus.

*Siderolamprus* Cope, 1860 are separated from *Celestus* Gray, 1839 by having 31-33 rows of scales around the body versus 36-42 in *Celestus* and 46-56 in *Toscanosaurus gen. nov.*

*Siderolamprus* Cope, 1860, *Celestus* Gray, 1839 and *Toscanosaurus gen. nov.* are usually also separated from *Diploglossus* Wiegmann, 1834 by having no nasal-rostral contact, as opposed to there being nasal-rostral contact in *Diploglossus*.

**Distribution:** Middle America.

**Etymology:** Named in honour of Dr. Danny Brown of Deception Bay, Queensland, a qualified veterinary surgeon in recognition of his long and distinguished career as a book publishing herpetologist. His many books, published by Tweed Heads publishers, Australian Birdkeeper Publications are generally landmark publications of unmatched quality in terms of production and detailed accurate information. For reptile keepers in Australia and elsewhere, they are "must-have" books. There is no doubt that many captive reptiles have had better lives as a result of the accurate education given by Brown's books to fellow reptile keepers.

**Content:** *Celestus (Dannybrownsaurus) cyanochloris* Cope, 1894 (type species); *C. (Dannybrownsaurus) orobius* Savage and Lips, 1993; *C. (Dannybrownsaurus) adercus* Savage, Lips and Ibanez, 2008.

**SUBGENUS SIDEROLAMPRUS COPE, 1860.**

**Type species:** *Siderolamprus enneagrammus* Cope, 1860.

**Diagnosis:** The subgenus is effectively defined as a part of the diagnosis for the subgenus *Garyallensaurus subgen. nov.* (within this paper) and is relied upon here.

**Distribution:** Middle America.

**Content:** *Siderolamprus (Siderolamprus) enneagrammus* Cope, 1860 (type species); *S. atitlanensis* (Smith, 1950); *S. (Siderolamprus) bivittatus* (Boulenger, 1895); *S. ingridae* (Werler and Campbell, 2004); *S. legnotus* (Campbell and Camarillo, 1994); *S. scansorius* (McCranie and Wilson, 1996).

**GENUS TOSCANOSAURUS GEN. NOV.**

**Type species:** *Celestus hewardii* Gray, 1845.

**Diagnosis:** Species assigned to the Diploglossidae including

those of this genus are defined as having the following unique suite of characters:

No lateral fold. Scales roundish-rhomboidal, arranged quincuncially on the back, forming more or less regular vertical series on the flanks. Limbs may be well developed or not so, ranging from pentadactyle to didactyle. Teeth in the other genera are with conical or subspherical crowns. Palate toothless. Exceptional to this within the family is the genus *Ophiodes* Wagler, 1828 where there are external rudiments of the hind limbs only and the lateral teeth are conical, but other characteristics are as for the family.

Further diagnostic information for the Diploglossidae within a broad definition of the Anguillidae, treated as including this family is in Boulenger (1885), pages 265-266.

Diploglossids differ from Anguillids in particular by the following combination of features:

Skink-like in habitus; limbs present but variously reduced; body covered by cycloid scales that are underlain by osteoderms having a distinctive, peaked, gliding surface (the basal non-sculptured surface); a thin, pointed, "quill pen-shaped" anterior end of surangular; frontal bones paired; frontal and maxillary bones in contact; and lacking palatine and pterygoid teeth and any evidence of a lateral fold.

Species included within the genus *Celestus* Gray, 1839 as defined by Savage and Lips (1993) are separated from other Diploglossidae by having four limbs and claws present; claws exposed for most of their length; 5 fingers and toes; an auricular opening. This includes species within *Toscanosaurus gen. nov.* and *Siderolamprus* Cope, 1860 (both treated by Savage and Lips (1993) as being within the same genus.

*Toscanosaurus gen. nov.* are separated from all other Diploglossidae by the following suite of characters: claw sheaths are absent; frontal anteriorly in contact with a single shield; fore limb as least as long as the skull; two pairs of shields between the rostral and the azygos praefrontal; interparietal smaller than parietals; caudal scales not keeled or only feebly keeled; canthus rostralis obtuse; 40 to 56 scales round the body; occipital either larger or not larger than the interparietal; ear opening at least as large as eye-opening; tail compressed.

All the Hispaniolan species of *Celestus* have a pair of dark paramedian stripes from the nape onto the anterior trunk (absent or weakly expressed in some populations); even *C. marcanoi* (Schwartz and Inchaustegui, 1976) has lines on the neck. However no Jamaican species of *Toscanosaurus gen. nov.* has this pattern and this readily separates the genus.

*Siderolamprus* Cope, 1860 are separated from *Celestus* Gray, 1839 by having 31-33 rows of scales around the body versus 36-42 in *Celestus* and 46-56 in *Toscanosaurus gen. nov.*

*Siderolamprus* Cope, 1860, *Celestus* Gray, 1839 and *Toscanosaurus gen. nov.* are all separated from *Diploglossus* Wiegmann, 1834 by having no nasal-rostral contact, as opposed to there being nasal-rostral contact in *Diploglossus*.

**Distribution:** Jamaica and immediately adjacent outliers.

**Etymology:** Named in honour of Dr. Joseph Toscano of Melbourne, Victoria, Australia. He is a dedicated medical practitioner who graduated from the University of Queensland and got his doctorate from the University of Melbourne. Born in 1952, Toscano has spent most of his adult life as a true human-rights activist and editor of *Anarchist Age Weekly Review*. In that publication he regularly reviews events in Australia and highlights the different rules being applied to different people and notably how those in positions of power in Australia regularly exempt themselves from complying with the laws of the land, or other basic human ethics, to commit crimes on a regular basis.

**Content:** *Toscanosaurus hewardii* (Gray, 1845) (type species);

*T. barbouri* (Grant, 1940); *T. cruscus* (Garman, 1887); *T. duquesneyi* (Grant, 1940); *T. fowleri* (Schwartz, 1971); *T. microblepharis* (Underwood, 1959); *T. occiduus* (Shaw, 1802).

#### A DIVISION OF *DIPOGLOSSUS* WIEGMANN, 1834.

Species included within the genus *Celestus* Gray, 1839 as defined by Savage and Lips (1993) are separated from other Diploglossidae by having four limbs and claws present; claws exposed for most of their length; 5 fingers and toes; an auricular opening. This includes species within *Toscanosaurus gen. nov.* and *Siderolamprus* Cope, 1860 (both treated by Savage and Lips (1993) as being within the same genus, both formally described or re-described above).

Traditionally the genus *Diploglossus* Wiegmann, 1834 has been separated from all other Diploglossidae by having four limbs with five fingers and toes and an auricular opening.

However recent herpetological works have incorporated the genera *Ophiodes* Wagler, 1828, *Sauresia* Gray, 1854 and *Wetmorena* Cochran, 1928 within a clade including some *Diploglossus* species and other *Celestus* species as traditionally defined (e.g. Pyron *et al.* 2013).

However divergences are sufficiently deep that more genera than those traditionally recognized should be erected, although some of the available names fall within previously named clades.

In terms of the relevant species groups, *Sauresia* Gray, 1854 and *Wetmorena* Cochran, 1928 are herein treated as being one and the same genus (as indicated by Pyron *et al.* 2013) and are separated from *Diploglossus* Wiegmann, 1834 (as defined in this paper) by having four fingers and toes as opposed to having five.

Traditionally *Sauresia* Gray, 1854 was separated from *Wetmorena* Cochran, 1928 by having an auricular opening (versus absence), however this difference is herein regarded as being subgeneric only, meaning that *Wetmorena* Cochran, 1928 is now treated as a valid subgenus within *Sauresia*.

*Ophiodes* Wagler, 1828 are separated from *Diploglossus* by lacking forelimbs, hindlimbs being reduced to flaps, no claws; a small auricular opening hidden under scales just behind the angle of the jaw.

While *Ophiodes* shares a clade with species traditionally associated with Antilles species usually placed in *Diploglossus*, the divergences are sufficient to warrant recognition as separate genera.

Savage *et al.* (2008) and others cited by them viewed the three species *Diploglossus delasagra* (Cocteau, 1838), *Diploglossus pleii* Duméril and Bibron, 1839 and *Diploglossus montisserrati* Underwood, 1964 as forming a distinct clade, separate from all other *Diploglossus* and *Celestus* as presently recognized.

However it is clear that all are quite morphologically distinct from one another and not particularly close. This fact is affirmed by the geological histories of their island locations with respect to one another and the unlikely event of over-water migration between them.

Those species are therefore placed in three associated, but separate genera below based on known divergence times of the relevant populations based on the geological evidence cited by Hoser (2013a).

The species *Diploglossus delasagra* (Cocteau, 1838) as most widely known is herein regarded as a composite of three species-level taxa. Names are available for each and used herein.

#### GENUS *ARTUSBREVIS* GEN. NOV.

**Type species:** *Seincus* [sic] (*Diploglossus*) *de la sagra* Cocteau, 1838.

Currently better known as *Diploglossus delasagra* (Cocteau, 1838).

**Diagnosis:** In summary this genus includes all three Cuban species formerly assigned to the genus *Diploglossus* Wiegmann, 1834, as listed below, these being, *Artusbrevis delasagra* (Cocteau, 1838) (the type species), *A. garridoi* (Thomas and Hedges, 1998) and *A. nigropunctatus* (Barbour and Shreve, 1937).

The genera *Artusbrevis gen. nov.*, *Masonnicolasaurus gen. nov.* and *Laurielevysaurus gen. nov.* are all separated from *Diploglossus* Wiegmann, 1834 by having the forelimb shorter than the skull (as opposed to being longer than the skull in *Diploglossus*).

*Artusbrevis gen. nov.* are separated from *Masonnicolasaurus gen. nov.* by having 31 scales round the body and parietals separated from the frontals by the frontoparietals, versus 37 scales round the body and no frontoparietals.

*Laurielevysaurus gen. nov.* are separated from both other genera by having 41 or 43 scales round the body (versus 31 in *Artusbrevis gen. nov.* and 37 in *Masonnicolasaurus gen. nov.*).

*Masonnicolasaurus gen. nov.* is separated from both *Artusbrevis gen. nov.* and *Laurielevysaurus gen. nov.* by the absence of frontoparietals.

Underwood (1964) gives a detailed description of the only species within the genus *Laurielevysaurus gen. nov.*, described by him as *Diploglossus montisserrati* Underwood, 1964.

Boulenger (1885), pages 293-294 gives a detailed description of the genera *Artusbrevis gen. nov.* and *Masonnicolasaurus gen. nov.* under the headings for the best known (and first described species in each genus), identified by him as *Diploglossus sagra* (Cocteau, 1838) and *Diploglossus pleii* Duméril and Bibron, 1839.

**Distribution:** Cuba and immediately adjacent outliers.

**Etymology:** Named reflection of the small frame of these lizards.

**Content:** *Artusbrevis delasagra* (Cocteau, 1838) (type species); *A. garridoi* (Thomas and Hedges, 1998); *A. nigropunctatus* (Barbour and Shreve, 1937).

#### GENUS MASONNICOLASAUROS GEN. NOV.

**Type species:** *Diploglossus pleii* Duméril and Bibron, 1839.

**Diagnosis:** In summary the genus *Masonnicolasaurus gen. nov.* includes the single species from Puerto Rico formerly assigned to the genus *Diploglossus* Wiegmann, 1834, this being the type species.

The genera *Artusbrevis gen. nov.*, *Masonnicolasaurus gen. nov.* and *Laurielevysaurus gen. nov.* are all separated from *Diploglossus* Wiegmann, 1834 by having the forelimb shorter than the skull (as opposed to being longer than the skull in *Diploglossus*).

*Artusbrevis gen. nov.* are separated from *Masonnicolasaurus gen. nov.* by having 31 scales round the body and parietals separated from the frontals by the frontoparietals, versus 37 scales round the body and no frontoparietals.

*Laurielevysaurus gen. nov.* are separated from both other genera by having 41 or 43 scales round the body (versus 31 in *Artusbrevis gen. nov.* and 37 in *Masonnicolasaurus gen. nov.*).

*Masonnicolasaurus gen. nov.* is separated from both *Artusbrevis gen. nov.* and *Laurielevysaurus gen. nov.* by the absence of frontoparietals.

Underwood (1964) gives a detailed description of the only species within the genus *Laurielevysaurus gen. nov.*, described by him as *Diploglossus montisserrati* Underwood, 1964. This includes all other relevant diagnostic features for this genus. Boulenger (1885), pages 293-294 gives a detailed description of the genera *Artusbrevis gen. nov.* and *Masonnicolasaurus gen. nov.* under the headings for the best known (and first described species in each genus), identified by him as *Diploglossus sagra* (Cocteau, 1838) (treated herein as

*Artusbrevis delasagra*) and *Diploglossus pleii* Duméril and Bibron, 1839.

**Distribution:** Puerto Rico.

**Ertmology:** Named in honour of Mason Nicola of Melbourne, Victoria, Australia for his many contributions to herpetology in Australia via his efforts in assisting with the logistical efforts of Snakebusters, Australia's best reptile displays. His role in assisting members of the public with regards to the successful care and keeping of native reptiles at his place of employment, Amazing Amazon, Springvale Road, Glen Waverley, Victoria, Australia is not unrecognized.

**Content:** *Masonnicolasaurus pleii* (Duméril and Bibron, 1839) (monotypic).

#### GENUS LAURIELEVYSAUROS GEN. NOV.

**Type species:** *Diploglossus montisserrati* Underwood, 1964.

**Diagnosis:** In summary this genus includes the sole species formerly assigned to the genus *Diploglossus* Wiegmann, 1834 from Montserrat Island, part of the chain of islands known as the Lesser Antilles, in the West Indies.

The genera *Artusbrevis gen. nov.*, *Masonnicolasaurus gen. nov.* and *Laurielevysaurus gen. nov.* are all separated from *Diploglossus* Wiegmann, 1834 by having the forelimb shorter than the skull (as opposed to being longer than the skull in *Diploglossus*).

*Artusbrevis gen. nov.* are separated from *Masonnicolasaurus gen. nov.* by having 31 scales round the body and parietals separated from the frontals by the frontoparietals, versus 37 scales round the body and no frontoparietals.

*Laurielevysaurus gen. nov.* are separated from both other genera by having 41 or 43 scales round the body (versus 31 in *Artusbrevis gen. nov.* and 37 in *Masonnicolasaurus gen. nov.*).

*Masonnicolasaurus gen. nov.* is separated from both *Artusbrevis gen. nov.* and *Laurielevysaurus gen. nov.* by the absence of frontoparietals.

Underwood (1964) gives a detailed description of the only species within the genus *Laurielevysaurus gen. nov.*, described by him as *Diploglossus montisserrati* Underwood, 1964. This includes all other important diagnostic features of this genus, including comparisons with South American and Central American species of *Diploglossus*.

Boulenger (1885), pages 293-294 gives a detailed description of the genera *Artusbrevis gen. nov.* and *Masonnicolasaurus gen. nov.* under the headings for the best known (and first described species in each genus), identified by him as *Diploglossus sagra* (Cocteau, 1838) and *Diploglossus pleii* Duméril and Bibron, 1839.

**Distribution:** Known only from the type locality, Woodlands Spring, elevation 600 ft., Montserrat Island.

**Etymology:** Named in honour of Laurie Levy, of Melbourne, Victoria, Australia. He is best known as the Campaign Director at the Coalition Against Duck Shooting and is regularly painted by the Murdoch hate press as some sort of environmentalist come fundamentalist. In fact he is a dedicated wildlife conservationist who not only opposes wanton destruction of the environment, but also government sanctioned acts of extreme animal cruelty.

Levy has for decades exposed serious and endemic corruption involving senior management in the Victorian government wildlife bureaucracy, the department known in 2014 as Department of Environment and Primary Industries (DEPI), formerly known as the Department of Sustainability and Environment (DSE) and more than a dozen other bureaucratic names in the recent past (refer to Hoser 1993 for many further examples).

As a result of his public interest work, Levy has been harassed and demonized by the DEPI and predecessors, including being held up for public hatred by false and misleading departmental

media releases and improperly laid criminal charges against him.

As a result of endemic corruption in the legal system of Victoria, Levi now has a lengthy charge sheet including charges and fines, and associated "criminal record", all wrongly and illegally imposed against him.

I note herein that a prosecution head at DEPI, formerly worked in the Magistrate's Court system and is able to telephone the courts and predetermine outcomes of charges and cases, before any evidence is even heard!

Considering Levy has devoted a lifetime to wildlife conservation, it is only appropriate that a genus of lizard be named in his honour.

**Content:** *Laurielevysaurus montisserrati* (Underwood, 1964) (monotypic).

#### TRIBE DIPLOGLOSSIINI TRIBE NOV.

(Terminal taxon: *Tiliqua fasciatus* Gray, 1831)

Currently best known as *Diploglossus fasciatus* (Gray, 1831).

**Diagnosis:** Species assigned to the Diploglossidae including those of this tribe and tribe *Toscanosauriini* *tribe nov.* are defined as having the following unique suite of characters:

No lateral fold. Scales roundish-rhomboidal, arranged quincuncially on the back, forming more or less regular vertical series on the flanks. Limbs may be well developed or not so, ranging from pentadactyle to didactyle. Teeth in the other genera are with conical or subspherical crowns. Palate toothless. Exceptional to this within the Diploglossidae is the genus *Ophiodes* Wagler, 1828 in the tribe *Toscanosauriini* *tribe nov.* where there are external rudiments of the hind limbs only and the lateral teeth are conical, but other characteristics are as for the family.

Further diagnostic information for the Diploglossidae within a broad definition of the Anguidae, treated as including this family is in Boulenger (1885), pages 265-266.

Diploglossids differ from Anguids in particular by the following combination of features:

Skink-like in habitus; limbs present but variously reduced; body covered by cycloid scales that are underlain by osteoderms having a distinctive, peaked, gliding surface (the basal non-sculptured surface); a thin, pointed, "quill pen-shaped" anterior end of surangular; frontal bones paired; frontal and maxillary bones in contact; and lacking palatine and pterygoid teeth and any evidence of a lateral fold.

The tribe *Diploglossiini* *tribe nov.* is best defined by defining each of the two component genera, these being one or other of:

1 - *Diploglossus* Wiegmann, 1834.

Traditionally the genus *Diploglossus* Wiegmann, 1834 has been separated from all other Diploglossidae by having four limbs with five fingers and toes and an auricular opening.

This diagnosis remains true except for the following:

The genera *Artusbrevis* *gen. nov.*, *Masonnicolasaurus* *gen. nov.* and *Laurielevysaurus* *gen. nov.* all formerly treated as being in *Diploglossus* and now within the tribe are *Toscanosaurus* *gen. nov.* are all separated from *Diploglossus* Wiegmann, 1834 by having the forelimb shorter than the skull (as opposed to being longer than the skull in *Diploglossus*).

2 - Genus *Siderolamprus* Cope, 1860.

Species included within the genus *Celestus* Gray, 1839 (of tribe *Toscanosauriini* *tribe nov.*) as defined by Savage and Lips (1993) are separated from other Diploglossidae by having four limbs and claws present; claws exposed for most of their length; 5 fingers and toes; an auricular opening. This includes species within *Toscanosaurus* *gen. nov.* (tribe *Toscanosauriini* *tribe nov.*) and *Siderolamprus* Cope, 1860 (both treated by Savage and Lips (1993) as being within the same genus).

*Siderolamprus* Cope, 1860 is one genus within this tribe (*Diploglossiini* *tribe nov.*).

However *Toscanosaurus* *gen. nov.* (described in this paper) are separated from all other Diploglossidae by the following suite of characters: claw sheaths are absent; frontal anteriorly in contact with a single shield; fore limb as least as long as the skull; two pairs of shields between the rostral and the azygos praefrontal; interparietal smaller than parietals; caudal scales not keeled or only feebly keeled; canthus rostralis obtuse; 46 to 56 scales round the body; occipital either larger or not larger than the interparietal; ear opening at least as large as eye-opening; tail compressed. Some specimens also have dorsals with a cross elevation and marginal depression, making rows of pits.

All the Hispaniolan species of *Celestus* have a pair of dark paramedian stripes from the nape onto the anterior trunk (absent or weakly expressed in some populations); even *C. marcanoi* (Schwartz and Inchaustegui, 1976) has lines on the neck. However no Jamaican species of *Toscanosaurus* *gen. nov.* has this pattern and this readily separates the genus.

*Siderolamprus* Cope, 1860 (this tribe) are separated from *Celestus* Gray, 1839 (*Toscanosauriini* *tribe nov.*) by having 31-33 rows of scales around the body versus 36-42 in *Celestus* and 46-56 in *Toscanosaurus* *gen. nov.*

*Siderolamprus* Cope, 1860, *Celestus* Gray, 1839 and *Toscanosaurus* *gen. nov.* are all usually separated from *Diploglossus* Wiegmann, 1834 by having no nasal-rostral contact, as opposed to there being nasal-rostral contact in *Diploglossus*.

**Distribution:** Mainland South and Middle America.

**Content:** *Diploglossus* Wiegmann, 1834 (type genus); *Siderolamprus* Cope, 1860.

#### TRIBE TOSCANOSAURIINI TRIBE NOV.

(Terminal taxon *Celestus hewardii* Gray, 1845)

**Diagnosis:** Species assigned to the Diploglossidae including those of both tribes are defined as having the following unique suite of characters:

No lateral fold. Scales roundish-rhomboidal, arranged quincuncially on the back, forming more or less regular vertical series on the flanks. Limbs may be well developed or not so, ranging from pentadactyle to didactyle. Teeth in the other genera are with conical or subspherical crowns. Palate toothless. Exceptional to this within the Diploglossidae is the genus *Ophiodes* Wagler, 1828 in the tribe *Toscanosauriini* *tribe nov.* where there are external rudiments of the hind limbs only and the lateral teeth are conical, but other characteristics are as for the family.

This is also diagnostic for the genus *Ophiodes* Wagler, 1828. Further diagnostic information for the Diploglossidae within a broad definition of the Anguidae, treated as including this family is in Boulenger (1885), pages 265-266.

Diploglossids differ from Anguids in particular by the following combination of features:

Skink-like in habitus; limbs present but variously reduced; body covered by cycloid scales that are underlain by osteoderms having a distinctive, peaked, gliding surface (the basal non-sculptured surface); a thin, pointed, "quill pen-shaped" anterior end of surangular; frontal bones paired; frontal and maxillary bones in contact; and lacking palatine and pterygoid teeth and any evidence of a lateral fold.

The tribe *Toscanosauriini* *tribe nov.* is best defined by defining each the seven component genera, these being one or other of:

1 - *Celestus* Gray, 1838.

Species included within the genus *Celestus* Gray, 1839 (of tribe *Toscanosauriini* *tribe nov.*) as defined by Savage and Lips

(1993) are separated from other Diploglossidae by having four limbs and claws present; claws exposed for most of their length; 5 fingers and toes; an auricular opening. This includes species within *Toscanosaurus gen. nov.* (tribe Toscanosauriini tribe nov.) and *Siderolamprus* Cope, 1860 (both treated by Savage and Lips (1993) as being within the same genus.

*Siderolamprus* Cope, 1860 is one genus within the tribe Diploglossiini tribe nov.

However *Toscanosaurus gen. nov.* (described in this paper) are separated from all other Diploglossidae by the following suite of characters: claw sheaths are absent; frontal anteriorly in contact with a single shield; fore limb as least as long as the skull; two pairs of shields between the rostral and the azygos praefrontal; interparietal smaller than parietals; caudal scales not keeled or only feebly keeled; canthus rostralis obtuse; 46 to 56 scales round the body; occipital either larger or not larger than the interparietal; ear opening at least as large as eye-opening; tail compressed. Some specimens also have dorsals with a cross elevation and marginal depression, making rows of pits.

All the Hispaniolan species of *Celestus* have a pair of dark paramedian stripes from the nape onto the anterior trunk (absent or weakly expressed in some populations); even *C. marcanoi* (Schwartz and Inchaustegui, 1976) has lines on the neck. However no Jamaican species of *Toscanosaurus gen. nov.* has this pattern and this readily separates the genus.

*Siderolamprus* Cope, 1860 (tribe Diploglossiini tribe nov.) are separated from *Celestus* Gray, 1839 (Toscanosauriini tribe nov.) by having 31-33 rows of scales around the body versus 36-42 in *Celestus* and 46-56 in *Toscanosaurus gen. nov.*

*Siderolamprus* Cope, 1860, *Celestus* Gray, 1839 and *Toscanosaurus gen. nov.* are all usually separated from *Diploglossus* Wiegmann, 1834 by having no nasal-rostral contact, as opposed to there being nasal-rostral contact in *Diploglossus*.

#### 2 - *Toscanosaurus gen. nov.*

*Toscanosaurus gen. nov.* (described in this paper) are separated from all other Diploglossidae by the following suite of characters: claw sheaths are absent; frontal anteriorly in contact with a single shield; fore limb as least as long as the skull; two pairs of shields between the rostral and the azygos praefrontal; interparietal smaller than parietals; caudal scales not keeled or only feebly keeled; canthus rostralis obtuse; 46 to 56 scales round the body; occipital either larger or not larger than the interparietal; ear opening at least as large as eye-opening; tail compressed. Some specimens also have dorsals with a cross elevation and marginal depression, making rows of pits.

#### 3 - *Ophiodes* Wagler, 1828.

*Ophiodes* are separated from all other Diploglossidae by having the following character suite: No lateral fold. Scales roundish-rhomboidal, arranged quincuncially on the back, forming vertical series on the sides. No forelimbs; styliform rudiments of hind limbs. Lateral teeth conical. Palate is toothless.

#### 4 - *Sauresia* Gray, 1852.

*Sauresia* and the allied genus *Wetmorena* Cochran, 1928 (treated herein as a subgenus only) are separated from *Diploglossus* Wiegmann, 1834 (as defined in this paper) by having four fingers and toes as opposed to having five. Traditionally *Sauresia* Gray, 1854 was separated from *Wetmorena* Cochran, 1928 by having an auricular opening (versus absence), however this difference is herein regarded as being subgeneric only, meaning that *Wetmorena* Cochran, 1928 is now treated as a valid subgenus within *Sauresia*.

5-7 - *Artusbrevis gen. nov.*; *Masonnicolasaurus gen. nov.*; *Laurielevysaurus gen. nov.*

The genera *Artusbrevis gen. nov.*, *Masonnicolasaurus gen. nov.* and *Laurielevysaurus gen. nov.* are all separated from *Diploglossus* Wiegmann, 1834 by having the forelimb shorter than the skull (as opposed to being longer than the skull in *Diploglossus*).

In further detail:

*Artusbrevis gen. nov.* are separated from *Masonnicolasaurus gen. nov.* by having 31 scales round the body and parietals separated from the frontals by the frontoparietals, versus 37 scales round the body and no frontoparietals.

*Laurielevysaurus gen. nov.* are separated from both other genera by having 41 or 43 scales round the body (versus 31 in *Artusbrevis gen. nov.* and 37 in *Masonnicolasaurus gen. nov.*).

*Masonnicolasaurus gen. nov.* is separated from both *Artusbrevis gen. nov.* and *Laurielevysaurus gen. nov.* by the absence of frontoparietals.

Underwood (1964) gives a detailed description of the only species within the genus *Laurielevysaurus gen. nov.*, described him as *Diploglossus montiserrati* Underwood, 1964. This includes all other important diagnostic features of this genus, including comparisons with South American and Central American species of *Diploglossus*.

Boulenger (1885), pages 293-294 gives a detailed description of the genera *Artusbrevis gen. nov.* and *Masonnicolasaurus gen. nov.* under the headings for the best known (and first described species in each genus), identified by him as *Diploglossus sagra* (Cocteau, 1838) and *Diploglossus pleii* Duméril and Bibron, 1839.

**Distribution:** South America and Caribbean islands.

**Content:** *Toscanosaurus gen. nov.* (type genus); *Artusbrevis gen. nov.*; *Celestus* Gray, 1838; *Masonnicolasaurus gen. nov.*; *Laurielevysaurus gen. nov.*; *Ophiodes* Wagler, 1828; *Sauresia* Gray, 1852.

#### SUBFAMILY ANGUINAE AND THE GENUS *OPHISAURUS* DAUDIN, 1803

The family Anguinae are defined in detail by Boulenger 1885, pages 255-266.

The genus *Ophisaurus* Daudin, 1803 within the nominate subfamily as traditionally defined morphologically has been defined as those Anguine lizards with the following suite of characters: A lateral fold. Scales squarish-rhomboidal, forming straight longitudinal and transverse series. Limbs absent externally, or reduced to a rudiment of the hind pair. Teeth with conical or subspherical crowns. Pterygoid teeth; palatine and vomerine teeth may be present or absent.

However it has long been known that the African species, readily separated from the rest by a concealed ear opening (as opposed to obvious in the other species) is not at all closely related to the North American ones. Furthermore, it has been known for some time that within North America the recognized species are of widely divergent groups. This has been confirmed by several molecular studies, among the more recent ones being Conrad and Norell (2008), with similar results synthesized in a supermatrix published by Pyron *et al.* (2013).

*Ophisaurus* Daudin, 1803 is thus herein divided into four, with the resurrection of *Hyalosaurus* Günther, 1873 (redefined herein) for the African species originally described as *Hyalosaurus koellikeri* Günther 1873 and the erection of *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* to accommodate divergent clades of North American species also formally described.

*Ophosaurus* is redescribed to accommodate the changes.

*Dopasia* Gray, 1853 is divided into two with the erection of *Richardsonsaurus gen. nov.* to accommodate the Chinese "harti" species group.

*Anguis* Linnaeus, 1758 (comprising five recognized species)

and *Pseudophus* Merrem, 1820 (one species) are both recognized in their commonly accepted forms, except for the species originally described as *Ophisaurus incomptus* McConkey, 1955, which is transferred from the genus *Anguis* as erroneously placed by authors including Teran-Juarez (2008) and Bryson and Graham (2010) back to the more appropriate *Ophisaurus*.

Anguinae is also divided into two tribes, these consisting of the tribe *Ophisauriini* *tribe* *nov.* monotypic for the genus *Ophisaurus*, and *Anguiini* *tribe* *nov.* for all other Anguinae.

#### GENUS *OPHISAURUS* DAUDIN, 1803.

**Type species:** *Anguis ventralis* Linnaeus, 1766.

**Diagnosis:** The genus *Ophisaurus* Daudin, 1803 as traditionally defined morphologically has been defined as those Anguid lizards with the following suite of characters: A lateral fold. Scales squarish-rhomboidal, forming straight longitudinal and transverse series. Limbs absent externally, or reduced to a rudiment of the hind pair. Teeth with conical or subspherical crowns. Pterygoid teeth; palatine and vomerine teeth may be present or absent.

*Hyalosaurus* Günther, 1873, monotypic for the species *Hyalosaurus koellikeri* Günther, 1873 is readily separated from *Ophisaurus* by a concealed ear opening as opposed to obvious in *Ophisaurus*.

Otherwise the preceding diagnosis can be used to define *Hyalosaurus* as well.

*Ophisaurus* is separated from the other two morphologically similar North American genera *Binghamsaurus* *gen. nov.* and *Smythsaurus* *gen. nov.* by the following:

*Binghamsaurus* *gen. nov.* has 97 or less scales along the lateral fold, versus 98 or more in *Ophisaurus* and *Smythsaurus* *gen. nov.*

*Binghamsaurus* *gen. nov.* is also separated from the other North American genera *Ophisaurus* and *Smythsaurus* *gen. nov.* by having one or more upper labials on each side that are not separated from the orbit by lorilabials. About 80% of *Binghamsaurus* *gen. nov.* have two frontonasals rather than one, as seen in *Ophisaurus* and *Smythsaurus* *gen. nov.*

*Binghamsaurus* *gen. nov.* is also further separated from the other North American genera *Ophisaurus* and *Smythsaurus* *gen. nov.* by its hemipenial structure which is unique in that it has two ridges, one on either side of the sulcus, that run the entire length of the organ. These ridges are spinose on top and rugose laterally. The remainder of the hemipenis is plicate and fleshy, except for a few small spines at the base of the ridges.

*Smythsaurus* *gen. nov.* is readily separated from *Ophisaurus* by having dark stripes or dark pigmentation below the lateral fold, a condition not seen in *Ophisaurus*.

*Smythsaurus* *gen. nov.* is further separated from *Ophisaurus* by white markings occurring in the middle of the scales, often forming smooth stripes, (versus occurring on the posterior corners of the scales, but never primarily in the middle in *Ophisaurus*; or in the case of young *Ophisaurus*, absent); a distinct mid-dorsal stripe, usually present in adults and always in young specimens and juveniles as well as dark stripes present on scale rows one or two on the venter, (versus no distinct mid-dorsal stripe present and no dark stripes present on the venter in *Ophisaurus*).

*Ophisaurus*, *Binghamsaurus* *gen. nov.* and *Smythsaurus* *gen. nov.* are readily separated from *Pseudopus* Merrem, 1820 by the absence of external rudiments of hind limbs, as seen in the latter genus.

*Anguis* Linnaeus, 1758 is readily separated from the other genera by having no trace of limbs externally and fang-like lateral teeth.

*Dopasia* Gray, 1853 and *Richardsonsaurus* *gen. nov.* are both separated from all other Anguid genera by the following suite of

characters: Ear-opening not larger than the nostril; 14 longitudinal rows of dorsal plates and three shields on a line from the nasal to the azygos praefrontal.

*Dopasia* Gray, 1853 is separated from the similar *Richardsonsaurus* *gen. nov.* by having a dark ventrolateral stripe present; nasal separated from frontonasal by three scales and vertebrae from atlas to remnants of hind leg bones (VPS) 47-52, versus there being no dark ventrolateral stripe present; nasal separated from frontonasal by two scales and vertebrae from atlas to remnants of hind leg bones (VPS) 50-50 in *Richardsonsaurus* *gen. nov.*

**Distribution:** *Ophisaurus* are found in the USA and Mexico.

**Content:** *Ophisaurus ventralis* (Linnaeus, 1766) (type species); *O. ceroni* Holman, 1965; *O. incomptus* McConkey, 1955.

#### GENUS *BINGHAMSAURUS* *GEN. NOV.*

**Type species:** *Ophisaurus compressus* Cope, 1900.

**Diagnosis:** *Binghamsaurus* *gen. nov.* was until now treated as a member of the better known genus *Ophisaurus* Daudin, 1803.

As traditionally defined morphologically, *Ophisaurus* has been defined as those Anguid lizards with the following suite of characters: A lateral fold. Scales squarish-rhomboidal, forming straight longitudinal and transverse series. Limbs absent externally, or reduced to a rudiment of the hind pair. Teeth with conical or subspherical crowns. Pterygoid teeth; palatine and vomerine teeth may be present or absent.

*Hyalosaurus* Günther, 1873, monotypic for the species *Hyalosaurus koellikeri* Günther, 1873 is readily separated from *Ophisaurus* by a concealed ear opening as opposed to obvious in *Ophisaurus*.

Otherwise the preceding diagnosis can be used to define *Hyalosaurus* as well.

*Ophisaurus* herein confined to North America, is separated from the other two morphologically similar North American genera *Binghamsaurus* *gen. nov.* (described herein) and *Smythsaurus* *gen. nov.* (described below) by the following:

*Binghamsaurus* *gen. nov.* has 97 or less scales along the lateral fold, versus 98 or more in *Ophisaurus* and *Smythsaurus* *gen. nov.*

*Binghamsaurus* *gen. nov.* is also separated from the other North American genera *Ophisaurus* and *Smythsaurus* *gen. nov.* by having one or more upper labials on each side that are not separated from the orbit by lorilabials. About 80% of *Binghamsaurus* *gen. nov.* have two frontonasals rather than one, as seen in *Ophisaurus* and *Smythsaurus* *gen. nov.*

*Binghamsaurus* *gen. nov.* is also further separated from the other North American genera *Ophisaurus* and *Smythsaurus* *gen. nov.* by its hemipenial structure which is unique in that it has two ridges, one on either side of the sulcus, that run the entire length of the organ. These ridges are spinose on top and rugose laterally. The remainder of the hemipenis is plicate and fleshy, except for a few small spines at the base of the ridges.

*Smythsaurus* *gen. nov.* is readily separated from *Ophisaurus* by having dark stripes or dark pigmentation below the lateral fold, a condition not seen in *Ophisaurus*.

*Smythsaurus* *gen. nov.* is further separated from *Ophisaurus* by white markings occurring in the middle of the scales, often forming smooth stripes, (versus occurring on the posterior corners of the scales, but never primarily in the middle in *Ophisaurus*; or in the case of young *Ophisaurus*, absent); a distinct mid-dorsal stripe, usually present in adults and always in young specimens and juveniles as well as dark stripes present on scale rows one or two on the venter, (versus no distinct mid-dorsal stripe present and no dark stripes present on the venter in *Ophisaurus*).

*Ophisaurus*, *Binghamsaurus* *gen. nov.* and *Smythsaurus* *gen.*



*nov.* are readily separated from *Pseudopus* Merrem, 1820 by the absence of external rudiments of hind limbs, as seen in the latter genus.

*Anguis* Linnaeus, 1758 is readily separated from the other genera by having no trace of limbs externally and fang-like lateral teeth.

*Dopasia* Gray, 1853 and *Richardsonisaurus gen. nov.* are both separated from all other Anguid genera by the following suite of characters: Ear-opening not larger than the nostril; 14 longitudinal rows of dorsal plates and three shields on a line from the nasal to the azygos praefrontal.

*Dopasia* Gray, 1853 is separated from the similar *Richardsonisaurus gen. nov.* by having a dark ventrolateral stripe present; nasal separated from frontonasal by three scales and vertebrae from atlas to remnants of hind leg bones (VPS) 47-52, versus there being no dark ventrolateral stripe present; nasal separated from frontonasal by two scales and vertebrae from atlas to remnants of hind leg bones (VPS) 50-50 in *Richardsonisaurus gen. nov.*

**Distribution:** *Binghamisaurus gen. nov.* is found in the South-east USA, including, south-east South Carolina, south-east Georgia and Florida.

**Etymology:** Named in honour of snake handler Jarrod Bingham, of Bacchus Marsh, Victoria, Australia.

Among his many credits, is doing 24 hour wildlife rescue in Melbourne, Australia. Unlike a number of other snake catchers in Melbourne who use "killer tongs" to catch (and at the same time painfully kill) snakes, Jarrod is able to catch snakes quickly, efficiently and painlessly for the snakes using world's best methods taught by Snakebusters.

**Content:** *Binghamisaurus compressus* (Cope, 1900) (monotypic).

#### GENUS SMYTHSAURUS GEN. NOV.

**Type species:** *Ophisaurus attenuatus* Baird, 1880

**Diagnosis:** *Smythsaurus gen. nov.* was until now treated as a member of the better known genus *Ophisaurus* Daudin, 1803.

As traditionally defined morphologically, *Ophisaurus* has been defined as those Anguid lizards with the following suite of characters: A lateral fold. Scales squarish-rhomboidal, forming straight longitudinal and transverse series. Limbs absent externally, or reduced to a rudiment of the hind pair. Teeth with conical or subspherical crowns. Pterygoid teeth; palatine and vomerine teeth may be present or absent.

*Hyalosaurus* Günther, 1873, monotypic for the species *Hyalosaurus koellikeri* Günther, 1873 is readily separated from *Ophisaurus* by a concealed ear opening as opposed to obvious in *Ophisaurus*.

Otherwise the preceding diagnosis can be used to define *Hyalosaurus* as well.

*Ophisaurus* herein confined to North America, is separated from the other two morphologically similar North American genera *Binghamisaurus gen. nov.* (described above) and *Smythsaurus gen. nov.* (described herein) by the following:

*Binghamisaurus gen. nov.* has 97 or less scales along the lateral fold, versus 98 or more in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamisaurus gen. nov.* is also separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by having one or more upper labials on each side that are not separated from the orbit by lorilabials. About 80% of *Binghamisaurus gen. nov.* have two frontonasals rather than one, as seen in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamisaurus gen. nov.* is also further separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by its hemipenal structure which is unique in that it has two ridges, one on either side of the sulcus, that run the entire length of the organ. These ridges are spinose on top and

rugose laterally. The remainder of the hemipenis is plicate and fleshy, except for a few small spines at the base of the ridges.

*Smythsaurus gen. nov.* is readily separated from *Ophisaurus* by having dark stripes or dark pigmentation below the lateral fold, a condition not seen in *Ophisaurus*.

*Smythsaurus gen. nov.* is further separated from *Ophisaurus* by white markings occurring in the middle of the scales, often forming smooth stripes, (versus occurring on the posterior corners of the scales, but never primarily in the middle in *Ophisaurus*; or in the case of young *Ophisaurus*, absent); a distinct mid-dorsal stripe, usually present in adults and always in young specimens and juveniles as well as dark stripes present on scale rows one or two on the venter, (versus no distinct mid-dorsal stripe present and no dark stripes present on the venter in *Ophisaurus*).

*Ophisaurus*, *Binghamisaurus gen. nov.* and *Smythsaurus gen. nov.* are readily separated from *Pseudopus* Merrem, 1820 by the absence of external rudiments of hind limbs, as seen in the latter genus.

*Anguis* Linnaeus, 1758 is readily separated from the other genera by having no trace of limbs externally and fang-like lateral teeth.

*Dopasia* Gray, 1853 and *Richardsonisaurus gen. nov.* are both separated from all other Anguid genera by the following suite of characters: Ear-opening not larger than the nostril; 14 longitudinal rows of dorsal plates and three shields on a line from the nasal to the azygos praefrontal.

*Dopasia* Gray, 1853 is separated from the similar *Richardsonisaurus gen. nov.* by having a dark ventrolateral stripe present; nasal separated from frontonasal by three scales and vertebrae from atlas to remnants of hind leg bones (VPS) 47-52, versus there being no dark ventrolateral stripe present; nasal separated from frontonasal by two scales and vertebrae from atlas to remnants of hind leg bones (VPS) 50-50 in *Richardsonisaurus gen. nov.*

**Distribution:** *Smythsaurus gen. nov.* is found in the eastern and south-eastern USA and nearby areas.

**Etymology:** Named in honour of Michael Smyth of Croydon, Melbourne, Victoria, Australia in recognition for his valuable assistance's in reptile education work with Snakebusters, Australia's best reptiles shows and other valuable wildlife conservation activities. This includes when on occasions he has had to deal with illegal armed raids by government officials initiated by "business competitors" who sought to undermine the public benefit activities of Snakebusters for their own nefarious short-term anti-conservation commercial objectives. I also note that the genus *Smythkukri* Hoser, 2012 is also named in honour of the same Michael Smyth. In that description (page 18) (Hoser 2012), the etymology was inadvertently deleted during the pre-publication process.

**Content:** *Smythsaurus attenuatus* (Baird, 1880); *S. longicaudus* (McConkey, 1952); *S. mimicus* (Palmer, 1987); *S. sulcatus* (Cope, 1880).

#### GENUS HYALOSAURUS GÜNTHER, 1873.

**Type species:** *Hyalosaurus koellikeri* Günther, 1873.

**Diagnosis:** The genus *Ophisaurus* Daudin, 1803 (and including *Hyalosaurus*) as traditionally defined morphologically has been defined as those Anguid lizards with the following suite of characters: A lateral fold. Scales squarish-rhomboidal, forming straight longitudinal and transverse series. Limbs absent externally, or reduced to a rudiment of the hind pair. Teeth with conical or subspherical crowns. Pterygoid teeth; palatine and vomerine teeth may be present or absent.

*Hyalosaurus* Günther, 1873, monotypic for the species *Hyalosaurus koellikeri* Günther 1873 is readily separated from *Ophisaurus*, *Binghamisaurus gen. nov.* and *Smythsaurus gen. nov.* by a concealed ear opening as opposed to obvious in the

other three genera.

Otherwise the preceding diagnosis can be used to define *Hyalosaurus* as well.

*Ophisaurus* is separated from the other two morphologically similar North American genera *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* by the following:

*Binghamsaurus gen. nov.* has 97 or less scales along the lateral fold, versus 98 or more in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by having one or more upper labials on each side that are not separated from the orbit by lorilabials. About 80% of *Binghamsaurus gen. nov.* have two frontonasals rather than one, as seen in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also further separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by its hemipenal structure which is unique in that it has two ridges, one on either side of the sulcus, that run the entire length of the organ. These ridges are spinose on top and rugose laterally. The remainder of the hemipenis is plicate and fleshy, except for a few small spines at the base of the ridges.

*Smythsaurus gen. nov.* is readily separated from *Ophisaurus* by having dark stripes or dark pigmentation below the lateral fold, a condition not seen in *Ophisaurus*.

*Smythsaurus gen. nov.* is further separated from *Ophisaurus* by white markings occurring in the middle of the scales, often forming smooth stripes, (versus occurring on the posterior corners of the scales, but never primarily in the middle in *Ophisaurus*; or in the case of young *Ophisaurus*, absent); a distinct mid-dorsal stripe, usually present in adults and always in young specimens and juveniles as well as dark stripes present on scale rows one or two on the venter, (versus no distinct mid-dorsal stripe present and no dark stripes present on the venter in *Ophisaurus*).

*Ophisaurus*, *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* are readily separated from *Pseudopus* Merrem, 1820 by the absence of external rudiments of hind limbs, as seen in the latter genus.

*Anguis* Linnaeus, 1758 is readily separated from the other genera by having no trace of limbs externally and fang-like lateral teeth.

*Dopasia* Gray, 1853 and *Richardsonsaurus gen. nov.* are both separated from all other Angiud genera by the following suite of characters: Ear-opening not larger than the nostril; 14 longitudinal rows of dorsal plates and three shields on a line from the nasal to the azygos praefrontal.

*Dopasia* Gray, 1853 is separated from the similar *Richardsonsaurus gen. nov.* by having a dark ventrolateral stripe present; nasal separated from frontonasal by three scales and vertebrae from atlas to remnants of hind leg bones (VPS) 47-52, versus there being no dark ventrolateral stripe present; nasal separated from frontonasal by two scales and vertebrae from atlas to remnants of hind leg bones (VPS) 50-50 in *Richardsonsaurus gen. nov.*

**Distribution:** Algeria and Morocco, North Africa.

**Content:** *Hyalosaurus koellikeri* Günther, 1873 (monotypic).

#### GENUS PSEUDOPUS MERREM, 1820.

**Type species:** *Lacerta apoda* Pallas, 1775.

**Diagnosis:** In terms of other species within the Anguidae, the most relevant diagnostic features of *Pseudopus* Merrem, 1820 that differentiate it from the other Anguidae genera are the fact that the ear-opening is distinct and that there are external rudiments of hind limbs.

The genus most similar morphologically to this one and close by molecular phylogenies, is *Anguis* Linnaeus, 1758. It is separated from *Anguis* by the fact that *Anguis* has no traces of

external limbs and the lateral teeth are fang-like.

*Pseudopus* is further diagnosed as follows:

Lateral teeth with subspherical crowns; teeth on the pterygoids (in two rows), palatines, and frequently also on the vomers. Shape, arrangement, and number of the head-shields extremely similar to those of *Anguis fragilis* Linnaeus, 1758, and likewise subject to a certain amount of variation: azygos praefrontal narrower than the greatest width of the frontal, usually separated from the latter by two or three praefrontals on a transverse line; interparietal narrower than the parietals, as broad as or narrower than the occipital; two shields on a line from the nasal to the azygos praefrontal; three supraoculars and five supraciliaries. Ear-opening distinct, horizontal, slightly larger than the nostril. Dorsal plates in twelve or fourteen longitudinal series, keeled, the keels much stronger in the young than in the adult; ventrals in ten longitudinal series, strongly keeled in the young, the keels disappearing with age. A small rudiment of extremities on each side of the anal flap. Tail once and a half to twice as long as head and body; upper and lower caudal plates keeled. Brown, lighter inferiorly; young olive-grey, with dark-brown undulated cross bands on the back and vertical bars on the sides of the head (modified from Boulenger, 1885, pp. 280-281).

**Distribution:** Southern Eurasia in a band stretching between Greece and southern Kazakhstan.

**Content:** *Pseudopus apoda* (Pallas, 1775) (monotypic).

#### GENUS ANGUIS LINNAEUS, 1758.

**Type species:** *Anguis fragilis* Linnaeus, 1758

**Diagnosis:** The genus *Anguis* Linnaeus, 1758 is separated from all other Anguidae by the following unique suite of characters: No lateral fold. Scales roundish, arranged quincuncially on the back, forming vertical series on the sides. No limbs or remnants of them. Lateral teeth are fanglike. Palate is toothless.

**Distribution:** Most of Europe and nearby parts of Asia.

**Content:** *Anguis fragilis* Linnaeus, 1758 (type species); *A. cephalonica* Werner, 1894; *A. colchica* (Nordmann, 1840); *A. graeca* (Bedraiga, 1881); *A. veronensis* Pollini, 1818.

#### GENUS DOPASIA GRAY, 1853.

**Type species:** *Pseudopus gracilis* Gray, 1845.

**Diagnosis:** *Dopasia* Gray, 1853 and *Richardsonsaurus gen. nov.* (formerly treated as a part of *Dopasia*) are both separated from all other Angiud genera by the following suite of characters: Ear-opening not larger than the nostril; 14 longitudinal rows of dorsal plates and three shields on a line from the nasal to the azygos praefrontal.

*Dopasia* Gray, 1853 is separated from the similar *Richardsonsaurus gen. nov.* by having a dark ventrolateral stripe present; nasal separated from frontonasal by three scales and vertebrae from atlas to remnants of hind leg bones (VPS) 47-52, versus there being no dark ventrolateral stripe present; nasal separated from frontonasal by two scales and vertebrae from atlas to remnants of hind leg bones (VPS) 50-50 in *Richardsonsaurus gen. nov.*

The genus *Ophisaurus* Daudin, 1803 as traditionally defined morphologically has been defined as those Anguid lizards with the following suite of characters: A lateral fold. Scales squarish-rhomboidal, forming straight longitudinal and transverse series. Limbs absent externally, or reduced to a rudiment of the hind pair. Teeth with conical or subspherical crowns. Pterygoid teeth; palatine and vomerine teeth may be present or absent.

*Hyalosaurus* Günther, 1873, monotypic for the species *Hyalosaurus koellikeri* Günther, 1873 is readily separated from *Ophisaurus* by a concealed ear opening as opposed to obvious in *Ophisaurus*.

Otherwise the preceding diagnosis can be used to define

*Hyalosaurus* as well.

*Ophisaurus* is separated from the other two morphologically similar North American genera *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* by the following:

*Binghamsaurus gen. nov.* has 97 or less scales along the lateral fold, versus 98 or more in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by having one or more upper labials on each side that are not separated from the orbit by lorilabials. About 80% of *Binghamsaurus gen. nov.* have two frontonasals rather than one, as seen in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also further separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by its hemipenal structure which is unique in that it has two ridges, one on either side of the sulcus, that run the entire length of the organ. These ridges are spinose on top and rugose laterally. The remainder of the hemipenis is plicate and fleshy, except for a few small spines at the base of the ridges.

*Smythsaurus gen. nov.* is readily separated from *Ophisaurus* by having dark stripes or dark pigmentation below the lateral fold, a condition not seen in *Ophisaurus*.

*Smythsaurus gen. nov.* is further separated from *Ophisaurus* by white markings occurring in the middle of the scales, often forming smooth stripes, (versus occurring on the posterior corners of the scales, but never primarily in the middle in *Ophisaurus*; or in the case of young *Ophisaurus*, absent); a distinct mid-dorsal stripe, usually present in adults and always in young specimens and juveniles as well as dark stripes present on scale rows one or two on the venter, (versus no distinct mid-dorsal stripe present and no dark stripes present on the venter in *Ophisaurus*).

*Ophisaurus*, *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* are readily separated from *Pseudopus* Merrem, 1820 by the absence of external rudiments of hind limbs, as seen in the latter genus.

*Anguis* Linnaeus, 1758 is readily separated from the other genera by having no trace of limbs externally and fang-like lateral teeth.

**Distribution:** Southern Asia, including Sumatra and Borneo in a region stretching from Nepal/India to Thailand and Vietnam.

**Content:** *Dopasia gracilis* (Gray, 1845) (type species); *D. buettikoferi* (Lidith De Juede 1905); *D. sokolovi* (Darevsky and Nguyen-Van-Sang, 1983); *D. wegneri* (Mertens, 1959).

#### GENUS RICHARDSONSAURUS GEN. NOV.

**Type species:** *Ophisaurus harti* Boulenger, 1899.

**Diagnosis:** *Richardsonosaurus gen. nov.* was until now regarded as part of *Dopasia* Gray, 1853.

*Dopasia* Gray, 1853 and *Richardsonosaurus gen. nov.* are both separated from all other Angiud genera by the following suite of characters: Ear-opening not larger than the nostril; 14 longitudinal rows of dorsal plates and three shields on a line from the nasal to the azygos praefrontal.

*Dopasia* Gray, 1853 is separated from *Richardsonosaurus gen. nov.* by having a dark ventrolateral stripe present; nasal separated from frontonasal by three scales and vertebrae from atlas to remnants of hind leg bones (VPS) 47-52, versus there being no dark ventrolateral stripe present; nasal separated from frontonasal by two scales and vertebrae from atlas to remnants of hind leg bones (VPS) 50-50 in *Richardsonosaurus gen. nov.*

The genus *Ophisaurus* Daudin, 1803 as traditionally defined morphologically has been defined as those Anguid lizards with the following suite of characters: A lateral fold. Scales squarish-rhomboidal, forming straight longitudinal and transverse series. Limbs absent externally, or reduced to a rudiment of the hind

pair. Teeth with conical or subspherical crowns. Pterygoid teeth; palatine and vomerine teeth may be present or absent.

*Hyalosaurus* Günther, 1873, monotypic for the species *Hyalosaurus koellikeri* Günther, 1873 is readily separated from *Ophisaurus* by a concealed ear opening as opposed to obvious in *Ophisaurus*.

Otherwise the preceding diagnosis can be used to define *Hyalosaurus* as well.

*Ophisaurus* is separated from the other two morphologically similar North American genera *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* by the following:

*Binghamsaurus gen. nov.* has 97 or less scales along the lateral fold, versus 98 or more in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by having one or more upper labials on each side that are not separated from the orbit by lorilabials. About 80% of *Binghamsaurus gen. nov.* have two frontonasals rather than one, as seen in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also further separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by its hemipenal structure which is unique in that it has two ridges, one on either side of the sulcus, that run the entire length of the organ. These ridges are spinose on top and rugose laterally. The remainder of the hemipenis is plicate and fleshy, except for a few small spines at the base of the ridges.

*Smythsaurus gen. nov.* is readily separated from *Ophisaurus* by having dark stripes or dark pigmentation below the lateral fold, a condition not seen in *Ophisaurus*.

*Smythsaurus gen. nov.* is further separated from *Ophisaurus* by white markings occurring in the middle of the scales, often forming smooth stripes, (versus occurring on the posterior corners of the scales, but never primarily in the middle in *Ophisaurus*; or in the case of young *Ophisaurus*, absent); a distinct mid-dorsal stripe, usually present in adults and always in young specimens and juveniles as well as dark stripes present on scale rows one or two on the venter, (versus no distinct mid-dorsal stripe present and no dark stripes present on the venter in *Ophisaurus*).

*Ophisaurus*, *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* are readily separated from *Pseudopus* Merrem, 1820 by the absence of external rudiments of hind limbs, as seen in the latter genus.

*Anguis* Linnaeus, 1758 is readily separated from the other genera by having no trace of limbs externally and fang-like lateral teeth.

**Distribution:** North Vietnam, Southern China and Taiwan.

**Ertmology:** Named in honour of Peter Richardson, long-time owner of Dreamtime Reptile Park, Bundaberg, Queensland, in recognition of his long-term commitment to wildlife education in Queensland. His successful wildlife education business was effectively killed when the ruthless Steve Irwin business machine attempted to monopolize the wildlife space in Queensland. This was to the detriment of others in Queensland who owned and managed wildlife parks and reserves.

Instead of public moneys being spent on wildlife conservation outcomes, the Steve Irwin business masqueraded as a wildlife charity to effectively siphon taxpayer's funds off for their own business interests and ruthless self promotion.

Steve Irwin, a police-protected criminal, became known internationally for his repeated acts of extreme animal cruelty that he performed for TV audiences, before he was killed on 4 September 2006 after illegally mistreating a Stingray.

**Content:** *Richardsonosaurus harti* (Boulenger, 1899) (type species); *R. hainanensis* (Yang, 1984); *R. ludovici* (Mocquard, 1905).

**TRIBE OPHISAURIINI TRIBE NOV.****(Terminal taxon: *Anguis ventralis* Linnaeus, 1766)****Diagnosis:** The tribe is monotypic for the genus *Ophisaurus* Daudin, 1803 as defined previously in this paper.

Therefore the tribe Ophisauriini *tribe nov.* is defined as follows: The genus *Ophisaurus* Daudin, 1803 as traditionally defined morphologically has been defined as those Anguid lizards with the following suite of characters: A lateral fold. Scales squarish-rhomboidal, forming straight longitudinal and transverse series. Limbs absent externally, or reduced to a rudiment of the hind pair. Teeth with conical or subspherical crowns. Pterygoid teeth; palatine and vomerine teeth may be present or absent.

However a number of genera confused with this are defined in this paper and belong to the other Anguinae tribe Anguiniini *tribe nov.*

Hence they are defined below to separate them from *Ophisaurus* and in turn Ophisauriini *tribe nov.*

*Hyalosaurus* Günther, 1873, monotypic for the species *Hyalosaurus koellikeri* Günther, 1873 is readily separated from *Ophisaurus* by a concealed ear opening as opposed to obvious in *Ophisaurus*.

Otherwise the preceding diagnosis can be used to define *Hyalosaurus* as well.

*Ophisaurus* is separated from the other two morphologically similar North American genera *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* by the following:

*Binghamsaurus gen. nov.* has 97 or less scales along the lateral fold, versus 98 or more in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by having one or more upper labials on each side that are not separated from the orbit by lorilabials. About 80% of *Binghamsaurus gen. nov.* have two frontonasals rather than one, as seen in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also further separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by its hemipenal structure which is unique in that it has two ridges, one on either side of the sulcus, that run the entire length of the organ. These ridges are spinose on top and rugose laterally. The remainder of the hemipenis is plicate and fleshy, except for a few small spines at the base of the ridges.

*Smythsaurus gen. nov.* is readily separated from *Ophisaurus* by having dark stripes or dark pigmentation below the lateral fold, a condition not seen in *Ophisaurus*.

*Smythsaurus gen. nov.* is further separated from *Ophisaurus* by white markings occurring in the middle of the scales, often forming smooth stripes, (versus occurring on the posterior corners of the scales, but never primarily in the middle in *Ophisaurus*; or in the case of young *Ophisaurus*, absent); a distinct mid-dorsal stripe, usually present in adults and always in young specimens and juveniles as well as dark stripes present on scale rows one or two on the venter, (versus no distinct mid-dorsal stripe present and no dark stripes present on the venter in *Ophisaurus*).

*Ophisaurus*, *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* are readily separated from *Pseudopus* Merrem, 1820 by the absence of external rudiments of hind limbs, as seen in the latter genus.

*Anguis* Linnaeus, 1758 is readily separated from the other genera by having no trace of limbs externally and fang-like lateral teeth.

*Dopasia* Gray, 1853 and *Richardsonsaurus gen. nov.* are both separated from all other Anguid genera by the following suite of characters: Ear-opening not larger than the nostril; 14 longitudinal rows of dorsal plates and three shields on a line from the nasal to the azygous praefrontal.

*Dopasia* Gray, 1853 is separated from the similar *Richardsonsaurus gen. nov.* by having a dark ventrolateral stripe present; nasal separated from frontonasal by three scales and vertebrae from atlas to remnants of hind leg bones (VPS) 47-52, versus there being no dark ventrolateral stripe present; nasal separated from frontonasal by two scales and vertebrae from atlas to remnants of hind leg bones (VPS) 50-50 in *Richardsonsaurus gen. nov.*

**Distribution:** USA and Mexico.

**Content:** *Ophisaurus* Daudin, 1803 (monotypic).

**TRIBE ANGUIINI TRIBE NOV.****(Terminal taxon: *Anguis ventralis* Linnaeus, 1766)****Diagnosis:** The tribe Anguiniini *tribe nov.* includes all species and genera within Anguinae except for *Ophisaurus* Daudin, 1803.

Therefore the tribe is defined by defining the component genera as well as *Ophisaurus* Daudin, 1803.

The genus *Ophisaurus* Daudin, 1803 as traditionally defined morphologically has been defined as those Anguid lizards with the following suite of characters: A lateral fold. Scales squarish-rhomboidal, forming straight longitudinal and transverse series. Limbs absent externally, or reduced to a rudiment of the hind pair. Teeth with conical or subspherical crowns. Pterygoid teeth; palatine and vomerine teeth may be present or absent.

However a number of genera confused with this are defined in this paper and belong to the other Anguinae tribe Anguiniini *tribe nov.* as defined here.

Hence they are defined below to separate them from *Ophisaurus* and in turn Ophisauriini *tribe nov.*

*Hyalosaurus* Günther, 1873, monotypic for the species *Hyalosaurus koellikeri* Günther, 1873 is readily separated from *Ophisaurus* by a concealed ear opening as opposed to obvious in *Ophisaurus*.

Otherwise the preceding diagnosis can be used to define *Hyalosaurus* as well.

*Ophisaurus* is separated from the other two morphologically similar North American genera *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* by the following:

*Binghamsaurus gen. nov.* has 97 or less scales along the lateral fold, versus 98 or more in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by having one or more upper labials on each side that are not separated from the orbit by lorilabials. About 80% of *Binghamsaurus gen. nov.* have two frontonasals rather than one, as seen in *Ophisaurus* and *Smythsaurus gen. nov.*

*Binghamsaurus gen. nov.* is also further separated from the other North American genera *Ophisaurus* and *Smythsaurus gen. nov.* by its hemipenal structure which is unique in that it has two ridges, one on either side of the sulcus, that run the entire length of the organ. These ridges are spinose on top and rugose laterally. The remainder of the hemipenis is plicate and fleshy, except for a few small spines at the base of the ridges.

*Smythsaurus gen. nov.* is readily separated from *Ophisaurus* by having dark stripes or dark pigmentation below the lateral fold, a condition not seen in *Ophisaurus*.

*Smythsaurus gen. nov.* is further separated from *Ophisaurus* by white markings occurring in the middle of the scales, often forming smooth stripes, (versus occurring on the posterior corners of the scales, but never primarily in the middle in *Ophisaurus*; or in the case of young *Ophisaurus*, absent); a distinct mid-dorsal stripe, usually present in adults and always in young specimens and juveniles as well as dark stripes present on scale rows one or two on the venter, (versus no distinct mid-dorsal stripe present and no dark stripes present

on the venter in *Ophisaurus*).

*Ophisaurus*, *Binghamsaurus gen. nov.* and *Smythsaurus gen. nov.* are readily separated from *Pseudopus* Merrem, 1820 by the absence of external rudiments of hind limbs, as seen in the latter genus.

*Anguis* Linnaeus, 1758 is readily separated from the other genera by having no trace of limbs externally and fang-like lateral teeth.

*Dopasia* Gray, 1853 and *Richardsonsaurus gen. nov.* are both separated from all other Anguid genera by the following suite of characters: Ear-opening not larger than the nostril; 14 longitudinal rows of dorsal plates and three shields on a line from the nasal to the azygos praefrontal.

*Dopasia* Gray, 1853 is separated from the similar *Richardsonsaurus gen. nov.* by having a dark ventrolateral stripe present; nasal separated from frontonasal by three scales and vertebrae from atlas to remnants of hind leg bones (VPS) 47-52, versus there being no dark ventrolateral stripe present; nasal separated from frontonasal by two scales and vertebrae from atlas to remnants of hind leg bones (VPS) 50-50 in *Richardsonsaurus gen. nov.*

**Distribution:** North Africa, North America, Europe and nearby areas, southern Asia including an area from India to China and south into Indonesia.

**Content:** *Anguis* Linnaeus, 1758 (type genus); *Binghamsaurus gen. nov.*; *Dopasia* Gray, 1853; *Hyalosaurus* Günther, 1873; *Pseudopus* Merrem, 1820; *Richardsonsaurus gen. nov.*; *Smythsaurus gen. nov.*

#### THE SUBFAMILY GERRHONOTINAE

Within Gerrhonotinae, *Elgaria* Gray, 1838 is divided into two with the erection of *Pitmansaurus gen. nov.* to accommodate the significantly divergent taxon *Elgaria coerulea* (Wiegmann, 1828). That this taxon hadn't been placed in its own genus prior is astounding. This comment is made noting that as far back as 1988, Good (1988) showed a divergence of 12.5 MYA divergence of this taxon from other species of *Elgaria*, this divergence alone being sufficient to warrant the lizard being placed in its own genus and that is without even noting obvious morphological divergence.

It is likely that Stebbins (1958) was the first to suggest removal of the taxon *Elgaria coerulea* (Wiegmann, 1828) from the genus.

Both these genera are also placed in a new tribe Pitmansauriini *tribe nov.* with all others in the subfamily Gerrhonotinae placed in the nominate tribe.

*Gerrhonotus* Wiegmann, 1828 is divided into two with the erection of *Lindholtisaurus* to accommodate the divergent species *Gerrhonotus parvus* Knight and Scudday, 1985 and two others, these species being widely divergent from the nominate taxon in the genus and at times also placed in *Elgaria*.

*Mesaspis* Cope, 1878 is divided into two with the erection of *Rentonsaurus gen. nov.* to accommodate the divergent taxon *Mesaspis gadovii* (Boulenger, 1913). For the remainder, two species are placed in the subgenus *Rayplattsaurus subgen. nov.*

*Abronia* Gray, 1838 is herein regarded as paraphyletic (at the subgenus level) with the adoption of all subgenera formally proposed by Campbell and Frost, 1993, (the others being *Abaculabronia*, *Aenigmabronia*, *Auriculabronia*, *Lissabronia*, *Scopaeabronia*).

In addition three new subgenera, *Assangesaurus subgen. nov.*, *Elliottsaura subgen. nov.* and *Lanisaura subgen. nov.* are erected for species not properly accommodated within the existing divisions. One divergent taxon, *Abronia mixteca* Bogert and Porter, 1967 is herein placed in the newly erected genus *Snowdonsaurus gen. nov.*

#### GENUS ELGARIA GRAY, 1838.

**Type species:** *Cordylus (Gerhonotus) multi-carinatus* Blainville, 1835.

**Diagnosis:** The genera *Elgaria* Gray, 1838 and *Pitmansaurus gen. nov.* until now included within *Elgaria* (and both genera herein placed within the tribe Pitmansauriini *tribe nov.*) are defined as follows:

Anguids, with a lateral fold; scales squarish or rhomboidal, forming transverse series. Limbs well developed and pentadactyle. Teeth conical. Pterygoid teeth present or absent. Dorsal scales not larger than or only scarcely larger than the ventrals. Dorsal scales in 14 or 16 longitudinal series.

The absence of anterior internasals, separating the nasal from the rostral, and the fact that the suboculars reach the temporals, distinguish these two genera from other Gerrhonotidae, Gerrhonotinae and Gerrhonotiini *tribe nov.*

The genus *Elgaria* as redefined herein includes those lizards with the following unique suite of characters:

Lateral dorsal scales smooth. An azygos praefrontal, separated from the frontal by a pair of praefrontals. Dorsal scales obtusely keeled. Six or eight median dorsal series keeled. Tail when perfect is more than twice the length of the head and body. Number of whorls of scales on the tail (from the first one behind the thigh to the tip of the tail) is usually more than 114; the iris of the eye is yellow and devoid of dark pigment; dorsal body scales are usually in 14 longitudinal rows; in adults the scales on the sides of the tail are usually smooth or at best slightly keeled.

The lizards in the genus *Pitmansaurus gen. nov.* are in turn separated from *Elgaria* by the following unique suite of characters: Lateral dorsal scales keeled. Tail when perfect is less than twice the length of the head and body; number of whorls of scales on the tail (from the first one behind the thigh to the tip of the tail) is usually more than 114; the iris of the eye is pigmented, especially around the margin of the pupil, so that often the whole eye appears to be black; dorsal body scales are usually in 16 longitudinal rows; in adults the scales on the sides of the tail are strongly keeled.

**Distribution:** *Elgaria* as defined herein are found in western North America, ranging from the northern United States of America to Mexico.

**Content:** *Elgaria multicarinata* (Blainville, 1835) (type species); *E. cedrosensis* (Fitch, 1934); *E. kingii* Gray, 1838; *E. panamintina* (Stebbins, 1958); *E. paucicarinata* (Fitch, 1934); *E. velazquezi* Grismer and Hollingsworth, 2001.

#### GENUS PITMANSAURUS GEN. NOV.

**Type species:** *Gerrhonotus coeruleus* Wiegmann, 1828.

**Diagnosis:** The genera *Elgaria* Gray, 1838 and *Pitmansaurus gen. nov.* until now both included within *Elgaria* (and both genera herein placed within the tribe Pitmansauriini *tribe nov.*) are defined as follows:

Anguids, with a lateral fold; scales squarish or rhomboidal, forming transverse series. Limbs well developed and pentadactyle. Teeth conical. Pterygoid teeth present or absent. Dorsal scales not larger than or only scarcely larger than the ventrals. Dorsal scales in 14 or 16 longitudinal series.

The absence of anterior internasals, separating the nasal from the rostral, and the fact that the suboculars reach the temporals, distinguish these two genera from other Gerrhonotidae, Gerrhonotinae and Gerrhonotiini *tribe nov.*

The genus *Elgaria* as redefined herein includes those lizards with the following unique suite of characters:

Lateral dorsal scales smooth. An azygos praefrontal, separated from the frontal by a pair of praefrontals. Dorsal scales obtusely keeled. Six or eight median dorsal series keeled. Tail when perfect is more than twice the length of the head and body. Number of whorls of scales on the tail (from the first one behind

the thigh to the tip of the tail) is usually more than 114; the iris of the eye is yellow and devoid of dark pigment; dorsal body scales are usually in 14 longitudinal rows; in adults the scales on the sides of the tail are usually smooth or at best slightly keeled.

The lizards in the genus *Pitmansaurus gen. nov.* are in turn separated from *Elgaria* by the following unique suite of characters: Lateral dorsal scales keeled. Tail when perfect is less than twice the length of the head and body; number of whorls of scales on the tail (from the first one behind the thigh to the tip of the tail) is usually more than 114; the iris of the eye is pigmented, especially around the margin of the pupil, so that often the whole eye appears to be black; dorsal body scales are usually in 16 longitudinal rows; in adults the scales on the sides of the tail are strongly keeled.

The genus *Pitmansaurus gen. nov.* is further diagnosed by the following unique suite of characters: Head-shields smooth; an azygos praefrontal, very variable in form and size, either completely enclosed between the other praefrontals or in contact with the loreals or with the frontal, separated from the rostral by one or two pairs of shields; sometimes a small azygos shield behind the rostral, separating the anterior pair; nasal usually in contact with the rostral; two superposed postnasals, followed by one or two loreals; two or three small outer supraoculars; ten or eleven upper labials. Sides of neck granular. Lateral fold very strong, beginning on the neck. Nuchal shields in eight to twelve longitudinal series, keeled except in very young specimens. Dorsal scales in fourteen or sixteen longitudinal series, sharply keeled, of nearly the same size as the ventrals; forty-five to fifty-two transverse series. Ventrals in twelve longitudinal series. The adpressed forelimb reaches the angle of the mouth or the eye; the hind limb measures half to two thirds the distance from axilla to groin. Tail once and two thirds to twice as long as head and body, round, subquadrangular at the base; upper caudal scales sharply keeled.

Brown or olive above, usually with irregular undulated blackish cross bars bordered with small yellowish spots posteriorly; back sometimes irregularly spotted with blackish, and the flanks closely spotted with black and dotted with yellowish; lower surfaces whitish olive, uniform or with longitudinal series of confluent brown spots.

**Distribution:** *Pitmansaurus gen. nov.* is found in the west of the United States and in southwestern Canada. It ranges from southern British Columbia (including Vancouver Island), southward through western Washington and western Oregon to west-central coastal California and the central Sierra Nevada (including the east side of Lake Tahoe basin) and Washoe County, Nevada (Vindum and Arnold 1997). It also ranges southward in the Rocky Mountains to northern Idaho and western Montana. Disjunct populations occur in several areas in south-central Oregon, northeastern California, and northwestern Nevada (Stebbins 2003). The western edge of the distribution includes some small coastal islands (Stebbins 2003). The elevational range extends from sea level to around 3,200 m (Stebbins 2003); adapted from Hammerson (2007).

**Etymology:** Named in honour of Australia's original "Crocodile Hunter" Mick Pitman, after whom the hit movie "Crocodile Dundee" was modelled. Pitman's successful crocodile conservation business based in Queensland was effectively destroyed by a business rival named Steve Irwin.

A police-protected criminal and shrewd businessman, Steve Irwin cultivated a close relationship with corrupt government officials who acted as his paid thugs to repeatedly engage in illegal armed raids of Pitman's home and business in order to shut him down.

Irwin also effectively stole his (at the time unregistered) common-law trademark by quietly applying for registration of it

(in two classes) on 2 September 1998, via IP Australia through a family connected business. After obtaining registration for the trademarks (unopposed), Irwin then took action to stop Pitman using the name for himself.

Once Pitman was prohibited from trading as "the Crocodile Hunter", the result being that business was instead channelled to the Irwin enterprise and in the face of non-stop illegal armed raids (including more than 26 in two years) at Steve Irwin's instigation, Pitman had to completely shut down his enterprise and move to the Northern Territory, in effect as a fugitive.

While Irwin ended up making many millions of dollars through government hands-outs to his family business and became famous globally for his on-TV acts of extreme animal cruelty, Pitman was forced to languish in poverty and obscurity.

Karma kicked in on 4 September 2006, when after mistreating a stringray, Irwin was killed by its tail barb that penetrated his chest.

Following his death, Irwin's family attempted to re-write history by alleging Steve Irwin had been a tireless wildlife conservation icon. In fact nothing could have been further from the truth!

**Content:** *Pitmansaurus coerulea* (Wiegmann, 1828) (monotypic, but including four recognized subspecies, namely *Pitmansaurus coerulea coerulea* (Wiegmann, 1828), *P. coerulea palmeri* (Stejneger, 1893), *P. coerulea principis* (Baird and Girard, 1852), *P. coerulea shastensis* (Fitch, 1934)).

#### TRIBE PITMANSAURIINI TRIBE NOV.

(Terminal taxon: *Gerrhonotus coeruleus* Wiegmann, 1828).

**Diagnosis:** The genera *Elgaria* Gray, 1838 and *Pitmansaurus gen. nov.* until now both included within *Elgaria* consist the entirety of this tribe.

Both genera are separated from all other Gerrhonotinae (and by definition herein the tribe Gerrhonotiini *tribe nov.*) by the following unique suite of characters:

Anguils, with a lateral fold; scales squarish or rhomboidal, forming transverse series. Limbs well developed and pentadactyle. Teeth conical. Pterygoid teeth present or absent. Dorsal scales not larger than or only scarcely larger than the ventrals. Dorsal scales in 14 or 16 longitudinal series.

The absence of anterior internasals, separating the nasal from the rostral, and the fact that the suboculars reach the temporals, distinguish these two genera from other Gerrhonotidae, Gerrhonotinae and Gerrhonotiini *tribe nov.* The genus *Elgaria* as redefined herein includes those lizards with the following unique suite of characters:

Lateral dorsal scales smooth. An azygos praefrontal, separated from the frontal by a pair of praefrontals. Dorsal scales obtusely keeled. Six or eight median dorsal series keeled. Tail when perfect is more than twice the length of the head and body. Number of whorls of scales on the tail (from the first one behind the thigh to the tip of the tail) is usually more than 114; the iris of the eye is yellow and devoid of dark pigment; dorsal body scales are usually in 14 longitudinal rows; in adults the scales on the sides of the tail are usually smooth or at best slightly keeled.

The lizards in the genus *Pitmansaurus gen. nov.* are in turn separated from *Elgaria* by the following unique suite of characters: Lateral dorsal scales keeled. Tail when perfect is less than twice the length of the head and body; number of whorls of scales on the tail (from the first one behind the thigh to the tip of the tail) is usually more than 114; the iris of the eye is pigmented, especially around the margin of the pupil, so that often the whole eye appears to be black; dorsal body scales are usually in 16 longitudinal rows; in adults the scales on the sides of the tail are strongly keeled.

**Distribution:** Found in western North America, ranging from southern Canada, through the USA to Mexico.

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

**Content:** *Pitmansaurus gen. nov.* (type genus); *Elgaria* Gray, 1838.

**TRIBE GERRHONOTIINI TRIBE NOV.**

**(Terminal taxon: *Gerrhonotus liocephalus* Wiegmann, 1828)**

**Diagnosis:** The genera *Elgaria* Gray, 1838 and *Pitmansaurus gen. nov.* until now both included within *Elgaria* consist the entirety of the other tribe in the subfamily Gerrhonotinae, namely *Pitmansauriini tribe nov.*

The tribe Gerrhonotiini *tribe nov.*, is most easily defined by removal of the two genera in the tribe *Pitmansaurus gen. nov.* by process of elimination.

Both those genera are separated from all other Gerrhonotinae (and by definition herein the tribe Gerrhonotiini *tribe nov.*) by the following unique suite of characters:

Anguids, with a lateral fold; scales squarish or rhomboidal, forming transverse series. Limbs well developed and pentadactyle. Teeth conical. Pterygoid teeth present or absent. Dorsal scales not larger than or only scarcely larger than the ventrals. Dorsal scales in 14 or 16 longitudinal series. The absence of anterior internasals, separating the nasal from the rostral, and the fact that the suboculars reach the temporals, distinguish these two genera from other Gerrhonotidae, Gerrhonotinae and Gerrhonotiini *tribe nov.*

**Distribution:** North and Central America and north-eastern South America.

**Content:** *Gerrhonotus* Wiegmann, 1828 (type genus); *Abronia* Gray, 1838; *Barisia* Cope, 1878; *Coloptychon* Tihen, 1949; *Lindholtsaurus gen. nov.*; *Mesaspis* Cope, 1878; *Rentonsaurus gen. nov.*; *Snowdonsaurus gen. nov.*

**THE DIVISION OF GERRHONOTUS WIEGMANN, 1828.**

Numerous studies have shown *Gerrhonotus* Wiegmann, 1828 as presently recognized to contain two distinct clades (e.g. Bryson and Graham 2010, Pyron *et al.* 2013). These are the nominate species group, including the taxa, *Gerrhonotus liocephalus* Wiegmann, 1828, the type for the genus, *Gerrhonotus infernalis* Baird, 1859 and *Gerrhonotus ophiurus* Cope, 1867, and the second group of species comprising, *Gerrhonotus parvus* Knight and Scudday, 1985, *Gerrhonotus lugoi* McCoy, 1970 and *Gerrhonotus farri* Bryson and Graham, 2010.

Morphologically the second trio of species are separated from the first trio by having smooth dorsal scales and the lack of a postrostral. Smith (1986) and Liner (1994) dealt with this problem by transferring the relevant species to *Elgaria* Gray, 1838. However this situation was appropriate as in other attributes, these species clearly don't fit with other species in the entire *Pitmansauriini tribe nov.*

More recently Conroy *et al.* (2005), Bryson and Graham (2010), Pyron *et al.* (2013) and others have called the relevant taxa *Gerrhonotus*, even though this generic assignment is not satisfactory.

To correct this anomaly, the three relevant species are herein placed in a new genus, *Lindholtsaurus gen. nov.* described according to the rules of the Zoological Code (Ride *et al.* 1999).

**GENUS LINDHOLTSAURUS GEN. NOV.**

**Type species:** *Gerrhonotus parvus* Knight and Scudday, 1985.

**Diagnosis:** Morphologically, all species of *Lindholtsaurus gen. nov.* are separated from those within the genus *Gerrhonotus* Wiegmann, 1828 (and all other Anguillidae) by the following suite of characters: Smooth dorsal scales, the rostral in contact with the nasals, a second primary temporal that is in contact with the fifth medial supraocular, suboculars separated from the lower primary temporal by an upper labial, and wide pale crossbands on the tail (after Knight and Scudday, 1985).

**Distribution:** Mexico.

**Etymology:** Named in honour of taxi driver and magazine publisher, Peer Lindholt. For many years he produced a number of probing journals including *Cabbie*, which did something no other Australian periodical publisher ever did and that was to stand up for the rights of honest, decent hard-working taxi drivers. In Australia and other places as well, taxi drivers are downtrodden workers who are in effect cannon fodder used to ferry drunks and other undesireables from venue to venue.

They are commonly treated with contempt by employers, the public and most notably law-enforcement agencies, whose workers see cabbies as an easy soft target to harass and persecute.

Lindholt's magazine was also the first to publicly expose serious endemic corruption involving Mr. Reg Kermode and others running the Australian taxi business, calling them the "Mafia".

His description was apt in view of the graft, corruption and violence that underpinned their business.

Kermode in particular was responsible for numerous deaths of taxi drivers through illegal activities he sanctioned and promoted, invariably with the support of corrupt people in government, in the transport bureaucracies as well as with the aid of corrupt State and Federal parliamentarians.

**Content:** *Lindholtsaurus parvus* (Knight and Scudday, 1985) (type species); *L. lugoi* (McCoy, 1970); *L. farri* Bryson and Graham, 2010.

**THE DIVISION OF MESASPIS COPE, 1878.**

In his monograph, Good (1988) separated the genus *Mesaspis* Cope, 1879 into three distinctive groups. He divided them into the *moreletii* group, the *antauges* group as sister to the other and finally the *gadovii* group, which he regarded as "the outgroup".

While his data was incomplete, it was clear that the *antauges* group shared more affinities with the *moreletii* group than the obviously most distinct *gadovii* group.

A number of more recent phylogenetic studies (e.g. Pyron *et al.* 2013) have shown the *moreletii* group to be sufficiently divergent to the *gadovii* group to warrant being placed in a separate genus.

On the basis of the preceding, I hereby divide the genus *Mesaspis* Cope, 1879 into two genera, with the new genus *Rentonsaurus gen. nov.* erected to accommodate the divergent taxon *Mesaspis gadovii* (Boulenger, 1913).

For the remainder of *Mesaspis*, two species (the so-called *antauges* group) are placed in the subgenus *Rayplattsaurus subgen. nov.* defined according to the Zoological Code (Ride *et al.* 1999).

**GENUS MESASPIS COPE, 1878.**

**Type species:** *Gerrhonotus moreletii* Bocourt, 1872.

**Diagnosis:** In common with other Gerrhonotinae and Gerrhonotiini, *Mesaspis* Cope, 1878 are characterized by the presence of a lateral fold; scales that are squarish or rhomboidal, forming transverse

series; limbs that are well developed with pentadactyle feet; conical teeth.

In common with the genera *Abronia* Gray, 1838 *sensu lato* and *Coloptychon* Tihen, 1949, *Mesaspis* has a reduction of the lateral fold.

*Mesaspis* Cope, 1878 and the new genus *Rentonsaurus gen. nov.* (formerly included in *Mesaspis*) are both diagnosed by the following four unique characters: eight (rather than ten) longitudinal ventrals at the forelimbs; subgranular scales on the leading edges of the shanks; labial striping and ventral speckling.

The genus *Rentonsaurus gen. nov.* is readily separated from

*Mesaspis* Cope, 1878 by the presence of a single subocular; reduction in size of the supranasal; increased keeling and the considerably larger adult size of adults within this genus as opposed to *Mesaspis*.

The subgenus of *Mesaspis*, *Rayplattsaurus* subgen. nov. are separated from the other subgenus *Mesaspis* and also *Rentonsaurus* gen. nov. by the following unique characters: An enhancement of keeling reduction so the scale keels are virtually absent; the presence of a postrostral; broad frontal-interparietal contact; an elongate anterior superciliary.

In addition to the preceding, the subgenus *Mesaspis* is separated from both *Rayplattsaurus* subgen. nov. and *Rentonsaurus* gen. nov. by the presence of a single postmental scale rather than two as well as two lateral supraoculars (versus three in the other groups) and a high degree of canthal/loreal variability.

**Distribution:** Central America.

**Content:** *Mesaspis moreletii* (Bocourt, 1872) (type species); *M. antauges* (Cope, 1866); *M. juarezi* (Karges and Wright, 1987); *M. monticola* (Cope, 1878); *M. viridiflava* (Bocourt, 1873).

#### SUBGENUS RAYPLATTSAUROUS SUBGEN. NOV.

**Type species:** *Barisia antauges* Cope, 1866.

**Diagnosis:** In common with other Gerrhonotinae and Gerrhonotiini, *Mesaspis* Cope, 1878 are characterized by the presence of a lateral fold; scales that are squarish or rhomboidal, forming transverse series; limbs that are well developed with pentadactyle feet; conical teeth.

In common with the genera *Abronia* Gray, 1838 *sensu lato* and *Coloptychon* Tihen, 1949, *Mesaspis* has a reduction of the lateral fold.

*Mesaspis* Cope, 1878 and the new genus *Rentonsaurus* gen. nov. (formerly included in *Mesaspis*) are both diagnosed by the following four unique characters: eight (rather than ten) longitudinal ventrals at the forelimbs; subgranular scales on the leading edges of the shanks; labial striping and ventral speckling.

The genus *Rentonsaurus* gen. nov. is readily separated from *Mesaspis* Cope, 1878 by the presence of a single subocular; reduction in size of the supranasal; increased keeling and the considerably larger adult size of adults within this genus as opposed to *Mesaspis*.

The subgenus of *Mesaspis*, *Rayplattsaurus* subgen. nov. as described herein, are separated from the other subgenus *Mesaspis* and also *Rentonsaurus* gen. nov. by the following unique characters: An enhancement of keeling reduction so the scale keels are virtually absent; the presence of a postrostral; broad frontal-interparietal contact; an elongate anterior superciliary.

In addition to the preceding, the subgenus *Mesaspis* is separated from both *Rayplattsaurus* subgen. nov. and *Rentonsaurus* gen. nov. by the presence of a single postmental scale rather than two as well as two lateral supraoculars (versus three in the other groups) and a high degree of canthal/loreal variability.

**Distribution:** Known only from Mount Orizaba, Veracruz, Mexico for *Mesaspis (Rayplattsaurus) antauges* (Cope, 1866) and known only from the northern slope of the Sierra Juarez between 6.1 and 11.6 km (3.8 and 7.2 miles) on the north crest of Cerro Pelon, Ixtlan District, Oaxaca, Mexico for *Mesaspis (Rayplattsaurus) juarezi* (Karges and Wright, 1987).

**Etymology:** Named in honour of Ray Platt, of Bendigo, Victoria, Australia and later Yarram, Victoria, Australia. Platt was an activist publisher of the newspaper called *The Strategy*, which was unusual in news media in Australia in that his sole agenda was to publish the truth. As a result, he regularly

published material embarrassing of corrupt people in government within Australia. The government-controlled Murdoch Press regularly vilified Platt and his newspaper in their own tightly controlled and heavily censored publications calling Platt "racist" and "ant-semitic" although he was neither.

**Content:** *Mesaspis (Rayplattsaurus) antauges* (Cope, 1866) (type species); *M. (Rayplattsaurus) juarezi* (Karges and Wright, 1987).

#### SUBGENUS MESASPIS COPE, 1878.

**Type species:** *Gerrhonotus moreletii* Bocourt, 1872.

**Diagnosis:** In common with other Gerrhonotinae and Gerrhonotiini, *Mesaspis* Cope, 1878 are characterized by the presence of a lateral fold; scales that are squarish or rhomboidal, forming transverse series; limbs that are well developed with pentadactyle feet; conical teeth.

In common with the genera *Abronia* Gray, 1838 *sensu lato* and *Coloptychon* Tihen, 1949, *Mesaspis* has a reduction of the lateral fold.

*Mesaspis* Cope, 1878 and the new genus *Rentonsaurus* gen. nov. (formerly included in *Mesaspis*) are both diagnosed by the following four unique characters: eight (rather than ten) longitudinal ventrals at the forelimbs; subgranular scales on the leading edges of the shanks; labial striping and ventral speckling.

The genus *Rentonsaurus* gen. nov. is readily separated from *Mesaspis* Cope, 1878 by the presence of a single subocular; reduction in size of the supranasal; increased keeling and the considerably larger adult size of adults within this genus as opposed to *Mesaspis*.

The subgenus of *Mesaspis*, *Rayplattsaurus* subgen. nov. are separated from the other subgenus *Mesaspis* and also *Rentonsaurus* gen. nov. by the following unique characters: An enhancement of keeling reduction so the scale keels are virtually absent; the presence of a postrostral; broad frontal-interparietal contact; an elongate anterior superciliary.

In addition to the preceding, the subgenus *Mesaspis* is separated from both *Rayplattsaurus* subgen. nov. and *Rentonsaurus* gen. nov. by the presence of a single postmental scale rather than two as well as two lateral supraoculars (versus three in the other groups) and a high degree of canthal/loreal variability.

**Distribution:** Southern Mexico (Chiapas), Honduras, El Salvador, Nicaragua and Guatemala for the species *Mesaspis moreletii* (Bocourt, 1872); Costa Rica and Panama in a zone with an elevation between 8000 to 11,000 feet for *Mesaspis monticola* (Cope, 1878); the highlands of Central Oaxaca, near the city of Oaxaca, Mexico for *Mesaspis viridiflava* (Bocourt, 1873).

**Content:** *Mesaspis (Mesaspis) moreletii* (Bocourt, 1872) (type species); *M. (Mesaspis) monticola* (Cope, 1878); *M. (Mesaspis) viridiflava* (Bocourt, 1873).

#### GENUS RENTONSAURUS GEN. NOV.

**Type species:** *Gerrhonotus gadovii* Boulenger, 1913.

**Diagnosis:** In common with other Gerrhonotinae and Gerrhonotiini, *Rentonsaurus* gen. nov. (and *Mesaspis* Cope, 1878 as defined above) are characterized by the presence of a lateral fold; scales that are squarish or rhomboidal, forming transverse series; limbs that are well developed with pentadactyle feet; conical teeth.

In common with the genera *Abronia* Gray, 1838 *sensu lato* and *Coloptychon* Tihen, 1949, *Rentonsaurus* gen. nov. (and *Mesaspis* as defined above) has a reduction of the lateral fold.

*Mesaspis* Cope, 1878 and the new genus *Rentonsaurus* gen. nov. (formerly included in *Mesaspis*) are both diagnosed by the following four unique characters: eight (rather than ten) longitudinal ventrals at the forelimbs; subgranular scales on the



leading edges of the shanks; labial striping and ventral speckling.

The genus *Rentonsaurus gen. nov.* is readily separated from *Mesaspis* Cope, 1878 by the presence of a single subocular; reduction in size of the supranasal; increased keeling and the considerably larger adult size of adults within this genus as opposed to *Mesaspis*.

The subgenus of *Mesaspis*, *Rayplattsaurus subgen. nov.* are separated from the other subgenus *Mesaspis* and also *Rentonsaurus gen. nov.* by the following unique characters: An enhancement of keeling reduction so the scale keels are virtually absent; the presence of a postrostral; broad frontal-interparietal contact; an elongate anterior superciliary.

In addition to the preceding, the nominate subgenus within *Mesaspis*, namely *Mesaspis* is separated from both *Rayplattsaurus subgen. nov.* and *Rentonsaurus gen. nov.* by the presence of a single postmental scale rather than two as well as two lateral supraoculars (versus three in the other groups) and a high degree of canthal/loreal variability.

**Distribution:** Mexico (Sierra Madre del Sur, Guerrero).

**Ertmology:** Named in honour of Ian Renton, owner of Snake-away services, Adelaide, South Australia, Australia in recognition of many decades working with snakes, reptiles and wildlife conservation in general. He has also provided logistical support to many herpetologists for various scientific projects.

**Content:** *Rentonsaurus gadovii* (Boulenger, 1913) (monotypic).

#### **ABRONIA GRAY, 1838 SENSU LATO.**

The genus as recognized at the present time has been subject of many taxonomic reviews, the most notable being those of Good (1988) and Campbell and Frost (1993).

The latter authors created 5 new subgenera for *Abronia sensu lato*, although the names have rarely appeared in the literature since.

This is in part due to a general reluctance of the herpetological community to recognize subgenera.

Notwithstanding this fact, the species groups identified by these authors are generally well defined and the subgeneric designations do appear appropriate and are therefore adopted herein by myself as correct assemblages.

Exceptional to this is the following:

The so-called *deppii* group, including the type species for the genus "*Gerrhonotus deppii* Wiegmann, 1828" within which Campbell and Frost (1993) had considerable difficulties in terms of ascertaining relationships between described species is clearly paraphyletic.

Good (1988) also noted that "evidence for the monophyly of the group was lacking".

Molecular studies since that paper was published, including that of Pyron *et al.* (2013) have shown the *deppii* group to be paraphyletic, with one taxon, *Abronia mixteca* Bogert and Porter, 1967 appearing to be basal to all other *Abronia*, *Mesaspis* (including *Rentonsaurus gen. nov.* as described within this paper) and *Barisia*. Therefore the taxon originally described as *Abronia mixteca* Bogert and Porter, 1967 is hereby placed in a new genus, namely *Snowdonsaurus gen. nov.*

Excluding *Abronia deppii* (Wiegmann, 1828) and *Abronia martindelcampoi* Flores-Villela and Sanchez-H., 2003, which remain in the subgenus *Abronia*, the rest of the so-called *deppii* group are hereby placed in a new subgenus *Elliottsaura subgen. nov.*

Another relatively recently described taxon *Abronia frosti* Campbell, Sasa, Acedo and Mendelson, 1998

while sharing affinities with the subgenus *Lissabronia* (*Abronia*) (*Lissabronia*) *salvadorensis* Hidalgo, 1983) is sufficiently divergent to be placed in its own subgenus. The subgenus

*Lanisaurea subgen. nov.* is formally erected to accommodate it. The species *Abronia gaiophantasma* Campbell and Frost, 1993 was placed by those authors within the subgenus *Auriculabronia* that they created at the same time. However it is sufficiently divergent and different to the type species of that subgenus to warrant being placed within its own monotypic subgenus, herein named *Assangesaurus subgen. nov.*

Excluding the new genus and three new subgenera formally named below, the other six accepted subgenera of *Abronia*, including the nominate one are as follows:

*Abronia*, *Abaculabronia*, *Aenigmabronia*, *Auriculabronia*, *Lissabronia*, *Scopaeabronia*.

With the exception of the diagnosis for the subgenus *Abronia*, all as published by Campbell and Frost (1993) in the first instance, are adopted in total as more-or-less correct for the purposes of this paper.

#### **GENUS ABRONIA GRAY, 1838.**

**Type species:** *Gerrhonotus deppii* Wiegmann, 1828.

**Diagnosis:** The genera *Abronia* Gray, 1838 and *Snowdonsaurus gen. nov.* (until now regarded as part of *Abronia*) can both be distinguished from all other Gerrhonotinae (namely *Gerrhonotus* Wiegmann, 1828 (type genus); *Barisia* Cope, 1878; *Coloptychon* Tihen, 1949; *Elgaria* Gray, 1838; *Lindholtsaurus gen. nov.*; *Mesaspis* Cope, 1878; *Pitmansaurus gen. nov.* and *Rentonsaurus gen. nov.*) by the following three diagnostic characters: (1) the fifth row of temporal scales absent (on at least one side and usually both) versus present in all other genera; (2) large, well-clawed limbs (smaller limbs in all other genera); and (3) a reduced lateral fold (much better developed in all other genera), particularly between the anterior limb and ear.

The nominate subgenus within *Abronia*, namely *Abronia* Gray, 1838 as well as *Elliottsaura subgen. nov.* and *Snowdonsaurus gen. nov.* (both formerly included in this subgenus) can in turn be separated from all other *Abronia* subgenera by the following suite of characters: The lack of prefrontal-anterior superciliary contact (found only in *Scopaeabronia* Campbell and Frost, 1993 and *Abaculabronia* Campbell and Frost, 1993), in lacking expanded lower temporal scales (found only in *Scopaeabronia* Campbell and Frost, 1993), in having two primary temporals contacting the postocular scale series (three in *Abaculabronia*), in having protuberant head shields on posterolateral "corners" of the head (not in other subgenera), in lacking protuberant supra-auricular scales in adults (present in *Auriculabronia* Campbell and Frost, 1993 and *Assangesaurus subgen. nov.*), in having fewer than 38 transverse rows of dorsal scales (more than 38 in *Scopaeabronia*), in having six or fewer longitudinal rows of nuchal scales (eight in *Scopaeabronia*), in having the lateralmost rows of ventral scales not expanded (expanded in *Lissabronia* Campbell and Frost, 1993, *Lanisaurea subgen. nov.*, *Auriculabronia*, *Assangesaurus subgen. nov.* and *Abaculabronia*).

Excluding *Abronia deppii* (Wiegmann, 1828) and *Abronia martindelcampoi* Flores-Villela and Sanchez-H., 2003, which remain in the subgenus *Abronia*, the rest of the so-called *deppii* group excluding *Abronia mixteca* Bogert and Porter, 1967 are hereby placed in a new subgenus *Elliottsaura subgen. nov.* The species *Abronia mixteca* Bogert and Porter, 1967 is hereby placed in a new genus *Snowdonsaurus gen. nov.* formally named below according to the Zoological Code (Ride *at al.* 1999).

Another relatively recently described taxon *Abronia frosti* Campbell, Sasa, Acedo and Mendelson, 1998 while sharing affinities with the subgenus *Lissabronia* (type species: *Abronia*) (*Lissabronia*) *salvadorensis* Hidalgo, 1983) is sufficiently divergent to be placed in its own subgenus. The subgenus *Lanisaurea subgen. nov.* is formally erected to accommodate that taxon.

The species *Abronia gaiophasma* Campbell and Frost, 1993 was placed by those authors within the subgenus *Auriculabronia* Campbell and Frost, 1993 (type species *Gerrhonotus auritus* Cope,

1868) that they created at the same time. However it is sufficiently divergent and different to the type species of that subgenus to warrant being placed within its own monotypic subgenus, herein named *Assangesaurus subgen. nov.*

The subgeneric diagnoses for subgenera within *Abronia* as defined by Campbell and Frost, 1993 are adopted herein, adapted and republished here, except in terms of the four divisions indicated immediately above.

The three new subgenera and the single new genus *Snowdonsaurus gen. nov.* are each defined and separated from their relevant subgenera as follows:

*Snowdonsaurus gen. nov.* (monotypic for the type species *Abronia mixteca* Bogert and Porter, 1967) is separated from species within both the subgenera *Abronia* and *Elliottsaurea subgen. nov.* and all other species within *Abronia* by the following unique suite of characters:

Adults without spinelike supra-auricular scales; supranasals usually not expanded; if so, only moderately and not in contact at dorsal midline; dorsal color pattern; variable; longitudinal scale rows on side of body arranged in oblique rows with respect to dorsolateral fold; dorsal body scales very slightly keeled, usually almost flat; two primary temporals contacting postocular series; three occipitals; minimum of six nuchals in transverse row across the nape; anterior superciliary contacting cantholoreal.

Members of the subgenus *Abronia* are separated from the subgenus *Elliottsaurea subgen. nov.* (type species: *Gerrhonotus gramineus* Cope, 1864) by the following suite of characters: Adults without spinelike supra-auricular scales; supranasals usually not expanded; if so, only moderately and not in contact at dorsal midline; dorsal color pattern variable; longitudinal scale rows on side of body arranged in oblique rows with respect to dorsolateral fold; dorsal body scales very slightly keeled, usually almost flat; a single (lower) primary temporal contacting postocular series; a single occipital.

*Elliottsaurea subgen. nov.* are best separated from the subgenus *Abronia* by having two primary temporals contacting postocular series and three occipitals.

*Lissabronia* Campbell and Frost, 1993 (type species: *Abronia salvadorensis* Hidalgo, 1983) is distinguished from all other subgenera in lacking prefrontal-anterior superciliary scale contact (contact in *Scopaeabronia* Campbell and Frost, 1993 and *Abaculabronia* Campbell and Frost, 1993), in lacking expanded lower primary temporal scales (expanded in *Scopaeabronia*), in having two primary temporals contacting the postocular scale series (three in *Abaculabronia*), in lacking protuberant head shields on the posterolateral "corners" of the head (head casquing in the subgenus *Abronia*), in lacking protuberant supra-auricular scales in adults (present in *Auriculabronia* Campbell and Frost, 1993), in having fewer than the 38 or more transverse rows of dorsal scales (38 or more in *Scopaeabronia*), in having fewer than the eight longitudinal rows of nuchal scales (eight in *Scopaeabronia*), and in having the lateralmost rows of ventral scales expanded (not expanded in *Aenigmabronia* Campbell and Frost, 1993, *Scopaeabronia*, and *Abronia*).

The genus *Lanisaurea gen. nov.* (monotypic for the species *A. frosti* Campbell, Sasa, Aceedo and Mendelson, 1998) is readily separated from all other *Abronia* subgenera, including other *Lissabronia* (the subgenus with which it shares obvious affinities) by the unique body pattern of white and yellow transverse markings on a black background, as well as a suite of morphological characters as defined by Campbell *et al.* (1998), including most notably being the only *Abronia* known

from Guatemala that lacks protuberant supra-auricular spines.

The subgenera *Auriculabronia* Campbell and Frost, 1993 (type species: *Gerrhonotus auritus* Cope, 1868) and *Assangesaurus subgen. nov.* (type species: *Abronia gaiophasma* Campbell and Frost, 1993), both until now placed in *Auriculabronia* are readily separated from all other *Abronia* subgenera by the following suite of characters: in lacking a prefrontal-anterior superciliary scale contact (present only in *Scopaeabronia*), lacking expanded lower temporal scales (expanded in *Scopaeabronia*), in having two primary temporals contacting postocular scale series (three in *Abaculabronia*), in lacking protuberant head shields on posterolateral "corners" of the head (head casquing present in the subgenus *Abronia*), in having strongly protuberant supra-auricular scales in adults unlike all other groups, in having fewer than 38 transverse rows of dorsal scales (38 or more in *Scopaeabronia*), in having less than eight longitudinal rows of nuchal scales (eight in *Scopaeabronia*), and in having the lateralmost rows of ventral scales expanded (not expanded in *Scopaeabronia*, *Abronia*, and *Aenigmabronia*).

Specimens within the subgenus *Assangesaurus subgen. nov.* are readily separated from all other *Abronia* (including those within the subgenus *Auriculabronia* Campbell and Frost, 1993, where it was previously placed), by the following unique suite of characters:

Adults with spinelike supra-auricular scales; supranasals not expanded, not meeting at dorsal midline; frontonasal scale present or absent; ventral longitudinal scale rows 14 or more, or, if 12, with the lowest tertiary temporal enlarged and contacting the second primary temporal scale; circumorbital region not distinctly set off in coloration from ambient head color; dorsal longitudinal scale rows 123; dorsum brownish; preauriculars not in distinctive multiple rows of tubercular scales; second primary temporal (behind the corner of the eye) and the following secondary temporal much larger (about 3 x) than the following tertiary temporal.

The subgenus *Scopaeabronia* Campbell and Frost, 1993 (type species: *Abronia bogerti* Tihen, 1954) are readily separated from all other *Abronia* species by having prefrontal-anterior superciliary scale contact (seen otherwise only variably in *Abaculabronia* Campbell and Frost, 1993); in having the lower primary temporals expanded (unlike all other *Abronia*); in having two primary temporals contacting postocular scale series (three in *Abaculabronia*); in lacking protuberant head shields on the posterolateral "corners" of the head (present in the subgenus *Abronia*); in lacking protuberant supra-auricular scales in adults (present only in *Auriculabronia*); in having 38 or more transverse rows of dorsal scales (fewer in all other members of the genus); in having eight longitudinal rows of nuchal scales unlike all other *Abronia*, which have fewer, and in not having the lateralmost rows of ventral scales expanded (expanded in *Lissabronia*, *Abaculabronia*, and *Auriculabronia*).

The subgenus *Aenigmabronia* Campbell and Frost, 1993 (type species: *Abronia mitchelli* Campbell, 1982) is separated from all other *Abronia* by the following unique suite of characters:

Lacking prefrontal-anterior superciliary scale contact (present in *Scopaeabronia* and *Abaculabronia*), in lacking expanded lower temporal scales (present in *Scopaeabronia*), in having two primary temporals contacting postocular scale series (unlike the three in *Abaculabronia*), in lacking protuberant head shields on posterolateral "corners" of the head (present in the subgenus *Abronia*), in lacking strongly protuberant supra-auricular scales (present in *Auriculabronia*), in having fewer than 38 transverse rows of dorsal scales (38 or more in *Scopaeabronia*), in having less than eight longitudinal rows of nuchal scales (eight in *Scopaeabronia*), and in not having the lateralmost rows of ventral scales expanded (expanded in *Lissabronia*, *Auriculabronia*, and *Abaculabronia*).

The subgenus *Abaculabronia* Campbell and Frost, 1993 (type species: *Abronia reidi* Werler and Shannon, 1961) is readily separated from all other *Abronia* by the following suite of characters:

Having frequent prefrontal-anterior superciliary contact (found otherwise only in *Scopaeabronia*);

in lacking expanded lower temporal elements (enlarged only in *Scopaeabronia*); in having three primary temporals contacting postocular scale series (only two in all other subgenera); in lacking protuberant head shields on posterolateral "corners" of the head (found only in the subgenus *Abronia*); in lacking protuberant supra-auricular scales (present in *Auriculabronia*); in having fewer than 38 transverse rows of dorsal scales (a greater number found only in *Scopaeabronia*); in having fewer than eight longitudinal rows of nuchal scales (eight appearing only in *Scopaeabronia*), and in having the lateralmost rows of ventral scales expanded (not seen in *Abronia*, *Scopaeabronia*, and *Aenigmabronia*).

**Distribution:** From Mexico through Central America to north-eastern South America.

**Content:** *Abronia* (*Abronia*) *deppii* (Wiegmann, 1828) (type species for genus); *A. (Auriculabronia) anzueto* Campbell and Frost, 1993; *A. (Auriculabronia) aurita* (Cope, 1869); *A. (Scopaeabronia) bogerti* Tihen, 1954; *A. (Auriculabronia) campbelli* Brodie and Savage, 1993; *A. (Scopaeabronia) chiszari* Smith and Smith, 1981; *A. (Auriculabronia) fimbriata* (Cope, 1884); *A. (Lanisaurea) frosti* Campbell, Sasa, Aceedo and Mendelson, 1998; *A. (Elliottsaura) fuscolabialis* (Tihen, 1944); *A. (Assangesaurus) gaiophantasma* Campbell and Frost, 1993; *A. (Elliottsaura) graminea* (Cope, 1864); *A. (Auriculabronia) leurolepis* Campbell and Frost, 1993; *A. (Auriculabronia) lythrochila* Smith and Alvarez Del Toro, 1963; *A. (Abronia) martindelcampoi* Flores-Villela-Sanchez-H., 2003; *A. (Auriculabronia) matudai* (Hartweg and Tihen, 1946); *A. (Auriculabronia) meledona* Campbell and Brodie, 1999; *A. (Aenigmabronia) mitchelli* Campbell, 1982; *A. (Lissabronia) montecristoi* Hidalgo, 1983; *A. (Elliottsaura) oaxaca* (Günther, 1885); *A. (Auriculabronia) ochoterenai* (Martin Del Campo, 1939); *A. (Abaculabronia) ornelasi* Campbell, 1984; *A. (Scopaeabronia) ramirezi* Campbell, 1994; *A. (Abaculabronia) reidi* Werler and Shannon, 1961; *A. (Lissabronia) salvadorensis* Hidalgo, 1983; *A. (Auriculabronia) smithi* Campbell and Frost, 1993; *A. (Elliottsaura) taeniata* (Wiegmann, 1828); *A. (Auriculabronia) vasconcelosii* (Bocourt, 1871).

#### SUBGENUS ELLIOTSAUREA SUBGEN. NOV.

**Type species:** *Gerrhonotus gramineus* Cope, 1864.

**Diagnosis:** The genera *Abronia* Gray, 1838 and *Snowdonsaurus* gen. nov. (until now regarded as part of *Abronia*) can both be distinguished from all other *Gerrhonotinae* (namely *Gerrhonotus* Wiegmann, 1828 (type genus); *Barisia* Cope, 1878; *Coloptychon* Tihen, 1949; *Elgaria* Gray, 1838; *Lindholtsaurus* gen. nov.; *Mesaspis* Cope, 1878; *Pitmansaurus* gen. nov. and *Rentonsaurus* gen. nov.) by the following three diagnostic characters: (1) the fifth row of temporal scales absent (on at least one side and usually both) versus present in all other genera; (2) large, well-clawed limbs (smaller limbs in all other genera); and (3) a reduced lateral fold (much better developed in all other genera), particularly between the anterior limb and ear.

The nominate subgenus within *Abronia*, namely *Abronia* Gray, 1838 as well as *Elliottsaura* subgen. nov. and *Snowdonsaurus* gen. nov. (both formerly included in this subgenus) can in turn be separated from all other *Abronia* subgenera by the following suite of characters: The lack of prefrontal-anterior superciliary contact (found only in *Scopaeabronia* Campbell and Frost, 1993 and *Abaculabronia* Campbell and Frost, 1993), in lacking expanded lower temporal scales (found only in *Scopaeabronia* Campbell and Frost, 1993), in having two primary temporals

contacting the postocular scale series (three in *Abaculabronia*), in having protuberant head shields on posterolateral "corners" of the head (not in other subgenera), in lacking protuberant supra-auricular scales in adults (present in *Auriculabronia* Campbell and Frost, 1993 and *Assangesaurus* subgen. nov.), in having fewer than 38 transverse rows of dorsal scales (more than 38 in *Scopaeabronia*), in having six or fewer longitudinal rows of nuchal scales (eight in *Scopaeabronia*), in having the lateralmost rows of ventral scales not expanded (expanded in *Lissabronia* Campbell and Frost, 1993, *Lanisaurea* subgen. nov. *Auriculabronia*, *Assangesaurus* subgen. nov. and *Abaculabronia*).

Excluding *Abronia deppii* (Wiegmann, 1828) and *Abronia martindelcampoi* Flores-Villela and Sanchez-H., 2003, which remain in the subgenus *Abronia*, the rest of the so-called *deppii* group excluding *Abronia mixteca* Bogert and Porter, 1967 are hereby placed in a new subgenus *Elliottsaura* subgen. nov. defined here. The species *Abronia mixteca* Bogert and Porter, 1967 is hereby placed in a new genus *Snowdonsaurus* gen. nov. formally named below according to the Zoological Code (Ride *et al.* 1999).

*Snowdonsaurus* gen. nov. (monotypic for the type species *Abronia mixteca* Bogert and Porter, 1967) is separated from species within both the subgenera *Abronia* and *Elliottsaura* subgen. nov. and all other species within *Abronia* by the following unique suite of characters:

Adults without spinelike supra-auricular scales; supranasals usually not expanded; if so, only moderately and not in contact at dorsal midline; dorsal color pattern; variable; longitudinal scale rows on side of body arranged in oblique rows with respect to dorsolateral fold; dorsal body scales very slightly keeled, usually almost flat; two primary temporals contacting postocular series; three occipitals; Minimum of six nuchals in transverse row across the nape; anterior superciliary contacting cantholoreal.

Members of the subgenus *Abronia* are separated from the subgenus *Elliottsaura* subgen. nov. by the following suite of characters:

Adults without spinelike supra-auricular scales; supranasals usually not expanded; if so, only moderately and not in contact at dorsal midline; dorsal color pattern variable; longitudinal scale rows on side of body arranged in oblique rows with respect to dorsolateral fold; dorsal body scales very slightly keeled, usually almost flat; a single (lower) primary temporal contacting postocular series; a single occipital.

*Elliottsaura* subgen. nov. are best separated from the subgenus *Abronia* by having two primary temporals contacting postocular series and three occipitals.

**Distribution:** Oaxaca, Veracruz, Puebla, Tamaulipas, San Luis Potosi, Puebla, Nuevo Leon, Quéretaro, all in Mexico.

**Etymology:** Named in honour of Elizabeth (Liz) Elliott of Hoppers Crossing, Victoria, Australia, long-suffering wife of herpetologist Adam Elliott.

While Adam has made many valuable contributions to herpetology, he is perhaps best known to most for his magnificent book, *A Guide to Australian Pythons in Captivity* (Elliott 2014), published by Australian Birdkeeper Publications. It is without doubt the best book published so far on the keeping and breeding of Australian pythons, a statement made noting that there have been several very good such publications prior by other expert authors.

Liz has managed the Elliott household and provided invaluable logistical support for Adam in his herpetological endeavours over more than a decade. The includes maintaining his collection of reptiles during Adam's long absences in the field as well as having to suffer the indignity of being subject to the trauma of illegal armed raids by corrupt government wildlife

officers in Victoria. Her largely unrecognized help is hereby acknowledged by the formal naming of this subgenus.

**Content:** *Gerrhonotus (Elliottsaura) graminea* Cope, 1864 (type species); *A. (Elliottsaura) fuscolabialis* (Tihen, 1944); *A. (Elliottsaura) oaxacae* (Günther, 1885); *A. (Elliottsaura) taeniata* (Wiegmann, 1828).

**SUBGENUS LANISAUREA SUBGEN. NOV.**

**Type species:** *Abronia frosti* Campbell, Sasa, Aceedo and Mendelson, 1998.

**Diagnosis:** *Lissabronia* Campbell and Frost, 1993 (type species: *Abronia salvadorensis* Hidalgo, 1983) is distinguished from all other subgenera in lacking prefrontal-anterior superciliary scale contact (contact in *Scopaeabronia* Campbell and Frost, 1993 and *Abaculabronia* Campbell and Frost, 1993), in lacking expanded lower primary temporal scales (expanded in *Scopaeabronia*), in having two primary temporals contacting the postocular scale series (three in *Abaculabronia*), in lacking protuberant head shields on the posterolateral "corners" of the head (head casquing in the subgenus *Abronia*), in lacking protuberant supra-auricular scales in adults (present in *Auriculabronia* Campbell and Frost, 1993), in having fewer than the 38 or more transverse rows of dorsal scales (38 or more in *Scopaeabronia*), in having fewer than the eight longitudinal rows of nuchal scales (eight in *Scopaeabronia*), and in having the lateralmost rows of ventral scales expanded (not expanded in *Aenigmabronia* Campbell and Frost, 1993, *Scopaeabronia*, and *Abronia*).

The genus *Lanisaurea gen. nov.* (monotypic for the species *A. frosti* Campbell, Sasa, Aceedo and Mendelson, 1998) is readily separated from all other *Abronia* subgenera, including other *Lissabronia* (the subgenus with which it shares obvious affinities) by the unique body pattern of white and yellow transverse markings on a black background, as well as a suite of morphological characters as defined by Campbell *et al.* (1998), including most notably being the only *Abronia* known from Guatemala that lacks protuberant supra-auricular spines.

**Distribution:** Guatemala.

**Etymology:** Named in honour of Lani Barnett of Ardeer, Victoria, Australia, wife of Brian Barnett, a well known Australian herpetologist and long-time president of the Victorian Herpetological Society (VHS).

The two of them made enormous personal sacrifices when running the herpetological society throughout the 1990's and as a result of their efforts, their society was widely regarded as the best ever in Australia and at one time boasted a membership of nearly 1,000 members.

**Content:** *Abronia (Lanisaurea) frosti* Campbell, Sasa, Aceedo and Mendelson, 1998 (monotypic).

**SUBGENUS ASSANGESAURUS SUBGEN. NOV.**

**Type species:** *Abronia gaiophasma* Campbell and Frost, 1993.

**Diagnosis:** Specimens within the subgenus *Assangesaurus subgen. nov.* are readily separated from all other *Abronia* (including those within the subgenus *Auriculabronia* Campbell and Frost, 1993, where it was previously placed), by the following unique suite of characters:

Adults with spinelike supra-auricular scales; supranasals not expanded, not meeting at dorsal midline; frontonasal scale present or absent; ventral longitudinal scale rows 14 or more, or, if 12, with the lowest tertiary temporal enlarged and contacting the second primary temporal scale; circumorbital region not distinctly set off in coloration from ambient head color; dorsal longitudinal scale rows 123; dorsum brownish; preauriculars not in distinctive multiple rows of tubercular scales; second primary temporal (behind the corner of the eye) and the following secondary temporal much larger (about 3 x) than the following tertiary temporal.

The subgenera *Auriculabronia* Campbell and Frost, 1993 (type species: *Gerrhonotus auritus* Cope, 1868) and *Assangesaurus subgen. nov.* (type species: *Abronia gaiophasma* Campbell and Frost, 1993), both until now placed in *Auriculabronia* are readily separated from all other *Abronia* subgenera by the following suite of characters: in lacking a prefrontal-anterior superciliary scale contact (present only in *Scopaeabronia*), lacking expanded lower temporal scales (expanded in *Scopaeabronia*), in having two primary temporals contacting postocular scale series (three in *Abaculabronia*), in lacking protuberant head shields on posterolateral "corners" of the head (head casquing present in the subgenus *Abronia*), in having strongly protuberant supra-auricular scales in adults unlike all other groups, in having fewer than 38 transverse rows of dorsal scales (38 or more in *Scopaeabronia*), in having less than eight longitudinal rows of nuchal scales (eight in *Scopaeabronia*), and in having the lateralmost rows of ventral scales expanded (not expanded in *Scopaeabronia*, *Abronia*, and *Aenigmabronia*).

**Distribution:** North-east Guatemala.

**Etymology:** Named in honour of Wikileaks founder Julian Assange, in recognition of his globally patriotic work for human rights and freedom from government tyranny in exposing reckless government corruption.

**Content:** *Abronia (Assangesaurus) gaiophasma* Campbell and Frost, 1993 (monotypic).

**GENUS SNOWDONSAURUS GEN. NOV.**

**Type species:** *Abronia mixteca* Bogert and Porter, 1967.

**Diagnosis:** *Snowdonsaurus gen. nov.* (monotypic for the type species *Abronia mixteca* Bogert and Porter, 1967) is separated from species within both the subgenus *Abronia* and all other species within *Abronia* by the following unique suite of characters:

Adults without spinelike supra-auricular scales; supranasals usually not expanded; if so, only moderately and not in contact at dorsal midline; dorsal color pattern; variable; longitudinal scale rows on side of body arranged in oblique rows with respect to dorsolateral fold; dorsal body scales very slightly keeled, usually almost flat; two primary temporals contacting postocular series; three occipitals; minimum of six nuchals in transverse row across the nape; anterior superciliary contacting cantholoreal.

**Distribution:** Mexico (Guerrero, Oaxaca, Nuevo Leon).

**Etymology:** Named in honour of Edward Joseph Snowden (born June 21, 1983) an American computer specialist, a former Central Intelligence Agency (CIA) employee, and former National Security Agency (NSA) contractor who disclosed top secret NSA documents to several media outlets, initiating the NSA leaks in May 2013.

These revealed operational details of a global surveillance apparatus run by the NSA and other members of the Five Eyes alliance, along with numerous commercial and international partners.

Having been a victim of illegal long-term surveillance by corrupt government officials myself and the criminal attacks on my family arising from the information so obtained, I view the ongoing mass surveillance of law-abiding citizens by corrupt government employees to plan illegal attacks on them as a serious crime and at the same sort of level as mass killings of Jews by dictators in years past as well as other acts of mass genocide and violent attacks on decent law-abiding people. Hence it is entirely appropriate that a genus of lizard be named in honour of this corruption whistleblower.

**Content:** *Snowdonsaurus mixteca* (Bogert and Porter, 1967) (monotypic).

**CURRENTLY RECOGNIZED SPECIES LIST FOR THE  
GENERA ABRONIA GRAY, 1838 AND SNOWDONSAURUS  
GEN. NOV.**

**GENUS ABRONIA GRAY, 1838.**

**Subgenus *Abronia* Gray, 1838.**

*Abronia* (*Abronia*) *deppii* (Wiegmann, 1828) (type species); *A.* (*Abronia*) *martindelcampoi* Flores-Villela and Sanchez-H., 2003.

**Subgenus *Abaculabronia* Campbell and Frost, 1993.**

*Abronia* (*Abaculabronia*) *reidi* Werler and Shannon, 1961 (type species); *A.* (*Abaculabronia*) *ornelasi* Campbell, 1984.

**Subgenus *Aenigmabronia* Campbell and Frost, 1993.**

*Abronia* (*Aenigmabronia*) *mitchelli* Campbell, 1982 (monotypic).

**Subgenus *Assangesaurus* subgen. nov.**

*A.* (*Assangesaurus*) *gaiophantasma* Campbell and Frost, 1993 (monotypic).

**Subgenus *Auriculabronia* Campbell and Frost, 1993.**

*Abronia* (*Auriculabronia*) *aurita* (Cope, 1868) (type species); *A.* (*Auriculabronia*) *anzuetoi* Campbell and Frost, 1993; *A.* (*Auriculabronia*) *fimbriata* (Cope, 1884); *A.* (*Auriculabronia*) *leurolepis* Campbell and Frost, 1993; *A.* (*Auriculabronia*) *lythrochila* Smith and Alvarez del Toro, 1963; *A.* (*Auriculabronia*) *matudai* (Hartweg and Tihen, 1946); *A.* (*Auriculabronia*) *meledona* Campbell and Brodie, 1999; *A.* (*Auriculabronia*) *ochoterenai* (Martin del Campo, 1939); *A.* (*Auriculabronia*) *smithi* Campbell and Frost, 1993.

**Subgenus: *Elliottsaura* subgen. nov.**

*Abronia* (*Elliottsaura*) *graminea* (Cope, 1864) (type species); *A.* *fuscolabialis* (Tihen, 1944); *A.* *oaxacae* (Günther, 1885); *A.* *taeniata* (Wiegmann, 1828).

**Subgenus: *Lanisaura* subgen. nov.**

*Abronia* (*Lanisaura*) *frosti* Campbell, Sasa, Acedo and Mendelson, 1998 (monotypic).

**Subgenus *Lissabronia* Campbell and Frost, 1993.**

*Abronia* (*Lissabronia*) *salvadorensis* Hidalgo, 1983 (type species); *A.* (*Abaculabronia*) *montecristoi* Hidalgo, 1983.

**Subgenus *Scopaeabronia* Campbell and Frost, 1993.**

*Abronia* (*Scopaeabronia*) *bogerti* Tihen, 1954 (type species); *A.* (*Scopaeabronia*) *chiszari* Smith and Smith, 1981; *A.* (*Scopaeabronia*) *ramirezi* Campbell, 1994.

**GENUS SNOWDONSAURUS GEN. NOV.**

*Snowdonsaurus mixteca* Bogert and Porter, 1967 (monotypic).

**CONFLICT OF INTEREST**

This author reports no conflicts of interest in terms of the preparation of and publishing of this paper.

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