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A review of Robert Broom's therapsid holotypes: have they survived the test of time?

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While still a medical student in Scotland in the late 1880s, Robert Broom had already identified the principal aim of his scientific career as being 'to solve the problem of the origin of the mammals'. In Australia, between 1892 and 1896, his work on extant and fossil marsupials and monotremes established that, contrary to the then prevailing scientific opinion which supported a polyphyletic origin for mammals from a diverse range of amphibians and reptiles, the most important living class had been monophyletically derived, most likely from a lineage of Karoo therapsid reptiles. Later, on a trip to the United States in 1909/10 he revived the theory which proposed the existence of a close relationship between the South African therapsids and the Permian 'pelycosaur' reptiles of North America. The third, and most extensive element of Broom's task was carried out almost exclusively in South Africa over a period spanning more than half a century during which he created 369 therapsid holotypes, 168 of which were allocated to new genera. This paper establishes that of those holotypes, approximately 57% currently remain valid according to the parameters defined herein. While such a figure may initially seem to support Broom's reputation as an 'arch splitter', it may equally be reflective of the fragmentary state of therapsid systematics at the time when Broom carried out the majority of his research. Today, Broom is most widely-remembered for the celebrated series of fossil hominid discoveries which he made towards the end of his life in the limestone caves of the Transvaal. However, because the task of unravelling the story of the evolution of the mammals was the one which first motivated his interest in science and which formed the single continuous thread running throughout a long and otherwise varied career, it is perhaps still more accurate to view Broom principally as one of the great Karoo (and, in particular, therapsid) palaeontologists.

Keywords: Robert Broom, Therapsida, therapsid holotypes, validity, mammalian evolution.

INTRODUCTION

'The mammal-like reptiles of South Africa may be safely regarded as the most important fossil animals ever discovered, and their importance lies chiefly in the fact that there is little or no doubt that among them we have the ancestors of the mammals, and the remote ancestors of man. Even in the forms that cannot be directly ancestral, we have evidences of the most interesting collateral branches, the study of which throws the most instructive light on the processes of evolution' (Broom 1932).

So begins Robert Broom's monograph, '*The Mammal-like Reptiles of South Africa and the Origin of Mammals*', one of the first and certainly the most extensive of the early reviews of therapsid systematics. Within this branch of palaeontology the Karoo Basin of South Africa is uniquely positioned in that it provides an almost complete evolutionary story of the creatures which present 'the best documented example in the fossil record of an evolutionary sequence connecting two major structural grades' (Hopson 1987), an 80-million year period during which the various lineages of 'mammal-like reptiles' progressively bridged the transition between the primitive, reptilian state and the advanced, mammalian condition.

From Broom's perspective the therapsid lineage was particularly intriguing in that he saw behind its development the presence of an evolutionary force of a 'different type which appears to have foreseen the future' (Broom 1932) and thus the perfect justification for the anti-evolutionary (or, to be more exact, anti-Darwinian) views of the prominent Victorian palaeontologist Richard Owen and his own somewhat contrived theory of 'creative evolution' (Findlay 1972). Although Broom's metaphysical position has since fallen out of favour (if, indeed, it was ever seriously regarded – see, for example, Strkalj (1996)) his work in documenting the entire history of mammalian evolution remains, in a purely palaeontological sense, an epic undertaking.

As early as 1885, when acting as secretary for his local natural history society in Glasgow, Broom had evinced an interest in the Karoo reptiles, and by the late 1880s, while still a medical student at the University of Glasgow, he had already identified the principal objective of his scientific career as being to 'solve the problem of the origin of the mammals' (Findlay 1972). In 1892, his quest took him to Australia where in addition to intermittent bouts of duty as a *locum tenens*, he intensively studied the anatomy of both extant and fossil marsupials and monotremes, (the latter being recovered mainly from the important Wombeyan Cave site which Broom himself had discovered in 1893) (Findlay 1972). In a series of articles (*inter alia,* Broom 1895,1896,1899a) despatched from various New South Wales mining towns, Broom established, to his own satisfaction at least, the monophyletic origin of the mammals, thereby rebutting the then prevailing theory that the most important living class had been polyphyletically derived from a diverse range of reptiles and amphibians.

Two decades later, on an infamous trip to the the United States in 1909/10, during which he sold to the American Museum of Natural History a series of exquisite therapsid specimens which he viewed as his own personal property but which Louis Péringuey, then the Director of the South African Museum, considered part of the country's

national heritage, Broom had the opportunity to study the AMNH's extensive collection of reptile fossils which had been obtained from the Permian beds of North America (Findlay 1972). In a resulting paper (Broom 1910), described by Watson (1952) as 'the most important he ever wrote', Broom resuscitated the theory, first propounded by Cope in 1881 (Broom 1938b), which established a close affinity between the North American 'pelycosaurs' and the South African therapsids. Subsequently, Broom identified the varanopseid 'pelycosaur' *Elliotsmithia longiceps* from an undescribed specimen which had been discovered by van Hoepen 20 years earlier at Abrahamskraal, near Prince Albert (Broom 1937b). To date, *Elliotsmithia longiceps* remains the only 'pelycosaur' taxon attributable to the Karoo Basin of South Africa (see also Modesto *et al.* 2001).

Long since convinced that the most ancient origins of the mammals were to be found not in the hills of New South Wales but rather in the rich fossiliferous beds of the Karoo Basin, Broom had left Australia in 1896 and travelled to South Africa. It was there, between the time of his first arrival in the country in 1897 and his death in 1951 that he carried out the most extensive element of his task. During that 54-year period he described several hundred therapsid holotypes, a significant proportion of which were allocated to new genera. The purpose of the present paper is to enumerate, more than half a century after Broom's death, the current validity of those holotypes, at both the specific and generic levels, and thus also to attempt to place Broom's scientific contribution in an appropriate historical context and to evaluate the extent of the continuing influence of his research on therapsid palaeontology.

SOURCES AND TECHNIQUES

Each of Broom's therapsid holotypes is described in the Appendix. Holotypes described up to 1932 are established by reference to the 1932 monograph, although the publication in which the holotype was originally described is also specified. Post-1932 holotypes are established by reference to the individual publication in which the relevant holotype was first described and each such publication is also specified in the Appendix.

Broom's now archaic model of therapsid systematics, which he established in 1932, whereby the Therapsida were divided into five orders (Dinocephalia, Therocephalia, Gorgonopsia, Anomodontia and Cynodontia) and six suborders (Bauriamorpha, Burnetiamorpha, Dromasauria, Ictidosauria, Rubidgea and Rubidginoidea), is not retained here. However, where the context requires, archaic spellings (such as *'Aulacocephalodon'*, *'Udenodon'* and 'Karroo') are retained.

For holotypes described up to 1932, only generic names accepted by Broom on or prior to that date are given in the Appendix. Where a generic name change has first been proposed by an authority other than Broom, that authority is not specified in the Appendix but can be traced by reference to the relevant source publication. Similarly, where a post-1932 holotype has undergone more than one subsequent generic name change, only the most recently established generic name is specified in the Appendix, although again the full generic history may be identified by referring to the relevant source publication.

Unless otherwise noted in the Appendix, the continuing validity or invalidity of a holotype has been established, primarily, by reference to the following sources:

Dinocephalia – King 1988.
Therocephalia – van den Heever 1987; Brink 1988; J.A. Hopson, pers. comm., 2002.
Gorgonopsia – Sigogneau-Russell 1989.
Anomodontia – King 1988.
Cynodontia – Hopson & Kitching 1972; J.A. Hopson, pers. comm., 2002.
Biarmosuchia – Sigogneau-Russell 1989.

From the abovementioned primary sources it is apparent that the review of both Broom's anomodont and therocephalian holotypes has been particularly fragmentary. Accordingly, with respect to those orders, unless a specific authority responsible for synonymizing a particular holotype is actually quoted, or a specific authority is referred to as providing a complete or extensive review of the synonymies in a particular area, only the primary source is referred to in the Appendix and the full taxonomic history may be identified by reference to the bibliography contained therein.

The parameters applied to establish whether or not a particular holotype continues to be valid have been liberally set. Owing primarily to the effects of diagenetic distortion, a considerable number of Broom's holotypes are currently regarded as indeterminate or otherwise called into question. However, unless a particular holotype has been positively 'sunk', either by Broom himself or by another authority, into an alternative species and/or genus it is regarded herein as valid, with any doubt which has been expressed concerning the holotype being referred to in the relevant comments section in the Appendix.

RESULTS AND ANALYSIS

By reference to the sources detailed in the preceding section it can be established that Broom described a total of 369 therapsid holotypes, of which 210 continue to be valid according to the applicable definition; a continuing validity rate of 56.91%. Those holotypes include a total of 168 genotypes, of which 93 continue to be valid according to the applicable definition; a continuing validity rate of 55.36%. A more detailed breakdown of continuing validity, by reference to the individual orders, follows:

Order	Total HT*	Valid HT	Validity (%)	Total GT*	Valid GT	Validity (%)
Dinocephalia	25	13	52	18	8	44.44
Therocephalia	79	49	62.02	58	42	72.41
Gorgonopsia	57	44	77.19	29	17	58.62
Anomodontia	162	94	58.02	31	17	54.84
Cynodontia	39	4	10.26	27	4	14.81
Biarmosuchia	7	6	85.70	5	5	100

*HT = holotypes; GT = genotypes.

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It can be seen from the table that the continuing validity rates for those orders (such as the Therocephalia and the Gorgonopsia) which to date have not been subject to a high degree of taxonomic revision are significantly higher than the rates for those orders (such as the Anomodontia and, in particular, the Cynodontia) that have been more intensively studied. This strongly suggests that, over time, the aggregate validity rate for Broom's therapsid holotypes will decline even further as more and more currently poorly understood taxa become better known.

An alternative method of analysis also reveals that whereas Broom's main influence as a therapsid palaeontologist has traditionally been regarded to have come to an end with his move from the Northern Cape Province to Pretoria in 1934, 177 of his therapsid holotypes, or approximately 48%, were actually described between 1934 and 1951, almost exclusively as a result of his close connection with the amateur collector Sidney Rubidge and the particularly fossil-rich localities surrounding Rubidge's farm at Wellwood near Graaff-Reinet in the Eastern Cape Province. Those two periods may also be summarized in terms of continuing validity rates as follows:

Period	Total HT*	Valid HT	Validity (%)	Total GT*	Valid GT	Validity (%)
1897–1932	192	117	60.94	102	62	60.78
1934–1951	177	93	52.54	66	31	46.97

*HT = holotypes; GT = genotypes.

Although only around 37% (66 of 177) of the holotypes which Broom described between 1934 and 1951 were allocated to new genera (compared to more than 53% for the period 1897–1932), the continuing validity rates attributable to the latter period actually decrease *vis-à-vis* the earlier period in terms of both holotypes and genotypes. These figures are somewhat ambiguous; but when they are considered in conjunction with the fact that between 1934 and 1951 Broom was also creating numerous new hominid and other mammalian taxa from Sterkfontein and its related sites (Broom & Schepers 1946; Broom & Robinson 1950, 1952), many of which are now regarded as superfluous, they do not offer any evidence that Broom progressively adopted a more conservative method of classification even though by that time therapsid palaeontology itself had achieved a much greater degree of systematic resolution.

CONCLUSIONS

It has been shown in the preceding section that of the total of 369 therapsid holotypes which Broom described during his career (in itself a prodigious number), 168 (or approximately 45.5%) were allocated to new genera. Further, if the order Anomodontia (the order which was by far the best described by 19th century palaeontologists and thus the one on which Broom was least able to stamp his own brand of diversity) is removed from the analysis the ratio of new genera rises to 66.2% (137 new genera from a total of 207 holotypes). Of the total number of holotypes slightly less than 57% currently remain valid (a figure which is likely to decline even further in the coming years), and in one remarkable instance, no fewer than 21 of Broom's *Dicynodon* holotypes have since been ascribed to a single species of anomodont – *Oudenodon baini* Owen (King 1988).

While the above figures would appear to justify Broom's reputation, attributed to him from various sources, as an 'arch splitter' (Findlay 1972), and while it would be naïve to assume that in adopting such an approach he did not have at least one eye on posterity, it is also arguable that Broom's method of classification was the most practicable one available to a palaeontologist working, as he did, in the early stages of the twentieth century, in rudimentary conditions and with a very sparse initial database. In the absence of an integrated overall picture, 'Occam's razor' is a difficult instrument to wield, and consolidation in any science tends to be a discipline best carried out by those with more sophisticated methods of analysis and greater resources of reference material at their disposal.

Today, Broom is chiefly remembered for the internationally-renowned discoveries of hominid fossils which he made in the limestone caves of the Transvaal between 1936 and 1951 and which, along with the finds of the Leakey family in East Africa and Eugene Dubois in southeast Asia, still set the basic parameters in the story of human origins. However, while Broom was of course well aware of the publicity value of the material emerging from Sterkfontein, Swartkrans and Kromdraai during those years and the potency of the story of human evolution that they revealed, his belated entry into palaeoanthropology does seem to contain something of an opportunistic air, predicated as it was upon his resentment of the generally hostile reception afforded outside South Africa to Raymond Dart's discovery of the 'Taung Child' in 1925 (Dart 1951) as well as the desperate financial straits which he found himself in immediately before his appointment as chief palaeontologist at the Transvaal Museum in 1934 (Findlay 1972).

Conversely, it was the task of shedding light on the story of the evolution of the mammals, and in particular of the therapsid lineage, that first motivated Broom's interest in palaeontology and formed the subject matter of the vast majority of his 450 publications throughout every stage of a long and otherwise varied career. This, arguably, marks the pinnacle of his scientific achievements. All of these facts, taken together, lead inevitably to the conclusion that Broom began as, and remained for the rest of his life, a Karoo palaeontologist at heart. It is appropriate, therefore, that *The Mammal-like Reptiles of South Africa* ends with a homage to the notable Karoo fossil hunters of the past. In its concluding chapter Andrew Geddes Bain, William Atherstone, Joseph Orpen, Alfred 'Gogga' Brown, Dr D.V. Kannemeyer and the Revd J.H. Whaits, to name but a few, are all afforded their due recognition. These are still the great pioneering names of South African palaeontology. That list, at least, has survived the test of time; except that now, of course, it must also include Robert Broom.

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APPENDIX: Robert Broom's therapsid holotypes

DINOCEPHALIA

(*Titanosuchus*) *Jonkeria cloetei* (new species)
Holotype described: Broom 1903c
Validity: Species valid
Comments: Genus reassigned to *Jonkeria* van Hoepen (Broom 1929); Boonstra (1969) considers the specimen indeterminate

Scaponodon duplessisi (new genus and species)
Holotype described: Broom 1904d
Validity: Genus and species invalid
Comments: Synonymized with *Titanosuchus ferox* Owen (Boonstra 1969)

Archaeosuchus cairncrossi (new genus and species)
Holotype described: Broom 1905c
Validity: Genus and species valid
Comments: Originally classified by Broom as a therocephalian; Boonstra (1969) considered the holotype a *nomen nudum*

Pelosuchus priscus (new genus and species)
Holotype described: Broom 1905c
Validity: Genus and species invalid
Comments: Synonymized with *Keratocephalus moloch* von Huene (Boonstra 1969)

Eccasaurus priscus (new genus and species)
Holotype described: Broom 1909
Validity: Genus and species valid
Comments: Boonstra (1969) considers the specimen determinable only as an anteosaurid

Moschops capensis (new genus and species)
Holotype described: Broom 1911b
Validity: Genus and species valid

Moschognathus whaitsi (new genus and species)
Holotype described: Broom 1914b
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Moschops* Broom (Boonstra 1969)

Dinartamus vanderbyli (new genus and species)
Holotype described: Broom 1923
Validity: Genus and species valid
Comments: Boonstra (1969) considered the specimen indeterminate

Dinophoneus ingens (new genus and species)
Holotype described: Broom 1923
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Jonkeria* van Hoepen (Boonstra 1969)

Enobius strubeni (new genus and species)
Holotype described: Broom 1923
Validity: Genus and species valid
Comments: Boonstra (1969) considered the specimen indeterminate

Criocephalus vanderbyli (new genus and species)
Holotype described: Broom 1928b
Validity: Genus and species valid

Taurocephalus lerouxi (new genus and species)
Holotype described: Broom 1928b
Validity: Genus and species valid

Anteosaurus minor (new species)
Holotype described: Broom 1929
Validity: Species invalid
Comments: Synonymized with *Anteosaurus magnificus* Watson (Boonstra 1969)

Dinosphageus haughtoni (new genus and species)
Holotype described: Broom 1929
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Jonkeria* van Hoepen (Boonstra 1969)

Dinocynodon dubius (new genus)
Holotype described: Broom 1929
Validity: Genus invalid
Comments: Original classification as genus *Titanosuchus* Owen retained (King 1988); Boonstra (1969) considered the specimen indeterminate

Jonkeria crassus (new species)
Holotype described: Broom 1929
Validity: Species invalid
Comments: Synonymized with *Jonkeria haughtoni* Broom (Boonstra 1969)

Jonkeria pugnax (new species)
Holotype described: Broom 1929
Validity: Species invalid
Comments: Synonymized with *Jonkeria ingens* Broom (Boonstra 1969)

Jonkeria vanderbyli (new species)
Holotype described: Broom 1929
Validity: Species valid

Phoneosuchus angusticeps (new genus and species)
Holotype described: Broom 1929
Validity: Genus and species invalid
Comments: Synonymized with *Jonkeria truculenta* van Hoepen (Boonstra 1969)

Scullya gigas (new genus and species)
Holotype described: Broom 1929
Validity: Genus and species valid
Comments: Boonstra (1969) considered the specimen indeterminate

Taurops macrodon (new genus and species)
Holotype described: Broom 1932
Validity: Genus and species invalid
Comments: Synonymized with *Tapinocephalus atherstonei* Owen (Boonstra 1969)

Dinoplus atrox (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species invalid
Comments: Synonymized with *Jonkeria truculenta* van Hoepen (Boonstra 1969)

Dinosuchus vorsteri (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species invalid
Comments: Synonymized with *Anteosaurus magnificus* Watson (Boonstra 1969)

Struthiocephalus milleri (new species) (with E.C.Olson)
Holotype described: Broom & Olson 1937
Validity: Species invalid
Comments: Synonymized with *Struthiocephalus whaitsi* Haughton (Boonstra 1969)

Struthiocephalus rheederi (new species)
Holotype described: Broom 1937b
Validity: Species invalid
Comments: Synonymized with *Struthiocephalus whaitsi* Haughton (Boonstra 1969)

THEROCEPHALIA

Ictidosuchus primaevus (new genus and species)
Holotype described: Broom 1900
Validity: Genus and species valid

Ictidosaurus angusticeps (new genus and species)
Holotype described: Broom 1903d
Validity: Genus and species valid

Lycosuchus vanderrieti (new genus and species)
Holotype described: Broom 1903a
Validity: Genus and species valid

Lycosuchus mackayi (new species)
Holotype described: Broom 1903d
Validity: Species valid
Comments: Determinable only to the level of an early therocephalian or gorgonopsian (van den Heever 1987)

Scylacosaurus sclateri (new genus and species)
Holotype described: Broom 1903d
Validity: Genus and species valid

Scymnosaurus ferox (new genus and species)
Holotype described: Broom 1903d
Validity: Genus and species valid
Comments: Determinable only to the level of a lycosuchid (van den Heever 1987)

Glanosuchus macrops (new genus and species)
Holotype described: Broom 1904f
Validity: Genus and species valid

Pristerognathus baini (new species)
Holotype described: Broom 1904f
Validity: Species invalid
Comments: Synonymized with *Glanosuchus macrops* Broom (van den Heever 1987)

Melinodon simus (new genus and species)
Holotype described: Broom 1905b
Validity: Genus and species valid
Comments: Originally classified by Broom as a bauriamorph

Aelurosuchus browni (new genus and species)
Holotype described: Broom 1906
Validity: Genus and species valid
Comments: Originally classified by Broom as a bauriamorph; may ultimately be synonymized with *Bauria cynops* Broom (J.A. Hopson, pers. comm., 2002)

Arnognathus parvidens (new genus and species)
Holotype described: Broom 1907c
Validity: Genus and species valid
Comments: Determinable only to the level of a scylacosaurid (van den Heever 1987)

(*Scymnosaurus*) *Moschorhinus warreni* (new genus and species)
Holotype described: Broom 1907a
Validity: Genus and species invalid
Comments: Genus reassigned to *Moschorhinus* Broom (Broom 1932); synonymized with *Tigrisuchus simus* Owen (J.A. Hopson, pers. comm., 2002)

Alopecodon priscus (new genus and species)
Holotype described: Broom 1908
Validity: Genus and species valid

Alopecodon rugosus (new species)
Holotype described: Broom 1908
Validity: Species invalid
Comments: Synonymized with *Alopecodon priscus* Broom (van den Heever 1987)

Hyaenosuchus whaitsi (new genus and species)
Holotype described: Broom 1908
Validity: Genus and species invalid
Comments: Synonymized with *Lycosuchus vanderrieti* Broom (van den Heever 1987)

Pardosuchus whaitsi (new genus and species)
Holotype described: Broom 1908
Validity: Genus and species valid

Trochosuchus acutus (new genus and species)
Holotype described: Broom 1908
Validity: Genus and species valid
Comments: Determinable only to the level of a lycosuchid (van den Heever 1987)

Bauria cynops (new genus and species)
Holotype described: Broom 1909
Validity: Genus and species valid
Comments: Originally classified by Broom as a bauriamorph

Arctosuchus tigrinus (new genus)
Holotype described: Broom 1911b
Validity: Genus valid
Comments: Genus reassigned from *Lycosaurus* Owen; specimen possibly a gorgonopsian (Sigogneau-Russell 1989)

Eriphostoma microdon (new genus and species)
Holotype described: Broom 1911b
Validity: Genus and species valid
Comments: Specimen possibly a gorgonopsian (Sigogneau-Russell 1989)

Ictidognathus parvidens (new genus and species)
Holotype described: Broom 1911b
Validity: Genus and species valid

Alopecorhinus parvidens (new genus and species)
Holotype described: Broom 1912b
Validity: Genus and species valid
Comments: Holotype considered a *nomen dubium* (van den Heever 1987)

(*Ictidognathus*) *Ictidostoma hemburyi* (new genus and species)
Holotype described: Broom 1912b
Validity: Genus and species valid
Comments: Genus reassigned to *Ictidostoma* Broom (Broom 1930b)

(*Pristerognathus*) *Cynariognathus platyrhinus* (new genus and species)
Holotype described: Broom 1912b
Validity: Genus and species valid
Comments: Genus reassigned to *Cynariognathus* Broom (Broom 1932); determinable only to the level of a scylacosaurid (van den Heever 1987)

Bauria watsoni (new species)
Holotype described: Broom 1914a
Validity: Species invalid
Comments: Originally classified by Broom as a bauriamorph; synonymized with *Bauria cynops* Broom (J.A. Hopson, pers. comm., 2002)

Alopecognathus angusticeps (new genus and species)
Holotype described: Broom 1915
Validity: Genus and species invalid
Comments: Synonymized with *Glanosuchus macrops* Broom (van den Heever 1987)

Cerodon tenuidens (new genus and species)
Holotype described: Broom 1915c
Validity: Genus and species valid
Comments: Determinable only as an early therocephalian (van den Heever 1987)

Icticephalus polycynodon (new genus and species)
Holotype described: Broom 1915b
Validity: Genus and species valid
Comments: Determinable only to the level of an ictidosuchid (van den Heever 1987)

Simorhinella baini (new genus and species)
Holotype described: Broom 1915b
Validity: Genus and species valid

Scylacoides ferox (new genus and species)
Holotype described: Broom 1915c
Validity: Genus and species valid
Comments: Specimen is possibly a gorgonopsian (van den Heever 1987)

Scylacorhinus falkenbachi (new genus and species)
Holotype described: Broom 1915c
Validity: Genus and species invalid
Comments: Synonymized with *Scylacosaurus sclateri* Broom (van den Heever 1987)

Scymnosaurus watsoni (new species)
Holotype described: Broom 1915b
Validity: Species valid
Comments: Determinable only to the level of a scylacosaurid (van den Heever 1987)

(*Trochosuchus*) *Trochosaurus major* (new species)
Holotype described: Broom 1915c
Validity: Species valid
Comments: Genus reassigned to *Trochosaurus* Haughton (Broom 1932); determinable only to the level of a lycosuchid (van den Heever 1987)

Alopecopsis atavus (new genus and species)
Holotype described: Broom 1920
Validity: Genus and species invalid
Comments: Synonymized with *Theriognathus microps* Owen (J.A. Hopson, pers. comm., 2002)

(*Ictidosuchus*) *Ictidosuchoides longiceps* (new genus and species)
Holotype described: Broom 1920
Validity: Genus and species valid
Comments: Genus reassigned to *Ictidosuchoides* Broom (Broom 1930b)

Moschorhinus kitchingi (new species)
Holotype described: Broom 1920
Validity: Species invalid
Comments: Synonymized with *Tigrisuchus simus* Owen (J.A. Hopson, pers. comm., 2002)

Alopecodon minor (new species)
Holotype described: Broom 1925
Validity: Species invalid
Comments: Synonymized with *Alopecodon priscus* Broom (van den Heever 1987)

Baurioides watsoni (new genus and species)
Holotype described: Broom 1925
Validity: Genus and species invalid
Comments: Originally described by Broom as a bauriamorph; synonymized with *Bauria cynops* Broom (juvenile specimen) (J.A. Hopson, pers. comm., 2002)

Ictidoparia brevirostris (new genus and species)
Holotype described: Broom 1925
Validity: Genus and species valid
Comments: Indeterminable – type specimen is lost (van den Heever 1987)

Notosollasia laticeps (new genus and species)
Holotype described: Broom 1925
Validity: Genus and species invalid
Comments: Synonymized with *Theriognathus microps* Owen (J.A. Hopson, pers. comm., 2002)

Pristerognathus vanderbyli (new species)
Holotype described: Broom 1925
Validity: Species invalid
Comments: Synonymized with *Glanosuchus macrops* Broom (van den Heever 1987)

Pristerognathus vanwyki (new species)
Holotype described: Broom 1925
Validity: Species invalid
Comments: Synonymized with *Pristerognathus minor* Haughton (Broom 1932); synonymized with *Glanosuchus macrops* Broom (van den Heever 1987)

Euchambersia mirabilis (new genus and species)
Holotype described: Broom 1930b
Validity: Genus and species valid

Lycideops longiceps (new genus and species)
Holotype described: Broom 1930b
Validity: Genus and species valid

Whaitsia major (new species)
Holotype described: Broom 1930b
Validity: Species invalid
Comments: Synonymized with *Theriognathus microps* Owen (J.A. Hopson, pers. comm., 2002)

Microhelodon eumerus (new genus)
Holotype described: Broom 1931
Validity: Genus invalid
Comments: Originally described as *Microgomphodon eumerus* Seeley (Cynodontia); originally classified by Broom as a bauriamorph; classified as a cynodont by Hopson & Kitching (1972); tentatively identified as a juvenile specimen of *Bauria cynops* (J.A. Hopson, pers. comm., 2003)

Alopecideops gracilis (new genus and species)
Holotype described: Broom 1932
Validity: Genus and species valid
Comments: Determinable only to the level of a scylacosaurid (van den Heever 1987)

Hofmeyria atavusi (new genus and species)
Holotype described: Broom 1935c
Validity: Genus and species valid

Hyenosaurus platyceps (new genus and species)
Holotype described: Broom 1935c
Validity: Genus and species invalid
Comments: Synonymized with *Theriognathus microps* Owen (J.A. Hopson, pers. comm., 2002)

Lycedops scholtzi (new genus and species)
Holotype described: Broom 1935b
Validity: Genus and species valid
Comments: Determinable only to the level of a scylacosaurid (van den Heever 1987)

Cerdosuchoides brevidens (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species valid

Cerdosuchus aulodon (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species invalid
Comments: Synonymized with *Notaelurodon kitchingi* Broom (J.A. Hopson, pers. comm., 2002)

Cynariognathus gallowayi (new species)
Holotype described: Broom 1936a
Validity: Species invalid
Comments: Synonymized with *Glanosuchus macrops* Broom (van den Heever 1987)

Moschorhinus minor (new species)
Holotype described: Broom 1936a
Validity: Species invalid
Comments: Synonymized with *Tigrisuchus simus* Owen (J.A. Hopson, pers. comm., 2002)

Moschorhynchus latirostris (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species invalid
Comments: Synonymized with *Theriognathus microps* Owen (J.A. Hopson, pers. comm., 2002)

Notaelurodon kitchingi (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species valid
Comments: Determinable only to the level of an akidnognathid (van den Heever 1987)

Notaelurops paucidens (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species invalid
Comments: Synonymized with *Theriognathus microps* Owen (Brink 1988)

Notosollasia luckhoffi (new species)
Holotype described: Broom 1936a
Validity: Species invalid
Comments: Synonymized with *Theriognathus microps* Owen (J.A. Hopson, pers. comm., 2002)

Trochorhinus vanhoepeni (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species valid
Comments: Determinable only to the level of a lycosuchid (van den Heever 1987)

Trochosaurus dirus (new species)
Holotype described: Broom 1936b
Validity: Genus and species valid

Alopecognathus megalops (new species)
Holotype described: Broom 1937a
Validity: Species valid
Comments: Determinable only to the level of a scylacosaurid (van den Heever 1987)

Ictidosuchoides rubidgei (new species)
Holotype described: Broom 1937a
Validity: Species valid
Comments: Genus reassigned to *Ictidosuchops* Broom (J.A. Hopson, pers. comm., 2002)

Ictidosuchoides intermedius (new species)
Holotype described: Broom 1938c
Validity: Species valid
Comments: Genus reassigned to *Ictidosuchops* Broom (Brink 1988)

Ictidosuchops bauroides (new genus and species)
Holotype described: Broom 1940b
Validity: Genus and species valid

Moschorhinus esterhuyseni (new species)
Holotype described: Broom 1940b
Validity: Species invalid
Comments: Synonymized with *Tigrisuchus simus* Owen (J.A. Hopson, pers. comm., 2002)

Nanictidops kitchingi (new genus and species)
Holotype described: Broom 1940b
Validity: Genus and species valid

Nanictocephalus richardi (new genus and species)
Holotype described: Broom 1940a
Validity: Genus and species valid

Octocynodon elegans (new genus and species)
Holotype described: Broom 1940b
Validity: Genus invalid (but see below); species valid
Comments: Genus reassigned to *Polycynodon* Broom & Robinson (Brink 1988)

Pelictosuchus paucidens (new genus and species)
Holotype described: Broom 1940b
Validity: Genus and species invalid
Comments: Synonymized with *Akidnognathus parvus* Haughton (J.A. Hopson, pers. comm., 2002)

Scaloposuchus rubidgei (new genus and species)
Holotype described: Broom 1940a
Validity: Genus and species valid

Ictidosuchops watermeyeri (new species)
Holotype described: Broom 1941
Validity: Species invalid
Comments: Synonymized with *Ictidosuchops intermedius* Broom (Brink 1988)

Aneugomphius ictidoceps (new genus and species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948b
Validity: Genus and species invalid
Comments: Synonymized with *Theriognathus microps* Owen (J.A.Hopson, pers. comm., 2002)

Cerdops burgheri (new genus and species)
Holotype described: Broom 1948a
Validity: Genus and species invalid
Comments: Synonymized with *Cerdosuchoides brevidens* Broom (J.A. Hopson, pers. comm., 2002)

Ictidochampsa platyceps (new genus and species)
Holotype described: Broom 1948a
Validity: Genus and species valid

Ictidodraco longiceps (new genus and species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948b
Validity: Genus and species valid

Silpholestes jackae (new genus and species)
Holotype described: Broom 1948b
Validity: Genus and species valid

Tetracynodon tenuis (new genus and species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948b
Validity: Genus and species valid

Whaitsia pricei (new species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948b
Validity: Species invalid
Comments: Synonymized with *Theriognathus microps* Owen (J.A. Hopson, pers. comm., 2002)

Sesamodontoides pauli (new genus and species)
Holotype described: Broom 1950b
Validity: Genus and species invalid
Comments: Synonymized with *Microgomphodon oligocynus* Seeley (J.A. Hopson, pers. comm., 2002)

GORGONOPSIA

Aloposaurus gracilis (new genus and species)
Holotype described: Broom 1910
Validity: Genus and species valid

Aelurosaurus tenuirostris (new species)
Holotype described: Broom 1911b
Validity: Species invalid
Comments: Synonymized with *Aelurosaurus* cf. *felinus* Owen (Boonstra 1935)

Aelurosaurus whaitsi (new species)
Holotype described: Broom 1911b
Validity: Species valid

Arctognathus curvimola (new genus)
Holotype described: Broom 1911b
Validity: Genus valid
Comments: Genus reassigned from *Lycosaurus* Owen

Aelurosaurus striatidens (new species)
Holotype described: Broom 1912b
Validity: Species invalid
Comments: Synonymized with *Aelurosaurus felinus* Owen (Sigogneau 1970)

Scymnognathus whaitsi (new genus and species)
Holotype described: Broom 1912b

Validity: Genus invalid (but see *Scymnognathus parvus*); species valid
Comments: Genus reassigned to *Gorgonops* Owen (Sigogneau 1970)

Scylacognathus parvus (new genus and species)
Holotype described: Broom 1913a
Validity: Genus and species valid

Scylacops capensis (new genus and species)
Holotype described: Broom 1913b
Validity: Genus and species valid

(*Scymnognathus*) *Lycaenoides angusticeps* (new genus and species)
Holotype described: Broom 1913e
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Lycaenoides* Broom (Broom 1932); genus reassigned to *Lycaenops* Broom (Sigogneau 1970)

(*Scymnognathus*) *Aelurognathus tigriceps* (new species) (with S.H. Haughton)
Holotype described: Broom & Haughton 1913a
Validity: Species valid
Comments: Genus reassigned to *Aelurognathus* Haughton (Broom 1932)

Scymnognathus minor (new species)
Holotype described: Broom 1913e
Validity: Species invalid
Comments: Synonymized with *Lycaenops angusticeps* Broom (Sigogneau 1970)

(*Scymnorhinus*) *Broomisaurus planiceps* (new genus and species)
Holotype described: Broom 1913a
Validity: Genus and species valid
Comments: Reassigned from preoccupied genus *Scymnorhinus* (Broom 1932)

(*Asthenognathus*) *Delphaciognathus paucidens* (new genus and species)
Holotype described: Broom 1915c
Validity: Genus and species valid
Comments: Reassigned from preoccupied genus *Asthenognathus* (Broom 1932); pending review (Sigogneau-Russell 1989)

Cerdognathus grayi (new genus and species)
Holotype described: Broom 1915b
Validity: Genus and species valid
Comments: Pending review (Sigogneau-Russell 1989)

Cyniscodon lydekkeri (new genus and species)
Holotype described: Broom 1915b
Validity: Genus and species valid
Comments: Pending review (Sigogneau-Russell 1989)

Scymnognathus parvus (new species)
Holotype described: Broom 1915b
Validity: Species valid
Comments: Currently the only valid species of the genus *Scymnognathus* Broom; pending review (Sigogneau-Russell 1989)

Cynarioides tenuis (new genus and species)
Holotype described: Broom 1925
Validity: Genus invalid; species valid
Comments: Reassigned to the genus cf. *Aloposaurus* Broom (Sigogneau 1970)

Cynariops robustus (new genus and species)
Holotype described: Broom 1925
Validity: Genus invalid; species valid
Comments: Reassigned to the genus *Scylacognathus* (Sigogneau 1970)

Lycaenops ornatus (new genus and species)
Holotype described: Broom 1925
Validity: Genus and species valid

Aelurosaurus breviceps (new species)
Holotype described: Broom 1930a
Validity: Species invalid
Comments: Synonymized with *Aelurosaurus whaitsi* Broom (Sigogneau 1970)

Cynarioides gracilis (new species)
Holotype described: Broom 1930a
Validity: Species valid
Comments: Pending review (Sigogneau-Russell 1989)

Cynarioides grimbeeki (new species)
Holotype described: Broom 1935b
Validity: Species valid
Comments: Reassigned to genus *Scylacognathus* Broom (Sigogneau 1970)

Cynarioides laticeps (new species)
Holotype described: Broom 1935b
Validity: Species invalid
Comments: Synonymized with *Scylacognathus grimbeeki* Broom (Sigogneau 1970)

Galerhinus polyodon (new genus and species)
Holotype described: Broom 1935c
Validity: Genus invalid; species valid
Comments: Reassigned to genus *Aelurosaurus* Owen (Sigogneau 1970)

Scylacognathus major (new species)
Holotype described: Broom 1935c
Validity: Species invalid
Comments: Synonymized with *Scylacognathus parvus* Broom (Sigogneau 1970)

Cerdorhinus parvidens (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species valid

Dinogorgon rubidgei (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species valid

Galerhinus rubidgei (new species)
Holotype described: Broom 1936a
Validity: Species valid
Comments: Genus reassigned to *Paragalerhinus* Sigogneau (Sigogneau 1970)

Cyniscops rubidgei (new genus and species)
Holotype described: Broom 1937a
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Cyonosaurus* Olson (Sigogneau 1970)

Galerhynchus rubidgei (new genus and species)
Holotype described: Broom 1937b
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Cerdorhinus* Broom (Sigogneau 1970)

Gorgorhinus luckhoffi (new genus and species)
Holotype described: Broom 1937a
Validity: Genus and species valid
Comments: Pending review (Sigogneau-Russell 1989)

Scymnognathus major (new species) (with E.C. Olson)
Holotype described: Broom & Olson 1937
Validity: Species invalid
Comments: Synonymized with *Lycaenops* cf. *angusticeps* Broom (Sigogneau 1970)

Rubidgea atrox (new genus and species)
Holotype described: Broom 1938e
Validity: Genus and species valid
Comments: Originally classified by Broom as suborder Rubidgea

Rubidgea kitchingi (new species)
Holotype described: Broom 1938e
Validity: Species valid
Comments: Originally classified by Broom as suborder Rubidgea; pending review but genus not considered *Rubidgea* Broom (Sigogneau-Russell 1989)

Aelurosauroides wilmanae (new species)
Holotype described: Broom 1940b
Validity: Species valid
Comments: Genus reassigned to *Aelurosaurus* Owen (Sigogneau 1970)

Broomisaurus rubidgei (new species)
Holotype described: Broom 1940a
Validity: Species valid
Comments: Genus reassigned to *Leontocephalus* Broom (Sigogneau 1970)

Leontocephalus cadlei (new genus and species)
Holotype described: Broom 1940b
Validity: Genus and species valid

Prorubidgea maccabei (new genus and species)
Holotype described: Broom 1940b
Validity: Genus and species valid

Rubidgea laticeps (new species)
Holotype described: Broom 1940b
Validity: Species valid
Comments: Originally classified by Broom as suborder Rubidgea; genus reassigned to *Broomicephalus* Brink & Kitching (Brink & Kitching 1953)

Scylacocephalus watermeyeri (new species)
Holotype described: Broom 1940a
Validity: Species valid
Comments: Genus reassigned to *Aelurosaurus* Owen (Sigogneau 1970)

Cyniscops longiceps (new species)
Holotype described: Broom 1941
Validity: Species invalid
Comments: Synonymized with *Cyonosaurus longiceps* Olson (Sigogneau 1970)

Sycosaurus brodiei (new species)
Holotype described: Broom 1941
Validity: Species valid
Comments: Genus reassigned to *Prorubidgea* Broom (Sigogneau 1970)

Aelurosaurus brevirostris (new species)
Holotype described: Broom 1948a
Validity: Species valid
Comments: Indeterminable; type specimen is lost (Sigogneau 1970)

Clelandina rubidgei (new genus and species)
Holotype described: Broom 1948a
Validity: Genus and species valid

Clelandina major (new species)
Holotype described: Broom 1948a
Validity: Species valid
Comments: Pending review (Sigogneau-Russell 1989)

Cyniscops cookei (new species)
Holotype described: Broom 1948a
Validity: Species valid
Comments: Genus reassigned to *Arctognathus* Broom (Sigogneau 1970)

Cyniscops kitchingi (new species)
Holotype described: Broom 1948a
Validity: Species valid
Comments: Genus reassigned to *Cyonosaurus* Olson (Sigogneau 1970)

Gorgorhinus minor (new species)
Holotype described: Broom 1948a
Validity: Species valid
Comments: Genus reassigned to *Arctops* Watson (Sigogneau 1970)

Lycaenops pricei (new species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948a
Validity: Species invalid
Comments: Synonymized with *Arctognathus* cf. *curvimola* Owen (Sigogneau 1970)

Nanogorgon gracilis (new genus and species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948a
Validity: Genus and species invalid
Comments: Synonymized with *Cyonosaurus* sp. (juvenile form) (Sigogneau 1970)

Pardocephalus wallacei (new genus and species)
Holotype described: Broom 1948a
Validity: Genus and species invalid
Comments: Synonymized with *Arctops ferox* Broom (Sigogneau 1970)

Scymnognathus holmesi (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Aelurognathus sollasi* Broili & Schroeder (Sigogneau 1970)

Smilesaurus ferox (new genus and species)
Holotype described: Broom 1948a
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Arctops* Watson (Sigogneau 1970)

Smilesaurus maccabei (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Arctops ferox* Broom (Sigogneau 1970)

Tigricephalus kingwilli (new genus and species)
Holotype described: Broom 1948a
Validity: Genus invalid; species valid
Comments: Genus assigned to *Lycaenops* Broom (Sigogneau 1970)

Leontosaurus vanderhorsti (new genus and species) (with M. George)
Holotype described: Broom & George 1950a
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Sycosaurus* Haughton (Sigogneau 1970)

Tigrisaurus pricei (new genus and species) (with M. George)
Holotype described: Broom & George 1950a
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Dinogorgon* Broom (Sigogneau 1970)

ANOMODONTIA

(*Dicynodon*) *Kannemeyeria latifrons* (new species)
Holotype described: Broom 1899b
Validity: Species invalid
Comments: Genus reassigned to *Kannemeyeria* Seeley (Broom 1932); synonymized with *Kannemeyeria simocephalus* Weithofer (Cruickshank 1965; King 1988)

Oudenodon truncatus (new species)
Holotype described: Broom 1899b
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975)

(*Udenodon*) *Dicynodon gracilis* (new species)
Holotype described: Broom 1901
Validity: Species valid
Comments: Genus reassigned to *Dicynodon* Owen (Broom 1932); also described as *Kingoria gracilis* Broom (Cluver & Hotton 1981)

Chelyoposaurus williamsi (new genus and species)
Holotype described: Broom 1904
Validity: Genus and species valid
Comments: Considered a *nomen nudum* (King & Rubidge 1993)

Prodicynodon pearstonensis (new genus and species)
Holotype described: Broom 1904a
Validity: Genus and species invalid
Comments: Synonymized with *Endothiodon* sp. (King 1988)

(*Oudenodon*) *Dicynodon megalorhinus* (new species)
Holotype described: Broom 1904c
Validity: Species valid
Comments: Genus reassigned to *Dicynodon* Owen (Broom 1932)

(*Oudenodon*) *Emydopsis trigoniceps* (new species)
Holotype described: Broom 1904b
Validity: Species valid
Comments: Genus reassigned to *Emydopsis* Broom (Broom 1921): Genus reassigned to *Emydops* Broom (Toerien 1953)

Dicynodon jouberti (new species)
Holotype described: Broom 1905c
Validity: Species invalid
Comments: Genus reassigned to *Diictodon* Broom (Cluver & Hotton 1981); synonymized with *Diictodon galeops* Broom (King 1993)

(*Opisthoctenodon*) *Pristerodon agilis* (new species)
Holotype described: Broom 1905a
Validity: Species valid
Comments: Genus reassigned to *Pristerodon* Broom (Broom 1915a)

(*Opisthoctenodon*) *Pristerodon brachyops* (new species)
Holotype described: Broom 1905a
Validity: Species invalid
Comments: Genus reassigned to *Pristerodon* Broom (Broom 1915a); synonymized with *Emydops* sp. (Cluver & King 1983)

Dicynodon ingens (new species)
Holotype described: Broom 1907a
Validity: Species valid

Galechirus scholtzi (new genus and species)
Holotype described: Broom 1907c
Validity: Genus and species valid
Comments: Originally classified by Broom as a dromasaur

Lystrosaurus andersoni (new species)
Holotype described: Broom 1907b
Validity: Species invalid
Comments: Synonymized with *Lystrosaurus platyceps* Seeley (King 1988)

Galepus jouberti (new genus and species)
Holotype described: Broom 1910
Validity: Genus and species valid
Comments: Originally classified by Broom as a dromasaur

Diaelurodon whaitsi (new genus and species)
Holotype described: Broom 1911b
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Pristerodon* Broom (Toerien 1953)

(*Oudenodon*) *Dicynodon bolorhinus* (new species)
Holotype described: Broom 1911b
Validity: Species valid
Comments: Genus reassigned to *Dicynodon* Owen (Broom 1932)

Taognathus megalodon (new genus and species)
Holotype described: Broom 1911b
Validity: Genus and species valid
Comments: Considered a *nomen nudum* (King & Rubidge 1993)

(*Dicynodon*) (*Bainia*) *Aulacocephalodon laticeps* (new species)
Holotype described: Broom 1912b
Validity: Species invalid
Comments: Genus reassigned (*Bainia* Broom 1921; *Aulacocephalodon* Broom 1932); synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Dicynodon lutriceps (new species)
Holotype described: Broom 1912b
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon psittacops (new species)
Holotype described: Broom 1912b
Validity: Species valid
Comments: Genus reassigned to *Diictodon* Broom (Cluver & Hotton 1981); King (1993) suggested that the specimen should be synonymized with *Diictodon galeops* Broom

Emydops minor (new genus and species)
Holotype desribed: Broom 1912b
Validity: Genus and species valid

(*Endothiodon*) *Esoterodon whaitsi* (new species)
Holotype described: Broom 1912b
Validity: Species valid
Comments: Genus reassigned to *Esoterodon* Seeley (Broom 1932); genus reassigned to *Endothiodon* Owen (Cox 1964)

(*Endothiodon*) *Emydochampsa platyceps* (new genus and species)
Holotype described: Broom 1912b
Validity: Genus and species invalid
Comments: Genus reassigned to *Emydochampsa* (Broom 1915c); synonymized with *Endothiodon uniseries* Owen (Cluver & King 1983; King 1988)

Galeops whaitsi (new genus and species)
Holotype described: Broom 1912b
Validity: Genus and species valid
Comments: Originally classified by Broom as a dromasaur

(*Oudenodon*) (*Diictodon*) *Dicynodon kolbei* (new species)
Holotype described: Broom 1912c
Validity: Species invalid
Comments: Genus reassigned (*Diictodon* Broom 1913c; *Dicynodon* Broom 1913f); synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Prodicynodon beaufortensis (new species)
Holotype described: Broom 1912b
Validity: Species invalid
Comments: Synonymized with *Endothiodon* sp. (King 1988)

Dicynodon alticeps (new species) (with S.H. Haughton)
Holotype described: Broom & Haughton 1913b
Validity: Species valid

Dicynodon ictidops (new species)
Holotype described: Broom 1913c
Validity: Species valid
Comments: Genus reassigned to *Diictodon* Broom (Cluver & Hotton 1981); King (1993) suggested that the specimen should be synonymized with *Diictodon galeops* Broom

Dicynodon leontops (new species)
Holotype described: Broom 1913c
Validity: Species valid

Dicynodon lissops (new species)
Holotype described: Broom 1913c
Validity: Species valid

(*Dicynodon*) *Aulacocephalodon moschops* (new species)
Holotype described: Broom 1913c
Validity: Species valid
Comments: Genus reassigned to *Aulacocephalodon* Owen (Broom 1932); genus reassigned to *Pelanomodon* Broom (Cluver & King 1983)

Dicynodon planus (new species)
Holotype described: Broom 1913c
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon platyceps (new species)
Holotype described: Broom 1913c
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

(*Dicynodon*) *Prolystrosaurus strigops* (new species)
Holotype described: Broom 1913a
Validity: Species invalid
Comments: Genus reassigned to *Prolystrosaurus* Haughton (Broom 1932); synonymized with *Lystrosaurus murrayi* Huxley (King 1988)

Dicynodon testudirostris (new species) (with S.H. Haughton)
Holotype described: Broom & Haughton 1913b
Validity: Species valid
Comments: Genus reassigned to *Diictodon* Broom (Cluver & Hotton 1981); King (1993) suggested that the specimen should be synonymized with *Diictodon galeops* Broom

Dicynodon tylorhinus (new species)
Holotype described: Broom 1913c
Validity: Species valid
Comments: Genus reassigned to *Propelanomodon* Toerien (Keyser 1972)

Dicynodon whaitsi (new species)
Holotype described: Broom 1913c
Validity: Species valid

Diictodon galeops (new genus and species)
Holotype described: Broom 1913c
Validity: Genus and species valid

Emydopsis longiceps (new genus and species)
Holotype described: Broom 1913c
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Emydops* Broom (Cluver & King 1983)

Emydorhynchus palustris (new genus and species)
Holotype described: Broom 1913c
Validity: Genus invalid (but see *Emydorhynchus formosus* below); species valid
Comments: Genus reassigned to *Diictodon* Broom (Cluver & Hotton 1981); King (1993) suggested that the specimen should be synonymized with *Diictodon galeops* Broom

Eocyclops longus (new genus and species)
Holotype described: Broom 1913c
Validity: Genus invalid: Species valid
Comments: Genus reassigned to *Rhachiocephalus* Owen (Cluver & King 1983)

(*Endothiodon*) *Esoterodon paucidens* (new species)
Holotype described: Broom 1915c
Validity: Species invalid
Comments: Genus reassigned to *Esoterodon* Seeley (Broom 1932); synonymized with *Endothiodon uniseries* Owen (Cluver & King 1983; King 1988)

Endothiodon seeleyi (new species)
Holotype described: Broom 1915c
Validity: Species invalid
Comments: Synonymized with *Endothiodon uniseries* Owen (Cluver & King 1983; King 1988)

Esoterodon angusticeps (new species)
Holotype described: Broom 1915c
Validity: Species invalid
Comments: Synonymized with *Endothiodon uniseries* Owen (Cluver & King 1983; King 1988)

Dicynodon cavifrons (new species) (with S.H. Haughton)
Holotype described: Broom & Haughton 1917
Validity: Species valid

Dicynodon corstorphinei (new species) (with S.H. Haughton)
Holotype described: Broom & Haughton 1917
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon pygmaeus (new species) (with S.H. Haughton)
Holotype described: Broom & Haughton 1917
Validity: Species invalid
Comments: Synonymized with *Diictodon testudirostris* Broom & Haughton (Cluver & Hotton 1981); King (1993) suggested that the specimen should be synonymized with *Diictodon galeops* Broom

Dicynodon rogersi (new species) (with S.H. Haughton)
Holotype described: Broom & Haughton 1917
Validity: Species valid

(*Emydops*) *Emydopsis platyceps* (new species) (with S.H. Haughton)
Holotype described: Broom & Haughton 1917
Validity: Species valid
Comments: Genus reassigned to *Emydopsis* Broom (Broom 1921); genus reassigned to *Emydops* Broom (Cluver & King 1983)

Dicynodon schwarzi (new species)
Holotype described: Broom 1919a
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

(*Bainia*) *Aulacocephalodon haughtoni* (new genus and species)
Holotype described: Broom 1921
Validity: Genus and species invalid
Comments: Genus reassigned to *Aulacocephalodon* Owen (Broom 1932); synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

(*Bainia*) *Aulacocephalodon peavoti* (new species)
Holotype described: Broom 1921
Validity: Species invalid
Comments: Genus reassigned to *Aulacocephalodon* Owen (Broom 1932); synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Dicynodon andrewsi (new species)
Holotype described: Broom 1921
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon curtus (new species)
Holotype described: Broom 1921
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1972: Cluver & Hotton 1981)

Dicynodon ictinops (new species)
Holotype described: Broom 1921
Validity: Species valid

Dicynodon macrorhynchus (new species)
Holotype described: Broom 1921
Validity: Species invalid
Comments: Genus reassigned to *Diictodon* Broom (Cluver & Hotton 1981); synonymized with *Diictodon galeops* Broom (King 1993)

Dicynodon osborni (new species)
Holotype described: Broom 1921
Validity: Species valid

Dicynodon sollasi (new species)
Holotype described: Broom 1921
Validity: Species valid
Comments: Genus reassigned to *Diictodon* Broom (Cluver & Hotton 1981); King (1993) suggested that the specimen should be synonymized with *Diictodon galeops* Broom

Dicynodon watsoni (new species)
Holotype described: Broom 1921
Validity: Species valid

Dicynodon woodwardi (new species)
Holotype described: Broom 1921
Validity: Species valid

Emydops parvus (new species)
Holotype described: Broom 1921
Validity: Species valid

Emydopsis longus (new species)
Holotype described: Broom 1921
Validity: Species valid
Comments: Genus reassigned to *Emydops* Broom (Toerien 1953)

(*Emydopsis*) *Emydorhinus sciuroides* (new genus and species)
Holotype described: Broom 1921
Validity: Genus and species valid
Comments: Genus reassigned to *Emydorhinus* Broom (Broom 1935)

Emyduranus platyops (new genus and species)
Holotype described: Broom 1921
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Pristerodon* Broom (King & Rubidge 1993)

(*Endothiodon*) *Endogomphodon crassus* (new genus and species)
Holotype described: Broom 1921
Validity: Genus and species invalid
Comments: Genus reassigned to *Endogomphodon* Broom (Broom 1932); synonymized with *Endothiodon whaitsi* Broom (Cluver & King 1983; King 1988)

Eosimops newtoni (new genus and species)
Holotype described: Broom 1921
Validity: Genus and species valid
Comments: Indeterminate (Cluver & King 1983)

Palemydops platysoma (new genus and species)
Holotype described: Broom 1921
Validity: Genus and species valid

Dicynodon milletti (new species)
Holotype described: Broom 1928a
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon vanderbyli (new species)
Holotype described: Broom 1928a
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon wilmanae (new species)
Holotype described: Broom 1928a
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Cerataelurus mirabilis (new genus and species)
Holotype described: Broom 1930b
Validity: Genus and species valid
Comments: Indeterminate (Cluver & King 1983)

Megacyclops whaitsi (new genus and species)
Holotype described: Broom 1930b
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Rhachiocephalus* Owen (Cluver & King 1983)

Aulacocephalodon latissimus (new species)
Holotype described: Broom 1932
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Cistecephalus angusticeps (new species)
Holotype described: Broom 1932
Validity: Species invalid
Comments: Synonymized with *Cistecephalus microrhinus* Owen (Keyser 1973)

Dicynodon gilli (new species)
Holotype described: Broom 1932
Validity: Species valid

Dicynodon latirostris (new species)
Holotype described: Broom 1932
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon platyfrons (new species)
Holotype described: Broom 1932
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon robustus (new species)
Holotype described: Broom 1932
Validity: Species valid

Dicynodon rubidgei (new species)
Holotype described: Broom 1932

Validity: Species valid
Comments: Genus reassigned to *Diictodon* Broom (Cluver & Hotton 1981); King (1993) suggested that the specimen should be synonymized with *Diictodon galeops* Broom

Dicynodon taylori (new species)
Holotype described: Broom 1932
Validity: Species valid

Endogomphodon minor (new species)
Holotype described: Broom 1932
Validity: Species invalid
Comments: Synonymized with *Endothiodon uniseries* Owen (Cluver & King 1983; King 1988)

Platycyclops haughtoni (new genus and species)
Holotype described: Broom 1932
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Rhachiocephalus* Owen (Cluver & King 1983)

Cteniosaurus platyceps (new genus and species)
Holotype described: Broom 1935c
Validity: Genus and species valid

Dicynodon acutirostris (new species)
Holotype described: Broom 1935c
Validity: Species valid

Dicynodon grimbeeki (new species)
Holotype described: Broom 1935b
Validity: Species valid
Comments: Genus reassigned to *Diictodon* Broom (Cluver & Hotton 1981); King (1993) suggested that the specimen should be synonymized with *Diictodon galeops* Broom

Dicynodon validus (new species)
Holotype described: Broom 1935c
Validity: Species valid

Dicynodon venteri (new species)
Holotype described: Broom 1935c
Validity: Species valid

Emydopsis minimus (new species)
Holotype described: Broom 1935b
Validity: Species valid
Comments: Genus reassigned to *Emydops* Broom (Toerien 1953)

Emydorhinus fragilis (new species)
Holotype described: Broom 1935c
Validity: Species invalid
Comments: Synonymized with *Emydorhinus sciuroides* Broom (Kitching 1977)

Emydorhynchus formosus (new species)
Holotype described: Broom 1935b
Validity: Species valid
Comments: Currently the only valid species of the genus *Emydorhynchus* Broom

Emyduranus gracilis (new species)
Holotype described: Broom 1935c
Validity: Species valid
Comments: Genus reassigned to *Pristerodon* Broom (King & Rubidge 1993)

Eumantellia mirus (new genus and species)
Holotype described: Broom 1935a
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Pristerodon* Broom (King & Rubidge 1993)

Palemydops minor (new species)
Holotype described: Broom 1935c
Validity: Species valid

Aulacocephalodon nesemanni (new species)
Holotype described: Broom 1936a
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Dicynonodon microdon (new species)
Holotype described: Broom 1936a
Validity: Species valid

Dicynodon nanus (new species)
Holotype described: Broom 1936a
Validity: Species valid

Dicynodon wellwoodensis (new species)
Holotype described: Broom 1936a
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Emydopsis microdon (new species)
Holotype described: Broom 1936a
Validity: Species valid
Comments: Genus reassigned to *Emydops* Broom (Toerien 1953)

Aulacocephalodon hartzenbergi (new species)
Holotype described: Broom 1937b
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Aulacocephalodon luckhoffi (new species)
Holotype described: Broom 1937b
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Dicynodon dutoiti (new species) (with G.W.H. Schepers)
Holotype described: Broom & Schepers 1937
Validity: Species valid

Dicynodon gamkaensis (new species)
Holotype described: Broom 1937b
Validity: Species valid

Dicynodon kitchingi (new species)
Holotype described: Broom 1937a
Validity: Species valid

Dicynodon luckhoffi (new species)
Holotype described: Broom 1937b
Validity: Species valid

Kannemeyeria wilsoni (new species)
Holotype described: Broom 1937b
Validity: Species valid

Newtonella platyceps (new genus and species)
Holotype described: Broom 1937b
Validity: Genus invalid; species valid
Comments: Genus reassigned to *Pristerodon* Broom (King & Rubidge 1993)

Palemydops rubidgeae (new species)
Holotype described: Broom 1937a
Validity: Species valid

Rhachiocephalus angusticeps (new species)
Holotype described: Broom 1937b
Validity: Species invalid
Comments: Synonymized with *Rhachiocephalus magnus* Owen (Cluver & King 1983; King 1988)

Dinanomodon rubidgei (new genus and species)
Holotype described: Broom 1938a
Validity: Genus and species valid

Pelanomodon rubidgei (new genus and species)
Holotype described: Broom 1938a
Validity: Genus and species valid

Aulacocephalodon rubidgei (new species)
Holotype described: Broom 1940a
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Dicynodon allani (new species)
Holotype described: Broom 1940b
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon anneae (new species)
Holotype described: Broom 1940b
Validity: Species invalid
Comments: Synonymized with *Diictodon whitsonae* Toerien (Cluver & Hotton 1981); King (1993) suggested that the specimen should be synonymized with *Diictodon galeops* Broom

Dicynodon cadlei (new species)
Holotype described: Broom 1940a
Validity: Species valid

Dicynodon calverleyi (new species)
Holotype described: Broom 1940b
Validity: Species valid

Dicynodon graafi (new species)
Holotype described: Broom 1940b
Validity: Species valid

Dicynodon grahami (new species)
Holotype described: Broom 1940b
Validity: Species valid
Comments: Genus reassigned to *Kingoria* Cox (Cluver & Hotton 1981)

Dicynodon hartzenbergi (new species)
Holotype described: Broom 1940b
Validity: Species valid

Dicynodon maccabei (new species)
Holotype described: Broom 1940b
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon macrodon (new species)
Holotype described: Broom 1940a
Validity: Species valid

Dicynodon nesemanni (new species)
Holotype described: Broom 1940a
Validity: Species valid

Dicynodon richardi (new species)
Holotype described: Broom 1940b
Validity: Species valid

Dicynodon sidneyi (new species)
Holotype described: Broom 1940b
Validity: Species valid
Comments: Genus may be *Pelanomodon* Broom (Cluver & King 1983) or *Propelanomodon* Toerien (K.D. Angielczyk, pers. comm., 2002)

Dicynodon swierstrai (new species)
Holotype described: Broom 1940b
Validity: Species valid

Dicynodon trigonocephalus (new species)
Holotype described: Broom 1940b
Validity: Species valid

Dicynodontoides parringtoni (new genus and species)
Holotype described: Broom 1940b
Validity: Genus and species valid

Dinanomodon gigas (new species)
Holotype described: Broom 1940b
Validity: Species valid

Lystrosaurus rubidgei (new species)
Holotype described: Broom 1940b
Validity: Species invalid
Comments: Synonymized with *Lystrosaurus murrayi* Huxley (King 1988)

Platycyclops latirhinus (new species)
Holotype described: Broom 1940a
Validity: Species invalid
Comments: Synonymized with *Rhachiocephalus haughtoni* Broom (Cluver & King 1983)

Platycyclops rubidgei (new species)
Holotype described: Broom 1940a
Validity: Species invalid
Comments: Synonymized with *Rhachiocephalus haughtoni* Broom (Cluver & King 1983)

Aulacocephalodon brodiei (new species)
Holotype described: Broom 1941
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Aulacocephalodon coatoni (new species)
Holotype described: Broom 1941
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Dicynodon weatherbyi (new species)
Holotype described: Broom 1941
Validity: Species valid

Lystrosaurus bothai (new species)
Holotype described: Broom 1941
Validity: Species invalid
Comments: Synonymized with *Lystrosaurus murrayi* Huxley (King 1988)

Myosauroides minnaari (new genus and species)
Holotype described: Broom 1941
Validity: Genus and species valid

Aulacocephalodon cadlei (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Cistecephalus major (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Cistecephalus microrhinus* Owen (Keyser 1973)

Cistecephalus platyfrons (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Cistecephalus microrhinus* Owen (Keyser 1973)

Cistecephalus rubidgei (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Cistecephalus microrhinus* Owen (Keyser 1973)

Dicynodon aetoramphus (new species)
Holotype described: Broom 1948a
Validity: Species valid

Dicynodon benjamini (new species)
Holotype described: Broom 1948a
Validity: Species valid

Dicynodon brachyrhynchus (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon duvenhagei (new species)
Holotype described: Broom 1948a
Validity: Species valid
Comments: Genus reassigned to *Kingoria* Cox (Cluver & Hotton 1981)

Dicynodon galecephalus (new species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948a
Validity: Species valid
Comments: Genus reassigned to *Kingoria galecephala* Broom & Robinson (Cluver & Hotton 1981)

Dicynodon glaucops (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon howardi (new species)
Holotype described: Broom 1948a
Validity: Species valid
Comments: Genus reassigned to *Kingoria* Cox (Cluver & Hotton 1981)

Dicynodon moutonae (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon robertsi (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Oudenodon baini* Owen (Keyser 1975; Cluver & Hotton 1981)

Dicynodon scheepersi (new species)
Holotype described: Broom 1948a
Validity: Species valid

Digalodon rubidgei (new genus and species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948a
Validity: Genus and species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Cluver & King 1983)

Pelanomodon wesselsi (new species)
Holotype described: Broom 1948a
Validity: Species valid
Comments: Genus reassigned to *Rhachiocephalus* Owen (Keyser 1972)

Platycyclops crassus (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Rhachiocephalus haughtoni* Broom (Cluver & King 1983)

Platycyclops richardi (new species)
Holotype described: Broom 1948a
Validity: Species invalid
Comments: Synonymized with *Rhachiocephalus haughtoni* Broom (Cluver & King 1983)

Aulacocephalodon pricei (new species) (with M. George)
Holotype described: Broom & George 1950b
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Aulacocephalodon vanderhorsti (new species) (with M. George)
Holotype described: Broom & George 1950b
Validity: Species invalid
Comments: Synonymized with *Aulacephalodon baini* Owen (Keyser 1972)

Dicynodon clarencei (new species)
Holotype described: Broom 1950a
Validity: Species valid

Dicynodon leontocephalus (new species)
Holotype described: Broom 1950a
Validity: Species valid

Kitchingia planifrons (new genus and species) (with M. George)
Holotype described: Broom & George 1950b
Validity: Genus and species invalid
Comments: Synonymized with *Rhachiocephalus magnus* Owen (Kitching 1977)

Pelanomodon halli (new species)
Holotype described: Broom 1950a
Validity: Species invalid
Comments: Synonymized with *Pelanomodon moschops* Broom (Keyser 1972)

Pelanomodon kitchingi (new species) (with M. George)
Holotype described: Broom & George 1950
Validity: Species invalid
Comments: Synonymized with *Pelanomodon rubidgei* Broom (Keyser 1972)

Platycyclops acutirostris (new species) (with M. George)
Holotype described: Broom & George 1950b
Validity: Species invalid
Comments: Synonymized with *Rhachiocephalus haughtoni* Broom (Kitching 1977; Cluver & King 1983)

Platycyclops pricei (new species) (with M. George)
Holotype described: Broom & George 1950b
Validity: Species invalid
Comments: Synonymized with *Rhachiocephalus haughtoni* Broom (Cluver & King 1988)

CYNODONTIA

Karoomys browni (new genus and species)
Holotype described: Broom 1903b
Validity: Genus and species invalid
Comments: Originally classified by Broom as an ictidosaur; synonymized with *Cynognathus crateronotus* Seeley (Hopson & Kitching 1972)

Sesamodon browni (new genus and species)
Holotype described: Broom 1905b
Validity: Genus and species invalid
Comments: Originally classified by Broom as a bauriamorph; synonymized with *Microgomphodon oligocynus* Seeley (J.A. Hopson, pers. comm., 2002)

Trirachodon minor (new species)
Holotype described: Broom 1905b
Validity: Species invalid
Comments: Synonymized with *Trirachodon berryi* Seeley (Hopson & Kitching 1972)

Gomphognathus minor (new species)
Holotype described: Broom 1911a
Validity: Species invalid
Comments: Synonymized with *Gomphognathus browni* Seeley (Broom 1919); synonymized with *Diademodon tetragonus* Seeley (Hopson & Kitching 1972)

Ictidopsis elegans (new genus and species)
Holotype described: Broom 1912
Validity: Genus and species invalid
Comments: Synonymized with *Thrinaxodon liorhinus* Seeley (Broom 1932)

Nythosaurus browni (new species)
Holotype described: Broom 1912b
Validity: Species invalid
Comments: Synonymized with *Cynognathus crateronotus* Seeley (Hopson & Kitching 1972)

Tritheledon riconoi (new genus and species)
Holotype described: Broom 1912a
Validity: Genus and species valid
Comments: Originally classified by Broom as an ictidosaur

(*Diademodon*) *Cyclogomphodon platyrhinus* (new genus and species)
Holotype described: Broom 1913d
Validity: Genus and species invalid
Comments: Genus reassigned to *Cyclogomphodon* Broom (Broom 1919b); synonymized with *Diademodon tetragonus* Seeley (Hopson & Kitching 1972)

(*Lycognathus*) *Lycochampsa ferox* (new genus and species)
Holotype described: Broom 1913e
Validity: Genus and species invalid
Comments: Genus reassigned to *Lycochampsa* (Broom 1915c); synonymized with *Cynognathus crateronotus* Seeley (Hopson & Kitching 1972)

Octogomphus woodi (new genus and species)
Holotype described: Broom 1919b
Validity: Genus and species invalid
Comments: Synonymized with *Diademodon tetragonus* Seeley (Hopson & Kitching 1972)

Lycaenognathus platyceps (new genus)
Holotype described: Broom 1925
Validity: Genus invalid
Comments: Synonymized with *Cynognathus crateronotus* Seeley (Hopson & Kitching 1972)

Cyrbasiodon boycei (new genus and species)
Holotype described: Broom 1930b
Validity: Genus and species invalid
Comments: Originally classified by Broom as a therocephalian; synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Cynosuchoides whaitsi (new genus)
Holotype described: Broom 1931
Validity: Genus invalid
Comments: Synonymized with *Cynosaurus suppostus* Owen (Hopson & Kitching 1972)

Lycaenognathus kannemeyeria (new species)
Holotype described: Broom 1931
Validity: Species invalid
Comments: Synonymized with *Cynognathus crateronotus* Seeley (Hopson & Kitching 1972)

Cynogomphius berryi (new genus)
Holotype described: Broom 1932
Validity: Genus invalid
Comments: Synonymized with *Cynognathus berryi* Seeley (Hopson & Kitching 1972)

Thrinaxodon putterilli (new species)
Holotype described: Broom 1932
Validity: Species invalid
Comments: Synonymized with *Thrinaxodon liorhinus* Seeley (Hopson & Kitching 1972)

Trirachodon browni (new species)
Holotype described: Broom 1932
Validity: Species invalid
Comments: Synonymized with *Diademodon tetragonus* Seeley (Hopson & Kitching 1972)

Trirachodontoides berryi (new genus)
Holotype described: Broom 1932
Validity: Genus invalid
Comments: Synonymized with *Trirachodon berryi* Seeley (Hopson & Kitching 1972)

Nanictosaurus kitchingi (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species valid
Comments: Originally synonymized with *Cynosaurus suppostus* Owen (Hopson & Kitching 1972); restored to valid genus and species (J.A. Hopson, pers. comm., 2002)

Nanictosuchus kitchingi (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species valid
Comments: Originally classified by Broom as a therocephalian; *N. melinodon* (which Broom (1940a) also established as a new genus (in error)) has been synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Notictosaurus luckhoffi (new genus and species)
Holotype described: Broom 1936a
Validity: Genus and species invalid
Comments: Synonymized with *Thrinaxodon liorhinus* Seeley (Hopson & Kitching 1972)

Micrictodon marionae (new genus and species)
Holotype described: Broom 1937b
Validity: Genus and species invalid
Comments: Synonymized with *Thrinaxodon liorhinus* Seeley (Hopson & Kitching 1972)

Procynosuchus delaharpeae (new genus and species)
Holotype described: Broom 1937b
Validity: Genus and species valid

Procynosuchus rubidgei (new species)
Holotype described: Broom 1938d
Validity: Species invalid
Comments: Synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Nanictosaurus robustus (new species)
Holotype described: Broom 1940b
Validity: Species invalid
Comments: Synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Nanictosaurus rubidgei (new species)
Holotype described: Broom 1940b
Validity: Species invalid
Comments: Regarded as a junior synonym of *Nanictosaurus kitchingi* Broom (J.A. Hopson, pers. comm., 2002)

Nanictosuchus melinodon (new genus and species)
Holotype described: Broom 1940a
Validity: Genus and species invalid
Comments: Synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Paracynosuchus rubidgei (new genus and species)
Holotype described: Broom 1940a
Validity: Genus and species invalid
Comments: Synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Mygalesaurus platyceps (new genus and species)
Holotype described: Broom 1942
Validity: Species invalid
Comments: Originally classified by Broom as suborder Rubidginoidea; synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching1972)

Mygalesuchus peggyae (new genus and species)
Holotype described: Broom 1942
Validity: Species invalid
Comments: Originally classified by Broom as suborder Rubidginoidea; synonymized with *Cynosaurus suppostus* Owen (Hopson & Kitching 1972)

Aelurodraco microps (new genus and species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948b
Validity: Genus and species invalid
Comments: Synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Galecranium liorhynchus (new genus and species)
Holotype described: Broom 1948a
Validity: Genus and species invalid
Comments: Synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Galeophrys kitchingi (new genus and species)
Holotype described: Broom 1948a
Validity: Genus and species invalid
Comments: Synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Leavachia duvenhagei (new genus and species)
Holotype described: Broom 1948a
Validity: Genus and species invalid
Comments: Synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Notictosaurus gracilis (new species) (with J.T. Robinson)
Holotype described: Broom & Robinson 1948a
Validity: Species invalid
Comments: Synonymized with *Galesaurus planiceps* Owen (Hopson & Kitching 1972)

Protocynodon pricei (new genus and species)
Holotype described: Broom 1949
Validity: Genus and species invalid
Comments: Synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Silphedestes polyodon (new genus and species)
Holotype described: Broom 1949
Validity: Genus and species invalid
Comments: Originally classified by Broom as a therocephalian; synonymized with *Procynosuchus delaharpeae* Broom (Hopson & Kitching 1972)

Protacmon reubsameni (new species)
Holotype described: Broom 1950b
Validity: Species invalid
Comments: Synonymized with *Diademodon tetragonus* Seeley (Hopson & Kitching 1972)

Sysphinctostoma gracilis (new species)
Holotype described: Broom 1950b
Validity: Species invalid
Comments: Synonymized with *Diademodon tetragonus* Seeley (Hopson & Kitching 1972); reassigned to *Trirachodon kannemeyeri* Seeley (J.A. Hopson, pers. comm., 2002)

BIARMOSUCHIA

Ictidorhinus martinsi (new genus and species)
Holotype described: Broom 1913e
Validity: Genus and species valid
Comments: Originally classified by Broom as a gorgonopsian

Burnetia mirabilis (new genus and species)
Holotype described: Broom 1923
Validity: Genus and species valid
Comments: Originally classified by Broom as a burnetiamorph

Lycaenodon longiceps (new genus and species)
Holotype described: Broom 1925
Validity: Genus and species valid
Comments: Originally classified by Broom as a gorgonopsian

Hipposaurus rubidgei (new species)
Holotype described: Broom 1940a
Validity: Species invalid
Comments: Originally classified by Broom as a gorgonopsian; synonymized with *Lycaenodon longiceps* Broom (Sigogneau 1970)

Rubidgina angusticeps (new genus and species)
Holotype described: Broom 1942
Validity: Genus and species valid
Comments: Originally classified by Broom as a rubidginoid

Hipposaurus kitchingi (new species)
Holotype described: Broom 1948a
Validity: Species valid
Comments: Originally classified by Broom as a gorgonopsian; indeterminable – type specimen is lost (Sigogneau 1970)

Lemurosaurus pricei (new genus and species)
Holotype described: Broom 1949
Validity: Genus and species valid
Comments: Originally classified by Broom as a gorgonopsian