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## A new metriorhynchid crocodylomorph from the Oxford Clay Formation (Middle Jurassic) of England, with implications for the origin and diversification of Geosaurini

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A new metriorhynchid crocodylomorph from the Oxford Clay Formation (Middle Jurassic) of England, with implications for the origin and diversification of Geosaurini

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Page 1 of 161		Journal of Systematic Palaeontology	
1 2 3	1	A new metriorhynchid crocodylomorph from the Oxford Clay Formation	
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12 13	5	Davide Foffa <sup>a,*</sup> , Mark T. Young <sup>a</sup> , Stephen L. Brusatte <sup>a,b</sup> , Mark R. Graham <sup>c,†</sup> , and Lorna	
14 15	6	Steel <sup>d,†</sup>	
16 17	-	Steel	
18	7		
19 20	8	<sup>a</sup> School of Geosciences, University of Edinburgh, Grant Institute, James Hutton Road,	
21 22	9	Edinburgh, Scotland EH9 3FE, United Kingdom; <sup>b</sup> National Museums Scotland, Chambers	
23 24	10	Street, Edinburgh, Scotland EH1 1JF, United Kingdom; <sup>c</sup> Core Research Laboratories,	
25 26	11	Natural History Museum, Cromwell Road, London, England SW7 5BD, United Kingdom; <sup>d</sup>	
27 28 20	12	Department of Earth Sciences, Natural History Museum, Cromwell Road, London, England	
29 30	13	SW7 5BD United Kingdom	
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47 48 40	21	*Corresponding author	
49 50 51	22	<sup>†</sup> Authors listed in alphabetical order	
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24	Metriorhynchids are an extinct group of Jurassic-Cretaceous crocodylomorphs secondarily
25	adapted to a marine lifestyle. A new metriorhynchid crocodylomorph from the Oxford Clay
26	Formation (Callovian, Middle Jurassic) of England is described. The specimen is a large,
27	fragmentary skull and associated single ramus of a lower jaw uniquely preserved in a
28	septarian concretion. The description of the specimen reveals a series of autapomorphies
29	(apicobasal flutings on the middle labial surface of the tooth crowns, greatly enlarged
30	basoccipital tuberosities) and a unique combination of characters that warrant the creation of
31	a new genus and species: Ieldraan melkshamensis gen. et sp. nov. This taxon shares
32	numerous characters with the Late Jurassic-Early Cretaceous genus Geosaurus: tooth crowns
33	that have three apicobasal facets on their labial surface, subtly ornamented skull and lower
34	jaws elements, and reception pits along the lateral margin of the dentary (maxillary overbite).
35	Our phylogenetic analysis places this new species as the sister taxon to the genus Geosaurus.
36	This new taxon adds valuable information on the time of evolution of the macrophagous
37	subclade Geosaurini, which was initially thought to have evolved and radiated during the
38	Late Jurassic. The presence of Ieldraan melkshamensis, the phylogenetic re-evaluation of
39	Suchodus durobrivensis as a Plesiosuchus sister taxon and recently identified Callovian
40	Dakosaurus-like specimens in the Oxford Clay Formation, indicate that all major Geosaurini
41	lineages originated earlier than previously supposed. This has major implications for the
42	evolution of macropredation in the group. Specifically, we can now demonstrate that the four
43	different forms of true ziphodonty observed in derived geosaurins independently evolved
44	from a single non-functional microziphodont common ancestor.
45	
46	Keywords: Ieldraan – Melksham monster – Geosaurus – Geosaurini – Jurassic –
47	Macrophagy.

## 49 Introduction

Metriorhynchids are an extinct clade of pelagic crocodylomorphs that were geographically widespread at low latitudes during the Jurassic and Cretaceous (Eudes-Deslongchamps 1867-1869; Fraas 1902; Andrews 1913; Pol & Gasparini 2009; Young et al. 2010; Fernández et al. 2011; Herrera et al. 2015; Chiarenza et al. 2015; Mannion et al. 2015; Wilberg 2015; Barrientos-Lara *et al.* 2016). Recent studies have revealed disparate craniomandibular and dental morphologies among these species, which supported a wide spectrum of feeding behaviours, and thus diets (Andrade et al. 2010; Young et al. 2010, 2011a, 2012a). The typical piscivorous forms are phylogenetically grouped in Metriorhynchinae, whilst the other subfamily, Geosaurinae, evolved clear macropredatory features in the most derived forms, Geosaurini (sensu Cau & Fanti, 2011) (Pol & Gasparini 2009; Andrade et al. 2010; Young et al. 2011a, 2011b, 2012b). Recent revisions on the taxonomy of Oxford Clay Formation (OCF) metriorhynchids suggest that the evolution of macropredatory adaptations within Geosaurinae may be more complex than previously thought, and these features may have developed particularly early in metriorhynchid evolution (Young et al. 2013a). In particular, craniomandibular and dental morphologies described in Tyrannoneustes lythrodectikos, Dakosaurus-like specimens (the 'Mr Leeds Dakosaur' OTU in the phylogenetic analysis of Young et al. 2016) from England and Northern France, and the phylogenetic reassessment of Suchodus durobrivensis showed that major macrophagous adaptations had already evolved by the late Middle Jurassic (Lepage et al. 2008; Young et al. 2013a; Foffa & Young 2014; Young et al. 2016). The only major exception appears to be the unique occluding mechanism of the Late Jurassic-Cretaceous genus Geosaurus (Young & Andrade 2009; Andrade et al. 2010), which seems to have been a later development.

Within this context, we describe a new genus of OCF metriorhynchid based on a large individual, NHMUK PV OR 46797. The new taxon shows striking morphological similarities with the genus *Geosaurus*. However, the differences are enough to establish a new taxon, *Ieldraan melkshamensis* gen. et sp. nov., based on autapomorphies and a unique combination of characters. Our phylogenetic analysis supports *Ieldraan melkshamensis* as the sister taxon to Geosaurus. The presence of Ieldraan melkshamensis in the OCF pushes the origins of the Geosaurus subclade (here formally defined as Geosaurina subtr. nov.) back to, at least, the late-Middle Jurassic. The unique dental morphology of this new taxon demonstrates that the evolution of ziphodonty in Geosaurini is more complex than previously hypothesised, as it seems to have independently evolved three or four times in Metriorhynchidae. Finally, the occurrence of a geosaurin-like taxon in the OCF demonstrates that all major Geosaurini clades were already present (even though their occurrence was much rarer) before achieving the large diversity recorded in the Late Jurassic European Formations.

#### 88 Historical Information

The specimen NHMUK PV OR 46797 was purchased in 1875 by the British Museum (Natural History), and it now resides in the NHMUK, as part of the Cunnington Collection. The specimen has only been mentioned once in the literature, by Lydekker (1889), who described the specimen as: "Mass of matrix containing portions of the cranium and mandible; from the Oxford Clay of Melksham, Wiltshire. The occipital condyle, part of the premaxilla with teeth, as well as a large portion of the left ramus of the mandible with teeth are well preserved; the enamel of the teeth is fluted.", and referred it to Metriorhynchus moreli (a subjective junior synonym of Metriorhynchus superciliosus). In 2013, one of us (MRG) undertook painstaking mechanical preparation that exposed new details of the skull, lower jaw and teeth that were previously hidden within the matrix. The specimen is

extensively damaged and crossed by several veins of calcite. The radial pattern of the veins is typical of septarian nodules, a particular kind of concretion (Sellés-Martínez 1996; Hendry et al. 2006). These nodules are the result of physical and chemical processes (perhaps caused by bacterial activity) during marine mudrock diagenesis (Hendry et al. 2006). Specifically, the expansion of boulders caused by the circulation of inner fluids, the deposition of minerals, or by the contraction of boulders caused by chemical extraction of fluids (Sellés-Martínez 1996; Hendry et al. 2006). Regardless of their formation mechanism, the diagenetic processes caused major physical damage to the dorsal and lateral sides of the skull. **Institutional Abbreviations** BRSMG, Bristol Museum & Art Gallery, Bristol, England, United Kingdom; BSPG, Bayerische Staatssammlung für Paläontologie und Geologie, München, Germany; CAMSM, Sedgwick Museum, Cambridge, England, United Kingdom; **DORCM**, Dorset County Museum, Dorchester, England, United Kingdom; GLAHM, Hunterian Museum, Glasgow, Scotland, United Kingdom; NHMUK, Natural History Museum, London, England, United Kingdom; MJML, Museum of Jurassic Marine Life - the Steve Etches Collection, Kimmeridge, England, United Kingdom; MOZ, Museo Profesor J. Olsacher, Zapala, Argentina; **MPV**, Musée Paléontologique de Villers-sur-Mer, France; **MNHN**, Muséum National d'Histoire Naturelle, Paris, France; **OUMNH**, Oxford University Museum of Natural History, Oxford, England, United Kingdom; PETMG, Peterborough Museum & Art Gallery, Peterborough, England, United Kingdom; SMNS, Staatliches Museum für Naturkunde, Stuttgart, Germany. **Anatomical Abbreviations** 

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123	an, angular; boc, basioccipital; bt; basioccipital tuberosity; cp, coronoid process; D, dentary
124	tooth or alveolus; den, dentary; exo, exoccipital; fm, foramen magnum; fr, frontal; j, jugal;
125	lsph, laterosphenoid; M, maxillary tooth or alveolus; mc, meatal chamber; mx, maxilla; nas,
126	nasal; nf, nutrient foramen; oc, occipital condyle; orb, orbit; P, premaxillary tooth or
127	alveolus; par, parietal; pmx, premaxilla; po, post-orbital; pop, paroccipital process of the
128	opisthotic; prf, possible prefrontal fragment; pro, proötic; qj, quatratojugal; qu, quadrate; rp,
129	reception pit; san, surangular; san-den gr, surangulodentary groove; so, supraoccipital; spl,
130	splenial; sq, squamosal; stf, supra-temporal fenestra; tc, tooth.
131	Abbreviations for teeth and alveoli are followed by numbers referring to their relative
132	order, for example M1 would be the anterior-most maxillary tooth or alveolus.
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134	Systematic palaeontology
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136	In this section we describe the holotype of a new metriorhynchid crocodylomorphs from the
137	Middle Jurassic of England.
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139	Superorder Crocodylomorpha Hay, 1930 (sensu Walker, 1970)
140	Suborder Thalattosuchia Fraas, 1901 (sensu Young & Andrade, 2009)
141	Family Metriorhynchidae Fitzinger, 1843 (sensu Young & Andrade, 2009)
142	Subfamily Geosaurinae Lydekker, 1889 (sensu Young & Andrade, 2009)
143	Tribe Geosaurini Lydekker, 1889 (sensu Cau & Fanti, 2011)
144	Subtribe Geosaurina subtr. nov.
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146	Type Genus. Geosaurus Cuvier, 1824 (sensu Young et al. 2012a)
147	

2 3 4	148	Geological Range. middle Callovian to Valanginian [~34 Ma]		
4 5 6	149			
7 8	150	Geographical Range. European endemic (United Kingdom, Germany, and France)		
9 10	151			
11 12	152	Diagnosis. Metriorhynchid crocodylomorphs with the following unique combination of		
13 14 15	153	characters (autapomorphic characters are indicated by an asterisk*): inconspicuously		
16 17	154	ornamented maxillae; teeth with three apicobasal facets on the labial surfaces*; laminar		
18 19	155	(strongly mediolaterally compressed) teeth dominate the dentition*; maxillary tooth row		
20 21	156	overbites the dentary tooth row*.		
22 23 24	157			
25 26	158	Genus <i>Ieldraan</i> , gen. nov.		
27 28	159	(Figs 1–4)		
29 30	160	ZooBank Life Science Identifier (LSID) for genus:		
31 32	161	urn:lsid:zoobank.org:act: [To be added upon acceptance]		
33 34 35	162			
36 37	163	Type Species. Ieldraan melkshamensis gen. et sp. nov., by monotypy.		
38 39	164			
40 41	165	<b>Diagnosis.</b> Same as for the only known species (monogeneric).		
42 43 44	166			
45 46	167	Derivation of the name. 'Older One'. <i>Ieldra</i> , Old English for older; and <i>an</i> , Old English for		
47 48	168	one, referring to the stratigraphically older age of this new genus compared to its close		
49 50	169	relative Geosaurus.		
51 52	170			
53 54 55	171	Species Ieldraan melkshamensis, sp. nov.		
56 57 58 59 60	172	(Figs 1–4)		

173 1888 Metriorhynchus moreli Eudes-Deslongchamps – Lydekker:. 97

174 ZooBank Life Science Identifier (LSID) for species:

175 urn:lsid:zoobank.org:act: [To be added upon acceptance]

**Type specimen.** The specimen NHMUK PV OR 46797 is an incomplete and severely diagenetically damaged skull (including fragments of maxilla, portions of the nasals, frontal, both prefrontals, postorbitals, left squamosal, basioccipital, occipital condyle, exoccipital-opisthotic, quadratojugal) and left mandibular ramus (incomplete dentary, splenial, angular and surangular). The skull is dorsolaterally flattened with several disarticulated skull roof and rostral elements. The left mandible is preserved and exposed in lateral view. The right mandible one is either lost or still embedded in the matrix. Several teeth, some of which are complete, are preserved in life-position on both skull and lower jaws.

Diagnosis. Metriorhynchid crocodylomorph with the following unique combination of characters (autapomorphic characters are indicated by an asterisk\*): apicobasal parallel flutings on the middle facet of the labial surface\*; enlarged tooth crowns; denticulated keeled carinae with microscopic, poorly developed, non-contiguous, non-uniform in size and shape denticles; ornamentation of skull and mandible elements consisting of small pits and shallow fine grooves (shared with *Geosaurus*); greatly enlarged basioccipital tuberosities\*.

Additionally, the hypoglossal nerve opening is situated below the level of the ventral rim of the foramen magnum\*. This could also be a diagnostic feature, but without CT-scans from a well preserved specimen it is difficult to be sure of the correct location of the hypoglossal nerve opening (see Description).

197 Derivation of the name. 'Older One from Melksham', epithet translated from Latin, locative198 case.

**Remarks.** Unfortunately, there is no postcranial material associated with the specimen, so we can only rely on the incomplete basic anial length for estimating total body length. Based on the better preserved mandibular ramus we estimated a range of potential basicranial length of approximately 55-60 cm for NHMUK PV OR 46797, which using the Young et al. (2011b) body length equations, corresponds to a total body length of 2.95–3.22 m. This is comparable to the largest known *Geosaurus* specimen – a skull referred to *G. giganteus*, NHMUK PV OR 37020 – of approximately 3 m in total body length. However, considering the distortion that the specimen has undergone, we recommend caution using these estimates in quantitative analyses.

## 210 Description

Cranium. NHMUK PV OR 46797 is an incomplete and severely damaged skull and associated left mandibular ramus. The skull is flattened and exposed in dorsal/left lateral view and was diagenetically broken in several fragments, and it is locally reduced to shards (Figs 1–3). The left mandible is also exposed in lateral view, and misses the anterior dentary and the articular area. The maxillae, frontal, both prefrontals, large parts of both postorbitals, the left squamosal, the parietal and various broken bones on the occipital complex can be confidently identified. The premaxilla and the anterior part of the nasals have been lost during diagenesis, unlike the orbital area, which is recognisable in dorsal view (Figs 1, 3). Similarly, the deformed boundary of the left supratemporal area can be followed in dorsal view (Figs 1, 3G, K). Close examination of the specimen revealed that the intertemporal bar must have collapsed on its right side. Subsequent diagenesis must have obliterated most of

this area, leaving only the posterior medial side of the left supratemporal fenestra intact (Fig. 3C). The occipital surface (Figs 2-3E) emerges from one side of the block, where the paroccipital process of the opisthotic, the occipital condyle, the basioccipital tuberosities and parts of the quadrates are accessible. Approximately ten teeth are preserved, but only three or four are complete enough to be described. They are still in life position in the left maxilla and dentary. Numerous other fragments have been exposed during mechanical preparation. They include the posterior part of both nasals and the left jugal (and perhaps quadratojugal), and can be identified by their anatomical association with other elements (Figs 1, 3). The rest of the skull, including premaxillae, the left-ventral side of the rostrum, the orbital and post-orbital areas, the braincase, most of the parietal-squamosal, the quadrates and the entire palate surface, are inaccessible, too fragmented or too crushed to be described Despite the fragmentary preservation, the external bone texture of all the major fragments is well preserved. Shallow grooves and small, densely packed pits ornament the surface of the largest skull and mandible fragments (Figs 1, 3A, B, D). This same pattern is consistently found on the external surface of the maxilla, frontal, ?nasals, dentary, angular, surangular and splenial. It is remarkably similar to the pattern described in *Geosaurus* species (Young & Andrade 2009; Young *et al.* 2013a). In contrast, it radically differs from the dermatocranium ornamentation of any other metriorhynchids, especially the Callovian species. Metriorhynchid skulls are either conspicuously and heavily ornamented, as in Metriorhynchus superciliosus, Maledictosuchus riclaensis, 'Metriorhynchus' brachyrhynchus (NHMUK PV R 2168; NHMUK PV R 3699; NHMUK PV R 3700; NHMUK PV R 3804),

244 Tyrannoneustes lythrodectikos (NHMUK PV R 3939; PETMG R176), Suchodus

*durobrivensis* (NHMUK PV R 2039), and the best preserved *Dakosaurus*-like specimens

246 (NHMUK PV R 3321); or almost entirely smooth, as in Cricosaurus lithographicus,

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#### Journal of Systematic Palaeontology

Dakosaurus andiniensis (MOZ 6146P), Plesiosuchus manselii (NHMUK PV OR 40103),

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248 Torvoneustes carpenteri (BRSMG Cd7203) and T. coryphaeus (MJML K1863) (Andrews 249 1913; Pol & Gasparini 2009; Young & Andrade 2009; Young et al. 2012b, 2013a; Table 1 in 250 Young et al. 2013a; Herrera et al. 2013; Parrilla-Bel et al. 2013; Foffa & Young 2014). 251 Several contacts and other superficial features were obliterated by the mechanisms which led 252 to the formation of septarian nodule. 253 Neither maxilla is entirely preserved. Two large pieces of the right maxilla are 254 exposed in lateral view and are the best source of morphological information for this element 255 (Figs 1, 3D). It is not clear if either premaxilla is even partially preserved (contra Lydekker

1889) and the contact between the two elements – if it is present – is obscured by the poor
preservation of the specimen in the area. Anteriorly, the lateral surface of the left maxilla is
sufficiently well preserved to show some distinctive features including reception pits for
dentary teeth, nutrient foramina and distinctive bone ornamentation (Fig. 3D).

260 The above mentioned reception pits are seen in other metriorhynchids and are thought 261 to be linked with tooth interlocking in macrophagous taxa (Young & Andrade 2009; Young 262 et al. 2012a, 2012b, 2013b, Foffa & Young 2014). In Geosaurus giganteus (NHMUK PV OR 263 37020) the D4 tooth is greatly enlarged in respect to the adjacent teeth, and it is hosted in a 264 long notch between the P3 and M1 alveoli (Young & Andrade 2009). Unfortunately, neither 265 the size of the D4 tooth nor the presence of an enlarged reception pit can be assessed with 266 certainty in NHMUK PV OR 46797 due to the poor preservation, but if they were observed 267 in future, more complete specimens, it would be a feature shared with *Geosaurus giganteus* 268 (NHMUK PV OR 37020).

In metriorhynchids (and thalattosuchians generally) the nasals are broad, slightly curved elements with a triangular shape in dorsal view (Andrews 1913). In NHMUK PV OR 46797 they are recognisable by their association with the fragments of the right maxilla and anterior extent of both prefrontals (Figs. 1, 3A, H, K). Their ornamentation does not
substantially differ from the other skull elements. Unfortunately, they cannot be described
further due to poor preservation (Figs 1, 3A), as this area is crossed by major calcite veins
that have reduced the majority of the medial frontal anterior process, nasals and maxillae into
shards.

The prefrontals are exposed in dorsal view and are laterally well developed – an apomorphy of Metriorhynchidae (Andrews 1913). They are preserved in association with the frontal and their posterolateral crenulated edge is also still visible overhanging the anterior part of the orbits (Figs 1, 3A–B). The right prefrontal is preserved in three or four pieces and its original shape is nearly impossible to assess (Fig. 3A–B). The posterior end of the prefrontal-frontal-nasal suture is preserved and visible, and in our interpretation, the line along which the right prefrontal detached from the rest of the skull could be the medial margin of this very suture. The left prefrontal was only exposed recently by mechanical preparation. Similar to its right counterpart, the left prefrontal is also detached from the main body of the frontal, along what looks like their sutural contact. Compared to the right prefrontal, its lateral and posterior margins are better preserved and, despite a large crack crossing it, the typical teardrop-shape in dorsal view – another apomorphy of Metriorhynchidae (Young & Andrade 2009; Young et al. 2016) – is still recognisable (Figs 1, 3A).

The prefrontal is longer than wide – a typical condition of most metriorhynchids – and its lateral side describes a continuous convex curve with an inflexion forming a nearly 70 degree angle with the anterior-posterior axis of the skull. The value of the latter angle varies in metriorhynchids and has diagnostic importance, being small in *Dakosaurus* (approximately 50 degrees), larger in most other geosaurines (approximately 60-70 degrees) and larger (up to 90 degrees) in metriorhynchines (Wilkinson *et al.* 2008, Young *et al.* 2013b, 2016).

#### Journal of Systematic Palaeontology

The ornamentation pattern is inconspicuous and very similar to *Geosaurus* species in being dominated by small ( $\sim 0.5-2$  mm in diameter) and densely distributed ornamental pits and shallow grooves. The latter are deeper along the lateral and posterior margin of the prefrontal than elsewhere on the skull and lower jaws (Young et al. 2013a). In metriorhynchids, the anterodorsal margin of the orbit is over-hanged by the laterally expanded prefrontal, while the dorsal margin is constituted by the orbital notch, which is the narrowest point of the frontal (interorbital distance) on the skull roof (Andrews 1913). The orbital notch is formed by the lateral margins of the prefrontal-frontal and the anterior part of the postorbital bar, and can be seen in NHMUK PV OR 46797 (Figs 1, 3A-B). This allows us to recognize the location of both orbits – but not to accurately measure their dimensions. The frontal is easily recognised among the skull elements, even though it is severely damaged. It is a large, flat bone that extends from the posterior end of the snout to the middle margin of the supratemporal fossa, and it bears no sign of an interfrontal suture (Figs 1, 3A, H, K). All the processes of the frontal are damaged but preserved, with the exception of the anterior process that is completely destroyed along the anterior nasal-frontal suture (Figs 1, 3A). The medial-posterior process is broken anterior to the frontal-parietal contact, while the left posterior-lateral process is still articulated with the postorbital (though the suture is unidentifiable) (Figs 1, 3A). In metriorhynchids the frontal participates in the dorsal margin

316 of the orbit. This is visible on both sides but better preserved on the right side.

Posteriorly, the anteromedial margin of the left supratemporal fossa is intact. The angle between the lateral and medial posterior processes is ~60-70 degrees, within the range of geosaurines, with the exception of *Dakosaurus andiniensis* (~45-50 degrees – convergent with *Cricosaurus*) (Wilkinson *et al.* 2008; Pol & Gasparini 2009; Cau & Fanti 2011; Young *et al.* 2012b, 2013a; Cau 2013; Herrera *et al.* 2013; Foffa & Young 2014), and narrower than

322	in Metriorhynchus superciliosus, 'Metriorhynchus' casamiquelai, 'Metriorhynchus'
323	westermanni, and basal metriorhynchoids such as Pelagosaurus typus, Eoneustes species, and
324	Zoneait nagorum (~90 degrees or obtuse angle) (Wilberg 2015).
325	The frontal ornamentation of Ieldraan melkshamensis is unique among Callovian
326	geosaurines in being less conspicuous than other contemporaneous members of the subfamily
327	(Fig. 3A) (Young & Andrade 2009; Table 1 in Young et al. 2013b). The orientation of pits
328	and grooves follows the typical radial pattern observed in all metriorhynchids (Fig. 1)
329	(Andrews 1913; Young & Andrade 2009, Young et al. 2013a, b). Interestingly,
330	Gracilineustes leedsi is the only other metriorhynchid in the OCF that has a similarly smooth
331	cranial ornamentation (NHMUK PV R3015, CAMSM J.64297, GLAHM V1009; PETMG
332	R24; PETMG R72) (Andrews 1913). Ieldraan melkshamensis is the oldest Geosaurini with
333	this type of dermal ornamentation pattern. This becomes very common in the Late Jurassic
334	geosaurins Torvoneustes, Geosaurus, Dakosaurus, and replaces the heavily pitted and deeply
335	grooved pattern of pre-Oxfordian metriorhynchids (Wilkinson et al. 2008; Pol & Gasparini
336	2009; Young & Andrade 2009; Young et al. 2012b; Table 1 in Young et al. 2013b).
337	Posterior to the orbit, both postorbital are preserved, although severely damaged (Figs
338	1, 3A, G). The right temporal bar is missing large sections posterior to the postorbital-
339	squamosal contact (Figs 1–3). Conversely, the left upper temporal bar is well exposed in
340	lateral view for most of its length (from the frontal to the upper and posterior borders of the
341	meatal chamber) (Fig. 3G) (see Montefeltro et al. 2016 for an account of the meatal chamber
342	morphology in Thalattosuchia). The left squamosal and parts of the quadrate (and perhaps the
343	quadratojugal) also sit in life position in dorsolateral view. The exact location of the
344	postorbital-squamosal suture is not visible on either side. An additional section of the
345	squamosal is visible in occipital view, sitting on top of the paroccipital process of the
346	opisthotic (Figs 2, 3E).

Page 15 of 161

#### Journal of Systematic Palaeontology

The medial section of the supratemporal fossa is poorly preserved. As previously stated, the parietal-frontal contact is missing, as it is the largest part of the medial wall. This is normally composed by the frontal (anteriorly), parietal (posteriorly), and proötic and laterosphenoid (ventrally). In NHMUK PV OR 46797, this area is severely damaged by calcite veins, which made further preparation too precarious. However, some fragments emerge in between the calcite veins and the matrix. These are the anteromedial corner of the left fenestra (see frontal section) (Fig. 3A), the left side of the medial processes of the parietal, the proötic, and the quadrate (and a partially covered fragment of the laterosphenoid) (Fig. 3C). The lateral exposure of the left parietal, ?proötic and potentially laterosphenoid suggests that the entire parietal bar has collapsed on its right side - an interpretation that is also supported by the rotation of the occipital complex. These elements constitute the posterior and medial corner of the left temporal fossa (Fig. 3C, K). We also report a medium-sized foramen (~4-5 mm in diameter) piercing the parietal/proötics (arrow in Fig. 3C). This likely is a blood vessel foramen such as the post-temporal canal (normally located between the parietal and proötic – and perhaps the quadrate if large – see Jouve, 2009). In 'M.' cf. westermanni the post-temporal foramen is on the suture between the surapoccipital and partietal; however this opening can be open or closed variably within a single species (e.g. Cricosaurus araucanensis) (Jouve 2009, Fernández et al. 2011). It is also possible that this foramen is a nerve opening for the temporo-orbital canal. Its position and shape are incompatible with the trigeminal (cranial nerve V) foramen, as this opening is usually larger in size, situated in a large fossa hosting the trigeminal ganglion, and pierces the proötic and laterosphenoid, as reported in 'M.' cf. westermanni (Fernández et al. 2011) and Steneosaurus cf. gracilirostris (NHMUK PV OR 33095) (Brusatte et al. 2016) (Fig. 3C). Poor preservation precludes access to these areas in NHMUK PV OR 46797. 

**Occipital surface.** The entire occipital complex is largely compromised by breaks and it has been tilted clockwise around the anteroposterior axis of the skull when seen in posterior view (Figs 1–2, 3E). Similar to the rest of the skull, only a few elements of the occipital complex are confidently identifiable, and many are partially or entirely missing (e.g. the quadrates). Unfortunately, the majority of bones are reduced into unidentifiable fragments and scattered in no clear anatomical connection. There are, however, some noticeable exceptions, amongst which are the basioccipital and exoccipital-opisthotics. The basioccipital is well preserved and forms the medial part of the occipital surface ventral to the foramen magnum (Figs 2, 3E). The most striking feature of its main constituents – the occipital condyle and basioccipital tuberosities (= basal tubera) – are their large size. Noticeably, in NHMUK PV OR 46797 the entire complex appears comparatively large to that of most other thalattosuchians, although the exact extent of this is difficult to quantify. In particular, the basioccipital tuberosities are unusually large in NHMUK PV OR 46797. Their posterior surface is mostly smooth, unlike the very rough ventral convexities. The two processes are separated by a wide 'V'-shaped concavity in posterior view. The right tuberosity is better preserved and demonstrates that this structure is larger in *Ieldraan* melkshamensis than in any other metriorhynchid, and most resembles in size the basioccipital tuberosities of Machimosaurus spp. and 'Steneosaurus' herberti (Young et al. 2013b; 2014a). This feature is apomorphy of *Ieldraan melkshamensis* amongst Metriorhynchidae but, considering that every known *Geosaurus* specimens lacks preserved basioccipital tuberosities, we cannot discount the possibility that this feature is a shared feature of Geosaurina. The dorsal and medial sides of the basioccipital are occupied by the occipital condyle. The hemispherical surface of this articulation is not completely smooth, and features a single pit, a characteristic that is also seen in other metriorhynchids (e.g. Mr Leeds' Dakosaur,

## Journal of Systematic Palaeontology

2 3	397	NHMUK PV R 3321) but not in others ('Metriorhynchus' brachyrhynchus, NHMUK PV R
4 5 6	398	3804). The position and size of the pit appear to vary across the clade, and in NHMUK PV
7 8	399	OR 46797 it sits in the dorsal half of the condyle. Further comparison is required to
9 10	400	determine if this feature has any phylogenetic significance.
11 12	401	The foramen magnum is positioned above the occipital condyle and only its ventral
13 14 15	402	margin is completely preserved. The basioccipital participates in the ventral rim of the
16 17	403	foramen magnum through the dorsal extent of the occipital condyle. However, only a minor
18 19	404	part of the rim (~30% of its length) is constituted by the basioccipital. The rest of it is
20 21	405	bordered on both sides by the exoccipital-opisthotics.
22 23 24	406	In occipital view, the contact between the exoccipital-opisthotics passes diagonally
24 25 26	407	through the lateral margin of the basioccipital tuberosities and cuts across to the top corner of
27 28	408	the occipital condyle (Figs 2, 3E). The full extent of the exoccipital-opisthotics is not clear,
29 30	409	as it is not discernible whether the exoccipital is fused to the opisthotics to form an otoccipital
31 32	410	(also see Torvoneustes coryphaeus; Young et al. 2013a). The surface of the exoccipital-
33 34 35	411	opisthotic complex is normally pierced by numerous cranial nerve and blood vessel foramina.
36 37	412	In NHMUK PV OR 46797, only a pair of foramina (here identified as being for the
38 39	413	hypoglossal nerves) is visible on both sides of the occipital condyle, ventral to the level of the
40 41	414	foramen magnum ventral rim (Fig. 2). This opening is laterally aligned with the occipital
42 43	415	condyle, and not dorsomedial to it, as in most metriorhynchids and thalattosuchians (Young
44 45 46	416	et al. 2013a). This may be a diagnostic feature of Ieldraan melkshamensis among
47 48	417	Thalattosuchia. However, although the position of this foramen is congruent with the same
49 50	418	feature in other metriorhynchids, unless CT-scans of a complete skull become available, it is
51 52	419	difficult to compare with extant crocodylians, which have an osteological correlate for this
53 54	420	nerve opening; thus, this can only be a hypothesis for the moment. On the right side, slightly
56 57	421	ventrolateral to the hypoglossal opening, a channel for an unknown opening is preserved on
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422	both sides at the basioccipital-exoccipital suture (labelled as '?'), but we cannot describe it
423	further due to damage in this area. A pair of foramina, roughly in the same area, is also
424	reported in Torvoneustes coryphaeus (identified as '?' Fig. 8 in Young et al. 2013a).
425	A large, flat surface is well exposed on the posterior/lateral sides of the squamosal
426	and it is situated above a well-developed crest that most likely is part of the paroccipital
427	process of the opisthotic (Figs 1-2). Pol & Gasparini (2009) reported that this is a common
428	feature of all thalattosuchians, although size and orientation are variable in Metriorhynchidae.
429	A broad arch with dorsal concavity is visible in occipital view. It is separated by a
430	fracture from the main occipital surface, and sits in association with the supraoccipital,
431	exoccipital and parietal (Figs 2, 3E). We identify this element as the left squamosal, which in
432	life would have bordered the posterior rim of the supratemporal fenestra, sitting on top of the
433	lateral expansion of the exoccipital.
434	What may be a large fragment of the supraoccipital is preserved above and slightly
435	dislodged from the occipital condyle below the tilted parietal (Figs 2, 3H, I, K) It is crossed
436	by a vertically-running crack that may represent a mid-line structure similar to the ridge
437	visible in specimens referred to 'Metriorhynchus' brachyrhynchus (NHMUK PV R 3804). A
438	small fragment of the parietal sits on top of it (well visible in lateral view in Figs 1, 3C).
439	Given its fragmentary preservation, not much can be added to the description of these
440	elements.
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442	Mandible. The lower jaw is the best-preserved part of NHMUK PV OR 46797, probably
443	because the calcite veins of the septarian nodule only partially reached this area (Fig. 3J-K).

444 Only the left ramus is exposed, whilst the right one is probably still embedded in the

445 concretion. Unfortunately, it cannot be easily accessed due to the weight, fragility and size of

#### Journal of Systematic Palaeontology

the specimen, so we have left it unprepared for the time being. Nevertheless, the left ramus issufficiently informative to describe the lower jaw.

The left ramus of the NHMUK PV OR 46797 is well-exposed on its lateral side, and is only slightly deformed (Fig. 1). The majority of the anterior mandibular symphysis is not present, whilst its posterior section is exposed in ventral view on one side of the concretion. Most of the posterior dentary, the angular, surangular and splenial, and the contacts amongst these bones, can be confidently identified and described. The posterior extent of the angular and surangular also are missing, and so is the retro-articular process. However, the triangular shape of the jaw section in occipital view (Fig. 2) indicates that the break must have occurred somewhere across the articular, posterior to the glenoid fossa (inaccessible because it is embedded in the matrix). The coronoid, articular, prearticular, and the entire medial side of the mandibular ramus are also impossible to access.

The mandible of *Ieldraan melkshamensis* would have been ~60–65 cm long, with a
moderately short and robust mandibular symphysis, and a deep posterior half with a
prominent coronoid process lower than the level of the glenoid fossa. All of these features are
apomorphies of Geosaurini and are linked to increased mechanical resistance, optimum gape
angle and ultimately wide-gape macrophagy (Pol & Gasparini 2009; Young & Andrade 2009;
Young *et al.* 2012a, 2012b, 2013b).

A well-defined groove is developed across the dorsolateral side of the mandible. This structure is called the surangulodentary groove – because it extends from the dentary to the surangular. Unfortunately, its anterior and posterior ends cannot be confidently identified due to poor preservation (Fig. 1). The preserved length of the surangulodentary groove is deeply excavated and well-defined. This is another character that supports the affinity of *Ieldraan melkshamensis* with Geosaurini, as the groove is shallower and less clearly defined in Metriorhynchinae (Andrews 1913; Young *et al.* 2012b).

The lower jaw of NHMUK PV OR 46797 is weakly ornamented with the same bone
texture of the skull, consisting of small oval pits and fine furrows, as in *Geosaurus* species
(Young & Andrade 2009).

The posterior and dorsal sides of the dentary are fragmented but well exposed in lateral view (Figs 1, 3J–K). As in all metriorhynchids, the dentary it is the main element of the lower jaw, occupying the anterior and dorsal side of the mandible. The anterior, dorsal and posterior parts of the dentary are poorly preserved. This makes it impossible to measure the length of the tooth row. The dentary contacts the surangular and angular posteriorly and the splenial ventrally (Fig. 3F). The dorsolateral margin of the preserved dentary bears well-developed reception pits for the maxilla and premaxilla teeth. This feature, combined with the tri-faceted/enlarged teeth, and the short interal veolar distance, show that the maxillary dentition overbites the dentary dentition (see Dentition), as in *Geosaurus* (Young & Andrade 2009; Andrade et al. 2010; Young et al. 2012a).

Posteriorly, the dentary reaches half of the estimated length of the lower jaw and is marked by a straight-anteriorly-dipping suture with the surangular (Fig. 1). The relative position of this suture compared to the orbit is difficult to assess, but assuming that little relative movement occurred between the skull and lower jaws, it may be similar to the condition in *Geosaurus*. The position of the dentary and surangular suture has a significant phylogenetic importance in Thalattosuchia. In Metriorhynchinae it extends beyond the orbit, whilst in Geosaurinae it generally sits in line with the orbital area. However, in *Geosaurus* giganteus (NHMUK PV R 1229; NHMUK PV OR 37020) the surangular-dentary suture is approximately aligned with the anterior margin of the orbit (Young & Andrade 2009). The dentary contacts the angular with a wedge-shaped suture (Figs 1, 3F). The anterior extent of this suture marks the triple contact amongst the dentary, angular and splenial, which is normally hidden in lateral view but well exposed in NHMUK PV OR

#### Journal of Systematic Palaeontology

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496 46797 (likely due to post-mortem deformation). The posterior part of the dentary-splenial 497 suture is not visible in lateral view but it can be seen in ventral view from the side of the 498 boulder. In life, this contact would have been 'V'-shaped, with the posterior extent of the 499 mandibular symphysis occupied by the splenials (Fig. 3F, K). As previously mentioned, the 500 posterior part of the dentary is sulcated by the anterior extent of the surangulodentary groove. 501 The splenial is the main element of the medial side of the mandible. It is partially 502 exposed in ventral view on one side of the boulder (Figs 1, 3F, K). It sits in anatomical 503 association with the remaining elements of the lower jaw. In thalattosuchians, the splenial 504 always participates in the symphyseal suture in both dorsal and ventral views (Andrews 505 1913). The extent of this involvement is generally extensive in metriorhynchids, where the 506 splenial normally accounts for more than 20% of the entire length. 507 In ventral view, each splenial appears as an anteroposteriorly elongated triangle (Figs 508 3F). The anterior process tapers in between the midline interdentary suture with the other side 509 splenial and the dentary dorsally. The posterior end of the splenial-splenial suture marks the 510 end of the mandibular symphysis and it is the point where the divergence of the mandibular 511 rami begins (Fig. 3F). Crucially, this point is visible in NHMUK PV OR 46797 and, 512 combined with our estimate of mandibular length, allows calculation of the symphyseal area 513 proportions. We estimate it to be  $\sim$ 25-30 cm long ( $\sim$ 40% of the mandibular length), with the 514 splenial involved for at least 50% of the symphysis length along the ventral midline. 515 However, given the uncertainty of these estimates we decided against implementing these 516 characters in our phylogenetic dataset. 517 The surangular occupies the posterodorsal part of each mandibular ramus, and in 518 NHMUK PV OR 46797 it is not as well preserved as the dentary and angular (Fig. 1). 519 Specifically, the eminence of the coronoid process was diagenetically broken and folded over 520 onto the lateral surface of the surangular, but it is still visible projecting outside the dorsal

margin of the lower jaw (Fig. 1). Several fractures eroded the superficial layer of the posterior surangular, but the remaining parts are enough to reveal that the ornamentation of this bone does not substantially differ from the rest of the mandible and skull. The surangular-angular suture can be easily identified and is also highlighted by a change of direction of the ornamental oval pits and grooves on the two bones. This suture describes a long, weakly dorsally concave curve. The surangular appears to be not as long and deep as in other metriorhynchids, although this may an artefact of deformation and preservation. Among metriorhynchids, *Geosaurus* also has a relatively small surangular (Young & Andrade 2009), suggesting this feature could be an apomorphy of Geosaurina. The angular is the mandibular bone that sits ventral to the surangular and posterior to the dentary, and constitutes the posterior and ventral part of each mandibular ramus (Fig. 1). Its posterior ventral margin is weakly curved in lateral view as it is in *Geosaurus*, and opposed to the condition in *Tyrannoneustes lythrodectikos* (Young & Andrade 2009; Young et al. 2013b; Foffa & Young 2014), in which it is strongly curved, raising the glenoid fossa above the coronoid process. The anterior extent of the angular is a wedge shape process delimited by the dentary in dorsal view and by the splenial in ventral view. The latter contact excludes the angular from participating in the symphyseal suture (Figs 1, 3F). **Dentition.** *Ieldraan melkshamensis* has the codont tooth implantation (Figs 1, 4). This is evident in NHMUK PV OR 46797, even though all teeth are only preserved in labial view. There are a few consecutive tooth crowns emerging from the left premaxilla/maxilla and the middle section of the left dentary. The interal veolar spacing between them is small (generally smaller than half alveolar-distance), similar to *Geosaurus* spp. and other geosaurins

544 (Wilkinson et al. 2008; Young et al. 2012a, 2012b).

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545 In total, there are eleven visible crowns, of which five are well preserved. They are 546 single cusped and bicarinated, with macroscopic strongly keeled carinae, which are 547 particularly prominent in the apical half. The carinae are denticulated. These denticles are 548 microscopic, nearly contiguous (yet unevenly distributed, often in aggregates of 5-10 549 denticles), isomorphic, unequally-sized and poorly-developed (not exceeding 300µm). This 550 corresponds to microziphodonty, sensu Andrade et al. (2010) (Fig. 4) (but see Discussion). 551 The denticles of *Ieldraan melkshamensis* are not homogeneous, but vary in size and shape. 552 This is also observed in the geosaurine 'Metriorhynchus' brachyrhynchus and basal geosaurin 553 Tyrannoneustes lythrodectikos (Young et al. 2013b; Foffa & Young 2014), and differs from 554 Geosaurus spp. (Andrade et al. 2010) in which the denticles are better defined and more 555 tightly packed. 556 Geosaurus spp. and Ieldraan melkshamensis both have tooth crowns whose labial

550 Surfaces are divided into three apicobasal planes. However, uniquely among
558 Metriorhynchidae, in NHMUK PV OR 46797 the middle plane is clearly fluted – sculpted by
559 well-developed troughs/flutings separated by broad continuous, parallel and well developed
560 ridges with a convex/flat profile (Fig. 4B). The number of troughs (five) is constant across
561 the dentition, although it bears repeating that only a few teeth are preserved. The functional
562 significance of this character, if any, is not clear. The consistent morphology, and absence of
563 breaks, show that this feature is not diagenetic.

The troughs and the round-convex ridges between them that form the fluted surface should not be mistaken with the ornamentation of the crowns. The ornamentation proper is composed of small, densely-packed, discontinuous and poorly organised ridges that give the crown a rough texture to the enamel. These ridges gradually increase in size towards the apex of each tooth. The dentine ornamentation does not interact with the carinae; although the rugosity pattern approaches them, it stops before creating any false serration morphology

(Fig. 4A–B) (Young *et al.* 2014b). However, both ornamentation patterns interact with the fluted middle surface of the crown, as shown in figure 4. This pattern contrasts with all *Geosaurus* specimens, in which the crowns are largely unornamented on the labial surfaces. The only *Geosaurus* specimen with dentition that has observable lingual surfaces is an undescribed *Geosaurus* sp. from the Tithonian on England (MJML K461). Further investigation is ongoing to assess whether this specimen belongs to any known species of Geosaurus. Nevertheless, the labial sides of the teeth of MJML K461 are ornamented with fine apicobasal parallel ridges that do not extend further than half the apicobasal length of the crown. The occurrence of troughs on teeth is an extremely rare feature in Metriorhynchidae, but this feature is not exclusively found in *Ieldraan melkshamensis*. Two geosaurine specimens – NHMUK PV R 3804 (the holotype of 'Metriorhynchus' cultridens) and an undescribed geosaurin PETMG R248 (both from the Peterborough Member of the OCF) – also have teeth with fluting structures on the labial surface (Fig. 5B–D). It is important to state that the dental and cranial morphologies of these specimens – which probably belong to the same taxon – are clearly distinct from NHMUK PV OR 46797. In particular, the teeth of both NHMUK PV R 3804 and PETMG R248 are indistinguishable from each other (Fig. 5). The crowns are single cusped, moderately enlarged (up to nearly 3 cm in apicobasal length), laterally compressed, and have a high crown height/length ratio (up to 2.8). The D9 tooth in PETMG R248, and some isolated NHMUK PV R 3804 teeth, have weak ornamentation and troughs on their labial side, and no enamel ridges (shallow or high-relief) can be seen on the lingual surface (Fig. 5D–E). The similarities between PETMG R248 and NHMUK PV R 3804 and Ieldraan melkshamensis are limited to the fluted tooth crowns (Table 1). Without verging into detailed cranial descriptions of PETMG R248 and NHMUK PV R 3804, their lower jaws, skulls and

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595	dentitions are very different from NHMUK PV OR 46797, in morphology and ornamentation
596	(Table 1, 2; Fig. 5). In particular, the teeth of PETMG R248 and NHMUK PV R 3804 lack
597	apicobasal facets on the labial surface; the carinae are not as prominent as in Ieldraan
598	melkshamensis and bear well-formed isomorphic microscopic denticles that are non-
599	contiguous along the entire carinae (Fig. 5D compared to Fig. 4). The flutings differ from
600	those seen in Ieldraan melkshamensis in being less well-defined, and having generally more
601	than five per tooth developed all around the labial surface and decreasing in apicobasal length
602	approaching the carinae (conversely <i>Ieldraan</i> consistently has five parallel troughs which are
603	all of the same length) (Fig. 5A–C). Notably, the flutings cannot be seen in all of the teeth of
604	PETMG R248 and NHMUK PV R 3804, and we cannot exclude that they are restricted to
605	those from the anterior dentary (the only tooth in situ for those two specimens is the D9 tooth
606	of PETM R248). In summary, the combinations of these features and very distinct cranial
607	morphology and ornamentation clearly demonstrate that these specimens cannot be referred
608	to <i>Ieldraan</i> (Table 1, 2).

609

610 Phylogenetic analysis

611

We tested the phylogenetic relationships of *Ieldraan melkshamensis* using a slightly modified version of the second dataset of Young *et al.* (2016) (Fig. 6). The dataset comprises 104 crocodylomorph OTUs (of which 65 are thalattosuchians, including 41 metriorhynchoids) scored for 298 characters. Compared to the previous version, our new dataset includes some modified scores for *Ieldraan melkshamensis* (which was included in the previous version, where it was labelled as 'Melksham Monster') based on our study of the specimen (see 618 Supporting Information). Despite its poor preservation, *Ieldraan melkshamensis* is scored for
619 44 out of 298 characters (14.8%).

The parsimony analysis of the dataset was conducted using TNT 1.5 (Willi Hennig Society Edition; Goloboff et al. 2008). We followed the procedure of Young et al. (2016) using the 'New Technology search' option in TNT (Sectorial Search, Ratchet, Drift, and Tree fusing) with 1000 random-addition replicates (RAS). We increased to 1000 the iterations of each method: in the Sectorial Search: 1000 Drift cycles (for selections of above 75) and 1000 starts and fuse trees 1000 times (for selections below 75); 1000 rounds of Consensus Sectorial Searches (CSSs) and Exclusive Sectorial Searches (XSSs). Ratchet 1000 ratchet iterations set to stop the perturbation when 1000 substitutions were made or 99% of the swapping was reached Drift: 1000 Drift cycles also set to stop the perturbation when 1000 substitutions were made or 99% of the swapping was reached. We set three rounds of Tree fusing.

Similarly, we used the same method described in Young et al. (2016) to calculate nodal support. Non-parametric bootstrapping was once again run using 'New technology search' option with 1000 replicates using 100 RAS for the following advanced search methods: Sectorial Search: 100 sectorial search drifting cycles for selections of above 75; 100 start trees and fused trees 100 times below 75, with 100 rounds of CSSs and XSSs. Ratchet: 100 Ratchet iterations, with the perturbation phase set to stop when 100 substitutions were made or when 99% of the swapping was completed. Drift: 100 cycles of Drift, which would stop the perturbation phase when 100 substitutions were made or when 99% of the swapping was complete. Finally, we set three round of Tree fusing. The time-calibrated strict consensus trees of Geosaurinae (Figs 7, 8) were produced

641 using the package 'strap' in R (R Core Team 2013; Bell & Lloyd 2015).

## **Results**

The analysis produced 234 most parsimonious cladograms (with descriptive statistics of: length = 944 steps; CI = 0.413; RI = 0.827; CR = 0.341; HI = 0.587), the strict consensus of which gave the same topology as that reported by Young et al. (2016) (Fig. 6). As such, our re-scoring of Ieldraan melkshamensis has not altered its phylogenetic position. Therefore, herein we shall focus on solely on the Metriorhynchidae and Geosaurinae part of the topology (for discussion on the entire topology, consult the results and discussion sections of Young et al., 2016). Thalattosuchia is recovered sister group to Crocodyliformes, as was suggested by Wilberg (2015). Thalattosuchia is also found to be monophyletic and is further subdivided in two monophyletic groups, Teleosauroidea and Metriorhynchoidea. Within the latter group, Zoneait nagorum is in a polytomy with a metriorhynchoid from Chile and Metriorhynchidae (see Wilberg 2015; Young et al. 2016). In Metriorhynchidae, the subfamilies Metriorhynchinae and Geosaurinae are recovered, and so is the tribe Geosaurini within the latter subfamily. *Ieldraan melkshamensis* is deeply nested within Geosaurinae as the most basal and oldest member of Geosaurina, which also includes two species of Geosaurus. Discussion 

#### 661 Middle Jurassic origin of all geosaurin groups

662 There are four major lineages of geosaurins, each of which leads to a particular derived

663 taxon: Torvoneustes, Plesiosuchus, Dakosaurus and Geosaurus (Figs 6, 7, 8). Our

664 phylogenetic analysis shows that all four of these lineages were already present in the

665 Callovian. Key to this discovery is the reassessment and phylogenetic position of the most

666 basal members of these respective lineages: Tyrannoneustes lythrodectikos, Suchodus

durobrivensis, 'Mr Leeds' Dakosaur' (NHMUK PV R 3321), and now Ieldraan *melkshamensis*. This ongoing work has radically changed our understanding of geosaurin evolution. Before the description of the oldest known geosaurin Tyrannoneustes lythrodectikos (OCF, Callovian) (Young et al. 2013b), the oldest member of the Geosaurini clade was Late Jurassic in age. Subsequently, Tyrannoneustes lythrodectikos was found to be the sister taxon to Geosaurini, pushing the origin of wide-gape macrophagy back by at least 10 Ma, into the late-Middle Jurassic (Young *et al.* 2013b). Before the current manuscript, the early Kimmeridgian was the earliest time during which there was evidence that the four geosaurin lineages had definitely split (Young *et al.* 2014c). Recent re-evaluations of several misinterpreted Callovian specimens – and their inclusion as OTUs in phylogenetic analyses – has now changed this view (Fig. 8). The phylogenetic analysis of Young et al. (2016) was the first to suggest Geosaurini originated in the late-Middle Jurassic. Tyrannoneustes lythrodectikos was found to be a member of Geosaurini rather than its sister taxon, and several other poorly studied OCF taxa were found to be members of Geosaurini. Our rescoring of the 'Melksham Monster' (as *Ieldraan melkshamensis* was called in Young *et al.* (2016)) based on our detailed study of the specimen (which itself was predicated by the detailed preparation of the material) has not changed the internal relationships of Geosaurini. However, our analysis does present a new evolutionary arrangement for macrophagous metriorhynchids. Geosaurini is found to be monophyletic, and split into two monophyletic groups (Figs 6–8). Group one (='subclade T') has the Callovian *Tyrannoneustes* as the basal-most taxon, with a derived Late Jurassic subclade consisting of 'Metriorhynchus' hastifer + Torvoneustes. Group two comprises Geosaurina, Plesiosuchia and "Dakosaurina". Geosaurina is found as the sister taxon to a clade of broad-short snouted geosaurins (Plesiosuchia and "Dakosaurina"). The different

691	position of Tyrannoneustes and the phylogenetic affinities of Ieldraan melkshamensis both
692	bear crucial consequences for the time and mode of diversification of Geosaurini.
693	In particular, the sudden Late Jurassic diversity of macrophagous geosaurins now
694	appears less abrupt than previously suggested, as we now know that it had a long
695	phylogenetic and temporal fuse. Undeniably, geosaurins still constituted a very small
696	component (taxic and numerical; see also Young 2014) of the late Middle Jurassic
697	ecosystems, but the new discoveries suggest that all the major groups - once supposed to be
698	exclusively Late Jurassic – were already present approximately 10 Ma before the previous
699	estimates. This also means that most of the key macrophagous adaptations known in
700	Kimmeridgian-Tithonian taxa were already present in the Callovian. Yet the mechanisms that
701	turned the Middle Jurassic metriorhynchine/teleosaurid-dominated thalattosuchian fauna of
702	the OCF to the Late Jurassic geosaurin-dominated fauna in the Kimmeridge Clay Formation
703	are still unknown (see Young 2014). The reason for this is that the Callovian-Kimmeridgian
704	transition was a time of deep faunal turnover in marine ecosystems – severely affecting all
705	the marine amniote groups (Benton & Spencer 1995; Young 2014; Foffa et al. 2015).
706	Unfortunately, our understanding of this subject is hampered by the poor fossil record of the
707	intermediate layers of the Oxfordian (the so-called 'Corallian Gap', Young 2014).
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709	Evolution of ziphodonty dentition in Geosaurini

710 The evolution of ziphodonty in Geosaurinae has been extensively studied (Andrade *et al.* 

711 2010; Young et al. 2012a, 2012b, 2013b). In this section we update this topic in light of new

712 data, our description of the *Ieldraan melkshamensis* holotype and our phylogenetic analysis

713 (Table 2, Fig. 8). In doing this, we adopt a nomenclature that in our view has the merit of

taking into account the functionality of each morphological type of serration (Table 2). Two

715 distinct characteristics must be considered when describing true ziphodonty:

716	i. denticle development that describes the size and how clearly defined denticles are
717	(e.g. incipient, poorly-developed, well-developed), and
718	ii. denticle arrangement along the carinae (e.g. do they form a contiguous row along the
719	carinae, or are they simply forming short (2-10) repeat units?).
720	These terms must not be confused, as they describe different aspects of denticle morphology.
721	Specifically, it is the co-occurrence of the different states of denticle development and
722	arrangement that regulate the presence absence of 'functionally' serrated edges (see Table 2).
723	As a clear nomenclature is essential to precisely capture the morphological and functional
724	differences amongst variety of ziphodont dentitions in Geosaurinae, we summarise the
725	fundamental definitions in the next section.
726	Ziphodonty is defined "as dentitions where all teeth possess denticulated carinae,
727	comprised of true denticles" (in Andrade & Young (2009) based on Prasad & Broin
728	2002). We adopt the terms 'false serrations' and 'true denticle' with the same meaning as
729	introduced by Prasad & Broin (2002). Macroziphodonty, microziphodonty and 'incipient
730	(micro)ziphodonty' were defined in Young et al. (2013). The latter was introduced to cover
731	those morphologies where the denticles were poorly defined and/or the denticles do not form
732	a contiguous row along the keel. These definitions are based on external morphologies rather
733	than internal ones – i.e. denticles are serrations in which the dentine also contributes. This
734	cross-sectional definition, although is in use by other authors, are beyond the scope of this
735	study.
736	The most derived geosaurin taxa (Torvoneustes, Plesiosuchus, Dakosaurus and
737	Geosaurus), have distinct serration morphologies, which are perhaps linked to functional
738	partitioning of resources (Andrade et al. 2010, Young et al. 2012a, 2012b, 2013b). Indeed,
739	the phylogenetic position and dental morphology of Ieldraan melkshamensis (and recently
740	added basal members of each lineage) help to explain the occurrence of four different

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741	serration morphologies in Geosaurini. The evolutionary history of these characters has been
742	long debated, and to date can be summarised using two alternative scenarios:
743	1) Functional true ziphodonty evolved at the base of Geosaurini. In this hypothesis,
744	true ziphodonty (i.e. presence well-developed denticles that are contiguous along the carinae)
745	would have followed different evolutionary trajectories (maybe because of different
746	mechanical/feeding-related needs) in Torvoneustes, Geosaurus, Dakosaurus and
747	Plesiosuchus (Pol & Gasparini 2009; Young & Andrade 2009; Andrade et al. 2010; Young et
748	al. 2012b, 2013a). In this scenario, the most recent common ancestor of Geosaurini had
749	functionally serrated carinae (microziphodonty).
750	2) True, functional ziphodont carinae evolved independently at least four times in
751	Geosaurini, once in the Geosaurus lineage, once (or perhaps twice, pending reassessment of
752	Suchodus durobrivensis) in the Dakosaurus and Plesiosuchus subclade, and finally in
753	Torvoneustes. In this scenario, the most recent common ancestor of Geosaurini did not have
754	functionally serrated carinae but poorly developed non-contiguous denticles on the carinae
755	('incipient' microziphodonty).
756	Our description of Ieldraan melkshamensis combined with the phylogenetic analysis
757	of Young et al. (2016) helps us to discriminate between these hypotheses. While both can
758	explain the evolution of the very different denticle morphologies in derived Geosaurini
759	genera, we argue that the dental features of Ieldraan melkshamensis, (and indeed
760	Tyrannoneustes lythrodectikos, Suchodus durobrivensis, and Mr. Leeds' Dakosaur) better
761	support the second hypothesis (Fig. 8).
762	First, the closest sister taxon to Geosaurini is 'Metriorhynchus' brachyrhynchus, a
763	non-geosaurin geosaurine from the Callovian. This species has microscopic poorly formed
764	denticles, which are not contiguous (Figs 5, 8, Tables 1, 2) (Young et al. 2013b).
765	Unfortunately, no information is available for other non-geosaurin geosaurines (Fig. 8).

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766 *Tyrannoneustes lythrodectikos*, previously considered to be the sister taxon to 767 Geosaurini, is now found to be a basal member of a large subclade including *Torvoneustes* 768 (Young et al. 2016; Figs 6–8). However, the dentition of *Tyrannoneustes* is similar to 769 "Metriorhynchus" brachyrhynchus in having poorly developed non-contiguous microscopic 770 true denticles (Young et al. 2013b). Similarly, the denticles of *Ieldraan melkshamensis* are 771 also poorly developed, are irregularly spaced along the carinae, and do not form a clear 772 serrated edge (so that they do not alter the height of the keel; *sensu* Young *et al.* 2013b). The 773 macrophotographs (Figs 4) clearly show that the denticles of *Ieldraan melkshamensis* were 774 less developed than the denticles of *Geosaurus* (*Geosaurus* sp. SMNS 81834 and MJML 775 K461; G. grandis BSPG AS-VI-1; G. giganteus NHMUK PV OR 37020) (Young & Andrade 2009; Andrade et al. 2010) (Table 2). 777 The most striking consequence of this re-evaluation is that the basal-most member of two geosaurin lineages (Tyrannoneustes and Ieldraan) have 'incipient', non-contiguous microziphodont dentition. In other words, OCF geosaurin taxa had poorly developed (unevenly sized), non-contiguous and microscopic ( $\leq 300 \text{ }\mu\text{m}$ ) denticles that do not form a

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778 779 780 781 functional serrated edge along the carinae (Andrade et al. 2010; Young et al. 2013b). The 782 notable exception to this is NHMUK PV R 486, the oldest known Dakosaurus-like tooth, 783 discovered in an unknown horizon of the OCF (see figure 2 in Young et al. 2013b). The 784 carinae on this tooth have the homogeneous, isomorphic, and closely packed denticles that 785 are characteristic of Geosaurus, Plesiosuchus and Dakosaurus (Andrade et al. 2010). Within 786 this context, *Torvoneustes*, however, has a unique functional ziphodont morphology, in which 787 the denticles are contiguous along the carinae but are poorly defined (Andrade *et al.* 2010; 788 Barrientos-Lara et al. 2016). Two species, Torvoneustes carpenteri and T. mexicanus, have 789 true ziphodonty and false ziphodonty, with the superficial enamel ornamentation contacting 790 the carinal keel (Andrade et al. 2010; Young et al. 2013b; Barrientos-Lara et al. 2016).

791 Interestingly, the geologically oldest *Torvoneustes* species, *T. coryphaeus*, does not have
792 teeth with the enamel ornamentation contacting the keel (Young *et al.* 2013a).

Therefore, the plesiomorphic condition in Geosaurini could be poorly developed and non-contiguous microscopic denticles ('incipient' microziphodonty). This condition would have given rise to at least three independent true ziphodont morphologies, namely once in *Torvoneustes*, once in *Geosaurus*, once (or twice?) in *Dakosaurus* + *Plesiosuchus* subclade (Fig. 8). Future discoveries and re-descriptions of key specimens are currently underway, and, coupled with an improved species-level phylogeny, will allow us to further test the two hypotheses of dental evolution in Geosaurini.

## **Conclusions**

Based on our description of a long overlooked and misinterpreted specimen (NHMUK PV OR 46797), we establish a new taxon *leldraan melkshamensis* gen. et sp. nov. Despite the poor state of preservation, we demonstrate that this late Middle Jurassic taxon from the OCF shows remarkable similarities with the Late Jurassic genus Geosaurus. *Ieldraan* and *Geosaurus* are found to be sister taxa in a new European endemic, Callovian-Valanginian geosaurin lineage that we named Geosaurina subtr. nov. The morphology and stratigraphic occurrence of *Ieldraan melkshamensis*, combined with our phylogenetic analysis, demonstrate that numerous adaptations linked to macrophagy had already evolved in Geosaurini by the Callovian stage. This suggests that the diversification of the tribe was perhaps less abrupt than previously thought, but rather had a longer temporal and phylogenetic fuse. We also show that the evolution of ziphodonty followed a different path than previously hypothesised. The new information presented here indicates that four

815	different true ziphodont morphologies in the derived Late Jurassic geosaurins independently
816	evolved from a unique non-functional microziphodont common ancestor.
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## 994 Figure captions

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996 Figure 1. Skull and left mandibular ramus of *Ieldraan melkshamensis* gen. et sp. nov. 997 (NHMUK PV OR 46797), and line interpretation in dorsolateral view. Refer to the main text 998 for abbreviations. The dashed line represents the approximate boundary of the left 999 supratemporal fenestra; the dot-dashed line indicates the approximate position of the left 000 orbit; the dotted line indicates the approximate position of the left meatal chamber; the cross-001 hatched pattern indicates damaged surfaces of the bone.[planned for whole page width] 002 Figure 2. Skull and left mandibular ramus of *Ieldraan melkshamensis* gen. et sp. nov. 003 (NHMUK PV OR 46797), and line interpretations. A, occipital view; B, oblique occipital 004 view A. Refer to the main text for abbreviations. [planned for whole page width] 005 Figure 3. Details of the skull and left mandibular ramus of *Ieldraan melkshamensis* gen. et 006 sp. nov. and line interpretation of a generic metriorhynchid skull showing the diagenetic 007 preservation of the specimen. A, Close up of the frontal, prefrontal and postorbital area; B,

1008	close up of the right prefrontal. The dotted line represent the prefrontal-frontal suture; C,
1009	close up of the posterior-medial corner of the left supratemporal fossa; D, close up of one
1010	fragment of the left maxilla (reception pits, nutritious foramina and bone ornamentations are
1011	visible); E, close up of the occipital complex; F, left mandibular ramus in ventral view,
1012	showing the angular, splenial and dentary contacts and the end of the mandibular symphysis;
1013	G, lateral view of the left postorbital bar (supratemporal fenestra, orbit and meatal chamber
1014	are highlighted); H, skull line interpretation in dorsal view; I, skull line interpretation in
1015	lateral view; J, mandible line interpretation in lateral view; K, simplified line interpretation
1016	of NHMUK PV OR 46797, showing the main skull elements and major line of fractures (red
1017	lines). The dashed line represents the approximate boundary of the left supratemporal
1018	fenestra; the dot-dashed line indicates the approximate position of the orbit; the arrow in C,
1019	indicates a blood vessel/nerve foramen (see text for further discussion); the dashed grey areas
1020	in H-K indicate heavily fragmented or missing areas. Red lines in K indicate the principal
1021	fractures in the concretion. Refer to the main text for abbreviations. [planned for whole page
1022	width]
1023	Figure 4. Close-up of a dentary tooth of <i>Ieldraan melkshamensis</i> gen. et sp. nov. (NHMUK
1024	PV OR 46797). A, Dentary tooth in labial side with detail of bone texture (black arrow); B,
1025	schematic cross-section of a tooth; C, dentary tooth close-up showing the carina and denticles
1026	(white arrow) in labial side. [planned for half-page width]
1027	Figure 5. Comparative plate of fluted teeth and basal tuberosities in geosaurin taxa. A,
1028	Ieldraan melkshamensis (NHMUK PV OR 46797) dentary tooth; B, 'Metriorhynchus'
1029	brachyrhynchus (NHMUK PV R 3804) isolated tooth; C, indeterminate geosaurin (PETMG
1030	R248) in labial view; <b>D</b> , indeterminate geosaurin (PETMG R248) in carinal view; <b>E</b> ,
1031	indeterminate geosaurin (PETMG R248) in lingual view. Note the different flutings and
1032	carinal morphology; F, occipital view of Ieldraan melkshamensis (NHMUK PV OR 46797)

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1033 basioccipital; G, occipital view of 'Metriorhynchus' brachyrhynchus (NHMUK PV R 3804) 1034 basioccipital. Note the difference in relative size between the basal tuberosities of the two 1035 taxa. [planned for whole page width] 1036 Figure 6. Simplified strict consensus tree of the 234 most parsimonious cladograms of 1037 Metriorhynchidae within Crocodylomorpha. Bootstraps values are reported below each node, 1038 absolute/relative Bremer support values are reported above each node in grey. [planned for 1039 whole page width] 1040 **Figure 7.** Time-calibrated phylogenetic tree of Geosaurinae. [planned for whole page width] 1041 Figure 8. Time-calibrated cladograms of Geosaurinae with mapped different ziphodonty 1042 morphologies. Our tree (left) is compared to a modified version of Young (2014) and Young 1043 et al. (2013b) topology (right). Notice the how the addition of new Middle Jurassic OTUs

1044 improved resolving Geosaurini inner relationships and changed our understanding of the time

1045 and mode of ziphodonty evolution within the group. The black arrows indicate the lineages

1046 where ziphodonty was acquired. [planned for whole page width]



**Figure 1.** Skull and left mandibular ramus of *Ieldraan melkshamensis* gen. et sp. nov. (NHMUK PV OR 46797), and line interpretation in dorsolateral view. Refer to the main text for abbreviations. The dashed line represents the approximate boundary of the left supratemporal fenestra; the dot-dashed line indicates the approximate position of the left orbit; the dotted line indicates the approximate position of the left meatal chamber; the cross-hatched pattern indicates damaged surfaces of the bone.

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**Figure 2.** Skull and left mandibular ramus of *Ieldraan melkshamensis* gen. et sp. nov. (NHMUK PV OR 46797), and line interpretations. A, occipital view; B, oblique occipital view A. Refer to the main text for abbreviations.

172x249mm (300 x 300 DPI)





**Figure 3.** Details of the skull and left mandibular ramus of *Ieldraan melkshamensis* gen. et sp. nov. and line interpretation of a generic metriorhynchid skull showing the diagenetic preservation of the specimen. A, Close up of the frontal, prefrontal and postorbital area; B, close up of the right prefrontal. The dotted line represent the prefrontal-frontal suture; C, close up of the posterior-medial corner of the left supratemporal fossa; D, close up of one fragment of the left maxilla (reception pits, nutritious foramina and bone ornamentations are visible); E, close up of the occipital complex; F, left mandibular ramus in ventral view, showing the angular, splenial and dentary contacts and the end of the mandibular symphysis; G, lateral view of the left postorbital bar (supratemporal fenestra, orbit and meatal chamber are highlighted); H, skull line interpretation in dorsal view; I, skull line interpretation in lateral view; J, mandible line interpretation in lateral view; K, simplified line interpretation of NHMUK PV OR 46797, showing the main skull elements and major line of fractures (red lines). The dashed line represents the approximate boundary of the left supratemporal fenestra; the dot-dashed line indicates the approximate position of the orbit; the arrow in C, indicates a blood vessel/nerve foramen (see text for further discussion); the dashed grey areas in H–K indicate heavily fragmented or missing areas. Red lines in K indicate the principal fractures in the concretion. Refer to the main text for abbreviations.

172x194mm (300 x 300 DPI)



**Figure 4.** Close-up of a dentary tooth of *Ieldraan melkshamensis* gen. et sp. nov. (NHMUK PV OR 46797). A, Dentary tooth in labial side with detail of bone texture (black arrow); B, schematic cross-section of a tooth; C, dentary tooth close-up showing the carina and denticles (white arrow) in labial side.

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**Figure 5.** Comparative plate of fluted teeth and basal tuberosities in geosaurin taxa. A, *Ieldraan melkshamensis* (NHMUK PV OR 46797) dentary tooth; B, '*Metriorhynchus' brachyrhynchus* (NHMUK PV R 3804) isolated tooth; C, indeterminate geosaurin (PETMG R248) in labial view; D, indeterminate geosaurin (PETMG R248) in carinal view; E, indeterminate geosaurin (PETMG R248) in lingual view. Note the different flutings and carinal morphology; F, occipital view of *Ieldraan melkshamensis* (NHMUK PV OR 46797) basioccipital; G, occipital view of '*Metriorhynchus' brachyrhynchus* (NHMUK PV R 3804) basioccipital. Note the difference in relative size between the basal tuberosities of the two taxa.

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Figure 7. Time-calibrated phylogenetic tree of Geosaurinae.

40x19mm (300 x 300 DPI)



**Figure 8.** Time-calibrated cladograms of Geosaurinae with mapped different ziphodonty morphologies. Our tree (left) is compared to a modified version of Young (2014) and Young et al. (2013b) topology (right). Notice the how the addition of new Middle Jurassic OTUs improved resolving Geosaurini inner relationships and changed our understanding of the time and mode of ziphodonty evolution within the group. The black arrows indicate the lineages where ziphodonty was acquired.



**Table 1.** Comparative tables highlighting the craniomandibular and dental differences

between 'Metriorhynchus' brachyrhynchus (PETMG R248 and NHMUK PV R 3804) and

Ieldraan melkshamensis (NHMUK PV OR 46797).

	'Metriorhynchus'	Ieldraan melkshamensis
	brachyrhynchus (PETMG R248,	(NHMUK PV OR 46797)
	NHMUK PV R 3804)	
Skull roof ornamentation	Conspicuous made by medium sized pits and shallow to deep furrows.	Inconspicuous, numerous very small oval pits, very rare furrows.
Mandible ornamentation	Conspicuous made by medium sized pits and shallow to deep furrows.	Inconspicuous, numerous very small oval pits.
Basioccipital tuberosity size	Moderate	Greatly enlarged
Dentition	Strongly laterally compressed, unornamented on both sides. The enamel appears smooth on both sides.	Enlarged crowns, laminar, tri- facets on the labial side. Weakly ornamented by non-continuous apicobasal ridges visible on the apical half. The enamel has a rough appearance.
Carinae	Not prominent.	Very prominent especially on the apical half.
Flutings	Poorly defined, non-parallel, unequal in length, usually more than five. Not present in all present crowns.	Well defined, exclusively on the middle facet of the crowns, always three ridges and five troughs. Present in all preserved crowns.

URL: http://mc.manuscriptcentral.com/tjsp

Table 2. Ziphodonty related characters in Oxford Clay Formation and Kimmeridge Clay Formation geosaurines. The table was compiled using personal examinations of

specimens, from Young et al. (2013b) and Young et al. (2016). 

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Development* Shap	Shap	Der Der	nticles Denticle	Functionally	Overall	Tooth morph Mediolateral	ology Labial
	<b>,</b>		distribution	serrated edge	Morphology	compression	surface
fetriorhynchus' brachyrhynchus HMUK PV R 3804, NHMUK PV R 00, PETMG R248)	Poorly developed	Isomorphic – unequal in size, always <300 μm	Non- contiguous	No	Incipient microziphodonty	Weak to strong	Convex (sometimes fluted)
vrannoneustes lythrodectikos (NHMUK V R 3939; PETMG R176)	Incipient	Isomorphic – unequal in size, always <300 µm	Non- contiguous	No	Incipient microziphodonty	Medium to strong	Convex
eldraan melkshamensis (NHMUK PV 1R 46797)	Incipient/poorly developed	Isomorphic – unequal in size, always <300 µm	Non- contiguous	No	Incipient microziphodonty	Strong (laminar)	Tri-faceted and fluted
wchodus durobrivensis (NHMUK PV R 994, NHMUK PV R 2039)	Poorly developed	Isomorphic – unequal in size, always <300 µm	Non- contiguous	No	Incipient microziphodonty	Weak	Convex
杠. Leeds' Dakosaur (NHMUK PV R 裂1)	Incipient/poorly developed	Isomorphic – unequal in size, always <300 µm ?	? Non- contiguous	ċ	? Incipient microziphodonty	Weak	Convex
Rosaurinae indet. (NHMUK PV R 486)	Well developed	Isomorphic – unequal in size, always <300 µm	Contiguous	Yes	Microziphodonty	Weak	Convex
Drvoneustes carpenteri (BRSMG 2013, BRSMG Ce17365)	Poorly developed	Isomorphic – unequal in size, always <300 μm	Contiguous	Yes	Microziphodonty and false ziphodonty	Weak to absent	Systen Xouvex
ñr. Passmore's specimen (OUMNH 1583)	Poorly developed	Isomorphic – unequal in size	Non- contiguous	No	Incipient microziphodonty	Weak to absent	natic Convex
essaurus giganteus (NHMUK PV OR 1920, NHMUK PV R 1229, NHMUK 1230 (1230)	Well developed	Isomorphic – equal/subequal in size, but always <300 µm	Contiguous	Yes	Microziphodonty	Strong (laminar)	Palaeo Tri-faceted
acosaurus grandis (BSPG AS I VI 1) www. www.acosaurus grandis (BSPG AS I VI 1)	Well developed	Isomorphic – equal/subequal in size, but always <300 µm	Contiguous	Yes	Microziphodonty	Strong (laminar)	Ini-faceted
Wesiosuchus manselii (NHMUK PV OR W103; NHMUK PV R 1089; MJML &434	Well developed	Rectangular – equal in size, but always <300 µm	Contiguous	Yes	Microziphodonty	Weak	Convex
Dakosaurus maximus (SMINS 82043; VHMUK PV OR 35766)	Well developed	Isomorphic – equal in size, generally >300 µm	Contiguous	Yes	Macroziphodonty	Weak	Convex
3 e estimate: *incipient: hard to discern	even on SEM: poorly	developed: visible with the a	aid of hand lens/	SEM			

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3 4	1	Online supplementary material for:
5 6 7	2	A new metriorhynchid crocodylomorph from the Oxford Clay Formation (Middle Jurassic) of
8 9	3	England, with implications for the origin and diversification of Geosaurini
10 11 12	4	
12 13 14	5	Changes to the scorings from Young <i>et al.</i> (2016)
15 16	6	Here the scores for 23 characters were changed from the previous version of the Young et al.
17 18 10	7	(2016) matrix. Most of the characters we changed were previously scored as uncertain, but could
20 21	8	be scored after DF's close examination of NHMUK PV OR 46797. The list of the score we
22 23	9	changed, and motivations for the different score are attached discussed in details below.
24 25 26	10	I. Character 5 is now scored as 1 instead of ?. The ornamentation of the maxilla, is still
27 28	11	visible in the two fragments of the left maxilla, and as it was mentioned in the description
29 30 21	12	consists of numerous pits as in Geosaurus (see main text and figure 1).
32 33	13	II. Character 22 is scored 0 instead of ?. Despite being poorly preserved, this contact can
34 35	14	be followed/described as irregular, and does not differ from other Metriorhynchidae,
36 37 38	15	which are scored as 0 – as opposed to <i>Cricosaurus aracaunensis</i> in which this contact is a
39 40	16	continuous smooth line with posterior-laterally directed concavity.
41 42	17	III. Character 23 is scored 1 instead of ?. If our interpretation is correct, there is clear
43 44 45	18	evidence of the nasal-prefrontal contact. So, this character should be scored as 1 (contact
46 47	19	present)
48 49	20	IV. Character 26 is scored 0 instead of ?. The posterior fragment of the left maxilla bears
50 51 52	21	some small to medium size foramina just above the alveolar margins, slightly dorsal to
53 54	22	the maximum extent of the notches.
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V. Character 44 is scored 0 instead of ?. The posterior part of the frontal shows that the
skull roof of NHMUK PV OR 46797 is complex as in other thalattosuchians, as opposed
to a broad 'skull table' as shared in Crocodyliformes.

VI. Character 49 is scored {1,2} instead of 1. This character codes the anterior extend of
the supratemporal fossa in dorsal view with respect to the frontal-postorbital suture. We
showed that this suture is not visible. However, we can exclude states '0' and '3' as it is
clear from the preserved frontal that the fossa is not as extended as in *Dakosaurus*(reaching the narrowest frontal point in the orbital region). As we cannot be sure of the
certain position of frontal-postorbital suture we scored this character as {1,2}.

- 32 VII. Character 51 is scored 0 instead of ?. The preserved left supratemporal bar does clearly
   33 show a sign of a distinct angle where the lateral and anterior margin meet, instead of
   34 being a continuous curve as the derived species of *Cricosaurus*.
- 35 VIII. Character 52 is scored 0 instead of ?. Similar to the previous character, there is no
   a evidence showing that the anterior and posterior margin of the supratemporal fossa are
   a sub/parallel. They are instead similar to other metriorhynchids
- IX. Character 56 is scored 0 instead of ?. The supratemporal arch is preserved in lateral
   view, which allows to distinctively assessing that its dorsal margin is concave.
  - 40 X. Character 57 is scored 2 instead of ?. The prefrontal lateral development is very clearly
    41 visible on both sides and can be compared with the depth of the supraorbital notch. This
    42 demonstrates that the prefrontal of *Ieldraan melkshamensis* is as laterally enlarged as in
    43 all other metriorhynchids.
  - 44 XI. Character 59 is scored 1 instead of ?. Similarly, we can clearly see the 'tear-drop'
    45 shape of the prefrontal.

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3 4	46 XII.	Character 60 is scored 1 instead of ?. As we described in the main text, it was possible
5 6	47	to measure the angle of the inflexion point from the anteroposterior axis of the skull. The
7 8 9	48	measure was made in dorsal view on the left prefrontal and is approximately 70 degrees.
10 11	49 XIII.	Character 61 is scored 0 instead of ?. The prefrontal appears to be longer than wide.
12 13	50 XIV.	Character 64 is scored 0 instead of ?. DF assessed that the anterior process of the
14 15 16	51	prefrontal is preserved on both sides. Although the contact is not well preserved it is
17 18	52	certainly not posteriorly directed 'V'-shaped.
19 20 21	53 XV.	Character 66 is scored 0 instead of ?. The frontal is well preserved enough to clearly
21 22 23	54	show that it is flat as in all Thalattosuchia.
24 25	55 XVI.	Character 67 is scored 0 instead of ?. In NHMUK PV OR 46797, the frontal dorsal
26 27 28	56	surface is flat (perhaps slightly convex) as opposed to concave.
29 30	57 XVII.	Character 69 is scored 1 instead of ?. This character describes the angle between
31 32	58	medial and lateral posterior process of the frontal. We measured it following the
33 34 35	59	indication of figure 4 Wilkinson et al. (2008).
36 37	60 <b>XVIII.</b>	Character 93 is scored 0 instead of ?. The right supraorbital notch is preserved in
38 39	61	NHMUK PV OR 46797, although the general shape of the same area is better assessed on
40 41 42	62	the left side.
43 44	63 XIX.	Character 129 is scored 1 instead of ?. According to our interpretation of the occipital
45 46	64	surface, the foramen for cranial XII nerve is below the foramen magnum.
47 48 49	65 XX.	Character 166 is scored 2 instead of ?. The surangulodentary suture is deeply excavated
50 51	66	as it can be clearly observed in the large preserved pieced of both the dentary and
52 53	67	surangular.
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2 3	68 <b>VVI</b>	Character 160 (Splanial % symphysis) is seared 2 instead of 2. Although the entire
4 5	00 АЛІ.	Character 109 (Spiemar 70 symphysis) is scored 2 instead of 1. Atmough the entire
6 7	69	length of the mandible is not preserved, it is clear that NHMUK PV OR 46797 splenial is,
8 9	70	as in Geosaurus, extensively involved (>20%) in the mandibular symphysis. An
10 11	71	involvement (<10%) would result in an unprecedented and unrealistic length of the
12 13	72	mandible. Alternatively, this may be due to a short splenial anterior process, but this
14 15 16	73	should be excluded (see Description in the main text).
17 18	74 XXII.	Character 195 is scored ? instead of 1. We changed the score of this character because
19 20	75	we reinterpreted the tooth positions in NHMUK PV OR 46797. We cannot be anymore
21 22 23	76	sure that there is a diastema in between D4-D5.
24 25	77 <b>XXIII.</b>	Character 220 is scored 0 instead of ?. Microphotography photos reveals that the
26 27	78	crowns of NHMUK PV OR 46797 are in fact ornamented (see description in the main
28 29 30	79	text for further details).
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## 81 List of the 298 osteological characters used in the phylogenetic analyses. All the osteological

82 characters are the same as in Young *et al.* (2016).

4	Rostrum	
	Character	Description
	1	Skull width to length ratio:
		= maximum width between the lateral-most points of the quadrates : basicranial
		length
		0. 0.26 or lower
		1. between 0.27 and 0.4
		2. 0.4 or greater
	2	Rostrum cross-section:
		0. nearly tubular (lateromedial & dorsoventral axes subequal $\pm 5\%$ )
		1. wider than tall (dorsoventral axis 120% or more of the lateromedial axis)
		2. taller than wide (dorsvoventral axis greater than lateromedial axis)
	3	Rostrum, in dorsal view – amblygnathy ("bullet-shaped", with the rostrum
		retaining its width along almost all its length):
		State (1) is an apomorphy of Dakosaurus + NHMUK PV R 3321
		0. no
		1. yes
	4	Rostrum, in dorsal view immediately in front of the orbits the rostrum narrows
		markedly
		In Thalattosuchia, state (1) occurs in Aeolodon priscus and Teleosaurus cadomensis.
		Note that in many Steneosaurus bollensis specimens the dorsoventral compression of
		the skulls exaggerates the temporal region width.
		0. no
		1. yes
	5	Sculpture on external surface of rostrum (maxilla):
		0. no conspicuous ornamentation, or ornamented with an irregular pattern of ridges,
		rugosities and anastomosing grooves
		1. conspicuous pitted (circular-to-polygonal) pattern
		2. conspicuous grooved-ridged pattern
		3. conspicuous pits and grooves
	6	Tooth row, premaxillary alveoli and posterior maxillary alveoli:
		0. entire upper tooth row in the same plane
	-	1. posterior maxillary alveoli ventral to all other alveoli
	7	Incisive foramen, shape: (NEW)
		In Metriorhynchidae state (1) occurs in Torvoneustes, Mr Passmore's specimen +
		'M.' hastifer.
		State (2) occurs in Sphagesaurus huenei
		0. subcircular
		1. elongate anteroposterior oval-shape (can be as long or longer than the
		premaxillary alveoli, but not as mediolaterally broad)
		2. cross, or diamond-shaped

8	External nares orientation: (ORDERED)
0	Turner & Pritchard (2015: ch 6: modified from Clark 1004: ch 6)
	0 orientated anteriorly or anterolaterally
	1 or orientated dorsally or dorsolaterally
9	Fyternal nares shane in dorsal view.
)	State (1) is an anomorphy of Susisuchidae
	Since (4) is an apomorphy of Susisuchidae 0, subaircular (diameter in any direction does not very by more than $\pm 10\%$ )
	0. Subclicular (diameter in any direction does not vary by more than $\pm 1070$ ) 1. oval (dorsal width $>10\%$ longer than antere posterior length)
	1. Oval (dolsal widti >10% longer than antero-posterior length)
	2. D-shaped, with posterior edge straight 2. groop ghaped alongsts allings (dergal width <400/ of optoroposterior length)
	5. spoon-shaped elongate empse (dorsar width <40% of anteroposierior rength)
	4. pear-shaped
10	5. external nares not exposed in dorsal view
10	External nares, posterodorsal retraction in relation to the tooth-row:
	This character was designed to quantify the degree of posterodorsal retraction of the
	external nares in Metriorhynchidae. Its level relative to the tooth-row is used in this
	regard.
	Previous states 4-6 of this character have been removed as maxillary tooth count is
	too variable.
	0. at the tip of the snout, with its posterior-margin not exceeding the first
	premaxillary alveolus
	1. at the tip of the snout, but its posterior-margin does exceed the last premaxillary
	alveolus
	2. the posterior-margin reaches to the beginning of the 1st maxillary alveolus
	3. posterodorsally displaced, anterior-margin begins posterior to the 1st premaxillary
	alveolus while the posterior-margin exceeds the beginning of the 1st maxillary
	alveolus
11	Premaxilla, dorsal/anterodorsal projection of the anterodorsal margin (anterior
	to the external nares) (NEW):
	State (1) occurs in pholidosaurids, as well as extant species.
	0. present
	1. absent
12	Premaxilla, tooth row (NEW):
	State (1) is occurs in the pholidosaurids Chalawan, Sarcosuchus, Terminonaris and
	Oceanosuchus. Elosuchus cherifiensis has a modified version of this morphology,
	with the Pmx5 being directed posteriorly and the premaxilla being rounder in dorsal
	view. We have coded it as the same as other 'pholidosaurids'.
	0. alveoli along the anterior and lateral margins
	1. in a slight semi-circle, resulting in the premaxillary alveoli being restricted to the
	anterior and anterolateral margins
13	Premaxilla, when seen in lateral view (NEW):
	State (1) occurs in the 'pholidosaurids' Chalawan, Elosuchus cherifiensis,
	Sarcosuchus, Terminonaris and Oceanosuchus.
	0. the anterior and anterolateral margins are either not sub-vertical, or does not
	extend ventrally when compared to the rest of the premaxilla (i.e. the dentigerous
	margins)
	1. the anterior and anterolarteral margins are slightly to fully sub-vertical and extend

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Premaxilla, proportion of total length posterior to the external nares: 0. greater than 67% of premaxilla total length is posterior to the external nares

State (1) occurs in Tyrannoneustes lythrodectikos, Torvoneustes, 'Metriorhynchus'

*Note: this character is not applicable to taxa which retract their external nares* 0. short, terminates level to the fourth maxillary alveolus, or more anteriorly 1. long, terminates level to the end of the fourth maxillary alveolus, or more

State (1) scores the premaxillary septum of Rhacheosaurini metriorhynchids It is not homologous with other crocodylomorph septa, which are either partially formed by the nasals, or do not originate on the external surface of the premaxilla

0. no septum, with a single undivided nasal cavity, or a divided nasal cavity, not

2. large,  $\sim 80\%$  to more than 100% of the midline length of the premaxilla

ventrally to the rest of the element.

Premaxilla, posterior process:

hastifer and Mr Passmore's specimen

immediately anterior to the nasal fossa

formed solely by a premaxillary septum

Nasals, outline in dorsal view:

Nasal, lateroposterior processes:

1. clearly triangular

Distance between premaxilla and nasal: 0. none, premaxilla and nasal contact

Premaxilla, development of premaxillary septum:

1. nasal cavity divided by a midline premaxillary septum

1. small, less than half the midline length of the premaxilla

Nasal contribution to the margin of the external nares:

0. rectangular, with lateral margins mostly parallel

*State (1) is an apomorphy of Metriorhynchidae* 

Nasals, posterior portion at the midline:

"rauisuchians" and "sphenosuchians".

State (1) is an apomorphy of both Thalattosuchia and Notosuchia.

1. between 50-65% 2. between 36-45% 3. 28%, or less

posteriorly

0. present 1. absent

0. absent 1. present

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"midline trench" and "depression" with similar depression (state 1) seen in

We changed this character from Andrade (2010: ch. 75) to the one by Nesbitt (2011: ch. 34) in order to test the homology of the metriorhynchoid and (most) teleosauroid

	1. smooth curve with a concavity directed posterolaterally
23	Nasal-prefrontal contact:
	0. Absent
	1. Present
24	Premaxilla-maxilla lateral fossa excavating alveolus of last premaxillary tooth:
	0. no
	1. yes
25	Maxilla, ventrolateral edge:
	0. straight
	1. single convexity
	2. double convexity ('festooned')
26	Neurovascular foramina (posterior maxilla), distribution on the alveolar margin
	(NEW):
	Andrade et al. (2011: ch. 26)
	State (1) occurs in goniopholidids
	0. ventral-most foramina not high on the maxillary margin, either close or next to the $1 - 1^{2}$
	alveoli
	for a provide the distance if on the maxima (up to twice the distance from other for a provide the distance if on the distance
27	Maxilla, presence of lateral forces/forces next to the alveolar margin.
21	Andrade et al. (2011: ch. 86)
	Paired depressions on either marilla, which are anteroposteriorly elongated
	complex and entirely supported by the maxilla
	State (1) is an occurs in Goniopholididae Note that we do not consider the maxilla-
	iugal fossa of Pholidosauridae to be homologous.
	0. absent. maxillary bony surface convex or flat
	1. present
28	Maxilla, presence of a lateral fossa/fossae next to the jugal suture:
	State (1) occurs in Tethysuchia
	0. absent, maxillary bony surface convex or flat
	1. present, with the fossa continuing on to the lateral surface of the jugal
29	Maxilla, aligned set of large foramina extending posteroventrally from the
	antorbital/preorbital fossa, interconnected through a shallow groove:
	State (1) is an apomorphy of Dakosaurus.
	0. no
	1. yes
30	Maxilla-lacrimal, contact:
	0. partially included in antorbital/preorbital fossa
	1. completely included
31	Lacrimal, contact with the nasal:
	U. dorsal edge of lacrimal only
	1. primarily the anterior edge of the lacrimal
22	2. no contact
32	Inasai-iacrimal suture, length compared to nasai-prefrontal suture (in dorsal
	Viewj: O long subagual or longar than page profrontal suture
	v. iong, subequal of longer man haso-prefiontal suture

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	1. short, 60% or less than naso-prefrontal suture
33	Lacrimal, dorsal exposure:
	0. present, can be observed in both dorsal and lateral view
	1. absent, only visible in lateral view (lacrimal vertically orientated)
34	Lacrimal, size:
	0. large, in lateral view at least 45% of orbit height
	1. small, less than 40% of orbit height
35	Antorbital fenestra, size and presence:
	The absence of the antorbital fenestra (state 2) occurs independently numerous times
	in the evolution of Crocodylomorpha. Within Thalattosuchia, all early Jurassic taxa
	possess antorbital fenestrae. By the Callovian (Middle Jurassic) these fenestrae
	become rare.
	0. at least half the diameter of the orbit
	1. much smaller than the orbit
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36	Antorbital fenestra, bones enclosing (nasal):
	Modified as the metriornynchia character states relating to the antorolial
	Jenestra/Jossa nave been excluded. This is due to hypothesis 2 of Fernandez &
	Herrera (2009), in which the antorbital cavity is internatised in metriorhynchias.
	The opening classically referred as the antorolital tenestra. In this clade is in fact a
	0, paged does not contribute to the enterbited fonestre
	1. nasal does contribute to the antorbital fenestra
37	Antarbital fanastra, banas anglasing (jugal):
57	Similar to the previous character, except it codes for the jugal participation in the
	antorbital fenestrae rather than the nasal
	0 jugal does not contribute to the antorbital fenestra
	1. jugal does contribute to the antorbital fenestrae
38	Antorbital fossa, shape:
20	Modified as the metriorhynchid character states relating to the antorbital
	fenestra/fossa have been excluded. This is due to hypothesis 2 of Fernández &
	<i>Herrera (2009), in which the antorbital cavity is internalised in metriorhynchids.</i>
	The opening classically referred as the "antorbital fenestra" in this clade is in fact a
	neomorphic preorbital opening for the excretion of salt.
	0. subcircular or subtriangular
	1. elongated
39	Antorbital fossa, bones enclosing (nasal):
	0. nasal does not contribute to the antorbital fossa
	1. nasal does contribute to the antorbital fossa
40	Antorbital fossa, bones enclosing (jugal):
	Similar to the previous character, except it codes for the jugal participation in the
	antorbital fossa rather than the nasal.
	0. jugal does not contribute to the antorbital fossa
	1. jugal does contribute to the antorbital fossa
41	Preorbital fenestra (not homologous to archosaurian antorbital fenestra),
	presence:

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	<ul> <li>Herein we follow hypothesis 2 of Fernández &amp; Herrera (2009), in which the antorbital cavity is internalised in metriorhynchids. The opening classically referred as the "antorbital fenestra" in this clade is in fact a neomorphic preorbital opening for the excretion of salt. This opening is connected via ducts to a chamber which housed large salt-glands (see Fernández &amp; Herrera, 2009). This fenestra is bound by an elongate, narrow and obliquely orientated fossa bound by the lacrimal, nasal and maxilla.</li> <li>0. absent</li> </ul>
42	1. present
42	Antorbital fenestra, height: Character re-phrased as referring to the antorbital fenestra, and is therefore cannot be coded for metriorhynchids.
	0. approximately as tall as the height between the tooth row to the ventral rim of the fenestra $(\pm 10\%)$
	1. less than the height between the tooth row to the ventral rim of the fenestra
43	Prefrontal-lacrimal fossae:
	The prefrontal-lacrimal fossa (sensu Young & Andrade, 2009) refers to a shallow
	depression immediately anterior to the orbit, present on both the prefrontal and
	lacrimal. It is situated posterior to the preorbital fenestra, and never contacts the
	preorbital fossa. There is a crest within this fossa that is present along the
	prefrontal-lacrimal contact. State (1) is an apomorphy of Metriorhynchidae.
	0. absent
	1. present, with ridge following the sutural contact between these elements

## 8586 Skull roof

Character	Description
44	Skull roof:
	State (1) is an apomorphy of Crocodyliformes (i.e. not including Thalattosuchia)
	0. complex
	1. dorsally flat 'skull table' developed
45	Posterior skull table:
	Note that Sphagesaurus codes differently in this character, and for the preceding
	character.
	0. non-planar (squamosal ventral to horizontal level of postorbital and parietal)
	1. planar (postorbital, squamosal, and parietal on same horizontal plane)
46	Cranial table width relative to ventral portion of skull:
	0. nearly as wide
	1. narrower
47	Mature skull table, with broad lateral curvature:
	0. short caudolateral process of the squamosal
	1. mature skull table with nearly horizontal sides; significant caudolateral process of
	the squamosal
48	Supratemporal fossa (modified from Nesbitt 2011: ch. 144):
	We changed this character from Young (2014: ch. 46) to the one by Nesbitt (2011) in
	order to test the homology of metriorhynchid "infratemporal flanges" and the
	teleosauroid anteromedial supratemporal fossae, with the anterior extension seen in

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	basal crocodylomorphs.
	State (0) is an apomorphy of Crocodyliformes (i.e. not including Thalattosuchia)
	0. absent anterior to, and anteromedially to, the supratemporal fenestra
	1. present anterior to, or anteromedially to, the supratemporal fenestra
49	Supratemporal fossa, anterior margin in dorsal view:
	This character was designed to quantify the anterior extent of the supratemporal
	fossae. In Metriorhynchidae, the fossae begin to invade the dorsal surface of the
	orbital region. In both Dakosaurus and Cricosaurus saltillensis, and C. schroederi,
	the supratemporal fossae extend as far anteriorly as the minimum interorbital
	distance (state 3).
	0. anterior margin terminates posterior to the postorbital
	1. anterior margin terminates between the anterior and posterior points of the frontal-
	postorbital suture
	2. reaches terminates at least level to the postorbital anterior-margin
	3. projects more anteriorly than the postorbital and reaches the interorbital minimum
	distance
50	Supratemporal fossae, shape, anteroposterior and lateromedial axes:
	In Thalattosuchia, state (1) are apomorphies for Teleosaurus cadomensis and
	Maledictosuchus ricalensis
	0. longitudinal ellipsoid/sub-rectangular (anteroposterior axis more than 10% longer
	than the lateromedial axis)
	1. sub-square/sub-circular (anteroposterior and lateromedial axes subequal, $\pm$ 5%)
	2. transverse ellipsoid/sub-rectangular (lateromedial axis more than 10% longer than
	the anteroposterior axis)
51	Supratemporal fossae, teardrop-shape (lateral and posterior margins of the
	fossae form a continuous curve, i.e. no distinct angle where the two margins
	meet):
	State (1) is an apomorphy of derived species of Cricosaurus (e.g., C. araucanensis,
	C. schroederi and C. vignaudi)
	0. no
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52	Supratemporal fossae, shape, parallelogram (lateral and medial margins, and
	anterior and posterior margins are sub-parallel):
	State (1) is an apomorphy of Machimosaurus and Steneosaurus obtusidens
52	1. yts
33	Supratemporal length than the orbit (supratemporal length 110% or more of orbit
	0. Tonger in tengui than the orbit (supratemporar length 11078 of more of orbit length)
	1. subsqual in length as the orbit $(\pm 5\%)$
	1. Subcycal III feligiii as the orbit $(\pm 576)$ 2. smaller than the orbits (supratemporal length less than 90% of orbit length)
51	2. Smaller than the oforts (supratemporal rength less than 90% of ofort (ength)
34	Supratemporal lenestra, in dorsal view, posterior minit: State (2) is an anomorphy of the Dekoseurus+Plosiosuchus sub clade
	Sille (2) is an upomorphy of the Dakosaurus Frestosaerius sub-clude.
	suffered taphonomic dorsoventral compression/shearing
	0 terminates well before the posterior-most point of the parietal

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	1. either terminates near the posterior-most of the parietal or exceeds it, but never
	reaches the supraoccipital
	2. more posterior than intertemporal bar
55	Supratemporal arch, medial margin in dorsal view:
	State (1) is an apomorphy of 'Dakosaurus' lissocephalus + Cricosaurus.
	0. not convex
	1. convex
56	Supratemporal arch, dorsal margin in lateral view:
	0. concave
	1. straight
	2. convex
57	Prefrontal, lateral development:
	The transverse development of the prefrontal is a classic characteristic of
	Metriorhynchidae.
	State (1) is an apomorphy of Eoneustes.
	State (2) is an apomorphy of Metriorhynchidae.
	0. reduced, flush with the rim of the orbit
	1. incipient enlargement (extending laterally over the orbit by approximately 5% of
	its width)
	2. enlarged (extending laterally over the orbit by >15% of its width)
58	Prefrontal, lateral development relative to the posterolateral corner of the
	supratemporal fossa in dorsal view:
	0. Prefrontal does not expand laterally so that it is in the same plane as the
	posterolateral corner of the supratemporal fossa
	1. Prefrontal expands further laterally than the posterolateral corner of the
50	supratemporal rossa
39	Preirontal, snape in dorsal view:
	Sstate (1) is an apomorphy of Metriornynchiade.
	0. quadrilateral with irregular outline
(0)	1. teardrop-snaped
00	This shanastan describes the share of the profuental in Metriculan chidae
	This character describes the shape of the prefrontial in Metriornynchiade.
	riesiosucilus, Geosaulus <i>una</i> Torvolleustes <i>code us stale</i> (1). <i>stale</i> (2) is un
	0 continuous convex curve, inflexion point approximately 80,00 degree angle from
	the enterenesterior axis of the skull
	1 continuous convex curve, inflexion point approximately 60, 70 degree angle from
	the anteronosterior axis of the skull
	2 continuous convex curve inflexion point approximately 50 degree angle from the
	anteronosterior axis of the skull
61	Profrontal dimensions in dorsal view:
01	0 longer than wide
	1 length/width is subequal $(+5\%)$
62	Prefrontal anterior to the orbits:
52	0 elongate oriented parallel to antero-posterior axis of the skull
	1 short and broad

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63	Prefrontal, nasal-prefrontal suture has a pronounced, rectangular 'concavity'
	(directed posteriorly):
	State (1) is an apomorphy of Eoneustes.
	0. absent
	1. present
64	Prefrontal, nasal-prefrontal suture has a posteriorly directed 'V'-shape:
	State (1) is an apomorphy of Cricosaurus macrospondylus.
	0. absent
	1. present
65	Frontal, ornamented:
	In metriorhynchid, the main body of the frontal can be largely or entirely 'smooth',
	while the anteromedial process is ornamented. If this process is ornamented, the
	taxon was still coded from states (0-2).
	0. yes, with shallow to deep elliptical pits and shallow to deep grooves
	1. yes, shallow to deep elliptical pits
	2. yes, shallow to deep grooves
	3. no
66	Frontal, dorsal surface along the midline: (NEW)
	Modified from Nesbitt (2011: ch. 42)
	State (0) is an apomorphy of Crocodyliformes and Thalattosuchia (although there is
	a reversal in numerous neosuchian clades)
	0. flat
	1. an incomplete longitudinal ridge along the midline
	2. a longitudinal ridge that proceeds along the entire length of the midline
67	Frontal, dorsal surface: (NEW)
	State (1) occurs in Hesperosuchus cf. agilis, Dromicosuchus grallator, and among
	many tethysuchians (except derived dyrosaurids)
	0. slightly convex or flat
	1. concave, with the medial borders of the orbit upturned
68	Frontal, anteromedial process: (NEW)
	State (1) is an apomorphy of Sebecia, and also occurs in some basal dyrosaurids
	0.frontal anteromedial process has an acute anterior margin, which separates the left
	and right nasals along their posterior margin
	1. frontal anteromedial process lacks an acute anterior margin, with the nasal
	posterior margin with the frontal being either transversely straight, or is slightly
	convex or concave (in taxa where the prefrontals expand anterolaterally, there can
	sometimes be posteromedial processes of the nasals)
69	Frontal, angle between medial and lateral posterior processes:
	0. approximately 90 degree angle, or obtuse
	1. approximately 70-60 degree angle
	2. approximately 45 degree angle, or more acute
70	Frontal, minimum width between orbits in dorsal view compared to the
	supratemporal fossa:
	0. greater than the width of one supratemporal fossa and the intertemporal bar
	1. subequal to width of one supratemporal fossa
71	Frontal, minimum width between orbits in dorsal view compared to the orbits:

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	0. broader than orbital width
	1. subequal with orbital width
	2. narrower than orbital width
72	Frontal-parietal, between supratemporal fossa in dorsal view (intertemporal
	bar):
	0. frontal and parietal subequal in width $(\pm 5\%)$
	1. frontal width is wider than the parietal. Can be extreme (greater than 75%)
73	Frontal-postorbital suture:
	0. level with the intertemporal bar
	1. lower than the intertemporal bar
74	Frontal-postorbital suture, in dorsal view:
	State (1) is a metriorhynchid apomorphy.
	0. irregular and straight or gently curved
	1. frontal overlaps the postorbital, creating a directed posteriorly 'V'-shape.
75	Postorbital, shape in dorsal view:
	0. the outer margin is convex where the postorbital curves posteriorly forming the
	supratemporal arch
	1. forming a 90 degree angle
	2. anterior extension from the corner
76	Postorbital, anterolateral extension:
	State (1) of this character, and state (2) of the character "anterior extension from the
	postorbital corner" do not necessary occur in the same taxon (e.g. Oceanosuchus).
	0. small or absent
	1. very large, appearing in lateral view to contact the dorsal surface of the jugal
77	Postorbital and squamosal, relative lengths in dorsal view:
	0. squamosal is longer
	1. postorbital is longer
78	Squamosal, projects further posteriorly than the occipital condyle:
	0. no
	1. yes
79	Squamosal, contribution to the supratemporal arch:
	0. 40% or less
	1. at least 50%
80	Squamosal dorsolateral edge, longitudinal groove (NEW):
	Nesbitt (2011: ch. 53)
	State (1) is an apomorphy of Crocodyliformes and Thalattosuchia
	0. absent
	1. present
81	Squamosal dorsolateral edge, longitudinal groove margins (NEW):
	0. ventral margin of the groove projects more laterally than the dorsal margin
	1. ventral margin is directly underneath the dorsal margin
82	Parietals, in presumed adults: (NEW)
	Nesbitt (2011: ch. 58)
	0. separate
	1. interparietal suture partially or completely absent
83	Parietals, supratemporal (= dorsotemporal) fenestrae separated by: (NEW)

1. supratemporal fossa separated by a mediolaterally thin strip of flat bone

Nesbitt (2011: ch. 59) 0. broad, flat area

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	2. supratemporal fossa separated by a "sagittal crest" (which may be divided by the
	interparietal
0.4	suture)
84	Parietal, bifurcation of the parietal in dorsal view, immediately posterior to the
	intertemporal bar: (NEW)
	State (1) is jound in Dakosaurus lissocephalus, Cricosaurus araucanensis, C.
	elegans, C. lithographicus, C. schroederi <i>ana</i> C. vignaudi.
	This churacter replaces the character that described the posterior margin of the
	partetal-squamosal in dorsal view.
05	1. 105 Devictels nectoreventual adapt (NEW)
83	Nashitt (2011: ch. 60)
	State (1) is an anomorphy of Crocodyliformes (i.e. not including Thalattosuchia)
	0 extending more than half the width of the occiput
	1 less than half the width of the occiput
	1. less than har the width of the occipat
Orbit and	temporal region
Character	Description
86	Orbit, position:
	0. fully dorsal
	1. mainly dorsal, but with slight inclination
	2. lateral, but slightly inclined dorsally, usually visible in dorsal view
	3. fully lateral with orbit shape only clear in lateral view
87	Orbit, shape:
	0. circular, anteroposterior and dorsoventral axes subequal ( $\pm$ 5%)
	1. longitudinal ellipsoid, anteroposterior axis more than 10% longer than
	mediolateral axis
	2. transverse ellipsoid, mediolateral axis more than 10% longer than anteroposterior
	axis
88	Orbit, anterodorsal margin and the lacrimal:
	In Thalattosuchia, state (1) is an apomorphy of Teleidosaurus calvadosii
	0. lacrimal is excluded from the orbit anterodorsal margin
00	1. lacrimal reaches the orbit anterodorsal margin
89	Orbit, posterodorsal margin and the postorbital:
	In Indialiosuchia, siale (1) is an apomorphy of the clade Telefosaurus +
	Meiriornynchiade
	1. postorbital is excluded from the orbit posterodorsal margin
00	1. postorolital reaches the orbit posterodorsal margin
20	0 lacrimal is evoluded from the orbit anteroventral margin
	1 lacrimal reaches the orbit anteroventral margin
01	Orbit postorovontral margin and the postorbital:
11	or on, posicioventi ai margin anu tite postor ottar.

	In Thalattosuchia, state (1) occurs in basal teleosaurids (Steneosaurus brevior, S.
	bollensis, Peipehsuchus teleorhinus, Platysuchus multiscrobiculatus & Teleosaurus
	cadomensis)
	0. postorbital is excluded from the orbit posteroventral margin
	1 postorbital reaches the orbit posteroventral margin (with the postorbital
	overlapping the jugal)
92	Orbit, ventral margin and the jugal:
	In Thalattosuchia, state (1) is an apomorphy of Platysuchus multiscrobiculatus
	0. jugal participates in the orbit ventral margin
	1 jugal excluded from the orbit by lacrimal-postorbital contact
93	Supraorbital notch in dorsal view, deeply excavated creating an approximately
,,,	semi-circular shape, resulting in the frontal being broadly exposed along the
	lateral margin of the orbits: (NEW)
	This character is not applicable in non-metriorhynchids
	State (1) is an anomorphy of a subclade within Rhacheosaurini
	0 No
04	1. 105 Suprearbital notab in darsal view, very small being a tight "U" shape areated
74	by the prefrontal being expanded posteriorly. This results in the prefrontal
	making a larger contribution to the orbit dersal margin and the frontal
	making a larger contribution to the orbit dorsal margin and the frontal
	being evoluted from the centre of the orbital dereal margin. (NEW)
	This of supertor is not supplies blo in non-metriculum chids
	This character is not applicable in non-metriornynchias.
	<i>State (1) is jound in</i> Geosaurus, Methornynchus palpebrosus, Cricosaurus saitiliensis
	ana C. macrospondylus.
	0. No
<u>.</u>	1. Yes
95	Palpebrals:
	0. two palpebrals in orbit
	1. one large palpebral
	2. absent
96	Sclerotic ossicles (composing the sclerotic ring):
	Within Thalattosuchia, state (1) is an apomorphy of Pelagosaurus +
	Metriorhynchidae.
	0. absent
	1. present
97	Jugal, width of anterior process relative to posterior process:
	0. subequal
	1. about twice as broad
98	Jugal, extends anteriorly in front of the prefrontal:
	0. no
	1. ves
99	Jugal, base of postorbital process in lateral view:
	0 directed posterodorsally
	1 dorsally
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	State (1) is an apomorphy of Crocodylomorpha	
	0. Present	
	1. Absent	
101	Postorbital bar, morphology of dorsal end:	
	0. dorsal end of the postorbital bar broadens dorsally, continuous with dorsal part of	
	the postorbital	
	1. dorsal part of the postorbital bar constricted, distinct from the dorsal part of the	
	postorbital	
102	Postorbital bar, vascular opening on lateral edge of dorsal part:	
	0. absent	
100	1. present	
103	Postorbital bar, morphology of postorbital-jugal contact:	
	0. postorbital medial to jugal	
104	1. postorbital lateral to jugal	
104	Postorbital bar, cross-section:	
	Clark (1994: ch. 26)	
	0. transversely flattened	
105	1. cylindrical	
105	Quadratojugal-postorbital, contact: (NEW)	
	Nesolii (2011, Ch. 04) State (1) is an anomountu of Croceduliformer (i.e. not including Thalatteruchia)	
	Sidie (1) is an apomorphy of Crocodyliformes (i.e. not including Thatallosuchia)	
	1 present	
106	Infratemporal fenestra (=laterotemporal fenestra), in lateral view:	
100	0 considerably longer in length than the orbit (greater than 25%)	
	1. equal/subequal in length than the orbit $(\pm 10\%)$	
	2. shorter in length than the orbit (less than 25%)	
107	Spina quadratoiugalis:	
	0. absent	
	1. either small or low crest	
	2. prominent	
Palate and	l perichoanal structures	
Character	Description	
108	Palatal surface of the rostrum, notch near premaxilla-maxilla suture:	
	0. absent	
	1. present, lozenge-shaped	
109	Palatal surface of the rostrum, naso-oral fossa:	
	0. absent	
110	1. present, usually round or elliptic in shape	
110	Maxilla-palatine contact along the palatal surface, presence:	
	Character neips to quantify the development of the secondary palate.	
	U. ADSCHL 1. Dresent	
111	1. FICSULL Delating how for antonically the polating systems relative to the maxillary test	
111	ratatine, now far anteriority the palatine extents relative to the maxillary tooth	
	1 row (more states auteu):	

	State (5) is an apomorphy of Plesiosuchus manselii	
	0 Palatine anterior margin terminates level to 20th maxillary alveoli or more distal	
	alveoli	
	1 Palatine anterior margin terminates level to 15th to 19th maxillary alveoli	
	2 Palatine anterior margin terminates level to 11th to 14th eleventh maxillary alveoli	
	3 Palatine anterior margin terminates level to the 8th to 10th maxillary alveoli	
	A Palatine anterior margin terminates level to the 5th to 7th maxillary alveoli	
	5. Polotino anterior margin terminates level to the 4th maxillary alveoli or more	
	s. Falatine anterior margin terminates rever to the 4th maximary arveon, or more maginal alwaphi	
112	Relating anterior margin has a mid line anterior process:	
112	Palatine, anterior margin has a mid-line anterior process:	
	0. present	
112	1. absent	
113	Palatine, mid-line anterior process shape, in palatal view:	
	0. lateral margins of the mid-line anterior process converge: anteriorly orientated	
	"V"-shape	
	1. lateral margins of the mid-line anterior process largely parallel: anteriorly	
	orientated "U"-shape	
114	Palatine, anterior margin has two non-midline anterior processes:	
	In Thalattosuchia, state (1) is an apomorphy of Metriorhynchinae.	
	In Montealtosuchus and Hamadasuchus the mid-line anterior process has a concave	
	anterior margin, creating two "non-midline" processes	
	0. Absent	
	1. Present	
115	15 Palatine, has a very large mid-line anterior process and at the suborbital	
	fenestrae the palatine anterior margin curves rostrolaterally towards it,	
	creating two "small processes":	
	This morphology is variably observed in Eusuchia, Dyrosauridae and	
	Pholidosauridae.	
	0. no	
	1. yes	
116	Palatine, form secondary palate:	
	Character helps to quantify the development of the secondary palate.	
	0. palatines of primary palate exposed and do not contact one another secondarily on	
	mid-line	
	1. palatines meet on mid-line forming a secondary palate	
117	Ptervgoid, secondary palate:	
	State (2) is an apomorphy of Eusuchia and Mahajangasuchus.	
	0. absent	
	1. thin shelves not meeting	
	2 present (i e completely encloses the choana)	
118	Palatine-ntervgoid suture, lateral protrusions by nalatine into the ntervgoids:	
	0 absent	
	1 present	
119	Ptervgoid flange orientation (in nalatal view).	
117	0 horizontal	
	1 largely horizontal but with a distinct anterior orientation	
1	1. In gory norizontal, out with a distinct anterior orientation	

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	2. strongly orientated posteriorly
120	Pterygoid, delimits the posterior margin of the choanae:
	0. no, or not well-delimits the posterior margin of the choane
	1. yes
121	Choanal opening, in palatal view:
	State (1) is observed in extant species
	0. choanal opening orientated posteriorly, enclosed ventrally by the palatine and by
	the pterygoid dorsally
	1. choana opens into palate through a deep midline depression (choanal groove)
122	Choana, anterior margin shape:
	0. semicircular or elliptical
	1. 'V'-shaped with its base directed anteriorly
	2. broad 'U'-shaped with its base directed anteriorly
	3. 'W'-shaped with its base directed anteriorly

Occiptial		
Character	Description	
123	Supraoccipital, posterior surface (NEW):	
	0. nearly flat	
	1. two lateral prominences	
124	Supraoccipital, contribution to the border of the foramen magnum:	
	Gower (2002: ch. 19)	
	0. excluded from dorsal border of foramen magnum by mediodorsal midline contact	
	between opposite exoccipitals	
	1. contributes to border of foramen magnum	
125 Paroccipital processes of the opisthotic, orientation in occipital view		
	State (1) is an apomorphy of Rhacheosaurina.	
	State (2) is an apomorphy of Geosaurinae.	
	State (3) is an apomorphy of Dyrosauridae and 'Dakosaurus' lissocephalus	
	0. horizontal	
	1. dorsolaterally orientated, at a 45 degree angle	
	2. ventral-edge horizontal, then terminal third sharply inclined dorsolaterally at a 45	
	degree angle	
	3. ventrally arched	
126 <b>Paroccipital processes of the opisthotic, large ventrolateral region:</b>		
	0. present	
	1. absent	
127	Paroccipital process, overlap by the squamosal:	
	0. small: the squamosal does not extend more posteriorly than the paroccipital	
	process	
	1. large: it extends further posteriorly than the paroccipital process	
128	Paroccipital processes of the opisthotic, ventral/anteroventral margin of the	
	distal end has a sutural contact with the quadrate: (NEW)	
	0. no	
	1. yes	
129	Foramen for cranial XII nerve, position on occipit:	
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	0. above the occipital condyle in line with the foramen magnum	
	1. below the foramen magnum	
130	) Foramen for the internal carotid artery, size:	
	State (1) is an apomorphy of Pelagosaurus + Metriorhynchidae.	
	0. similar in size to the openings for cranial nerves IX-XI	
	1. extremely enlarged	
131	Occipital surface ventral to occipital condyle:	
	State (1) is an apomorphy of Crocodylia.	
	0. slopes anteroventrally	
	1. roughly parallel to the transverse plane	
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# Braincase, basicranium and suspensorium

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	continue to bifurcate the ptergoids anteriorly. This morphology is not observed in
	Teleosaurus cadomensis. Peipehsuchus teleorhinus. Steneosaurus brevior.
	Pelagosaurus typus or Metriorhynchidae
	0 basisphenoid terminates approximately level to the anterior extent of the quadrates
	1 basisphenoid 'rostrum' exposed along the palatal surface anterior to the quadrates
	1. Dasisplication to bifurnation the network of the paratal surface antenior to the quadrates,
120	continuing to bifurcating the pterygolds
138	Basisphenoid, exposure ventral to the basioccipital at maturity in occipital
	aspect:
	State (1) is an apomorphy of Eusuchia.
	0. absent, pterygoid dorsoventrally short ventral to median eustachian
	1. present, pterygoid dorsoventrally tall ventral to median eustachian opening
139	Basioccipial tuberosities (= basal tubera):
	0. reduced
	1. large and pendulous
140	Quadrate, prominent crest on dorsal surface of distal quadrate extending
	proximally to lateral extent of quadrate-exoccipital contact:
	0 absent
	1 present
141	Quadrate contact with the proötics: (NFW)
1 1 1	Neshitt (2011: ch. 76)
	State (1) is an anomorphy of Crocodylomorpha
	0. doos not contact the proötic
	1. contracts the pročitic
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142	Quadrate, dorsal nead contact:
	State (1) is an apomorphy of Crocodyliformes (i.e. not including Thalattosuchia)
	0. squamosal and exoccipital/opisthotic/otoccipital (can have medial contact with
	proötics and laterosphenoids)
	1. proötic and laterosphenoid
143	Quadrate, dorsal head contact:
	Nesbitt (2011: ch. 77)
	State (1) is an apomorphy of Neosuchia
	0. does not have a sutural contact with the paroccipital process of the opisthotic
	1. has a sutural contact with the paroccipital process of the opisthotic
144	Quadrate orbital process, remains free of bony attachment along its
	anteromedial surface:
	This character represents the 'auadrate incompletely sutured to the braincase'
	statement in Hollidav & Witmer (2009) and Fernández et al. (2011)
	State (1) is an anomorphy of Crocodyliformes (i.e. not including Thalattosuchia)
	0 ves
	1 no
1/15	Ouadrata fanostraa an the darsel surface on the provined and:
143	A two or more
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146	Quadrate, pneumatism:
	0. not pneumatic
	1. pneumatic

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148	be coded if the articular is preserved and no ridge that supports the intercondylar sulcus is present) State (1) is an apomorphy of Plesiosuchus 0. yes
148	State (1) is an apomorphy of Plesiosuchus 0. yes
148	0. yes
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1 4 0	Mandibular condule of quadrate position:
	State (1) occurs in Neosuchia with a reversal in Dyrosauridae
	Since (1) becaus in Reosachia, with a reversal in Dyrosachiae $Wu$ et al. (2001: ch. 124)
	0 ventral to occipital condyle
	1. or on level with occipital condyle
149	External auditory meatus fossa, anterior extension:
	0. limited to the squamosal
	1. reaches the posterior margin of postorbital
	2. broadly exposed on the postorbital (covering the anterolateral margin)
	3. crosses the postorbital and reaches the orbit
150	Quadrate, squamosal, and otoccipital:
	0. do not meet to enclose cranioquadrate passage
	1. enclose passage near lateral edge of skull
	2. meet broadly lateral to the passage
151	Cranioquadrate canal:
	Character based on data from Jouve (2009).
	0. Incompletely separated from the external auditory aperature by a thin ventral
	lamina of the exoccipital not closed dorsally
	1. Cranioquadrate canal clearly separated from the otic aperature by the quadrate
	exoccipital and squamosal
152	Eustachian tubes:
	Character 121 from Nesbitt (2011); based on character 13 of Gower (2002).
	0. not enclosed by bone
	1. partially enclosed by bone
	2. fully enclosed by bone

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Character	Description
153	Mandible geometry, relative positions of the dentary tooth-row and coronid
	process, and development of dorsal curvature of the caudal-end of the
	mandible:
	State (1) is an apomorphy of Metriorhynchidae. Quantifies the incipient increase of
	gape at the base of Metriorhynchidae.
	0. gentle curvature in the dorsal margin of the mandible, from the coronoid process
	to the end of the tooth-row
	1. strong curvature, raising the coronoid process considerably above the tooth-row
154	Mandible geometry, relative positions of coronoid process, retroarticular
	process and glenoid fossa:
	State (1) is an apomorphy of the clade Geosaurini. This character quantifies the
	greater increase in gape associated with macrophagous geosaurines.

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	0. coronoid process level to both the retroarticular process and glenoid fossa
	1. coronoid process ventral to both the retroarticular process and glenoid fossa
155	Anterior of mandible (dentary), dorsal margin of the anterior portion compared
	to the dorsal margin of the posterior portion:
	Nesbitt (2011: ch. 154)
	0. horizontal (in the same plane)
	1. ventrally deflected
	2. dorsally expanded
156	Anterior of mandible (dentary), in dorsal view:
	State (1) is an apomorphy of Teleosauridae (although it also appears in
	pholidosaurids, some dyrosaurids, and is present in some longirostrine eusuchians).
	0. Outer margin converging towards tip or parallel
	1. distinct notched spatulate shape
157	Anterior of mandible (dentary), in dorsal view (NEW):
	State (1) occurs in basal dyrosaurids and tomistomine crocodyloids.
	Note this character is not considered homologous to the 'trowel'-shape seen in
	Baurusuchus Hamadasuchus and Peirosauridae due to their symphyseal region
	being shorter broader and deeper the tapering anterior maximal anterior width is
	more pronounced, and the width at the posterior symphyseal region is greater than
	the maximal anterior width
	0 non 'gladius'-shaped
	1 'gladius'-shaped - i.e. a long symphyseal region with the anterior maximal width
	near the D3-D5 region with the dentaries tapering anteriorly. Immediately posterior
	to the maximal width the dentaries begin to narrow until they reach a minimal width
	and begin expanding again. At the end of the symphyseal region the breadth is now
	wider than the anterior maximal width
158	Anterior of mandible (dentary), in dorsal view (NEW):
	State (1) occurs in Hamadasuchus, Peirosauridae and Baurusuchus,
	Note this character is not considered homologous to the 'gladius'-shape seen in basal
	dvrosaurids and tomistomine crocodyloids due to their either short and broad
	symphyseal regions and/or the anterior maximal width is wider or as wide as the
	nosterior symphyseal width
	0 non 'trowel'-shaped
	1 'trowel'-shaped - i.e. a moderate to short symphyseal region with the anterior
	maximal width near the D3-D5 region with the dentaries tapering strongly
	anteriorly Immediately posterior to the maximal width the dentaries begin to narrow
	until they reach a minimal width and begin expanding again. At the end of the
	symphyseal region the breadth is either narrower or subequal to the anterior maximal
	width
159	Mandibular symphysis length:
109	0 symphysis less than a third of mandible length (lower than 0.3)
	1 symphysis less than half and more than a third of mandible length (between 0.3
	and 0.45)
	2 symphysis under half of mandible length (between 0.45 and 0.5)
	3 symphysis greater than half of mandible length (more than 0.5)
160	Mandibular symphysis donth:
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	<ul> <li>This character quantifying the relative depth of the mandibular symphysis makes the absolute tooth crown size character redundant. This is because the metriorhynchids with the largest crowns also have the deepest symphyses (e.g., Dakosaurus andiniensis, Plesiosuchus manselii).</li> <li>0. deep (9% or more of mandible length)</li> <li>1. moderate (between 6.5-8% of mandible length)</li> <li>2. narrow (between 4.5-6% of mandible length)</li> <li>3. very narrow (4% or less of mandible length)</li> </ul>
161	<b>External mandibular fenestra:</b> State (1) occurs in Metriorhynchidae, Hylaeochampsidae and Goniopholis sensu stricto (Andrade et al., 2011)
	0. present 1. absent
162	<ul> <li>Dentary, ventral margin is distinctly curved (convex). It rises sharply dorsally towards the anterior tip (this curvature occurs along the anterior ventral margin of the dentary): (NEW)</li> <li>State (1) occurs in Dakosaurus, Baurusuchus, and in 'trematochampsids' and peirosaurids.</li> <li>0. no</li> <li>1. yes</li> </ul>
163	Dentary, ventral margin is curved (concave). It rises dorsally towards the anterior tip (this curvature occurs along the anterior ventral margin of the dentary, from a dorsoventrally deepened region of the dentary, immediately anterior to the dentary-splenial suture): (NEW) State (1) occurs in Hylaeochampsidae. 0. no 1. yes
164	Dentary foramina, lateral and dorsal surface of the anterior (symphyseal)region of the dentary: (NEW)State (1) is an apomorphy of Dakosaurus0. foramina either small or variable in size. Number is variable.1. has numerous small to medium-sized foramina
165	Dentary tooth-row, distinctly sigmoidal: (NEW)         State (1) is an apomorphy of Hylaeochampsidae         0. no         1. yes, with the anterior alveoli orientated slightly anterolaterally and the posterior alveoli orientated posteromedially, between these two orientations the mid-region alveoli become dorsally orientated
166	<ul> <li>Surangulodentary groove, morphology: Note taphonomic or preservational damage can obscure state (1).</li> <li>State (2) is an apomorphy of the clade Geosaurini. Previously it was considered an apomorphy of Dakosaurus; however, the type specimens for the genera Dakosaurus, Plesiosuchus and Geosaurus exhibit this morphology. The deep groove is also observed in a Torvoneustes specimen held in a private collection. The large specimens of Tyrannoneustes lythrodectikos also have a deep groove.</li> <li>0. absent</li> </ul>

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	1. present as a subtle, shallow groove
	2. deeply excavated
167	Surangulodentary groove, extant:
	0. groove is longer on the dentary than on the surangular
	1. groove is as long on the dentary as on the surangular
168	Surangulodentary groove, large foramen present at the dentary terminus:
	State (1) is an apomorphy of Dakosaurus.
	0. absent
1.0	1. present
169	Splenial, involvement in mandibular symphysis: 0 = a light (< 100/ af arms hypig langth)
	0. slight (<10% of symphysis length)
	1. extensive (>20% of symphysis length)
170	2. Not involved Angular in lateral view length relative to the enterior mangin of the exhite
170	Angular, in lateral view, length relative to the anterior margin of the orbit:
	1 angular does extend anteriorly beyond the orbits
171	Surangular in lateral view length relative to the anterior margin of the orbit:
1/1	0 surangular does not extend rostrally beyond the orbits
	1 surangular does extend anteriorly beyond the orbits
172	Surangular, along the dorsal margin of the mandible:
	This character does not always covary with the character 120, as in non-
	Rhacheosaurini metriorhynchines the dentary extensively overlaps the surangular
	(particularly in lateral view), obscuring its rostral development. The full extent of the
	surangular rostral development can only be determined by examining the dorsal
	margin in those taxa (e.g., Metriorhynchus).
	0. does not extend beyond the orbit
	1. does extend beyond the orbit
173	Surangular, presence a distinct coronoid process:
	In Thalattosuchia it appears as though all taxa have a coronoid process. In
	teleosaurids the coronoid process is medially orientated and is not visible in lateral
	view, unlike in Pelagosaurus + Metriorhynchidae
	0. no
	1. yes
174	Surangular, extension toward posterior end of retroarticular process:
	0. along entire length
	1. pinched off anterior to posterior tip
175	Prearticular:
	0. present
1 - 6	1. absent
176	Coronoid, rostral development along the dorsal margin:
	0. does not project as far as the dentary tooth row
1.77	1. projects further anteriorly than the caudal-most alveoli
1//	Coronoid, participates on the external face of the mandible:
170	1. yts Articular glanoid forge orientations
1/ð	Articular, glenoid lossa orientation:

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	0. anterodorsally
	1. dorsally
179	Retroarticular process, shape in dorsal view:
	0. broad and robust
	1. triangular
	2. paddle-shaped
	3. ellipsoid, spoon-shaped
180	Retroarticular process, width:
	0. narrower than the glenoid fossa
	1. wider than the glenoid fossa (projecting medially past the glenoid fossa)
181	Retroarticular process, length:
	0. long (longer than wide, and longer than the glenoid fossa width)
	1. short (wider than long, and shorter than the glenoid fossa width)

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## Dentition and alveolar morphologies

Character	Description
182	Premaxilla, alveolar count:
	0. five alveoli
	1. four alveoli
	2. three alveoli (or fewer)
183	Maxilla, alveolar count:
	0. 11 or fewer alveoli
	1. 12-16 alveoli
	2. 17-20 alveoli
	3. 21-28 alveoli
	4. 29 or more alveoli
184	Number of teeth partially supported by both the premaxilla and maxilla:
	In Thalattosuchia, State (1) occurs in Tyrannoneustes lythrodectikos, Torvoneustes,
	'Metriorhynchus' hastifer and Mr Passmore's specimen
	0. none
	1. one
185	Dentary, alveolar count:
	This character does not covary with the count of the maxillary teeth, as some taxa
	(e.g. "Metriorhynchus" casamiquelai) have more teeth in the dentary than in the
	maxilla
	0. 30 or more alveoli per rami
	1. 20-29 alveoli
	2. 19-15 alveoli
	3. 14 or fewer alveoli
186	Maxillary anterior alveoli shape: (NEW)
	In Thalattosuchia, State (1) is an apomorphy of the clade 'Metriorhynchus' hastifer
	and Mr Passmore's specimen. Note that shearing or crushing of the snout can make
	this character hard to discern.
	0. sub-circular
	1. sub-oval, being wider transversely than anteroposteriorly
187	Maxillary interalveolar spaces, relative size:

State (1) is an apomorphy of Dakosaurus + Plesiosuchus sub-clade and

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192	D2 alveoli, size relative to D1 alveoli:
102	neighbouring alveoli
	1. alveoli 1–2 confluent, separated by a thin alveolar wall, and clearly apart from
	teeth
	0. well-separated, usually as much distant from each other as from other dentary
	State (1) is an apomorphy of Goniopholis
171	Andrade et al. (2011: 402).
191	Dentary alveoli 1–2. confluence (NEW).
	1 Present
	State (1) is an apomorphy of Dakosaurus maximus
190	Dentary alveoli, diastema between the first and second alveoli: (NEW) State (1) is an anomorphy of Dekospurus maximus
100	one quarter the length of the immediate alveoli (or even smaller)
	1. Interalveolar spaces are/almost completely uniformly narrow, being approximately
	alveoli, while others are approximately half the length of the immediately adjacent
	0. Interalveolar spaces are variable in size, some are similar in length to the adjacent
	This character currently correlates with the maxillary interalveolar space character
	leedsi
	State (1) is an apomorphy of Dakosaurus+Plesiosuchus sub-clade and Gracilineustes
189	Dentary interalveolar spaces, relative size:
	being directed anteriorly from the mouth, along anteroposterior axis of the skull
	2. strongly anteriorly orientated (procumbent), resulting in the first dentary tooth
	1. mainly dorsally orientated, but with a slight anterior orientation
	0. dorsally orientated
	Cricosaurus aracuanensis, as they are also partially laterally orientated
	This morphology differs from the procumbency of the first dentary alveolus seen in
	riclaensis
	State (2) is an apomorphy of Hylaeochampsidae, Dakosaurus and Maledictosuchus
	Hamadasuchus
	State (1) occurs in Tethysuchia (e.g. dyrosaurids, Sarcosuchus, Chalawan) and
188	Dentary alveoli one, orientation: (NEW)
	alveoli share the same alveolar lamina.
	one quarter the length of the immediate alveoli (or even smaller) The adjacent
	1 Interalveolar spaces are/almost completely uniformly narrow being approximately
	alveoli (especially towards the end of the maxillary tooth row)
	alveoli while others are approximately half the length of the immediately adjacent
	0 Interalveolar spaces are variable in size, some are similar in length to the adjacent
	appear to evolve an analogous, but slignily all jerent morphology, which has not yet
	ine aujaceni aiveoii ana iney ao noi aiway share the same aiveoiar iamina. They appear to wolve an analogous, but slightly different mombology, which has not not
	the adjacent alreali and they do not alway share the same alrealar laming. They
	Passmore's specimen as some interal veolar spaces are large over half the length of
	State (1) does not occur in Toryoneustes carpenteri 'Metriorhynchus' hastifer and Mr
	This character currently correlates with the dentary interalveolar space character
	Gracilineustes leedsi

	Modified from: Hastings et al. (2010: ch. 64).
	0. similar in size
	1. reduced in size relative to both adjacent alveoli
193	Interalveolar space between the D2 and D3 alveoli relative to that of the D1 and
	D2 alveoli:
	Modified from: Hastings et al. (2010: ch. 65).
	0. approximately equal in proportion
	1. the $D2-D3$ interalveolar space is longer than the interalveolar space between the
104	D1 and D2
194	D4 alveolar wall:
	Modified from: Hastings et al. (2010: ch. 68).
	0. level with the adjacent alveoli
105	1. raised relative to the adjacent alveoli
195	Dentary alveoli, diastema present between the fourth and fifth alveoli: $S(x,y,y) = \int_{-\infty}^{\infty} \frac{1}{2\pi i y} $
	State (1) is an apomorphy of Indiattosuchia
	Within Indiattosuchia: state (0) is an apomorphy of the Dakosaurus+Plesiosuchus
	sub-clade
	Note that while the very small deniary interative landsi the D4 D5 directory is still
	Dakosaurus, Flestosuchus ana Orachinieustes leeusi, ine D4-D5 atastema is stitt
	0 Absent
	0. Absent
106	D7 alveeli size
190	D' aiveoil, size. Modified from: Jourge (2004: ch. 153) Jourge (2005: ch. 3) Jourge et al. (2005h: ch.
	Nourieu from: Souve (2004: ch. 155), Souve (2005: ch. 5), Souve et al. (2005). ch. 8) Jouve et al. (2006: ch. 164) Jouve et al. (2008: ch. 8) Hastings et al. (2010: ch.
	(2010. ch. 104), souve et ul. (2000. ch. 104), souve et ul. (2000. ch. 0), Hustings et ul. (2010. ch. 73)
	State (1) occurs in Dyrosauridae
	0 comparable in size to the adjacent alveoli
	1 reduced in size compared to the adjacent alveoli
197	D7 alveoli nosition:
177	Modified from: Jouve (2004: ch. 153) Jouve (2005: ch. 3) Jouve et al. (2005b: ch.
	8) Jouve et al. (2006: ch. 164) Jouve et al. (2008: ch. 8) Hastings et al. (2010: ch.
	(2010: ch. 107), boure et ul. (2000: ch. 0), Hustings et ul. (2010: ch. 73)
	State (1) occurs in Dyrosauridae
	0 comparable in size to the adjacent alveoli
	1 close in position to the eighth alveoli
198	Dentary alveoli, number of alveoli adjacent to the mandibular symphysis:
	Within Thalattosuchia: state (3) is an apomorphy of Dakosaurus
	0. 15 or more
	1. 10 to 14
	2. 7 to 9
	3.4 to 6
	4. Fewer than 4
199	Premaxilla-anterior maxillary tooth crown apicobasal length to basal width
	ratio:

	1. 2.5 or less
200	Maxillary teeth, crown size:
	Although this character would obviously correlate with the character quantifying
	mandibular symphysis depth. in Geosaurinae this is not necessarily the case. As
	shown by Young et al. (in press), the symphysis is deeper in "Metriorhynchus"
	brachyrhynchus <i>than</i> Tyrannoneustes lythrodectikos. <i>but the latter has tooth crowns</i>
	with a greater apicobasal length.
	0. crowns not enlarged (typically less than 3cm in apicobasal length)
	1. moderately enlarged (between 3 and 4 cm in apicobasal length)
	2. enlarged (apicobasal length 5 cm or greater)
201	Maxillary teeth, mediolateral compression/crown cross section:
	0. no mediolateral compression
	1. weak mediolateral compression (crown midpoint labiolingual width 60-90%
	distal-medial width)
	2. strong mediolateral compression (crown midpoint labiolingual width <60% distal-
	medial width)
202	Maxillary teeth, crown cross section:
	0. subcircular to elliptical
	1. teardrop shaped
203	Maxillary teeth, constriction at base of crown:
	0. absent
	1. present
204	Maxillary teeth, orientation of the anterior to mid-snout crowns:
	0. not procumbent
	1. procumbent
205	Maxillary teeth, enamel bands (sensu Brusatte <i>et al.</i> , 2007):
	Posterior-most maxillary crowns
	0. absent
200	1. present
206	Maxillary teeth, tooth crown tip:
	Anterior crowns
	0. sharpen of worn apex
207	1. Drutt and founded at the tips
207	O equal in size
	1. enlarged dentary teeth opposite to smaller teeth in maxillary tooth row
208	Teeth facets:
200	State (1) is an anomorphy of Geosaurus giganteus G grandis and the Melksham
	monster
	0 either lacking or faceted into 4-5 indistinct planes
	1. distinctly faceted into 3 planes
209	Laminar teeth (teeth with cross-section highly elliptical at base of crown, with
	mesial-distal axis approximately twice the labial-lingual axis, or greater):
	State (1) is an apomorphy of Geosaurus and the Melksham monster.
	0. absent
	1. present, laminar teeth dominate dentition

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210	Sphagesauriform teeth (teeth with short triangular crowns covered by a relatively thick enamel layer, with a denticulate keel and thick, high-relief apicobasal enamel ridges, = longitudinal striae) in both the maxillae and dentariase (NEW)
	State (1) is an anomorphy of Sphagos quividae
	<i>State (1) is an apomorphy of sphagesauridae.</i>
	1 present
211	Tooth wear macroscopic wear along the caringo/mesiodistal margins (NEW):
211	State (1) is an anomorphy of Dakosaurus and closely related taxa
	0 absent
	1 present
212	Tooth curvature:
	0 none crown apical/subapical (91 – 89 degrees)
	1 weakly recurved $(88 - 82 \text{ degrees})$
	2. strongly recurved (< 80 degrees)
213	Tooth mesial and distal margins, presence of carinae: (character made binary)
	0. lack carinae
	1. carinated – created by a smooth keel (raised ridge) on the mesial or the disal
	margins
214	'Serrations' created on the surface of the carinae by the conspicuous superficial
	ornamentation of enamel (false-ziphodonty, sensu Prasad & Broin, 2002):
	0. absent
	1. present
215	True denticles (true-ziphodonty, sensu Prasad & Broin, 2002):
	In Thalattosuchia, basal geosaurines code as state (1).
	Derived genera within Geosaurini codes as state (2).
	0. absent
	1. incipient denticles that are poorly defined (hard to discern, in some cases even
	under Scanning Electron Microscopy). Typically, they either alter the height of the
	carinal keel very little or not at all (definition described in Young et al., 2013)
21(	2. well defined denticies (can be discerned with or without optical aids)
216	Carinae and true denticles, progression along the carinae:
	In Indiattosuchia, basal geosaurines code as state (1).
	Derived genera within Geosaurini codes as state (2).
	Note that this character and character describing possession of the denticies
	currently co-corretate. However, the two morphologies are not the same, and it is
	condition – see Andrade & Bertini 2008)
	<i>condition – see Andrade &amp; Bertini, 2008).</i> 0 denticles are absent, or present on their own (i.e., they do not form a series)
	<ul> <li>condition - see Andrade &amp; Bertini, 2008).</li> <li>0. denticles are absent, or present on their own (i.e., they do not form a series)</li> <li>1. heterogeneous carina, denticles form short rows (of 2-10 denticles) and do not</li> </ul>
	<ul> <li><i>possible that taxa can code differently for these two characters (i.e. the ziphomorphy condition – see Andrade &amp; Bertini, 2008).</i></li> <li>0. denticles are absent, or present on their own (i.e., they do not form a series)</li> <li>1. heterogeneous carina, denticles form short rows (of 2-10 denticles) and do not proceed contiguously along the entire carina</li> </ul>
	<ul> <li><i>possible that taxa can code differently for these two characters (i.e. the ziphomorphy condition – see Andrade &amp; Bertini, 2008).</i></li> <li>0. denticles are absent, or present on their own (i.e., they do not form a series)</li> <li>1. heterogeneous carina, denticles form short rows (of 2-10 denticles) and do not proceed contiguously along the entire carina</li> <li>2. homogeneous carina, denticles form a contiguous, or near contiguous series along</li> </ul>
	<ul> <li>possible that taxa can code all perently for these two characters (i.e. the 21phomorphy condition – see Andrade &amp; Bertini, 2008).</li> <li>0. denticles are absent, or present on their own (i.e., they do not form a series)</li> <li>1. heterogeneous carina, denticles form short rows (of 2-10 denticles) and do not proceed contiguously along the entire carina</li> <li>2. homogeneous carina, denticles form a contiguous, or near contiguous, series along the entire carina</li> </ul>
217	<ul> <li><i>possible that taxa can code differently for these two characters (i.e. the 21phomorphy condition – see Andrade &amp; Bertini, 2008).</i></li> <li>0. denticles are absent, or present on their own (i.e., they do not form a series)</li> <li>1. heterogeneous carina, denticles form short rows (of 2-10 denticles) and do not proceed contiguously along the entire carina</li> <li>2. homogeneous carina, denticles form a contiguous, or near contiguous, series along the entire carina</li> <li>Denticle shape, when observed in lingual or labial view:</li> </ul>
217	<ul> <li>possible that taxa can code differently for these two characters (i.e. the 2tphomorphy condition – see Andrade &amp; Bertini, 2008).</li> <li>0. denticles are absent, or present on their own (i.e., they do not form a series)</li> <li>1. heterogeneous carina, denticles form short rows (of 2-10 denticles) and do not proceed contiguously along the entire carina</li> <li>2. homogeneous carina, denticles form a contiguous, or near contiguous, series along the entire carina</li> <li>Denticle shape, when observed in lingual or labial view:</li> <li>In Thalattosuchia, Plesiosuchus codes as state (0).</li> </ul>
217	<ul> <li>possible that taxa can code algerently for these two characters (i.e. the 2iphomorphy condition – see Andrade &amp; Bertini, 2008).</li> <li>0. denticles are absent, or present on their own (i.e., they do not form a series)</li> <li>1. heterogeneous carina, denticles form short rows (of 2-10 denticles) and do not proceed contiguously along the entire carina</li> <li>2. homogeneous carina, denticles form a contiguous, or near contiguous, series along the entire carina</li> <li>Denticle shape, when observed in lingual or labial view:</li> <li>In Thalattosuchia, Plesiosuchus codes as state (0).</li> <li>0. "chisel"-shaped or rectangular</li> </ul>

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	1. rounded
218	Denticle distribution across the dentition:
	Dakosaurus <i>codes as state (1)</i> .
	At present no taxon is known to combine the microziphodont and macroziphodont
	conditions. However, it is entirely possible that such a taxon could occur. As such.
	state (3) was created.
	In Thalattosuchia, Dakosaurus codes as (2), while 'Metriorhynchus' brachyrhynchus,
	Tyrannoneustes lythrodectikos, Torvoneustes, Geosaurus and Plesiosuchus codes as
	(1).
	0. all or most teeth lack denticles
	1. all teeth are microziphodont (sensu Andrade et al., 2010)
	2. all teeth are macroziphodont (sensu Andrade et al., 2010)
	3. teeth show variation in denticle size (with both microziphodonty and
	macroziphodonty)
219	Occlusion, relation between maxillary and dentary series:
	0. in-line or interlocked
	1. maxillary dentition overbites dentary dentition
220	Morphology of enamel surface ornamentation, apicobasal ridges:
-	In Thalattosuchia, Geosaurus, Dakosaurus, Rhacheosaurus and Cricosaurus code as
	state (0). Tyrannoneustes codes as state (1). Plesiosuchus manselii codes as state (2).
	0. enamel ornamentation absent macroscopically, although under SEM microscopic
	ripples may be present
	1 enamel ornamentation largely absent with on the basal half of the crown short
	well-spaced, well-defined anicobasally aligned ridges
	2. composed of numerous apicobally aligned ridges that are of low-relief (can only
	be properly viewed with visual aids), set close to each other, but become shorter and
	well spaced towards the carinae
	3 composed of numerous well-defined apicobasally aligned ridges conspicuous and
	set close to each other
221	Morphology of enamel surface ornamentation, macroscopic anastomosed
	pattern:
	0. absent
	1. present and strongly developed, but only in the apical region of the crown
Axial p	ost-cranial skeleton
Characte	er Description
222	Atlas, hypocentrum length:
	0. long: >15% of odontoid process length
	1. short: subequal to odontoid process length $(\pm 5\%)$
223	Axis, neural arch diapophysis:
	0. absent
	1. present
224	Presacral vertebrae number:
	0.24

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Number of cervico-dorsal vertebrae where the parapophyses are borne on the

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	centrum ('cervical vertebrae'), including the atlas-axis:
	0. 9 or 10
	1.8
	2.7
226	Cervical vertebrae, shape:
	Modified from (Clark, 1994: ch. 92)
	State (2) is an apomorphy of Eusuchia.
	0. amphicoelous or amphyplatian
	1. weakly procoelous (i.e. the Isisfordia morphotype – posterior condyle is poorly
	developed, with the rim of the posterior face of the centrum still distinct from the
	convexity of the condyle)
	2. strongly procoelous (i.e. the eusuchian morphotype – well-developed posterior
	condyle, which is formed by the entire posterior face of the centrum)
227	Cervical vertebrae, centrum length vs centrum width:
	0. long (centrum, length >1.5 the centrum width)
	1. moderate (centrum length - width subequal $\pm 5\%$ )
	2. short (centrum length <0.95 the centrum width)
228	Middle cervical vertebrae, neural spine height relative to centrum height:
	Currently, there is not the information to code most crocodylomorphs. Within
	<i>Thalattosuchia</i> Steneosaurus edwardsi <i>is 0</i> , St. leedsi <i>codes as 1</i> , and
	metriorhynchids as state 2.
	0. neural spine height is greater than centrum height
	1. neural spine and centrum heights are approximately equal
220	2. neural spine neight is less than centrum neight
229	Number of cervico-dorsal vertebrae where the parapophyses are borne on the
	This character (along with character 184 categorising lumbral vertebrae) was
	formulated to help understand the regionalisation of the presacral column
	Currently, there is not the information to code most crocodylomorphs
	0 12
	2 14
	3 15
230	Number of cervico-dorsal vertebrae posterior to the "thoracic vertebrae" and
	anterior to the sacral vertebrae where the parapophyses are no longer borne on
	the neural arch ('lumbral vertebrae'):
	This character, (along with character 183, categorising thoracic vertebrae) was
	formulated to help understand the regionalisation of the presacral column.
	Currently, there is not the information to code most crocodylomorphs.
	0.2
	1.3
	2.4
231	Thoracic and lumbral vertebrae, shape:
	Modified from (Clark, 1994: ch. 93)
	State (2) is an apomorphy of Eusuchia.
	0. amphicoelous or amphyplatian

	1. weakly procoelous (i.e. the Isisfordia morphotype – posterior condyle is poorly
	developed, with the rim of the posterior face of the centrum still distinct from the
	convexity of the condyle)
	2. strongly procoelous (i.e. the eusuchian morphotype – well-developed posterior
	condyle, which is formed by the entire posterior face of the centrum)
232	Thoracic vertebrae, shallow fossa on the anterior margin of the diapopohysis
	immediately lateral to the parapophysis:
	State (1) is a apomorphy of metriorhynchids, best observed in thoracic vertebrae
	mid-to-late in the series
	0. present
	1. absent
233	Thoracic vertebrae, orientation of parapophysis:
	State (1) is an apomorphy of Metriorhynchidae.
	0. posteriorly or horizontal
	1. anteriorly
234	Anterior thoracic vertebrae, parapophysis in relation to the diapophysis:
	Currently, there is not the information to code most crocodylomorphs. Within
	Thalattosuchia Steneosaurus edwardsi and St. leedsi are state 0, and
	metriorhynchids code as state 1.
	0. parapophysis ventral to, or level with, diapophysis (when observed in lateral view)
	1. parapophysis dorsal to diapophysis (when observed in lateral view)
235	Anterior thoracic vertebrae, neural spine height relative to centrum height:
	Currently, there is not the information to code most crocodylomorphs. Within
	Thalattosuchia Machimosaurus mosae and Steneosaurus edwardsi are 0, and St.
	leedsi and metriorhynchids code as state 1.
	0. neural spine and centrum heights are approximately equal
	1. neural spine height is less than centrum height
236	"Insertion" of a sacral vertebra between the first and second primordial sacral
	vertebrae:
	Nesbitt (2011: ch. 207).
	This character codes for the "third" sacral found in certain taxa (e.g.
	Machimosaurus). Within Thalattosuchia, evidence for three sacral vertebrae is found
	in 'Steneosaurus' obtusidens and Machimosaurus.
	0. absent
	1. present
237	Last sacral vertebra, shape of centrum posterior face:
	State (1) is an apomorphy of Geosaurini
	0. circular to sub-circular, with an equatorial bulge
	1.distinctly oval, transverse width considerably greater than dorsoventral height
238	Caudal vertebrae, shape:
	Clark (1994: ch. 94)
	0. All are: amphicoelous or amphyplatian
	1. first caudal biconvex with the rest being procoelous
	2. or all are procoelous
239	Caudal vertebrae, number:
	0. less than 46

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	1. more than 50
240	Tail, vertebrae morphology near distal end:
	State (1) is an apomorphy of Metriorhynchidae. Character re-phrased based on
	Andrade (2010).
	0. non-hypocercal, distal vertebrae isomorphic to poorly heteromorphic
	1. hypocercal, caudal series clearly heteromorphic, with a section of the distal
	vertebrae defining the lower lobe of a tail fin
241	Axis rib:
	State (1) is an apomorphy of Pelagosaurus and Metriorhynchidae. Callovian
	teleosaurids have a distinct 'bump' or 'process' where a second articular head
	would be (see Andrews, 1913). However, in no specimen is there a second articular
	head preserved.
	0. holocephalous (rib elongate, with one articular head)
	1. dichocephalous (rib triradiate, with two articular heads)
242	Axis rib, tuberculum:
	0. wide with broad dorsal tip
	1. narrow with acute dorsal tip
243	Sacral vertebra 1, orientation of the transverse processes:
	State (1) is an apomorphy of Thalattosuchia.
	0. horizontal
	1. arched ventrally
244	Sacral vertebrae, relative position of lateral end of the transverse processes (=
	sacral ribs):
	State (1) is an apomorphy of Pelagosaurus and Metriorhynchidae.
	This character scores the ventral arching of sacral vertebrae 1 and 2 (as this
	characteristic is only seen when it occurs for both sacrals)
	0. level with the vertebral centrum
	1 ventral relative to the vertebral centrum transverse processes of both sacrals
	lateroventrally directed
245	Chevrons (=haemal arches), shape (posterior chevrons have a anterodorsal
	nrocess):
	State (1) is an anomorphy of Metriorhynchidae.
	0 either 'V' or 'Y'-shaped no distinct anterodorsal process
	1 posterior chevrons have a 'W'-shape when observed in anterior view formed by a
	anterodorsal process rising between the 'Y'-shape
Annendic	ular skeleton
Character	Description
246	Coracoid shane:
2.0	State (1) occurs in teleosaurids and basal metriorhynchoids while state (2) occurs in
	Metriorhynchidae
	0 neither proximal nor distal end are fan-shaped having angular marging
	1 distal end convex forming a gentle fan-shape while the provingel (scopula
	articular) and is triangular in shape with blunt ands
	2 both provimal and distal ands are convey
	2. John proximal and distal ends are convex

Coracoid, postglenoid process: (NEW)

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	Nesbitt (2011: ch. 223) State (0) secure in your successful and the state (1) secure in 'and a security while
	State (0) occurs in non-crocoayiomorphs, state (1) occurs in sphenosuchians, while
	state (2) is an apomorphy of Crocodyliformes+Indiallosuchia
	0. Sholt 1. alargata and averanded nectorically only
	1. elongate and expanded posteriorly only
240	2. elongate and expanded anteriorly and posteriorly
248	Coracoid, posteroventral edge, deep groove: (NEW)
	Nesoltt (2011: 224)
	0. adsent
240	1. present
249	Scapula blade:
	State (1) is an apomorphy of Indiatiosuchia.
	0. scapula blade very large: more than 200% of the width of the scapular shaft,
	generally wider than the distal glenoid region
	1. scapula blade reduced: being as narrow, or narrower than, the proximal region and loss than 150% the width of the seepular sheft
250	less than 150% the width of the scapular shart
250	Scapula, anterior and posterior margins in lateral aspect:
	0. symmetrically concerve in lateral view
	1. anterior adapt more strongly soneave then posterior adapt
	2 nosterior adga more strongly concave than anterior adga
251	2. posterior edge more strongry concave than anterior edge
231	o progent
	0. present
252	Scanula/Humarus siza:
232	0 humerus longer than scanula $(> 15\%)$
	1 humerus and scapula subequal in length (+ 13%)
	2 humerus shorter in length than scapula ( $< 15\%$ )
253	Humerus provimal head.
200	Modified character 232 from Neshitt (2011) - added state (2)
	In thalattosuchians derived teleosaurids (S bollensis S leedsi S edwardsi S
	priscus) have state $(2)$ - the posterior deflection is much pronounced than in other
	thalattosuchian
	In Geosaurini and Rhacheosaurini taxa change to state (0)
	0 confined to the proximal surface
	1 posteriorly expanded and hooked
	2 very strongly posteriorly deflected and hooked with the posterior proximal head
	noticeably posterior to the distal head
254	Humerus, proximomedial articular surface:
	0 strongly convex
	1. weakly convex
255	Humerus, deltopectoral crest:
	State (2) (absent/vestigial) has been removed. as metriorhynchids of the subclade
	Rhacheosaurini do indeed possess a deltopectoral crest
	0. present and distinct from the proximal surface
	1 magant but continuous with the provingel surface
	T I. DIESERI, DUI CORTINUOUS WITH THE DIOXIMAL SUITACE

256	Humerus, shape:
	State (1) is an apomorphy of Metriorhynchidae
	0. has typical long bone morphology (longer than wide at distal end)
	1. broadly expanded and plate-like
257	Humerus, length of the shaft relative to total humerus length:
	This character quantifies the reduction in humeral shaft size in Metriorhynchidae
	0. shaft contributing more than 50% of total humeral length
	1. shaft contributes between 35-38% of total humeral length
	2. shaft contributes less than 25% of total humeral length
258	Humerus-antebrachium joint surface:
	State (1) is an apomorphy of Metriorhynchidae
	0. complex, allowing one degree of motion
	1. planar, limiting possible motion
259	Radius, shape:
	State (1) is an apomorphy of Metriorhynchidae.
	0. has typical long bone morphology (longer than width at distal end)
	1. broadly expanded and plate-like
260	Radiale, shape:
	State (1) is an apomorphy of Metriorhynchidae.
	0. has typical long bone morphology (longer than width at distal end)
	1. broadly expanded and plate-like
261	Ulna, shape:
	State (1) is an apomorphy of Metriorhynchidae.
	0. has typical long bone morphology (longer than width at distal end)
	1. broadly expanded and plate-like
262	Ulnare, shape:
	State (1) is an apomorphy of Metriorhynchidae.
	0. has typical long bone morphology (longer than width at distal end)
2(2	1. broadly expanded and plate-like
263	Metacarpal I, shape:
	State (1) is an apomorphy of Metriornynchiade.
	0. clongate, more than twice long as wide 1. breadly superiod an any width at least $(00)$ total longth
264	1. broadly expanded, maximum width at least 60% total length
204	Tumor & Soutish (2010: 86)
	0 forms enterior helf of ventral edge of acetabulum
	1. contacting ilium but partially evaluated from acetabulum by anterior process of
	isobium
	2 completely evoluded from acetabulum by anterior process of isobium
265	2. completely excluded from acetabulum by anterior process of ischium
203	$\frac{1}{Nashitt} (2011 \cdot ch 278)$
	0 less than 70% of femoral length
	1. 70% or more of femoral length
266	I. 7070 01 more 01 remotal rengin
200	Character 128 in Young & Andrade (2000) Andrade et al. (2010) Young et al.
	(2007), Anurace 120 in 10 ang & Anurace (2007), Anurace et al. (2010), 10 ang et al.
	(2011u).

	0 present
	1 absent
267	I ubsent Ilium posterior margin expanded into a thin "fan"-shane:
207	State (1) is an apomorphy of Teleosauridae (except in basal taxaPlatysuchus
	multiscrobiculatus. Teleosaurus cadomensis. Steneosaurus gracilirostris <i>and</i> S.
	bollensis). This structure appears to replace the posterior process in these taxa. At
	present it is not clear whether it is homologous to the posterior process
	0. no
	1.yes, posterior margin is expanded into a thin "fan"-shape that extends from the
	iliac crest to the ventral margin
268	Illium, size:
	0. large (length of dorsal border at least 30% of femur length)
	1. small (length of dorsal border less than 21% of femur length)
269	llium, in lateral view, the orientation of the dorsal margin of the articulation
	facet that contributes to the acetabulum is: S(x(x, y(t))) = S(x(t), y(t))
	State (1) is an apomorphy of Tyrannoneustes Tythdrodectikos
	1. horizontally oriented
270	I lium dorsal border length in lateral view:
270	State (1) is an anomorphy of Tyrannoneustes lythdrodectikos
	0 long terminates at least level to the articulation facet that contributes to the
	acetabulum
	1. short, terminates prior to the articulation facet that contributes to the acetabulum
271	Ischium, anterior process:
	0. developed – with clearly defined articulation facets for pubis and ilium;
	additionally, anterior process is at least half as wide as the posterior process
	1. reduced – lacks both articulation facets, and is 30-50% as wide as posterior
	process
	2. highly reduced – lacking both articulation facets, and is $< 25\%$ as wide as
272	posterior process
212	Neshitt (2011: ch 301) character states re-ordered
	0 absent
	1 present and small
	2. present and largest of the proximal tubera
273	Femur, proximal condylar fold:
	Nesbitt (2011: 312)
	0. absent
	1. present
274	Femur, ridge of attachment of the M. caudifemoralis:
	Modified from Nesbitt (2011: 315)
	Note: we code thalattosuchians as state (0). They lack a fourth trochanter sensu
	stricto, as they only have a large flattened rugose area for the muscle attachment,
	not a aistinct process.
	0. absent, fillefield fugose area 1 low and without a distinct medial asymmetrical apox (= fourth trachanter)
	1. Iow and without a distinct incutal asymmetrical apex (= Iourui nochaliter)

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	2. bladelike with a distinct asymmetric apex located medially
275	Lateral edge of proximal articular surface of femur (lesser trochanter):
	0. rounded
	1. 'squared' with enlarged scar for musculus ischiotrochantericus
276	Femur, medial condyle of the distal portion:
	Nesbitt (2011: ch. 320)
	0. tapers to a point on the medial portion in distal view
	1. smoothly rounded in distal view
277	Femur, distal surface between the lateral and medial condyles:
	Nesbitt (2011: ch. 321)
	0. nearly flat or flat
	1. groove separating the medial condyle from the lateral condyle
278	Hind limb, distal to proximal bone length ratio: (ORDERED)
	This character is designed to help elucidate variation in the proportions of the hind
	limb. In Thalattosuchia state (3) is an apomorphy of both Metriorhynchinae and
	Steneosaurus priscus, with derived metriorhynchines being state (4). Middle Jurassic
	teleosaurids (and the Late Jurassic genus Machimosaurus) and Geosaurinae code as
	<i>state (1).</i>
	= tibia : femur
	0. greater than 0.5
	1. between 0.4 and 0.5
	2. between 0.3 and 0.4
	3. less than 0.3
279	Calcaneum tuber:
	State (2) absent/vestigial calcaneum tuber is removed, as observation of an
	unnumbered Cricosaurus suevicus skeleton in SMNS has the tuber.
	0. well developed – with long neck (subequal in length to main body of calcaneum
	$\pm$ 5%), distal end wider than main body of calcaneum and projects inwards the body
	at >80 degress
	1. poorly developed – short neck (< half length of calcaneum main body), distal end
	< half the width of calcaneum main body width & projects out straight from
	calcaneum
280	Metatarsals, length:
	0. metatarsals 1-4 longer than digits (>20%)
• • •	1. metatarsals 2-4 shorter than digits (< 90%)
281	Metatarsal I, proximal end expansion:
	0. proximal end not enlarged (no more than 10% wider than any other metatarsal)
	1. enlarged (20-30% wider)
	2. moderately enlarged (46-51%)
	3. greatly enlarged (>75% wider)
282	Pedal digit V, metatarsals and phalanges: (NEW)
	<i>Ke-phrased from Nesbitt (2011: ch. 399)</i>
	State (0) occurs in non-crocodylomorphs, state (1) occurs in 'sphenosuchians', while
	state (2) is an apomorphy of Crocodyliformes+Thalattosuchia
	0. present and "fully" developed first phalanx
	1. present and "poorly" developed first phalanx

	2 without phalanges and metatarsal tapers to a point
283	Pes digit lengths:
205	0 digit lengths in descending order III IV II I
	1 IV III II (digit IV elongated creating a paddle-like shape as each digit is $\sim 10\%$
	shorter)
284	Forelimb _ hind limb_length ratio:
204	Character re-designed based on Character 212 of Neshitt (2011) number of
	character states expanded to reflect the forelimb reduction in Thalattosuchia
	= humerus + radius : femur + tibia
	0 greater than 0.55
	1 between 0.45 and 0.55
	2 less than 0.45
Dermal	Armour
Characte	Description
285	Osteoderms, dorsal to the vertebral column:
	Character 401 in Nesbitt (2011)
	Metriorhynchidae have state (0)
	0. absent
	1. present
286	Dorsal osteoderms, presence of a 'peg-like' anterolateral process (forming a
	stylofoveal joint):
	Note that this process does not include the lateral processes seen in dyrosaurids, as
	they articulate with the accessory osteoderms
	This character scores for a similar morphology as that in Character 403 in Nesbitt
	(2011)
	0. absent
	1. present
287	Dorsal osteoderms, paravertebral only:
	Nesbitt (2011: ch. 404)
	Crocodile-line archosaurs including, basal crocodylomorphs, have state (1)
	In Thalattosuchia, Steneosaurus gracilirostris, Teleosaurus and Platysuchus have
	state (1)
	Crocodyliformes have state (0)
	0. flat or weakly arched
	1. distinct longitudinal bend near lateral edge
288	Osteoderms, covering the appendages (= appendicular osteoderms), at least in
	part: (NEW)
	Nesbitt (2011: ch. 405)
	Crocodyliformes have state (1)
	Limb osteoderms are rarely preserved, but have been mentioned for some
	dyrosaurids and advanced neosuchians.
	0. absent
	1. present
289	Osteoderms, biserial or tetraserial dorsal shield:
1	

	1. Tetraserial dorsal shield (two pairs of paramedian osterderms per row)
290	Osteoderms, presence of accessory osteoderm column that do not have a peg- like articulation with the paramedian column, and which are smaller in size than the paramedian column(s): This state does not consider the accessory osteoderms of dyrosaurids to be homologous (see character relating to the 'lateral process') This state does not consider the accessory osteoderms of notosuchians to be homologous, as there the accessory osteoderms can retain the same size and shape as the paramedian column 0. absent
	1. present
291	<ul> <li>Osteoderms, presence of accessory osteoderm column that does have a peg-like articulation with the paramedian column (through a 'lateral process' derived from the anterolateral margin of the paramedian osteoderms)</li> <li>Modified from: Jouve et al. (2008: ch. 37), Hastings et al. (2010: ch. 82)</li> <li>State (1) occurs in dyrosaurids</li> <li>This character was derived to test the homology of accessory osteoderms in dyrosaurids</li> <li>0. absent</li> <li>1. present</li> </ul>
292	Pre-sacral osteoderms (thoracic), dimensions:         Nesbitt (2011: ch. 407)         Crocodile-line archosaurs, including basal crocodylomorphs, have state (1).         In Thalattosuchia, cervical osteoderms can be either state (0) or (1), so this         character has been altered not to include the cervical osteoderms         Crocodyliformes and Thalattosuchia have state (2)         0. square shaped, length and width approximately equal         1. longer than wide         2. wider than long
293	Osteoderm anterior margin, presence of a 'smooth' (unornamented) surface, upon which the preceding osteoderm overlaps: (NEW) Re-phrased from Nesbitt (2011: ch. 408) Crocodyliformes and Thalattosuchia have state (1) 0. absent 1. present
294	Ventral osteoderms forming a carapace in the trunk region:Re-phrased from Nesbitt (2011: ch. 409)Crocodyliformes and Thalattosuchia have state (1)0. absent1. present
295	<ul> <li>Dorsal tail osteoderm distribution:</li> <li>Character previously coded for both the ventral and dorsal caudal rows together.</li> <li>This character was split as Pelagosaurus and Pietraroiasuchus lack ventral caudal osteoderms, but have dorsal caudal osteoderms.</li> <li>0. present, covering at least half of the tail</li> <li>1. present, covering less than half of the tail</li> </ul>

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	296	Ventral tail osteoderm distribution:									
		State (1) is an apomorphy of Pelagosaurus + Metriorhynchidae, and occurs in									
		Pietraroiasuchus									
		0. present									
		1. absent									
	297	Osteoderm dorsal surface, ornamentation:									
		State (2) is an apomorphy of Machimosaurus									
		0. small round to ellipsoid pits in very densely distributed									
		1. large round to ellipsoid pits, well separated from one another									
		2. pits variable in size and length, from small to large, but on osteoderms with a keel,									
		the pits can become elongate grooves									
	298	Osteoderm dorsal surface, keel (longitudinal ridge):									
		State (1) is an apomorphy of Pelagosaurus									
		In Thalattosuchia the cervical and anterior dorsal osteoderms can have reduced									
		keels, which can make it look as those they are absent.									
		In Thalattosuchia, the sacral and anterior-mid caudal osteoderms have raised keels									
		0. present along the entire (or almost all) the paravertebral osteoderms									
		1.absent on most/all paravertebral osteoderms									
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## **Character-Taxon matrix:**

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7	109				1	2	3	4	5	6	7	8	9
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13 14	114	58	59	60	61	62	63	64	65	66	67	68	69
14	115	70	71	72	73	8 <u>-</u> 74	75	76	77	78	79	80	81
16	116	82	83	84	85	86	87	88	89	90	91	92	93
17	117	94	95	96	97	98	99	100	101	102	103	104	105
18	117	106	107	108	100	110	111	112	113	102	115	116	117
19 20	110	118	1107	120	107	122	173	12	125	176	127	128	120
21	119	110	119	120	121	122	125	124	123	120	127	120	141
22	120	130	131	152	133	134	133	130	137	150	159	140	141
23	121	142	143	144	145	140	14/	148	149	150	151	152	133
24 25	122	154	155	156	15/	158	159	160	101	162	163	164	103
26	123	166	16/	168	169	1/0	1/1	1/2	1/3	1/4	1/5	1/6	1//
27	124	178	179	180	181	182	183	184	185	186	187	188	189
28	125	190	191	192	193	194	195	196	197	198	199	200	201
29	126	202	203	204	205	206	207	208	209	210	211	212	213
30 31	127	214	215	216	217	218	219	220	221	222	223	224	225
32	128	226	227	228	229	230	231	232	233	234	235	236	237
33	129	238	239	240	241	242	243	244	245	246	247	248	249
34	130	250	251	252	253	254	255	256	257	258	259	260	261
35	131	262	263	264	265	266	267	268	269	270	271	272	273
37	132	274	275	276	277	278	279	280	281	282	283	284	285
38	133	286	287	288	289	290	291	292	293	294	295	296	297
39	134	298											
40 41	125		1 · 1		0	2	0	0			0	0	0
41	135	Postosuchus	_kirkpa	tricki	?	2	?	0	?	0	?	0	0
43	136	l	0	0	0	3	?	0	0	0	0	?	l
44	137	0	0	0	1	0	0	0	0	0	0	?	0
45	138	0	0	0	0	1	0	1	0	1	0	0	0
46 ⊿7	139	0	0	1	0	1	0	0	0	1	0	1	0
48	140	0	0	?	1	1	0	0	?	1	?	0	0
49	141	0	?	0	0	0	0	0	0	1	1	0	?
50	142	0	1	0	0	3	2	0	1	0	0	0	?
51 52	143	?	1	0	0	0	1	0	?	0	?	?	0
52 53	144	0	0	?	?	0	?	?	?	0	0	0	0
54	145	0	2	0	?	0	?	1	0	0	1	0	?
55	146	?	?	?	0	?	?	0	0	?	0	?	0
56	147	0	0	?	0	?	0	0	0	0	?	?	?
ว/ 58		-											

#### Journal of Systematic Palaeontology

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2 3	140	0	n	0	ŋ	9	9	9	0	9	9	9	0
4	140	0	2	0	? 9	? 0	? 0	? 0	0	? 0	? 0	? 2	0
5	149	2 2	? 9	? 2	? 9	0	0	0	0	0	0	? 2	0
0 7	150	? 2	2 0	2 0	2 0	1	1	0	2	י ר	י נ	י נ	י ר
8	151	? 0	0	0	0	0	0	? 0	? 0	? 0	? 0	? 1	1
9	152	0	<i>!</i>	0	<i>!</i>	0	0	<i>!</i>	0	0	0	1	1
10	153	?	?	?	?	?	?	?	?	?	?	?	?
11 12	154	0	?	?	?	?	0	?	?	?	?	0	?
13	155	?	?	0	?	?	?	?	?	?	0	?	?
14	156	2	?	?	1	0	0	0	0	0	0	0	0
15	157	0	?	0	?	0	0	0	?	?	?	1	1
16 17	158	?	?	?	1	0	0	?	?	?	?	0	?
18	159	1	1	0	?	?	0	1	0	0	?	?	?
19	160	?											
20 21	161	Dromicosuc	chus gr	allator	?	2	?	0	0	0	?	0	?
22	162	0	0	0	0	0	?	0	0	0	0	?	1
23	163	0	?	0	2	?	0	0	?	0	0	?	0
24	164	0	0	0	0	1	0	0	0	0	0	0	?
25 26	165	?	?	1	0	0	0	0	1	1	0	?	0
27	166	0	0	?	0	0	0	0	2	1	1	0	0
28	167	?	1	0	1	0	0	0	0	?	1	0	?
29	168	0	1	Ő	0	3	ů	ů	Ő	0	0	0 0	?
30 31	169	$\overset{\circ}{2}$	2	0	0	0	1	1	2	0	2	2	· ?
32	170	2	· ?	0 2	0 2	0 2	2	2	· ?	0 2	0	· ?	· ?
33	170	2	: 2	· 2	י ר	2	2	2	· 2	י ר	0		י פ
34	1/1	? 2	י פ	י ר	2 0	2 9	י נ	1	· · · ·	י ר	0	0	؛ 1
35	172	2 2	? 0	? 9	0	2 9	2 9	2	! 2	! 2	0	2 9	1
37	173	؛ ۲	2	י נ	0	י ר	? 9	0	<i>!</i>	? 2	י נ	י נ	؛ م
38	1/4	? 9	2	<i>!</i>	? 0	<i>!</i>	<i>!</i>	<i>!</i>	0	<i>!</i>	<i>!</i>	? 0	? 0
39	1/5	?	<i>!</i>	0	<i>!</i>	0	0	0	!	!	0	<i>!</i>	0
40	1/6	?	?	?	?	0	2	0	?	?	?	?	?
41 42	177	?	?	?	?	?	?	?	?	?	?	0	2
43	178	0	0	0	?	?	?	0	0	0	0	1	l
44	179	?	2	2	0	2	?	?	?	?	0	?	?
45	180	0	0	?	?	?	?	?	?	?	?	0	?
46 47	181	?	?	?	0	?	0	0	?	?	1	1	?
48	182	?	?	?	1	0	0	0	0	?	0	?	?
49	183	?	?	?	1	?	?	0	?	?	?	1	1
50	184	1	0	1	0	0	?	?	?	?	?	0	1
51	185	?	1	0	0	0	0	1	0	0	?	?	?
ວ∠ 53	186	0											
54	187	Hesperosuc	hus "ao	zilis"	?	2	?	0	0	0	?	0	0
55 56	188	0	0	0	0	0	?	Õ	Õ	Õ	0	?	?
57 58	189	0	1	0	2	?	0	0	0	0	0	1	0

#### Journal of Systematic Palaeontology

1 2													
2	100	0	0	0	0	1	0	0	0	1	0	0	2
4	190	0	0	1	0	1	0	0	1	1	0	0	2 0
5	191	<u>י</u>	· 0	1	0	0	0	0	1 2	1	1	? 0	0
7	192	0	1	· 0	1	0	0	0	2	1	1	0	2
8	195	0	1	0	1	0	0	0	י ר	2 0	1	0	י פ
9	194	0	1	0	0	3	0	? 1	? 0	0	0	0	/ 0
10	195	<i>!</i>	1	0	<i>!</i>	0	<i>!</i>	1	<i>!</i>	0	<i>!</i>	0	? 0
12	196	2	?	?	?	?	?	?	?	?	?	?	?
13	197	?	?	?	?	?	?	?	?	?	0	0	?
14	198	?	?	?	0	?	?	?	?	?	0	?	l
15	199	?	0	?	0	0	?	0	?	?	?	l	0
10	200	0	2	0	?	?	0	?	0	?	?	?	?
18	201	?	?	?	?	0	0	0	?	0	0	?	0
19	202	?	?	?	?	0	1	0	?	?	?	?	?
20	203	?	?	?	?	?	?	?	?	?	?	0	2
21	204	0	0	0	?	0	?	0	0	0	0	1	1
22	205	0	2	2	0	2	?	?	?	?	?	?	?
24	206	0	0	?	?	?	?	?	?	?	?	?	?
25	207	?	?	?	0	?	?	?	?	?	?	?	?
26 27	208	1	1	0	1	0	0	0	0	0	0	?	?
21	209	?	0	?	?	?	?	?	?	?	?	1	1
29	210	?	?	1	?	?	?	?	?	?	?	?	1
30	211	1	1	0	0	0	0	1	0	0	?	?	?
31	212	0											
33	010		1 1	1	0	2	0	0	0	0	0	0	0
34	213	Dibothrosu	chus_ela	phros	?	2	?	0	0	0	?	0	0
35	214	?	0	0	0	3	?	0	0	0	0	?	l
36	215	0	l	0	0	?	0	0	0	0	0	l	0
38	216	l	0	0	0	l	0	0	0	0	0	0	0
39	217	0	0	1	0	0	0	0	1	0	0	0	0
40	218	0	0	?	0	0	0	0	?	1	?	0	?
41 42	219	1	1	0	0	?	?	?	?	?	?	0	?
43	220	1	2	?	0	2	0	0	0	0	0	0	?
44	221	?	?	0	?	?	?	1	?	0	?	?	?
45	222	1	?	0	1	0	?	?	?	0	0	0	0
46 47	223	0	0	0	?	0	?	?	?	?	0	0	?
47 48	224	?	?	?	?	?	?	0	?	?	?	?	1
49	225	0	0	0	0	?	?	0	?	?	?	?	?
50	226	0	0	?	?	?	?	?	0	?	?	?	?
51	227	?	?	?	?	0	0	0	0	0	?	?	0
ວ∠ 53	228	?	?	?	?	0	1	0	2	?	?	?	?
54	229	?	?	?	?	?	?	?	?	?	?	?	?
55	230	?	?	0	?	?	?	?	0	0	0	1	?
56	231	?	?	?	?	?	?	?	?	?	?	?	?
57 58	232	?	?	?	?	?	?	?	?	?	?	?	?
59													

Journal of Systematic Palaeontology	

1 2													
3	222	9	9	2	2	2	2	2	2	n	1	1	2
4	233	? 2	י ר	י נ	2 9	? 2	? 2	2 9	? 9	י ר	1	1	? 2
5	234	? 2	? 2	? ዓ	? 9	? 2	? 2	? 9	? 2	? 9	? 2	? 9	? 2
о 7	233	? 0	? 9	? 2	? 0	? 0	? 0	? 0	? 0	? 2	? 0	? 0	2 9
8	236	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>
9	237	?	?	?	?	?	?	?	?	?	?	?	?
10	238	?											
11 12	239	Terrestrisuch	us gra	acilis	?	2	?	0	0	0	?	0	0
13	240	?	?	?	?	?	?	0	0	0	0	?	?
14	241	0	1	0	0	?	0	0	?	0	0	1	0
15	242	ů 0	0	Ő	ů 0	1	?	?	0	0	ů 0	0	?
16 17	243	$\overset{\circ}{?}$	° ?	1	_ 0	0	0	0	1	1	Ő	0 0	
18	243	· 0	0	2	0	0	0	0	2	2	0	0	0
19	245	0	1		1	0	0	0	0	1	1	0	2
20	2+3 246	0	2	2		3	0	2	0 2	0	0	0	· 2
21	240 247	2	2	0	0	5	1	1	1	0	2	0	· 2
22	247	2	: 2	0	0	0	1	1	1	0	· 0	· 0	· 0
24	240	2	໌ ງ	0	1	0	? 2	י נ	? 0	0	0	0	0
25	249	0	? 0	0	? 2	0	? 0	? 0	0	0	0	0	? 9
26	250	<i>!</i>	0	<i>!</i>	<i>!</i>	!	0	0	<i>!</i>	0	0	0	<i>!</i>
27 28	251	<i>!</i>	<i>!</i>	<i>!</i>	0	0	!	0	<i>!</i>	0	<i>!</i>	<i>!</i>	0
29	252	0	0	0	0	0	0	?	0	?	?	?	?
30	253	?	?	0	?	0	0	0	?	?	0	?	0
31	254	?	?	0	0	0	I	0	1	?	?	?	?
32	255	?	?	?	?	?	?	?	?	?	?	0	2
34	256	0	0	?	?	?	0	0	0	0	0	1	1
35	257	?	2	2	0	2	?	?	?	0	0	0	0
36	258	0	0	?	?	?	0	0	0	?	?	0	?
37	259	?	?	0	?	0	0	0	0	0	1	1	?
39	260	1	?	0	1	0	0	0	0	0	?	?	0
40	261	?	0	0	1	0	0	0	?	?	0	1	1
41	262	1	0	1	0	0	0	0	0	1	0	0	1
42 42	263	?	1	0	0	0	?	1	0	0	?	?	?
43 44	264	?											
45	265	D ( 1	0	2	0	0	1	0	0	0	0	0	0
46	265	Protosuchus	?	2	?	0	1	0	?	0	0	0	0
47	266	0	0	0	?	0	0	0	0	?	0	0	l
48 ⊿0	267	0	0	0	0	0	0	0	0	0	0	0	0
<del>5</del> 0	268	0	0	0	0	0	0	0	0	1	1	0	0
51	269	0	0	0	0	0	1	0	0	?	0	?	0
52	270	?	0	0	0	0	0	0	0	0	?	1	0
53 54	271	0	0	0	0	0	0	1	1	1	0	1	0
55	272	0	1	2	0	0	0	0	0	0	?	?	0
56	273	0	0	0	1	1	1	0	0	0	1	2	0
57	274	0	1	0	?	?	?	0	0	0	0	0	?
58													

#### Journal of Systematic Palaeontology

2													
3	275	0	0	0	0	0	0	0	?	0	0	0	0
4 5	276	?	?	0	?	0	0	0	0	0	1	1	0
6	277	1	1	0	0	0	0	0	?	2	0	0	0
7	278	0	0	0	0	0	0	0	0	?	0	1	0
8	279	0	0	1	0	0	?	0	0	?	0	?	0
9 10	280	ů 0	0	1	1	0	?	?	?	?	° ?	?	0
11	281	Ŷ	?	?	0	?	?	?	?	0	2		Ő
12	282	0	?	0	Ő	0	0	0	0	2	1	° ?	?
13	283	, ?	?	?	?	?	?	0	0	0	0	0	?
14 15	284	?	?	?	0	0	0	?	?	Õ	° ?	0	. 0
16	285	0	?	0	?	?	0 0	0	2	Õ	0	1	1
17	286	ů 0	?	0	0	0	0 0	0	0	?	?	?	0
18 10	280	1		0	Ő	Ő	° ?	2	0 0	1	. 1	1	0
20	288	1	1	0	0	0	0	2	0 0	0	1	1	0
21	289	1	0	Ő	ů	2	1	1	ů 0	Ő	?	0	Ŭ
22	209	1	0	U		-	1	1	Ũ	Ũ	•	Ũ	
23 24	290	Alligatorium_	meyeri	?	1	0	0	1	0	?	1	0	1
25	291	?	?	0	?	?	0	0	?	0	?	0	?
26	292	1	?	1	0	0	0	0	?	0	?	0	?
27	293	?	?	?	?	?	?	0	?	0	1	1	?
28 29	294	0	0	1	0	0	0	2	0	0	?	0	?
30	295	0	?	0	0	0	0	0	2	0	0	0	1
31	296	2	0	0	0	0	0	0	1	1	?	?	1
32	297	0	0	?	1	0	0	0	0	0	0	?	?
33 34	298	1	0	1	0	1	1	?	?	0	0	1	2
35	299	0	?	?	?	?	?	?	?	?	?	?	?
36	300	?	?	?	?	?	?	?	?	?	?	?	?
37	301	?	?	?	?	?	?	?	?	?	?	?	?
39	302	?	?	?	?	?	?	?	?	?	?	0	0
40	303	0	0	0	0	?	?	0	?	?	?	0	?
41	304	?	?	?	0	0	?	0	?	?	?	0	?
42 43	305	?	?	?	?	?	0	?	?	?	?	?	?
44	306	?	?	?	?	?	?	?	?	?	0	1	0
45	307	0	0	?	?	?	0	0	0	0	1	?	?
46	308	?	?	?	?	?	?	?	?	?	?	?	0
47 48	309	0	?	?	?	0	?	?	?	?	?	?	?
49	310	?	?	?	?	?	?	?	?	?	?	?	?
50	311	?	?	?	?	?	0	0	0	0	0	0	0
51	312	0	?	?	?	?	?	?	?	?	?	?	?
52 53	313	?	?	?	?	0	0	0	2	?	?	1	1
54	314	?	?	0	0	0	2	1	?	?	?	?	?
55	215	There's are - less		ota -	n	1	Δ	Δ	1	Δ	ŋ	1	0
56 57	313 216	I neriosuchus_	guimar	otae	<i>!</i>	1	U	0		0	<i>!</i>	1	0
58	310	1	!	U	U	2	!	U	U	U	U	!	0

59 60

1 2													
3	317	0	9	0	2	0	0	0	2	0	0	9	0
4	318	0	: 1	0	2	0	0	0	0	0	0	2 1	1
5 6	310	0	1	0	1	0	0	0	2	0	0	1	1
7	220	1	0	0	1	0	0	0	2	1	0	י פ	0 9
8	320 221	<i>!</i> 1	0	<i>!</i>	0	0	0	0	0	1	0	? 1	{ 1
9	321	l	2	0	0	0	0	0	0	l	l	l	1
10	322	1	0	0	1	1	0	0	0	0	0	0	?
11	323	?	1	0	1	0	0	1	0	1	0	1	?
12 13	324	1	1	1	0	1	?	0	0	0	0	1	0
14	325	0	?	0	?	0	?	?	0	1	?	?	?
15	326	0	0	?	?	0	0	0	0	0	0	1	1
16	327	1	?	?	1	1	0	1	2	?	?	?	0
17	328	0	0	0	0	0	0	2	0	0	0	?	0
18	329	1	0	0	0	0	0	1	0	1	1	?	0
20	330	0	2	0	0	0	{1 2	} 0	1	?	?	?	?
21	331	?	2	° ?	2	° ?	0	, °	0	2	?	0	?
22	332	?	9		2	· ?	2	0 0	0 0	0		0 2	1
23	222	· 9	י ר	2	0	2	י ר	0	0	0	1	9	0
24 25	224	! 0	2	2	0	· 9		? 0	? 0	0	1	י פ	0
26	334 225	0	? 0	? 0	? 2	<i>!</i>	0	0	0	? 0	? 2	? 0	? م
27	335	0	0	0	<i>!</i>	0	0	0	0	0	2	<i>!</i>	?
28	336	l	?	0	0	0	0	0	0	?	?	?	?
29	337	?	0	2	?	0	0	0	?	?	0	?	?
30	338	1	1	?	?	0	0	0	0	?	0	?	1
32	339	1	?	?	0	0	0	2	1	?	0	0	?
33	340	?											
34	241	C-1	1		0	1	0	0		0	0	1	0
35	341	Calsoyasuc	nus_van	liceps	<i>!</i>	1	0	0	I	0	<i>!</i>	1	0
30 37	342	l	0	0	0	0	<i>!</i>	0	0	1	0	<i>!</i>	1
38	343	0	l	0	l	l	l	0	0	l	l	l	0
39	344	0	0	1	0	l	1	1	0		0	1	?
40	345	?	0	0	0	0	0	0	2	?	0	?	0
41	346	0	0	?	0	0	0	0	0	?	0	0	?
4Z 43	347	0	0	0	0	0	0	0	?	?	?	1	0
44	348	?	?	?	?	1	0	0	0	0	0	0	?
45	349	?	?	0	?	1	1	1	0	1	?	?	?
46	350	?	?	?	?	?	?	?	?	?	0	0	?
47	351	?	?	?	?	0	?	?	?	?	?	?	?
48 ⊿0	352	?	?	?	?	0	0	?	?	?	0	?	?
<del>5</del> 0	353	?	?	?	?	?	?	?	?	?	?	?	?
51	354	?	0		?	?	?	?	?	?	?	?	?
52	355	?	2	0 2	9	9	?	· ?	· ?	9	· ?	9	· ?
53	256	י ר	י ר	י ר	י פ	· 0	1 1	· 0	י ר	י ר	: 2	: 9	י ר
04 55	250	؛ م	: ባ	؛ ۲	: ዓ	0	4 0	0	: 0	: 0	؛ م	: 0	י נ
56	22/ 250	<i>!</i>	؛ ۵	? 0	? 0	<i>!</i>	<i>!</i>	<i>!</i>	? 0	? 0	<i>!</i>	؛ ۵	<i>!</i>
57	328	?	?	<i>!</i>	<i>!</i>	U	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	?	?
58	559	?	?	?	?	?	?	?	?	?	?	?	?

#### Journal of Systematic Palaeontology

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3	260	9	9	9	n	9	2	2	n	2	2	2	9
4	261	2 2	2 9	י ר	י ר	2 9	2 9	2 9	? 9	? 2	2 9	2 9	י ר ר
5	262	2 2	2 9	י ר	י ר ר	2 9	2 9	? 9	? 9	? 2	2 9	? 9	؛ م
6 7	302	? 2	י נ	؛ ۲	י ר	י נ	? 9	? 9	? 9	י ר	? 9	י נ	؛ م
8	202	<i>!</i>	<i>!</i>	? 0	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	? 0
9	364	?	?	?	?	?	?	?	?	?	?	?	?
10	365	?	?	?	?	?	?	?	?	?	?	?	?
11	366	?											
12	367	Eutretauran	osuchus	s delfsi	?	1	0	0	1	0	2	1	0
14	368	200000000000000000000000000000000000000	?	0	0	?	° ?	ů 0	0	1	0	2	Ő
15	369	· 0	1	0	2	1	1	0	0	0	0	0	0
16	370	0	1 2	0	2	1	1	0	0	0	0	1	1
17	370	0	2		· 0	2 0	؛ ۵	2 0	1	0	0	1	1
19	272	1	0	0	0	0	0	0	1	0	0	0	0
20	372	<i>!</i>	0	<i>!</i>	0	0	0	0	0	0	0	<i>!</i> 1	{ 1
21	3/3	0	1	0	0	0	1	0	0	1	1	1	1
22	3/4	1	0	0		I	0	0	0	0	0	0	?
23 24	375	?	?	0	l	0	l	l	0	l	0	l	l
25	376	0	2	?	?	1	?	0	1	0	0	1	0
26	377	0	?	1	?	0	?	?	0	1	0	1	0
27	378	0	0	?	1	?	0	1	0	0	0	1	1
28	379	1	1	?	?	1	?	1	2	2	?	?	?
30	380	?	?	?	?	?	?	?	?	?	?	?	?
31	381	?	?	?	?	?	?	?	?	0	?	?	?
32	382	?	?	?	?	?	?	0	?	?	?	?	?
33	383	?	?	?	?	?	?	?	?	?	?	?	?
34 35	384	?	?	?	?	?	?	0	?	?	?	?	?
36	385	?	?	?	?	?	?	3	?	?	?	?	?
37	386	?	?	?	?	?	0	?	?	?	?	?	?
38	387	?	?	?	?	?	?	?	?	?	?	?	?
39 40	388	1	?	?	?	?	?	?	?	. ?	. ?	?	?
41	389	2	?	?	?	0	0	?	?	. 7	?	?	?
42	390	: ?	1	?	?	2	2	· ?	9	. 9	2	0	· ?
43	301	: 9	1	: ?	י ר	· 2	· 2	· 2	9	2	· 2	2	· 2
44 45	202	· 9	<u>'</u>	1	1	<u>'</u>	<u>'</u>	<u>1</u>	1	<u>-</u>	<u>'</u>	<u>'</u>	4
45 46	392	<u>!</u>											
47	393	Goniopholi	s baryg	lphaeus	?	1	0	0	1	0	?	1	?
48	394	1	?	0	?	0	?	0	0	1	0	?	0
49	395	0	1	0	2	1	1	0	?	?	0	1	0
50 51	396	0	2	?	?	?	?	?	0	?	0	1	1
52	397	1	0	0	0	0	0	0	1	0	0	?	0
53	398	2	0	$\overset{\circ}{2}$	Õ	0	0	0	0	0	0	0	2
54	300	· ?	0	0	0	0	1	0	0	1	1	1	۰ 1
55	<u>400</u>	- 1	0	0	0 9	1	0	0	0	1 9	1 9	1 9	1 9
ою 57	-100 /01	1	1	0	؛ 1	1	0	1	0	: 9	: 0	؛ 1	י ר
58	401	1	1	0	1	0	U	1	0	4	U	1	4

2													
3	402	0	2	1	0	?	?	?	?	?	0	1	0
4 5	403	0	?	1	?	0	?	?	0	1	?	1	0
5 6	404	?	0	?	?	0	?	1	0	0	0	1	1
7	405	. 1	° ?	?	?	?	?	1	2	2	° ?	?	0
8	406	0	0	0	0			2	1	2	· ?	9	2
9	407	1	0	0	0	0	0	2	1 9	י 9	2 1	י פ	י ר
10 11	407	1	0	0	0	0	1	2 0	د ۱	י פ	1	י נ	י נ
12	408	? 0	ے ۱	? 0	? 0	0	1	0	1	? 0	? 0	? 0	{ 1
13	409	<i>!</i>	1	0	0	0	? 0	? 0	<i>!</i>	<i>!</i>	? 0	0	1
14	410	0	0	?	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	0	0	<i>!</i>	0	1
15	411	?	2	2	0	?	?	?	?	?	?	?	?
10	412	0	?	?	?	?	0	?	?	?	?	?	?
18	413	?	?	?	?	0	?	?	?	?	?	?	?
19	414	?	?	?	?	?	?	?	?	?	?	?	?
20	415	?	?	?	?	?	?	?	?	?	?	?	?
21	416	?	?	?	?	?	?	?	?	?	?	?	?
22	417	?	?	?	?	?	?	?	?	1	?	?	?
24	418	?											
25	410	Conionholia	at a v a 112	: 0	1		0	1	0	9	1	0	1
26	419	Goniophons_	stovam	1 /	1	0		1	0	<i>!</i>	1	0	1
27 28	420	<i>!</i>	<i>!</i>	?	<i>!</i>	!	0	0	1	0	<i>!</i>	<i>!</i>	0
29	421	l	0	2	1	1	0	?	?	0	l	0	0
30	422	2	?	?	?	?	?	0	?	0	l	l	l
31	423	0	0	0	0	0	0	0	0	0	0	0	?
32	424	0	?	0	0	0	0	0	0	?	?	?	0
34	425	0	0	0	0	1	0	0	0	1	1	1	1
35	426	0	0	?	1	0	0	0	0	0	0	?	?
36	427	?	0	1	0	0	1	0	?	0	?	?	?
37	428	2	1	0	?	?	?	?	?	0	1	0	0
38 30	429	?	?	?	?	?	?	0	1	1	1	0	0
40	430	0	?	?	0	0	?	0	0	0	1	1	1
41	431	?	?	?	?	0	?	2	2	?	?	?	?
42	432	0	?	?	?	?	?	?	?	?	?	?	?
43 44	433	?	0	?	?	?	?	?	?	?	?	?	?
45	434	?	?	?	0	0	0	?	?	?	?	?	?
46	435	?	?	?	?	?	?	?	?	?	?	?	?
47	436	?	?	?	?	?	?	0	0	?	?	?	?
48	437	. ?	?	?	?	?	?	?	$\overset{\circ}{?}$	?	?	?	?
49 50	/38	: 9	9	2	· ?	9	9	9	9	2	· ?	9	?
51	420	· •	י ר	: 2	2	י י	י פ	: 2	י ר	: 9	2	: 9	י ר
52	439	? 2	? ዓ	؛ م	: 9	2 9	? ዓ	י נ	? ዓ	2 9	2 9	י פ	י ר נ
53	440	? 0	? 0	? 0	? 0	? 0	? 0	? 0	? 0	? 0	? 0	? 0	? 0
54 55	441	?	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	?
วว 56	442	?	?	?	?	?	?	?	?	?	?	?	?
57	443	?	?	?	?	?	?	?	?	?	?	?	?
58													

#### Journal of Systematic Palaeontology

2													
3 ⊿	444	Goniopholis	_simus	?	1	0	0	1	0	?	1	0	1
4 5	445	0	0	0	0	?	0	0	1	0	?	0	0
6	446	?	0	2	1	1	0	0	?	0	?	0	0
7	447	2	?	?	?	?	?	0	?	0	1	1	1
8	448	0	0	0	0	0	0	1	0	0	0	0	0
9 10	449	0	?	0	0	0	0	0	1	0	0	?	0
11	450	0	0	0	0	1	0	0	1	1	1	1	1
12	451	0	0	?	1	0	0	0	0	0	0	?	?
13	452	?	0	?	0	?	1	0	?	?	?	1	0
14	453	2	?	?	?	?	?	?	?	0	?	?	?
16	454	2	?	?	?	?	?	0	1	1	1	?	?
17	455	0	?	1	. ?	?	?	° ?	0	0	2	?	?
18	456	2	1	2	. 2		1	2	2	2	9	0	0
19 20	450	· ?	0	0		0 2	2	1	2	2	· ?	0	2
20	458	· 2	0	2		י י	2	1	· ?	י 2	· 2	2	י ר
22	450	· 2	י ר	י ר ר	1	· · · · · · · · · · · · · · · · · · ·	· 0	י 2	י ר	י 2	י ר	י 2	י ר ר
23	459	؛ ۱	2 0	2 0	0	! 0	0	2 0	י ר	י ר	· 0	؛ ۱	؛ 0
24 25	400	1	0	0	0	0	0	0	? 0	י ר	0	1	0
26	401	0	0	י ר ר	0	<i>!</i> 1	0	0	0	? ዓ	? 2	2 9	1
27	402	0	0	י נ	0		5	1	? 9	? 9	? 9	? 9	0
28	463	<i>!</i>	? 2	? 9	/ 2	0	<i>!</i>	? • • •	? 2	? 2	? 2	? 2	/ 9
29	464	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	?	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	? 0
31	465	?	?	?	?	?	?	?	?	?	?	?	?
32	466	?	?	?	?	?	?	?	?	?	?	?	?
33	467	?	?	?	?	?	?	?	?	?	?	l	l
34 35	468	?	?	0	0	0	2	?	?	?	?	?	?
36	469	Pietraroiasuo	chus ori	nezza	noi ?	1	0	0	?	?	?	1	?
37	470	1	?	0	0	2	?	0	0	1	0	0	0
38	471	0	1	0	0	?	?	0	0	0	2	?	0
39 40	472	0	1	0	0	0	0	1	0	0	0	1	1
41	473	?	0	Õ	1	0	0	0	1	0	0	?	0
42	474	?	Õ	?	0	Ő	Ő	0 0	2	Ő	Ő	0	0
43	475	1	2	0	2	0	0	0	0	2	1	1	2
44 45	475	1	0	0	· ?	1	2	0	0 2	0	0	1	· 2
45 46	470	1	0	0	ہ 1	1	2	1	0	0	0	0	י ר
47	4//	؛ ۲	י ר	0	1 9	1	0	1	0	י ר	0	؛ ۱	· •
48	4/8	2	? 9	1	? 0	1	? 9	? 2	? 9	? 9	? 9	1	0
49	4/9	0	<i>!</i>	1	0	0	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	? 0
50 51	480	?	?	?	?	?	?	?	?	?	?	?	?
52	481	?	l	?	?	?	0	1	?	?	?	?	0
53	482	0	1	0	0	0	0	3	1	0	1	?	1
54	483	?	?	?	2	?	?	?	0	?	?	?	?
55	484	?	?	?	?	0	1	0	2	0	0	2	0
วง 57	485	0	0	0	0	0	0	0	0	3	?	?	?
58	486	?	?	?	?	?	?	?	?	?	?	?	?
59													

1 2													
3	487	?	?	?	?	2	?	2	?	?	?	?	?
4	488	. 2	?	?	?	?	2	?	?	?	?	?	?
ว 6	489	1	?	?	?	?	2	?	?	0	2	0	?
7	490	2	9	0	?	9	0	?		Ő	0	° ?	
8	490 701	: 9	· ?	2	0	· ?	2	· ?	2	2	0 2	· ?	2
9	491	· 2	י ר	י ר	0	· 0	· •	י ר	י פ	י ר	י ר	י 1	؛ 1
10	492	? 0	2 0	י ר	{ 1	0	0	י ר	י פ	د ۲	2 9	1	1
12 13	493 494	0	0	2	1	1	0	2	!	1	!	1	!
14	495	Pachvcheil	losuchus	trinaue	ei?	?	?	?	?	?	?	?	?
15	496	?	?	2	?	?	?	?	?	?	?	?	?
10	497	?	?	?	0	?	?	?	?	?	?	?	?
18	498	?	1	?	2	?	?	?	?	?	?	?	?
19	499	?	2	?	. 2	9	?	?	9	?	?	9	?
20	500	· ?	2	: ?	2	· ?	2	2	2	· ?	2	2	· ?
21	501	2	2	י י	2	2	2	2	2	י י	2	2	י 2
22	502	· 2	י ר	י ר	2	· 2	י פ	י ר	י פ	י ר	י ר	י פ	י פ
24	502	? 2	י נ	؛ ۲	2 2	! 9	? 2	י נ	? 9	? ۲	י ר	י נ	י פ
25	503	<i>!</i>	? 0	<i>!</i>	<i>!</i>	<i>!</i>	? 2	? 0	? 0	<i>!</i>	<i>!</i>	? 0	? 0
26	504	?	<i>!</i>	<i>!</i>	<i>!</i>	!	!	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>
27	505	?	?	?	?	?	?	?	?	?	?	?	?
20	506	?	?	?	?	?	?	?	?	?	?	?	?
30	507	?	?	?	?	?	?	?	?	?	?	?	0
31	508	0	1	0	0	0	0	3	1	0	1	0	1
32	509	?	?	?	?	?	?	?	0	?	?	?	?
33 34	510	?	?	?	?	?	?	?	2	0	0	2	0
35	511	0	0	0	0	0	0	0	0	3	?	?	?
36	512	?	?	?	?	?	?	0	0	0	?	?	?
37	513	?	?	?	?	?	?	?	?	?	?	0	0
38	514	2	?	?	1	0	2	?	?	?	?	0	?
40	515	1	?	?	?	?	?	?	?	0	2	0	?
41	516	?	?	0	0	0	0	0	0	0	0	?	0
42	517	?	?	2	0	0	0	0	?	0	0	?	?
43	518	1	?	?	?	0	?	?	?	?	?	1	1
44 45	519	0	0	?	0	0 0	0	2	1	?	?	?	?
46 47	520	0	Ũ	·	Ū	0	Ū	-		·	·	·	•
48	521	Alligator 1	mississin	niensis	2	1	0	0	1	0	0	1	0
49	522	1	r 1	0	0	2	?	0	?	0	0	?	0
50	523	0	1	Õ	2	0	0	Ő	0	Õ	Ő	0	Ő
51 52	525	ů 0	2	° ?	2	° ?	° ?	° ?	Ő	2	0	1	1
53	524 525	1	<i>2</i> 1	0	· O	· O	0		2	0	0	0	1
54	525 526	1 9	0	0 9	0	0	0	0	2 0	0	1	0	0
55	520 527	؛ ۵	0 2	؛ ۵	0	0	1	0	0	1	1	1	1
56 57	521 570	U 1		0	1	1	1	0	0	1			1 0
58	328	1	U	0	1	1	U	U	U	1	U	U	?

#### Journal of Systematic Palaeontology

2													
3	529	?	1	0	1	0	0	1	0	1	0	1	1
4	530	2	2	1	0	1	?	0	1	0	1	1	2
5 6	531	- 1	2	1	1	0	?	0	0	1	0	1	0
7	532	0	1	0	1	Õ	0	1	Ő	1	Ő	1	1
8	532	1	1	1	1	1	0	1	2	2	2	2	0
9	524	1	0	1	1	1	0	1	2	2	· 0	2	0
10 11	534	0	0	0	0	0	0	0	0	0	0	? 0	0
12	555 526	1	0	0	2	0	0	0	0	1	1	0	0
13	536	0	3	0	0	0	1	0	2	<i>!</i>	<i>!</i>	<i>!</i>	? 1
14	537	?	0	l	0	0	0	0	0	3	?	0	l
15	538	0	0	0	?	0	0	0	0	0	0	1	1
10	539	0	0	0	?	0	1	0	0	0	0	0	0
18	540	2	0	?	?	?	2	0	0	?	?	0	?
19	541	1	0	0	?	1	0	0	0	0	2	0	0
20	542	0	0	0	0	0	0	0	0	0	0	0	0
21	543	0	0	2	0	0	0	0	?	?	0	1	1
22	544	1	1	1	1	0	0	0	0	2	0	0	1
23	545	0	0	1	1	1	0	?	?	1	0	0	?
25	546	?											
26													
27	547	Crocodylus_pc	orosus	2	1	0	0	1	0	0	1	0	1
28 29	548	1	0	0	2	?	0	0	1	0	?	0	0
30	549	1	0	2	0	0	0	0	0	0	0	0	0
31	550	2	?	?	?	?	?	0	?	0	1	1	1
32	551	1	0	0	0	0	0	2	0	0	0	0	?
33	552	0	?	0	0	0	0	0	0	1	0	0	0
34 35	553	0	0	0	0	0	0	0	0	1	1	1	1
36	554	0	0	?	1	0	0	0	1	0	0	?	?
37	555	1	0	1	0	1	1	0	1	0	1	1	2
38	556	2	1	0	1	?	0	0	0	1	1	2	1
39 40	557	- 2	1	1	0	?	?	0	1	0	1	0	0
41	558	1	0	1	Ő		1	0	1	ů 0	1	1	1
42	559	1	1	1	1	Õ	1	2	2	2	2	0	0
43	560	0	0	0	0	0	3	0	0	1	9	0	1
44 45	561	0	0	2	0	0	0	0	0	1	0	0	0
45 46	562	0	0	2	0	1	0	0	0	1 9	0	0	0 9
47	562	3	0	0	0	1	0	2	? 0	? 0	? 0	<i>!</i> 1	? 0
48	563	0	<i>!</i>	<i>!</i>	<i>!</i>	0	0	0	<i>!</i>	<i>!</i>	0	1	0
49	564	0	0	?	?	1	0	0	0	0	1	l	?
50 51	565	2	0	0	0	?	?	?	0	0	0	0	2
52	566	0	?	?	?	2	0	0	?	?	0	?	1
53	567	0	0	?	1	0	0	0	0	?	?	?	0
54	568	0	0	0	0	0	0	0	0	0	0	0	0
55	569	0	?	?	0	0	0	?	?	0	1	?	1
56 57	570	1	1	1	0	0	0	0	2	0	0	1	0
58	571	0	?	1	1	0	?	?	?	0	0	?	?
50													
2													
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3 ⊿	572	Crocodylus_n	iloticus	2	1	0	0	1	0	0	1	0	1
5	573	1	0	0	2	?	0	0	1	0	?	0	0
6	574	1	0	2	0	0	0	0	0	0	0	0	0
7	575	2	?	?	?	?	?	0	?	0	1	1	1
8 0	576	1	0	0	0	0	0	2	0	0	0	0	?
9 10	577	0	?	0	0	0	0	0	0	1	0	0	0
11	578	0	0	0	0	0	0	0	0	1	1	1	1
12	579	0	0	?	1	0	0	0	1	0	0	?	?
13 14	580	1	0	1	0	1	1	0	1	0	1	1	2
15	581	2	1	0	1	?	0	0	0	1	1	2	1
16	582	?	1	1	0	?	?	0	1	0	1	0	0
17	583	1	?	1	0	0	1	0	1	0	1	1	1
18 10	584	1	1	1	1	0	1	2	2	?	?	0	0
20	585	0	0	0	0	0	3	0	0	0	?	0 0	1
21	586	0	Ő	2	ů	Ő	0	Ő	Õ	1		Ő	0
22	587	3	Ő	0	0	1	Õ	2	$\overset{\circ}{?}$	2	° ?	° ?	2
23	588	0	0	0	0 2	0	0	0	· ?	· ?	0	1	0
24 25	589	0	0	2	0	1	0	0	0	0	1	1	0
26	590	0	0	: ?	0	0	0	0	0	0	0	0	2
27	501	0	0	: 2	0	$\frac{1}{2}$	0	0	0	0	0	2	2 1
28	502	0	· 0	: 2	2 1	0	0	0	0	2 2	0	· 2	1
29 30	502	0	0	؛ ۵	1	0	0	0	0	2 0	2 0	2 0	0
31	504	0	0	0	0	0	0	0	0	0	0	0	1
32	594 505	0	ے 1	{ 1	0	0	0	<i>!</i>	? 2	0	1	? 1	1
33 24	595	1	1	1	0	0	0	0	2	0	0	1	0
34 35	390	0	<i>!</i>	1	1	0	<i>!</i>	!	!	0	0	?	!
36	597	Gavialis gang	geticus	?	0	0	1	1	0	?	1	0	1
37	598	1	0	0	0	?	0	2	1	0	?	0	0
38	599	1	0	0	0	0	0	0	?	0	0	0	1
40	600	2	?	?	?	?	?	0	?	0	1	1	1
41	601	1	0	0	1	0	0	1	0	0	0	0	0
42	602	0	?	0	0	0	0	0	0	1	0	0	0
43 11	603	0	0	0	0	0	0	0	0	1	1	1	1
45	604	0	0	?	1	0	0	1	0	0	0	?	?
46	605	?	0	1	0	0	1	0	1	0	1	1	1
47	606	2	1	0	1	?	0	0	0	1	1	2	1
48 40	607	- ?	1	1	0	?	?	ů 0	1	0	1	0	0
49 50	608	1	?	1	ů 0	0	1	Ő	1	1	1	1	1
51	609	1	1	1	1	0	1	2	2	2	2	0	0
52	610	0	1	0	0	3	3	0	0	0	· ?	0	1
53 54	611	0	0	1	1	1	1	0	0	1	0	0	0
54 55	612	2	0	1	1	1	1	1	0 9	1 9	0 2	0 2	0 9
56	612	5	0 9	บ ว	0 9	5	0	1	י ר	י ר	؛ ۵	؛ 1	؛ م
57	617	0	؛ 1	י ר	؛ ۵	1	0	0	؛ 0	؛ 0	1	1	0
58 50	014	U	1	ſ	U	1	U	U	U	U	1	1	U

2													
3	615	0	0	?	0	0	1	0	?	0	0	0	2
4	616	0	?	?	?	2	0	0	?	?	0	?	1
5 6	617	Ő	0	?	0	0	ů 0	ů 0	?	?	?	?	0
7	618	ů 0	0 0	0	Ő	ů 0	0 0	0 0	0	0			Ő
8	610	0	2	2	0	0	0	0	0	0	1	0	1
9	(20	0	{ 1	{ 1	0	0	0	? 0	? 2	0	1	{ 1	1
10	620	1	1	1	0	0	0	0	2	0	0	1	0
11 12	621	0	?	1	1	0	?	?	?	0	0	?	?
13	622	Susisuchus	anatoce	eps?	1	0	0	1	0	?	1	4	1
14	623	? -	- ?	?	1	?	0	0	1	0	?	0	0
15	624	?	?	0	0		ů.	?	?	2	?	ů 0	Ő
16 17	625	2	· ?	2	2	2	2	0	9	0	1	1	1
18	625	0		· 0	1	0		0	· 0	0	1	1	1 9
19	020	0	0	0	0	0	0		0	0	? 0	0	2 0
20	627	0	<i>!</i>	0	0	0	<i>!</i>	0	0	0	0	0	0
21	628	?	0	0	0	0	0	0	?	1	?	?	?
22	629	?	0	?	1	0	0	0	0	0	0	?	?
23	630	?	0	1	0	?	1	0	?	0	1	?	2
24 25	631	?	?	?	?	?	?	?	?	?	?	?	?
26	632	?	?	?	?	?	?	?	?	?	?	?	?
27	633	?	?	?	?	?	?	?	?	0	?	?	?
28	634	?	?	?	1	?	?	?	?	?	?	?	?
29	635	0	0	0	0	?	2	2	?	?	?	?	?
30 31	636	$\overset{\circ}{?}$	Õ	° ?	° ?	?	. 2	. ?	?	?	?	?	?
32	637	3	2	2		· ?	0	. 2	9	9	· ?	· ?	· ?
33	629	2	: 2	י ר	0 9	2 2	0	2	· 9	י ר	· 0	י ר	י ר
34	(20	? 0	? 0	? 0	? 0	? 0	? 0	!	<i>!</i>	? 0	0	? 0	؛ م
35	639	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	0	0	<i>!</i>	<i>!</i>	<i>!</i>	? 0
36	640	?	?	?	?	?	?	?	!	?	0	0	0
38	641	0	?	?	?	0	0	0	?	?	?	?	0
39	642	0	0	?	0	0	0	?	0	?	?	?	?
40	643	0	0	?	0	0	0	0	0	0	?	?	?
41	644	0	?	?	?	?	?	?	?	?	?	?	?
42	645	?	?	?	?	?	?	?	?	?	?	1	0
43 44	646	?	?	1	1	0	?	?	1	?	?	?	?
45	- <b></b>									-			
46	647	lsisfordia_d	uncanı	?	1	0	0	1	0	?	1	4	1
47	648	0	0	0	1	?	0	0	1	0	?	0	0
48	649	1	?	0	?	0	0	?	?	0	0	0	0
49 50	650	2	?	?	?	?	?	0	?	0	1	1	1
51	651	0	0	0	0	0	0	2	0	0	0	0	0
52	652	0	?	0	0	0	0	0	1	0	?	0	0
53	653	2	0	0	0	0	0	0	1	1	1	1	1
54	654	0	0	1	1	0	0	0	0	0	0	2	2
55 50	655	0 9	0	1	0	0	1	0	1	0	1	1	י ר
วช 57	656	· 2	0	ו ס	1	0	1	1	1	1	1	1	
58	050	Δ	<u>'</u>	<u>'</u>	1	<u>'</u>	U	1	U	1	1	U	0

59 60

2													
3	657	?	1	0	0	?	?	0	1	0	1	0	0
4 5	658	0	?	?	0	0	1	0	0	0	1	1	1
6	659	?	?	?	1	?	1	?	2	?	?	0	0
7	660	0	0	0	0	?	?	0	?	?	?	?	?
8	661	?	?	?	?	?	?	?	?	?	?	?	?
9 10	662	3	?	?	0	2	0	?	?	?	?	?	?
11	663	2	?	?	° ?	2	?	?	?	?		1	
12	664	0	0	?	0	9	0	0	0	?	1	1	2
13	665	0 2	2	· ?	2	· ?	2	2	0 2	· ?	0	0	1
14 15	666	· 0	2	2	2	1	0	0	2	· ?	0	2	2
16	667	0	0	2 2	! 0	1	0	0	! 0	י י	0	2	· 0
17	669	0	0	2 0		2 0	2 0	0	0	2 0	י פ	2 0	0
18	600	0	0	0	0	0	0	0	0	0	? 2	0	{ 1
19	009	<i>!</i> 1	? 2	? 2	0	0	? 2	? 2	? 0	? 2	? 0	? 1	1
20 21	6/0	1	? 0	<i>!</i> 1		<i>!</i>	? 9	? 9	<i>!</i> 1	<i>!</i>	0	1	0
22	6/1	!	?	1		0	!	!	1	?	?	!	!
23	672	Araripesuch	nus pata	agonicu	s ?	2	0	0	1	0	?	0	?
24	673	?	?	?	?	?	?	?	?	?	0	?	0
25 26	674	0	1	0	0	0	0	0	?	0	0	0	0
27	675	0	1	0	0	0	0	0	0	0	0	1	1
28	676	1	0	0	0	0	0	0	2	0	0	0	0
29	677	?	0	?	0	0	0	0	0	0	?	0	0
30 31	678	0	2	0	ů 0	0 0	0	Ő	ů 0	1	1	1	Ő
32	679	1	0	0	?	2	0	0	0	0	0	0	?
33	680	?	1	Ő	0	0	0	1	0	0	?	ů 0	. 1
34 25	681	2	0	Ő	ů 0	1	?	0	1	0	0	1	0
36	682	0	?	Ő	?	2	?	?	2	1 1	1	1	° ?
37	683	?	0	?	1	0	0	0		0	0	?	1
38	684	1	1	1	1	1	Ő	Õ	2	° 2	° ?	?	0
39 40	685	0	2	2	2	2	2	2	0	2	2	· ?	2
40 41	686	0 2	· ?	0	0	0	0	0	0 2	1	· 2	· ?	0
42	687	: ?	2	0	0	1	1	0	· ?	2	2	· ?	2
43	688	· 9	2	2	2	1	1	2	2	2	· 2	2	· ?
44 45	689	· 9	2	2	2	2	2	0	0	0	0	1	· ?
45 46	600	1 9	: 9	: 2	2	: 2	י ר	0	0	0	0	1	: 2
47	601	! 0	2 0	י ר	2 9	י פ	2 0	י ר	י ר	י ר	י פ	0	י ר
48	602	0	0	? ዓ	? 9	י פ	0	? ዓ	2 9	2 9	י פ	? 9	؛ م
49 50	692 (02	<i>!</i> 1	? 0	<i>!</i>	<i>!</i>	? 0	<i>!</i>	<i>!</i>	<i>!</i>	? 0	? 0	? 0	0
50 51	693	1	<i>!</i>	0	0	0	0	0	0	<i>!</i>	0	<i>!</i>	?
52	694	?	?	2	?	?	?	?	?	?	?	?	?
53	695	?	?	?	?	?	?	?	?	?	?	?	1
54	696	?	?	?	0	0	0	2	1	?	?	?	?
55 56	697	0											

2													
3 4	698	Baurusuchus	?	2	0	0	2	0	?	0	5	0	0
5	699	0	0	0	?	0	0	0	1	?	1	0	1
6	700	0	1	0	0	0	?	?	0	0	0	0	2
7	701	?	?	?	?	?	0	?	0	1	1	1	0
8	702	0	0	0	0	0	1	1	0	1	0	0	0
9 10	703	?	0	1	0	?	0	0	?	?	0	0	?
11	704	0	0	0	0	0	0	0	?	1	0	1	2
12	705	Ő	1	2	Ő	Ő	Ő	Õ	0	0	° ?	2	2
13	706	0	1	2	0	1	0	0	0 2	2	1	1	
14	700	0	1 9	- 1	0	1	2	0		- 1	0	1	2
15 16	707	? ?	י ר	1	י ר	1	2 0	0	0	1	0	י ר	· 0
17	708	? 9	/ 9	1	/ 2	? 0	0	1	0	? 2	? 1	? 1	0
18	709	?	<i>!</i>	0	!	0	0	0	0	<i>!</i>	1	1	1
19	710	?	?	1	?	0	l	2	?	?	0	0	?
20	711	?	0	l		0	0	1	0	?	0	0	?
21 22	712	0	1	0	0	0	0	1	?	?	0	?	2
23	713	1	0	1	0	0	3	?	?	?	?	?	0
24	714	1	0	1	?	0	?	?	?	1	1	0	0
25	715	0	?	?	1	0	0	0	0	0	1	?	2
26	716	2	0	2	?	?	?	?	?	0	?	?	?
27 28	717	?	?	?	?	?	?	?	?	?	?	?	?
29	718	?	?	?	?	?	0	?	?	?	?	?	?
30	719	?	0	?	?	?	?	0	?	?	?	?	?
31	720	?	?	?	?	?	2	2	?	?	?	?	?
32	721	?	?	?	?	?	· ?		?	?	?	?	?
33 34	721	?	?	9	9	9	9	. 2	. 9	?	. 9	· ?	·
35	122	-	÷	÷	÷	÷	÷	-	:	÷	•	•	
36	723	Mariliasuchus	s_ama	arali	?	2	?	0	2	0	?	0	5
37	724	0	?	0	?	0	?	0	0	0	1	?	1
38	725	0	1	0	0	0	0	?	?	?	?	1	0
39 40	726	0	2	?	?	0	?	?	0	?	0	1	1
41	727	1	0	0	0	1	0	0	2	0	0	1	0
42	728	0	0	?	?	0	0	?	0	0	2	?	0
43	729	ů 0	2	0	0	Ő	0 0	0	Ő	2	?	1	Ő
44 15	730	1	1	0	0 2	2	0	1	1	0	0	0	2
46	731	1	1 9	0	0	2	0	1	0	0	0	0	י ר
47	722	2 1	י פ	0	0	؛ 1	0	1	0	· •	· 0	! 1	י פ
48	752	1	? 9	? 2	? 0	1	? 0	1	? 0	0	0	1	2 9
49	/33	?	<i>!</i>	<i>!</i>	<i>!</i>	1	<i>!</i>	<i>!</i>	0	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>
50 51	734	?	0	?	?	0	?	?	0	0	0	?	?
52	735	?	?	?	1	0	?	?	?	?	?	?	0
53	736	0	?	?	?	?	0	0	0	0	0	?	0
54	737	0	?	0	?	0	0	0	1	1	?	?	0
55	738	1	2	?	?	2	0	1	3	?	?	?	?
56	739	?	?	?	?	?	?	?	?	?	?	0	?
ว/ 58	740	1	1	0	?	?	0	0	0	0	0	1	0
59													

1 2													
3	741	9	0	0	2	0	9	2	9	9	2	9	2
4	742	· ?	2	2	· ?	0 2	2	2	· ?	2	· ?	2	2
5 6	743	?	· ?	?	?	?	?	?	· ?	?	?	?	?
7	744	: ?	?	?	?	· ?	9	?	?	· ?	9	9	· ?
8	745	: ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?
9	746	: ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?
10	740	· 9	· ?	2	· ?	2	2	· 2	· ?	2	2	2	· ?
12 13	748	?	ł	÷	-	ł	ź	ź	-	ł	÷	ź	÷
14	749	Notosuchus	s terrest	ris ?	2	?	0	2	0	?	0	5	0
15 16	750	?	0	?	0	?	0	0	0	1	?	1	0
17	751	1	0	0	0	0	0	?	1	?	0	0	0
18	752	1	0	0	0	0	0	0	1	0	1	1	1
19	753	0	0	0	0	0	0	2	0	0	1	0	0
20 21	754	0	?	0	0	?	0	0	0	?	?	0	0
22	755	0	0	0	0	0	0	0	1	1	1	0	1
23	756	?	0	?	2	0	0	0	?	?	?	?	?
24	757	0	?	0	?	0	1	0	0	?	1	1	1
25 26	758	0	0	0	1	?	1	?	0	0	1	0	0
27	759	?	0	?	1	?	2	0	1	?	?	1	0
28	760	0	?	?	0	.0	0	0 0	0	0	1	1	1
29	761	$\overset{\circ}{?}$	?	1	Ő	?	ů 0	1	$\overset{\circ}{?}$	?	?	0	0
30 31	762	?	?	?	° ?		0	0			?	0	Ő
32	763	?			0	0	Ő	1	1	1		0	1
33	764	2	2	2	1	0	1	3	2	2	0 2	2	2
34	765	0	?	?	1 9	0 ?	2	2	2	· ?	0	9	. 1
35 36	766	0 2	0	· ?	· ?	0	0	0	0	0	1	0	2
37	767	0	0	· ?	0	2	2	2	$\frac{0}{2}$	1	2	0	0
38	768	2	2	2	0 2	0	2	· 2	2	$\frac{1}{2}$	: 1	2	2
39 40	769	· ?	2	· ?	0	2	2	2	0	2	2	0	· 1
40 41	702	1	: 1	2	0	0	0	0	0 2	-	2	2	2
42	771	1	2	2	0 2	2	2	2	· ?	0	2	2	· 1
43	771	0	$\frac{2}{2}$	: 2	י י	2	· 2	: 2	י י	2	· 0	י 1	1
44 45	772	1	2 2	0	· 0	! 0	2	· 2	י י	2	0	1	2 2
45 46	115	<u>'</u>	1	0	0	0	2	<u>1</u>	1	<u>-</u>	<u>1</u>	<u>1</u>	4
47	774	Adamantina	asuchus	_navae	?	2	?	0	2	0	?	0	5
48	775	1	?	0	0	0	?	0	0	0	1	?	?
49 50	776	0	?	0	0	0	0	?	?	?	1	?	0
50 51	777	0	2	?	?	0	?	?	0	?	0	1	1
52	778	?	0	0	0	?	?	?	2	?	0	1	0
53	779	0	0	?	?	?	0	?	0	?	?	?	0
54 55	780	0	?	0	0	0	0	0	0	?	?	1	0
วว 56	781	?	?	0	?	2	0	1	1	0	0	0	?
57 58	782	?	?	0	0	0	0	1	0	?	?	?	?

Page 111 of 161

1													
2 3	783	9	9	0	0	2	9	n	n	n	0	1	9
4	787 787	· 2	? ?	$\frac{0}{2}$	$\frac{0}{2}$	: 2	? ?	י ר	? ?	י ר	$\frac{0}{2}$	1	: ?
5	785	2	: ?	: ?	· ?	· 2	· ?	· ?	: ?	2	0	2	2
7	786	י י	: ?	: 2	2	י 2	2	י י	י י	י 2	2	· 2	· 0
8	780	· 0	י ר	: 2	! ?	י ר	י ר	י ר	· 0	י ר	: 9	י 2	0 9
9	700	0	፡ ዓ	؛ ۵	י ר	: 0	· 0	2 0	1	י ר	י פ	2 9	؛ 0
10	/00	? 2	? ዓ	0	? 0	0	0	0	1	? 9	? 2	? 2	0
12	/09	? 2	? ዓ	? 9	? 0	2	0	0	<i>3</i>	? 9	? 2	? 0	? م
13	/90 701	<i>!</i> 1	? 1	? 0	? 0	? 0	? 0	? 0	? 0	? 0	? 0	0	? 0
14	/91	1	1	0	? 0	? 0	0	0	0	0	0	1	0
15 16	792 702	<i>!</i>	0	0	? 0	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	? 0	<i>!</i>	<i>!</i>
17	/93	?	?	?	?	?	?	?	?	?	?	?	?
18	794	?	?	?	?	?	?	?	0	?	?	?	?
19	795	?	?	?	?	?	?	?	?	?	0	?	?
20	796	?	?	?	?	?	?	?	?	?	?	?	?
∠1 22	797	?	?	?	?	0	?	?	?	?	?	?	?
23	798	?	?	?	?	?	?	?	?	?	?	?	?
24	799	?											
25 26	800	Sphagesaurus	huenei	?	2	?	0	2	0	2	0	5	1
27	801	?	0	0	0	?	0	0	0	1	?	1	0
28	802	1	0	0	0	0	0	?	?	0	0	0	0
29	803	2	?	?	0	0	0	0	1	0	1	0	0
30 31	804	$\overline{\overline{\gamma}}$	0	0	0	0	0	2	0	0	1	0	0
32	805	0	?	?	?	?	2	0	0	0	?	?	?
33	806	?	?	0	?	?	?	2	° ?	$\tilde{\tilde{2}}$	?	?	?
34	807	?	?	° ?	2		. 1	1		0	0	?	?
30 36	808	?	?	0	0	0	1	0	2	2	1	1	•
37	809	0	0	0	1	4	1	2	· O	0	1	2	2
38	810	2	0	$\frac{0}{2}$	1	т 9	1	· ?	$\frac{0}{2}$	$\frac{0}{2}$	1	2	· ?
39	Q11	י י	?	: 2	2	2 2	0	0	2	2	2	2	· 2
40 41	817	: 2	י ר	: 2	! ?	י ר	0	0	י ר	! 9	· 2	י 2	י ר ר
42	012 012	: 2	፡ ዓ	י פ	י פ	े १	י ר	י ר	י ר	1	· · · · · · · · · · · · · · · · · · ·	י נ	י ר
43	013	? 2	? ዓ	? 9	? 0	? 9	? 0	? 9	? 9	?	? 2	? 9	י נ
44	814 015	? 0	? 9	? 9	? 2	? 0	? 0	? 2	? 2	? 2	? 0	? 2	? 9
45 46	815	<i>!</i>	? 0	? 0	2	0	0	3	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	! 1
40	816	?	?	?	?	?	?	?	?	?	0	?	1
48	817	1	?	?	?	?	0	0	l	0	1	1	?
49	818	?	?	?	?	?	?	?	?	?	?	?	?
50 51	819	?	?	?	?	?	?	?	?	?	?	?	?
52	820	?	?	?	?	?	?	?	?	?	?	?	?
53	821	?	?	?	?	?	?	?	?	?	?	?	?
54	822	?	?	?	?	?	?	?	?	?	?	?	?
55	823	?	?	?	?	?	?	?	?	?	?	?	?
56 57	824	?	?	?	?	?	?	?	?	?	?	?	?
оð 59													

2													
3	825	Caipirasuchu	is moi	ntealten	sis ?	2	?	0	2	0	?	0	5
4 5	826	1	?	0	0	0	?	0	0	0	1	0	1
6	827	0	1	0	0	0	0	0	0	1	0	0	0
7	828	0	1	0	0	0	0	0	0	1	0	1	0
8	829	0	?	0	0	0	0	0	2	0	0	1	0
9	830	ů 0		° ?	0	0 0	0	0	0	Õ	Õ	0	0
10	831	0	0	0	0	0	0	0	0	2	1	0 2	2
12	827	0	1	0	1	2	0	1	1	· 0	1	· 0	2 2
13	032	1	1	0	1	2	0	1	1	0	0	0	؛ 1
14	833	? 0	0	0	0	0	0	1	0	<i>!</i>	? 0	1	1
15 16	834	0	0	0	0	1	4	1	<i>!</i>	0	0	1	0
10	835	0	?	0	?	l	?	?	0	l	l	?	?
18	836	?	0	?	?	?	?	?	?	?	?	?	?
19	837	?	?	?	1	0	?	?	?	?	?	?	0
20	838	0	?	0	0	0	?	?	0	0	0	?	0
21	839	0	?	0	0	0	0	0	1	?	?	?	0
22	840	?	?	?	?	?	0	0	3	?	?	?	?
24	841	?	0	?	?	?	?	0	?	?	?	0	?
25	842	1	1	0	?	?	0	0	0	1	0	1	1
26	843	?	0	2	?	?	?	?	0	?	?	?	?
27	844	?	?	?	?	?	?	?	?	?	?	?	?
20 29	845	?	?	0	?	?	?	?	?	0	?	?	?
30	846	?	?	?	0	0	0	0	0	0	?	?	?
31	847	?	?	?	?	° ?	2	2	° ?	?	?	?	?
32	848	?	?	?	?	?			?	?	?	?	1
აა 34	8/10	: 9	9	9	0		0	. 2	1	9	9	9	2
35	850	· 0	·	1	0	0	0	<u>.</u>	I	1	ł	-	1
36	850	0											
37	851	Hamadasuch	nus ret	oouli	?	2	0	0	1	0	?	0	0
38	852	1	$\overline{0}$	0	0	0	?	0	0	0	0	?	?
39 40	853	0	1	1	2	0	0	0	?	0	0	1	0
41	854	0	1	0	0	0	0	1	0	1	0	1	1
42	855	1	0	0	0	0	0	0	2	0	0	0	0
43	856	0	ů 0	?	ů 0	ů 0	ů 0	ů 0	0	0	0	1	?
44 45	857	ů	1	0	Ő	Ő	Ő	Ő	Ő	1	1	1	1
46	858	1	0	0	1	2	0	0	0	1	0	0	2
47	850	1	1	0	1	1	0	1	0	1	0 2	0	، 1
48	859	? 1	1	1	1	1	0	1	1	1	· 0	1	1
49 50	800 861	1	1	1	0	1	י ר	0	1	0	0	1	0
50 51	801	0	<i>!</i>	0	<i>!</i>	2	<i>!</i>	0	0	1	0	1	? 1
52	862	?	0	?	?	0	?	0	0	0	0	0	l
53	863	1	l	?	l	l	0	0	3	2	?	?	0
54	864	0	0	0	0	1	?	?	?	1	0	?	0
55 56	865	?	?	0	?	?	?	?	?	1	?	?	0
50 57	866	?	?	?	?	1	1	0	2	?	?	1	?
58 50	867	?	0	1	1	1	?	0	0	?	?	0	1

1 2													
3	868	0	0	0	9	2	1	0	0	0	0	0	1
4	860	0	0	0	? 0	י ר	1	0	0	0	0	0	1
5 6	809	· 2	2	2	0	2	2	· 2	י י	י י	י י	2	י 2
7	870	2	· 2	· 2	· 2	י 2	· 2	· 2	י י	י י	י י	2	· 2
8	872	· 2	2	· 2	2	י 2	· 2	2	י י	י י	י י	י י	1 2
9	072 072	! 2	2 9	2 9	2 9	י פ	2 9	2 9	י ר	י ר	י ר	י ר	י פ
10 11	0/5 071	? 2	2 9	2 9	? 9	י פ	2 9	2 9	? 9	ַ ר	? 9	? 2	؛ م
12	0/4 975	2 2	? 2	? 2	? 2	י ר	? 2	? 2	? ?	י ר ר	? ?	? 2	? 2
13	075 076	! 2	4	4	4	!	4	4	1	1	1	4	<i>!</i>
14 15	870	1											
16	877	Mahajangas	suchus_	insignis	s ?	1	0	0	1	0	?	?	0
17	878	1	?	?	?	?	?	?	?	?	?	?	0
18	879	0	?	1	2	0	0	?	?	0	2	?	0
19 20	880	0	1	0	0	?	0	1	0	1	0	1	1
20 21	881	1	?	0	2	1	0	0	2	0	0	0	0
22	882	1	0	?	0	0	0	0	0	?	?	1	?
23	883	0	0	0	0	0	0	0	0	1	1	1	1
24 25	884	1	1	0	?	1	0	0	0	0	0	0	?
26	885	?	?	0	1	0	0	1	0	?	?	?	1
27	886	1	?	?	?	?	?	?	?	?	?	1	2
28	887	1	?	1	?	0	?	?	?	?	?	1	0
29 30	888	?	0	?	?	0	0	0	0	?	?	?	?
31	889	?	1	?	?	?	?	0	?	2	?	?	0
32	890	0	?	?	?	1	?	?	0	1	0	?	0
33 24	891	?	?	0	?	3	1	1	0	1	?	?	0
34 35	892	?	3	0	?	?	0	0	3	?	?	?	?
36	893	?	?	?	?	?	?	?	?	?	?	1	1
37	894	0	0	0	?	?	1	?	0	0	?	0	1
38	895	?	2	2	0	2	?	?	?	?	?	?	?
40	896	0	0	?	?	?	0	?	?	?	?	?	?
41	897	?	?	?	0	?	0	0	0	0	?	?	?
42	898	1	0	0	?	0	0	0	0	?	0	?	?
43 44	899	?	?	2	?	0	0	0	?	?	0	?	?
45	900	1	?	?	?	0	?	?	?	?	?	?	?
46	901	?	?	?	?	?	?	?	?	?	?	?	?
47 48 40	902	?											
49 50	903	Montealtos	uchus_a	irrudaca	imposi	?	2	0	0	1	0	0	0
51	904	5	1	0	0	0	0	?	0	0	0	0	?
52	905	0	0	?	?	2	0	0	0	?	0	0	?
53 54	906	0	0	1	0	0	0	0	1	0	0	0	1
54 55	907	1	1	0	0	0	0	0	0	2	0	0	0
56	908	0	0	0	?	0	0	0	0	0	0	0	1
57 58	909	?	0	0	0	0	0	0	0	0	1	1	1

1 2													
3	010	1	1	0	0	n	2	0	0	Ο	0	0	0
4	011	1	1 9	0	0	1	0	0	1	0	0	0	0 2
5 6	912	1	1	2	0	1	1	0 2	0	1	0	0	1
7	012	1	1	י ר	0	1	2	י י	0	1	1	0	1
8	01/	0	0	· 0	0	י י	0	י י	0	0	1	0	1 9
9	015	0	י ר	1	י י	י ר	0	י ר	0	1	2	0	י ר ר
10 11	915	? 0	? 0	1	? 0	? 0	{ 1	? 0	0	1	ے 1	? 0	י נ
12	910	0	0	0	0	0	1	0	0	0	1	0	י ר נ
13	917	0	؛ ۱	؛ ۲	0	1	5	1	1	0	1	? 2	? 0
14	918	0	1	3	0	0	0	1	0	2	? 9	? 9	0
15 16	919	? 1	? 0	0	0	0	0	? 1	0	0	? 0	? 2	? 0
17	920	1	0	0		<i>!</i>	<i>!</i>	1	0	0	0	? 0	0
18	921	l	<i>!</i>	2	2	0	2	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>
19	922	?	?	?	?	?	?	?	?	?	?	?	?
20 21	923	?	?	?	~	?	?	?	?	?	?	?	?
22	924	?	?	?	?	?	?	?	?	?	?	?	?
23	925	?	?	?	?	?	?	?	?	?	?	?	?
24	926	?	?	?	?	?	?	?	?	?	?	?	?
25 26	927	?	?	?	?	?	?	?	?	?	?	?	?
20 27	928	?	?										
28	929	Sebecus icae	orhinu	s ?	2	0	0	1	0	2	2	0	1
29	930	2 2	?	.5 . 9	0	2	0	0	0	0	?	0	0
30 31	931	1	1	2	0	0	2	2	0	2	1	0	0
32	932	2	2	$\frac{2}{2}$	2	2	2	-	0	0	1	1	1
33	033	0	0	0	0	0	0	2	0	0	0	0	1 9
34	03/	0	0	0	0	0	0	0	$\frac{0}{2}$	0	0 2	0 2	
35	035	0	· 0	0	0	0	0	2	1	2 1	2 1	2 1	0 9
37	036	0	0	0 9	2	0	0	0	1	1	1	1	י ר
38	930	1	0	، 1	2 1	0	1	0	1	$\frac{0}{2}$	0	י ר	؛ 1
39	028	1	0	1	1	י ר ר	1	0	2 2		؛ 1	? 0	1
40 41	020	2	: 0	י ר	2	י ר	י 2	· 0	1	0	1	1	0
42	939	? 0	0	י ר ר	2	2 0	2 0	0	1		· 1	1	1
43	940	0	י ר	י ר ר	0	0	0	2	0	0	1	1	1
44	941	? 2	? 2	י נו	? 9	? 0	0	2	? 9	? ዓ	? 2	? 2	י נו
45 46	942	? 0	? 0	? 9	? 0	0	0	0	? 2	? 2	? 9	? 0	? م
47	945	<i>!</i>	0	<i>!</i>	<i>!</i> 1	? 0	<i>!</i>	? 2	? 0	? 0	? 0	0	? 0
48	944	?	0	0	1	0	0	2	?	?	?	?	?
49	945	?	?	?	?	?	?	?	?	?	0	2	0
50 51	946	0	0	?	?	l	0	0	0	?	0	l	?
52	947	2	2	0	2	?	?	?	?	?	?	?	?
53	948	?	?	?	?	?	?	?	?	?	?	?	?
54	949	?	?	?	?	?	?	?	?	2	?	?	?
55	950	?	?	?	?	?	?	?	?	?	?	?	?
56 57	951	?	?	?	?	?	?	?	?	?	?	?	?
58													

1 2													
3	952	1	?	2	2	2	2	?	2	?	2	2	?
4 5	953	?	?	?	?	?	?	?	?	?	?	?	?
6 7	954	Uberabasuc	hus_ter	rificus	?	2	0	0	1	0	?	0	5
8	955	1	0	0	0	0	?	0	0	0	0	?	0
9	956	0	?	1	2	0	0	?	?	0	0	?	0
10	957	0	1	0	0	0	0	1	0	0	0	1	1
12	958	1	0	0	0	0	0	0	2	0	0	0	0
13	959	0	0	?	0	0	0	?	0	0	0	1	?
14	960	0	1	0	0	0	0	0	0	?	?	1	1
15 16	961	1	0	0	?	2	0	0	0	0	0	0	?
17	962	?	1	0	1	0	0	1	0	?	?	?	?
18	963	1	0	?	?	?	?	?	?	?	0	1	?
19	964	?	?	?	?	2	?	?	0	1	0	?	?
20	965	?	0	?	?	0	?	?	0	0	0	?	?
22	966	?	?	?	?	1	?	0	1	?	?	?	0
23	967	0	0	0	0	1	0	0	0	1	0	?	0
24	968	?	?	0	1	1	0	?	?	1	1	?	0
25 26	969	?	3	0	0	0	1	0	2	?	?	?	?
27	970	?	?	?	?	?	?	?	?	?	?	1	1
28	971	0	0	0	?	?	1	0	0	0	?	0	1
29	972	?	2	2	0	2	?	?	?	?	?	?	?
30 31	973	?	?	?	?	?	?	?	?	?	?	?	?
32	974	?	?	?	?	?	2		?	?	?	?	?
33	975	?	?	?	?	?	?	?	. ?	?	?	?	?
34 25	976	?	?	?	?	?	?	?	?	?	?	?	?
36	977	?	?	?	?	?	?	?	. ?	?	?	?	?
37	978	?	?	?	?	?	?	?	. ?	?	?	?	?
38 39	979	?	•	•	•	•	•	•		6	•	•	•
40	980	Pholidosaur	us sp.	(DORC	M G.2	27) 1	1	?	0	2	?	?	?
41	981	?	?	?	?	?	?	?	?	0	?	0	0
43	982	0	1	1	?	0	0	0	?	0	?	0	0
44	983	0	?	2	1	0	?	0	0	0	?	0	1
45 46	984	1	1	0	0	0	0	0	0	1	0	0	1
40 47	985	0	0	0	0	0	0	0	0	1	0	1	0
48	986	0	0	0	0	0	0	1	0	0	1	0	1
49	987	1	1	1	0	1	1	1	1	1	?	?	?
50 51	988	?	?	2	Ő	0	0	?	1	?	?	0	?
51 52	989	1	. 1	2	$\overset{\circ}{?}$	$\hat{\tilde{\gamma}}$	$\hat{\tilde{2}}$	?	?	?	?	$\hat{\tilde{\gamma}}$	?
53	990	1 9	1 9	2	· ?	· ?	· ?	0	1	0	0	0	· ?
54	001	· 9	2	0	י י	· ?	· ?	0	1	0	0	0	· 2
55 50	007	: 9	: ?	2	: ?	י ר	י ר	: 9	י ר	י ר	י ר	י ר	י ר
56 57	992 002	י ר	י ר	: 2	י ר	י ר	י ר	י ר	י ר	י ר	י ר	י ר	י ר
58	773	1	<u>'</u>	<u>'</u>	1	1	1	<u>'</u>	1	1	1	1	!

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2													
3	994	?	?	?	?	?	?	?	?	?	?	?	?
4	995	?	?	?	?	?	?	?	?	?	?	?	?
с С	996	?	?	9	?	?	9	9	?	?	?	?	
7	997	: ?	9	9	9	9	0	9	9	9	· ?	· ?	1
8	000	! 2	י ר	י פ	י ר	י ר	0	י פ	2	י ר	י ר	י ר	1
9	998	? 0	? 0	? 0	? 0	? 0	? 0	? 0	2	? 0	? 0	? 0	? 0
10	999	?	?	?	?	?	?	?	?	?	?	?	?
11 12	1000	?	?	?	?	?	?	?	?	?	?	?	?
13	1001	?	?	?	?	?	?	?	?	?	?	?	?
14	1002	?	?	?	?	?	?	?	?	?	?	?	?
15	1003	?	?	?	?	?	?	?	?	?	?	?	?
16	1004	?	?	?	?	?	?	?	?	?	?	?	?
17 18	1005	?	?										
19	1000	DI 1.1	-				0	1	0	0	2	0	0
20	1006	Pholidosaui	rus_pur	beckens	sis_holot	ype	<i>!</i>	1	0	0	3	<i>!</i>	<i>!</i>
21	1007	?	?	?	?	?	?	?	?	?	?	?	0
22	1008	0	0	0		?	0	0	0	1	1	?	0
23	1009	0	0	?	2	0	0	?	0	0	0	?	1
24	1010	1	1	1	0	0	0	0	0	0	2	0	0
26	1011	0	0	0	0	0	0	0	0	0	1	0	1
27	1012	0	0	0	0	0	0	0	1	0	0	0	1
28	1013	1	1	1	1	0	1	1	1	1	1	?	?
29	1014	?	?	?	2	1	1	0	?	1	?	?	0
31	1015	?	1	1	0	?	?	?	?	?	?	?	?
32	1016	?	?	?	?	?	2	2	0	1	0	0	0
33	1017	1	?	?	0	?	1	2	Ŷ	?	° ?	° ?	?
34	1018	1	1	9	2	9	2	. 2	· ?	1	9	1	?
35 36	1010	1	1	2	· ?	· ?	2	2	2	1	2	1	· ?
37	1019	י נ	י ר	י פ	י ר	י ר	י פ	י פ	? 9	2	י ר	י ר	י פ
38	1020	? 0	? 2	? 0	? 2	? 9	? 0	? 2	? 9	? 2	? 0	? 0	? م
39	1021	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	!	? •	<i>!</i>	? 0
40	1022	?	?	?	?	?	?	?	?	?	?	?	?
41 12	1023	?	?	?	?	?	?	?	?	?	?	?	?
43	1024	?	?	?	?	?	?	?	?	?	?	?	?
44	1025	?	?	?	?	?	?	?	?	?	?	?	?
45	1026	?	?	?	?	?	?	?	?	?	?	?	?
46	1027	?	?	?	?	?	?	?	?	?	?	?	?
47 10	1028	?	?	?	?	?	?	?	?	?	?	?	?
40 49	1029	?	?	?	?	?	?	?	?	?	?	?	?
50	1030	?	?	?	?	?	?	?	?	?	?	?	?
51	1031	?	?	?	•	•	•	•			•	•	•
52	1001	•	•	•									
53 54	1032	Pholidosau	rus_scha	aumber	gensis	?	0	0	0	1	0	?	?
04 55	1033	?	?	?	?	?	?	?	?	?	?	0	?
56	1034	0	0	1	?	0	0	0	1	0	0	0	0
57	1035	0	0	2	?	?	0	0	0	0	?	0	1
58													

1 2													
3	1036	1	1	0	0	0	0	0	0	2	0	0	2
4	1030	0	2	0	2	0	0	0	0	0	2	1	0
5 6	1037	2	0	0	0	2	$\frac{0}{2}$	1	0	0	1	1	1
7	1030	1	1	0	0	?	1	0	0	0	0	0	0
8	1040	2	2	2	2	1	0	1	1	0	2	0	2
9 10	1040	: ?	· 1	2	?	1 9	1	1 9	0	0	0	1	•
10	1041	0	0	2	0	1	0	0	2	0 2	2	1 9	2
12	1042	2	2	0	2	1 9	2	0 2	1	0	0	2	2
13	1045	1	: 1	0 2	י ?	· ?	1	· ?	1 9	2	2	2	2
14 15	1044	1	0	0	، 1	0	0	1	2	2	2	2	· ?
16	1045	0	0	0	1	1	0	1	2	? ?	2	· 0	2 2
17	1040	2 2	י ר	י ר	2 9	1	י ר	י ר	· 0	י ר	2 9	0	י ר נ
18	104/	? 2	? 9	2	? 9	? 9	? 9	? 9	0	? 0	? 2	? 9	? 0
19	1048	? 9	? 2	? 0	<i>!</i>	? 0	? 0	? 2	0	0	? 0	? 0	0
20 21	1049	<i>!</i>	<i>!</i>	0		<i>!</i>	0	<i>!</i>	0	0	0	<i>!</i>	<i>!</i>
22	1050	?	?	0	0	?	?	0	3	?	?	?	?
23	1051	?	0	?	?	?	?	0	0	0	?	?	?
24	1052	?	?	?	?	?	?	?	?	?	?	?	?
25 26	1053	?	?	?	?	?	?	0	?	?	0	?	?
20 27	1054	0	?	0	2	?	?	?	?	?	?	?	?
28	1055	?	?	?	?	?	?	?	?	?	?	?	?
29	1056	1	1	?	?	0	0	?	?	?	?	?	?
30 21	1057	?	?										
32	1058	Vectionchus	lentor	nathus	2	0	0	0	1	0	2	1	0
33	1050		s_icpiog າ	11aunus 9	י 2	0	0	0	0	1	· 0	1	0
34	1059	1	؛ 1	· 0	2	· 0	· 0	1	0	1	0	· 0	0
35	1000	0	1	0	2	0	0	1	<i>!</i>	? 2	0	0	1
37	1001	0	2	? 0	? 0	? 0	? 0	? 0	0	<i>!</i>	0	1	1
38	1002	? 0	0	0	0	0	0	0	1	0	0	? 0	0
39	1063	0	0	? 0	0	0	0	0		!	1	? 2	/ 9
40	1064	1	0	0	0	0	<i>!</i>	<i>!</i>	<i>!</i>	0	0	<i>!</i>	<i>!</i>
41	1065	1	0	0	<i>!</i>	<i>!</i>	0	0	0	0	0	0	<i>!</i>
43	1066	?	?	0	?	0	1	1	0	?	0	0	?
44	1067	l	?	?	?	l	?	0	l	0	1	1	0
45	1068	0	?	0	?	0	?	?	0	l	0	?	?
40 47	1069	?	0	?	?	0	?	l	0	0	?	?	?
48	1070	?	?	?	?	1	?	1	?	2	?	?	?
49	1071	?	0	1	0	0	1	?	0	?	?	?	?
50	1072	?	?	0	1	?	?	?	?	0	?	?	?
51 52	1073	?	1	?	?	?	?	0	?	?	?	?	?
53	1074	?	?	?	?	?	?	?	?	?	?	?	?
54	1075	?	?	?	?	?	?	?	0	0	?	?	?
55	1076	?	?	?	?	?	?	?	?	?	?	?	?
56	1077	?	?	?	?	?	?	?	?	?	?	?	?
ว/ 58	1078	?	?	?	?	?	?	?	?	?	?	?	?
59													

Journal of Syster	natic Palaeontol	ogy

2													
3	1079	?	?	?	?	?	?	?	?	?	?	?	?
4 5	1080	?	?	?	?	?	?	?	?	?	?	?	?
6	1081	?	?	?	?	?	?	?	?	?	?	?	?
7	1082	?	?	?	?	?	?	?	?	1	?	?	?
8	1083	?	•		•	•	•	•		-	•	•	•
9	1005												
10	1084	Sarcosuchus	s_impe	rator	?	1	0	0	1	0	?	1	0
12	1085	1	1	1	1	1	?	0	0	1	0	?	0
13	1086	0	1	?	0	0	0	1	?	0	0	0	0
14	1087	0	2	?	?	?	?	?	0	?	0	1	1
15 16	1088	1	0	0	0	0	0	0	0	0	0	0	0
17	1089	?	0	?	0	0	0	0	0	0	1	0	?
18	1090	0	0	0	0	0	2	0	0	1	1	1	1
19	1091	1	0	0	?	1	0	0	0	0	0	0	?
20	1092	9	?	?	1	0	1	1	0	?	?	0	1
21	1093	1	?	?	?	1	?	0	1	0	?	1	0
23	1094	0	?	0	?	2	?	?	0	1	0	1	?
24	1095	?	0	$\hat{\tilde{2}}$	1	2		1	Õ	0	° ?	0	1
25	1095	1	1	. 1	2	1	2	1	2	2	?	2	0
20	1097	0	0	1	0	0	. 2	2	0	?	?	?	2
28	1097	2	2	0	2	1	0	1	0	1	0	· ?	· ?
29	1090	?	2	0	0	0	4	0	0	1 9	2	1	· ?
30	1100	?	0	0	0	0	2	0	0	?	· ?	0	. 1
32	1100	0	0	0	2	2	0	0	0		0	1	1
33	1101	0 2	0	0	9	0	2	2	2	2	2	2	0
34	1102	· 0	2	0 2	· ?	2	0	2	2	: ?	· 2	· 2	2
35	1103	0	· 2	י י	· 2	· 0	0	2	2	י י	· 2	2	· 0
37	1104	؛ 1	· 0	י ר	י ר	0	· 0	· •	! 0	1	י פ	י פ	0 9
38	1103	1	0	? 2	? 0	? 0	0	0	0	0	? 0	? 0	? م
39	1100	<i>!</i>	? 0	2	? 2	0	0	0	<i>!</i>	<i>!</i>	0	? 2	/ 1
40 41	110/	<i>!</i> 1	? 0	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>?</i>	<i>!</i> 1	!	? 0	? 0	1
41 42	1108	1	?	?	0	0	0	2	1	1	?	?	?
43	1109	?											
44	1110	Terminonar	is robu	ista?	0	0	0	1	0	?	1	0	1
45	1111	1	1	1	1	?	0	0	1	0	?	?	0
40 47	1112	- 1	?	0	0	0	1	?	0	0	0	0	0
48	1112	2	?	$\hat{\tilde{2}}$	° ?	° ?	2	0	$\hat{\tilde{2}}$	Ő	1	1	1
49	1113	0	0	0	0	0	0	0	0	0	0	0	2
50	1114	0	0	0	0	0	0	0	0	1	0	0	· 0
51 52	1115	0	· 0	0 2	0	2	0	0	1	1	1	! 1	1
52	1110	0	0	? ۲	0		0	0	1	1	1	1	1
54	111/	1	0	? 1	1	0	0	0	0	0	0	? 9	2 1
55	1110	· · · · · · · · · · · · · · · · · · ·	1	1	1	? 0	1	0	? 0	? 9	<i>!</i> 1	? 0	
56 57	1119	2	<i>!</i>	<i>!</i>	1	<i>!</i>	U	U	0	<i>!</i>	1	U	U
57 58	1120	7	0	!	2	!	!	0	1	0	1	!	?

1													
2	1121	0	n	9	9	0	1	0	0	1	0	2	2
4	1121	0	י ר	? ?	؛ 1	0	1	0	2	1	0	2 0	؛ 0
5 6	1122	0	1	0	0	1	1	0	$\frac{2}{2}$	· ?	2	2	2
7	1123	2	0	0 2	0	0	0	0	· ?	· ?	2	· ?	· ?
8	1124	<u>'</u> 1	0 2	· ?	0	2	0	2	· ?	· ?	· 2	2	· 2
9	1125	1	0	2 1	0	2	0	0	· ?	· ?	0	2 1	· 0
10	1120	0	0 2	1	2	0	0	0	0	· ?	1	1	2
12	1127	0	0	· ?	0	2	2	2	0	· ?	1	0	0
13	1120	2	0 2	· ?	2	0	2	2	· ?	· ?	2	2	2
14	112)	· ?	0	· ?	0	2	· 2	· 2	0	2	· 2	0	، 1
16	1130	0	0	· ?	0	0	0	0	0	0	2	2	1
17	1131	0	2	: 2	0	0	0	2	· ?	0	· 2	2	، 1
18	1132	0	2	2	0	0	2	0	· ?	0	· 2	2 1	1
19 20	1133	1	? ?	0	0	0	2	1	2 1	? ?	2	1	1
20	1154	<u>1</u>	ł	0	0	U	2	1	1	-	-	-	1
22	1135	Oceanosuc	hus_boe	ecensis	?	0	0	?	1	0	?	1	0
23	1136	1	1	1	1	0	?	0	0	1	0	?	?
24 25	1137	0	1	?	0	0	0	?	?	?	0	1	0
26	1138	?	2	?	?	?	?	?	0	?	0	1	1
27	1139	?	0	0	0	0	0	0	0	0	0	?	?
28	1140	0	0	?	0	0	0	0	0	0	1	0	?
29 30	1141	0	0	0	0	0	2	0	0	1	1	?	?
31	1142	1	0	0	1	1	0	0	0	?	?	?	?
32	1143	?	?	?	?	0	?	1	0	?	?	?	?
33 34	1144	?	?	?	?	1	?	?	?	?	1	1	?
35	1145	?	?	?	?	?	?	0	0	1	0	1	0
36	1146	0	0	?	1	?	?	?	0	0	1	?	?
37	1147	?	1	?	?	1	0	?	?	?	?	?	0
38 39	1148	0	0	1	0	0	1	?	1	?	?	?	?
40	1149	?	?	0	1	?	?	?	?	?	0	1	?
41	1150	?	?	?	?	0	2	0	1	?	?	?	?
42 43	1151	?	?	?	?	?	?	?	?	?	?	1	1
43 44	1152	0	0	?	?	?	0	?	0	0	?	1	1
45	1153	?	0	0	?	0	?	?	?	?	1	?	?
46	1154	0	0	?	?	?	0	0	0	?	?	?	?
47 78	1155	?	?	?	?	?	0	0	?	?	?	?	?
49	1156	?	?	?	?	?	?	?	?	?	?	?	?
50	1157	?	?	?	?	0	0	0	?	?	0	?	?
51	1158	?	?	?	?	?	0	?	?	?	?	?	1
52 53	1159	1	?	?	0	0	0	2	1	?	?	?	?
54	1160	?											
55	1171	E1. 1	-1. °C	:	0	0	0	0	1	0	1	1	^
56 57	1101	Elosuchus_	cnerifie	1	! 1	0	U	U		U 1		1	0
57 58	1162	1	U	1	1	U	!	U	0	1	U	!	0

2													
3	1163	0	1	?	2	0	0	1	?	?	0	0	0
4 5	1164	?	?	?	?	?	?	?	0	?	0	1	1
6	1165	?	0	0	0	2	0	0	1	0	0	?	0
7	1166	0	0	?	0	0	0	0	0	0	1	0	?
8	1167	1	0	0	0	0	0	0	0	1	0	1	1
9	1168	1	Ő	Ő	° ?	1	ů 0	0 0	Ő	2	° ?	2	2
10	1160	2	2	0	9	1 9	0 2	1	0	9	· ?	0	· ?
12	1170	0	0	0 2	· 2	1	2	1	0	0	1	1	· 0
13	1170	0	0 9	· 0	: 9	1 2	2 2	0	0	0	1	1	0 2
14	11/1	0	? 0	0	؛ ۱	2	? 0	؛ ۱	0	? 0	1	1	໌ ງ
15 16	11/2	? 0	0	<i>!</i> 1	1	0	0	1	0	0	1	? 0	/ 9
17	11/3	<i>!</i>	l	1	!	1	<i>!</i>	1	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>
18	11/4	?	0	l	0	0	?	?	0	0	0	?	0
19	1175	?	?	0	1	?	?	?	0	?	?	?	?
20	1176	0	?	0	0	0	2	0	1	?	?	1	?
21	1177	?	0	0	0	?	0	0	0	?	?	?	1
23	1178	0	0	?	?	?	0	0	0	0	0	1	?
24	1179	?	?	?	?	?	?	?	?	?	?	?	?
25	1180	0	?	?	?	?	?	0	0	?	?	?	?
26	1181	?	?	?	?	?	?	?	?	?	?	?	?
27 28	1182	?	?	?	?	?	?	?	?	?	?	?	?
29	1183	?	?	?	?	?	?	?	?	?	?	?	?
30	1184	?	?	?	?	?	?	?	?	?	?	?	1
31	1185	1	?	?	0	0	0	2	?	?	?	?	?
32	1186	?	•		0	Ũ	Ũ			•	•	•	
33 34	1100	•											
35	1187	Chalawan_t	thailand	licus	?	1	0	0	?	?	?	1	?
36	1188	1	1	1	1	1	?	0	0	?	0	?	0
37	1189	?	?	?	0	?	0	1	?	?	?	?	?
38	1190	?	?	?	?	?	?	?	?	?	?	1	1
40	1191	?	?	0	0	0	0	0	?	0	?	?	?
41	1192	?	?	?	?	?	?	?	?	0	1	?	?
42	1193	?	?	0	?	?	?	?	?	?	?	?	?
43	1194	1	0	0	9	?	?	?	?	?	?	9	?
44	1195	?	?	?	?	?	?	?	?	?	?	?	?
46	1196	?	?	?	?	. 1	?	?	?	?	?	?	?
47	1197	?	9	?	?	2	?	?	?	?	?	9	?
48	1197	: 2	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· 9	· ?
49 50	1100	· ?	2 1	י ר	: 2	י י	2	2	י י	י ר	2 1	: 9	י ר
51	1200	? 0	1	{ 1	? 0	? 0	? 0	? 0	? 0	? 0	1	י נ	؛ م
52	1200	<i>!</i>	? 0	1	0	0	? 0						
53	1201	?	<i>!</i>	<i>!</i>	1	<i>!</i>	!	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>
54	1202	?	?	?	?	0	4	0	0	0	0	l	0
55 56	1203	0	0	1	?	0	0	0	0	0	?	?	
57	1204	0	?	?	?	?	?	?	?	?	?	?	?
58	1205	?	?	?	?	?	?	?	?	?	?	?	?
59													

Page	122	of	161
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1 2													
3	1206	9	2	9	2	9	2	9	n	n	9	2	2
4	1200	? 2	? 2	י ר	? ?	י ר	? 9	2 9	י ר	י ר	? 2	2 9	י ר נ
5	1207	? 2	? 2	י ר	? 2	י ר	? 2	2 9	י ר ר	י ר ר	? 2	2 9	י ר י
6 7	1200	? 2	? 9	? 2	? 9	י ר	י נ	? ዓ	י ר	י ר	2 2	י פ	י פ
8	1209	? 0	? 0	? 9	? 0	? ዓ	? 0	? 2	? 2	? 2	? 0	? 0	؛ م
9	1210	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	? 0
10	1211	?	?	?	?	?	?	?	?	?	?	?	?
11 12	1212	?											
13	1213	Elosuchus	felixi	?	?	?	?	?	?	?	?	?	?
14	1214	? -	?	?	?	?	?	?	?	?	?	?	?
15	1215	?	?	2	?	?	?	?	?	?	?	?	?
16 17	1216	?	?	2		?	?	?	?	?	?	?	?
18	1210	· ?	· ?	. ?	2	· ?	· ?	?	?	?	· ?	9	· ?
19	1217	· ?	· ?	. ?	2	?	9	9	?	?	. 9	9	· ?
20	1210	· 9	· 2	· ?	2	: ?	· 2	· 2	: ?	י ר	2	2	י ר
21	1219	· 2	2	י ר	2	: 2	י 2	: 9	י ר	י ר	י י	: 9	2 2
22	1220	? 2	י פ	י ר	! 9	! ?	י פ	י ר	י ר	י ר	2 9	י פ	י ר
24	1221	? 9	? 9	? 9	? 9	! 9	? 2	? ዓ	? 9	? 9	י ר	י נ	໌ ງ
25	1222	? 0	? 0	? 2	? 0	{	? 2	? 2	? 2	? 2	? 2	? 0	? 9
26	1223	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	!	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	? 0
27 28	1224	?	?	?	?	?	?	?	?	?	?	?	?
29	1225	?	?	?	?	?	?	?	?	?	?	?	?
30	1226	0	0	l	0	?		?	0	0	0	0	?
31	1227	?	0	1	?	?	?	?	?	?	?	?	?
32	1228	?	?	?	?	?	?	2	?	?	1	0	0
34	1229	0	1	1	1	0	0	0	1	?	?	?	?
35	1230	?	?	?	?	?	?	?	?	?	?	?	?
36	1231	?	?	?	?	?	?	?	?	?	?	?	?
37	1232	?	?	?	?	?	?	?	?	?	?	?	?
39	1233	?	?	?	?	?	?	?	?	?	?	?	?
40	1234	?	?	?	?	?	?	?	?	?	?	?	?
41	1235	?	?	?	?	?	?	?	?	?	?	?	?
42 42	1236	?	?	?	?	?	?	?	?	?	?	?	?
43 44	1237	?	?	?	?	?	?	?	?	?	?	?	?
45	1020	A 1	• 1	11 .	·1 ·	0	0	0	0	1	0	0	1
46	1238	Arambourg	isuchus	_knour	lbgaensis	<i>!</i>	0	0	0	1	0	<i>!</i>	1
47	1239	0	l	0	0	0	0	?	0	0	1	0	?
48 ⊿0	1240	?	0	1	?	0	0	0	?	?	?	0	0
<del>5</del> 0	1241	0	0	2	?	?	?	?	?	0	?	0	1
51	1242	1	?	0	0	1	0	0	0	0	0	0	?
52	1243	0	0	0	?	0	0	0	0	2	0	0	0
53 54	1244	?	0	1	0	?	0	2	?	0	?	1	?
55	1245	?	1	2	0	?	1	0	0	0	?	?	?
56	1246	?	?	?	0	?	1	1	1	?	?	?	?
57	1247	?	0	?	?	?	1	?	0	0	0	?	1
58													

2													
3	1248	0	?	?	1	?	?	?	?	3	?	?	?
4 5	1249	0	?	0	?	?	0	0	1	0	0	1	?
6	1250	?	?	?	?	?	1	?	0	?	?	?	?
7	1251	?	?	0	0	0	0	?	?	?	?	0	?
8	1252	0	?	?	0	?	?	?	?	0	?	?	?
9 10	1253	?	?	?	?	?	1	1	0	?	?	?	?
11	1253	?	?	?	1	1	1	?	1	?	?	?	?
12	1255	?	?	0	2	?	?	?	0	0	0	?	1
13	1255	1	?	0	0	?		?	° ?	° ?	2	?	2
14 15	1250	2	. 9	0 2	2	?	2	9	· ?	9	9	?	· ?
16	1257	: ?	· ?	· ?	· ?	· ?	· ?	· 9	· ?	· ?	· ?	· ?	· ?
17	1250	· ?	2	: 2	$\frac{1}{2}$	· ?	· ?	2	2	· ?	2	· ?	· ?
18	1257	· 9	2	2	2	י ר	י 2	2	2	· ?	: 2	י 2	י ר
19 20	1200	· ?	· 2	2	!	י י	2 2	· 2	2	י י	2 2	2 2	י ר י
20	1201	! ?	י פ	י 2		י ר	י ר	י 2	י י	י ר	י 2	י ר	י ר ר
22	1202	! ?	2 9	4	!	· ·	1	<u>′</u>	4	1	1	1	1
23	1205	1	<u>1</u>										
24 25	1264	Atlantosuch	us_cou	patezi	?	0	0	0	1	?	?	1	?
26	1265	1	?	?	?	0	?	0	0	1	0	?	?
27	1266	0	1	?	0	0	0	?	?	?	0	0	0
28	1267	0	?	?	?	?	?	?	0	?	0	1	1
29 30	1268	?	0	0	1	0	0	0	0	0	0	0	0
31	1269	0	0	?	0	0	0	?	0	0	?	0	?
32	1270	?	?	0	?	0	?	?	0	0	?	?	?
33 24	1271	1	2	0	?	1	?	?	?	?	?	?	?
34 35	1272	?	?	?	?	0	0	1	?	?	?	?	?
36	1273	0	?	?	?	?	?	?	?	?	?	?	?
37	1274	?	?	?	?	?	?	?	3	1	0	?	?
38	1275	?	0	?	?	?	?	?	?	0	1	?	?
40	1276	?	?	?	?	1	?	0	?	?	?	?	?
41	1277	?	0	0	0	0	?	?	?	?	0	?	0
42	1278	?	?	0	?	?	?	?	?	1	1	?	?
43 11	1279	?	3	0	0	?	?	0	?	?	?	?	?
45	1280	?	0	0	1	0	?	1	1	?	?	?	1
46	1281	0	0	?	?	?	0	0	0	0	?	1	1
47	1282	?	0	0	?	0	?	?	?	?	?	?	?
48 49	1283	?	?	?	?	?	?	?	?	?	?	?	?
<del>5</del> 0	1284	?	?	?	?	?	?	?	?	?	?	?	?
51	1285	?	?	?	?	?	?	?	?	?	?	?	?
52	1286	?	?	?	?	?	?	?	?	?	?	?	?
วง 54	1287	?	?	?	?	?	?	?	?	?	?	?	?
55	1288	?	?	?	?	?	?	?	?	?	?	?	?
56	1289	?	·	÷	•	÷	÷	÷	÷	•	÷	÷	÷
57	1207	÷											

1 2													
3	1290	Cerreiinosu	chus in	nproceri	is ?	0	0	0	1	?	2	1	0
4	1290	1	0	0	0	1	° ?	0	0	1	0	?	0
ว 6	1292	0	?	° ?	° ?	0	0	° ?	Ő	?	Ő	?	0
7	1293	0	2	?	?	° ?	?	?	Ő	?	Ő	. 1	1
8	1294	?	0	0	0	0	0	0	Ő	0	Ő	?	0
9 10	1291	0	Ő	° ?	0	0	0	0	Ő	Õ	Ő	1	0
11	1295	1	2	0	0	0	2	1	0	0	1	2	2
12	1290	1	1	0	1	1	2	0	0	2	1 9	· ?	· ?
13	1297	2	2	0	2	0	· ?	1	2	?	?	· ?	· ?
14 15	1290	: 9	· ?	2	· ?	1	· ?	0	0	0	· ?	1	· ?
16	1200	· 2	· 2	· 2	2	1	2	0	3	2	2	1	· 2
17	1201	1	י פ	: 2	2	2	2	2	5	י 2	י י	2	י פ
18	1202	0	י ר	! 9	! 9	2 9	2 9	2 9	י ר	י ר	י ר	י ר	י ר ס
19	1302	? 2	2 0	/ 0	<i>!</i>	? 0	2 9	? 9	? 9	י ר	? 0	? 2	2 0
20 21	1303	? 2	0	0		0	? 2	? 9	? 9	? 9	0	? 9	0
22	1304	<i>!</i>	<i>!</i>	? 0	1	<i>!</i>	<i>!</i>	<i>!</i>	? 2	? 9	? 0	? 0	? 0
23	1305	<i>!</i>	<i>!</i>	<i>!</i>	!	0	0	0	3	<i>!</i>	<i>!</i>	<i>!</i>	? 1
24	1306	?	0	1	1	1	?	1	1	?	?	?	1
25 26	1307	0	?	?	?	?	?	?	?	?	?	?	l
27	1308	?	?	?	?	?	?	?	?	?	?	?	?
28	1309	?	?	?	?	?	?	?	?	?	?	?	?
29	1310	?	?	?	?	?	?	?	?	?	?	?	?
30 31	1311	?	?	?	?	?	?	?	?	?	?	?	?
32	1312	?	?	?	?	?	?	?	?	?	?	?	?
33	1313	?	?	?	?	?	?	?	?	?	?	?	?
34	1314	?	?	?	?	?	?	?	?	?	?	?	?
35 36	1315	?											
37	1316	Chenanisuc	hus late	eroculi	2	0	0	0	1	0	2	1	0
38	1310	1	0	2	2	1	2	0	1	1	0	1	2
39	1317	1	1	י 2	! 0	1	! 0	0	$\frac{1}{2}$	$\frac{1}{2}$	0	2 1	· 0
40 41	1210	0	1 2	: 9	2	0	0	2	· 0	! 2	0	1	1
42	1220	0	2	· 0	· 0	! 0	· 0	! 0	0	1	0	1	1
43	1320	1	0	0	0	0	0	0	0	0	1	0	0 9
44 45	1321	? 0	0	? 0	0	0	0	0	0	0	1	0	؛ 1
45 46	1322	0	1	0	0	0	2	0	0	0	1	1	1
47	1323	1	1	0	? 2	1	0	0	0	0	0	0	? م
48	1324	? 0	? 2	0	? 2	0	? 2	? 0	0	? 2	? 0	? 0	/ 0
49 50	1325	0	<i>!</i>	? 0	? 2	? 0	? 0	<i>!</i>	? 2	<i>!</i> 1	<i>!</i>	<i>!</i> 1	? 0
50 51	1326	?	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	3	l	0	1	<i>!</i>
52	1327	?	0	?	?	?	?	?	?	0	1	?	?
53	1328	?	l	?	?	l	0	?	?	2	?	?	?
54	1329	?	?	?	?	?	?	?	?	?	?	?	?
55 56	1330	?	?	0	?	?	?	?	?	?	?	?	?
57	1331	?	?	?	?	?	1	0	?	?	?	?	?
58 59	1332	?	?	?	?	?	?	?	?	?	?	0	1

1 2													
3	1333	0	9	9	2	2	9	0	0	0	9	9	9
4	1333	0	· 2	2	2	2	· 2	2	0	0	2	· 2	· 2
5 6	1335	2	2	2	2	2	2	2	· ?	· ?	· ?	2	· ?
7	1336	2	· 2	2	2	2	· 2	2	2	· ?	2	· 2	י 2
8	1227	! ?	: 9	י 2	י 2	י 2	: 9	י 2	י י	י ר	י י	: 9	י פ
9	1220	! 2	י פ	י ר	י ר	י ר	י פ	י ר	י ר	י ר	י ר	י פ	י ר
10	1220	? 2	י פ	י נ	י פ	י פ	י פ	י נ	? 9	? 2	? 2	י פ	י פ
12	1220	? 2	? 9	? ዓ	? ዓ	? ዓ	? 9	? ዓ	? 2	? 2	? 2	? 9	י נ
13	1340	؛ ۲	<i>!</i>	2	2	2	<i>!</i>	1	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	[
14	1341	!											
15 16	1342	Guarinisuch	nus mu	nizi	?	0	0	0	1	0	?	1	0
17	1343	1	0	0	0	?	?	0	0	1	0	?	0
18	1344	0	1	?	0	0	0	?	?	?	0	1	0
19	1345	0	2	?	?	?	?	?	0	?	0	1	1
20	1346	?	0	0	1	0	0	0	0	0	0	0	0
22	1347	0	0	?	0	0	0	0	0	0	0	0	?
23	1348	0	1	0	0	0	2	1	0	0	1	?	?
24	1349	1	2	0	?	1	0	0	0	0	0	0	?
25 26	1350	?	?	0	?	0	1	1	0	?	?	?	?
27	1351	0	?	?	?	1	?	0	0	0	1	1	0
28	1352	?	?	1	?	2	?	?	3	1	0	1	?
29	1353	?	0	?	?	0	0	1	0	0	1	?	?
30 31	1354	?	1	?	?	1	0	0	?	?	?	?	?
32	1355	?	0	0	0	0	?	?	?	?	0	?	0
33	1356	?	?	0	?	?	?	?	?	?	?	?	?
34 35	1357	?	?	?	?	1	1	0	2	?	?	?	?
36	1358	· ?	?	?	?	?	?	?	?	· ?	· ?	?	. 1
37	1359	0	0	?	?	?	?	0	0	0	?	1	1
38	1360	?	0 0	0	?	0	?	?	?	~~?	?	?	?
39 40	1361	?	?	?	?	?	?	?	?	?	. ?	?	?
41	1362	?	?	?	?	?	?	?	?	?	· ?	?	?
42	1363	?	?	?	?	?	?	?	?	. ?	- ?	?	?
43	1364	?	?	?	?	?	?	?	?	?	?	?	?
44 45	1365	?	?	?	?	?	?	?	?	?	?	?	?
46	1366	0	?	?	?	?	?	?	?	?	?	?	?
47	1367	$\overset{\circ}{2}$	·	·	·	·	·	·	·	·	·	·	·
48	1507	•											
49 50	1368	Dyrosaurus	_maghr	ibensis	?	0	0	0	1	0	?	1	0
51	1369	1	0	0	0	0	?	0	0	1	0	?	0
52	1370	0	1	?	0	0	0	?	?	?	0	1	0
53	1371	0	2	?	?	?	?	?	0	?	0	1	1
54 55	1372	1	0	0	0	0	0	0	0	0	0	0	0
56	1373	?	0	?	0	0	0	0	0	0	0	0	?
57	1374	1	2	0	0	0	2	1	0	0	1	1	1
58 59													

1													
2	1375	1	2	0	2	1	Ο	0	0	0	0	0	2
4	1375	1	2	0	י 1	1	1	1	0	2	0	0	، 1
5 6	1370	0	2	0 2	2	1	1 9	0	0	0	1	1	0
7	1377	0	2	1	· ?	1 9	· ?	2	3	1	0	1	2
8	1370	2	0	1	· ?	0	0	1	0	0	1	2	· ?
9	1377	2	0	י י	י 2	1	2	1	0	2	1	· 2	· 2
10	1380	2	0	0	· 0	1	: 2	0	0	$\frac{2}{2}$	0	· 2	· 0
12	1301	· 2	0	0	1	0	0	2	0	؛ 1	1	2	0 2
13	1302	! 2	2 2	0	1	0	2	2 0	י ר	า ว	1	2 9	י פ
14	1202	? 2	5	? 1	؛ 1	1	5	0	? 1	? ዓ	? 2	? 0	؛ 1
15	1304	? 0	0	1	1	? 9	? 0	1	1	? 0	? 9	0	1
17	1383	0	<i>!</i>	? 0	/ 2	<i>!</i>	0	0	0	0	<i>!</i> 1	? 0	1
18	1386	?	0	0	?	0	<i>!</i>	<i>!</i>	<i>!</i>	0	1	<i>!</i>	0
19	138/	0	0	?	?	?	?	0	0	?	?	?	?
20	1388	0	0	0	~	?	?	?	?	0	?	?	?
22	1389	l	0	0	?	?	0	0	0	?	0	?	?
23	1390	?	0	?	?	0	0	0	?	?	0	?	?
24	1391	1	?	?	?	?	?	0	0	?	0	?	1
25 26	1392	0	?	?	0	0	1	?	?	?	?	?	?
20 27	1393	?											
28	1394	Dyrosaurus	_phospł	naticus	?	0	0	0	1	0	?	1	0
29 30	1395	1	0	0	0	1	?	0	0	1	0	?	0
31	1396	0	1	?	0	0	0	1	?	?	0	1	0
32	1397	?	2	?	?	?	?	?	0	?	0	1	1
33	1398	1	0	0	0	0	0	0	0	0	0	0	0
34 35	1399	?	0	?	0	0	0	0	0	0	0	0	?
36	1400	1	2	0	0	0	2	1	0	0	1	1	1
37	1401	1	2	0	1	1	0	0	0	0	0	0	?
38	1402	?	?	?	1	0	1	1	0	?	?	0	1
39 40	1403	0	?	?	?	1	?	0	0	0	1	1	0
41	1404	0	?	1	?	2	?	?	3	1	0	1	?
42	1405	0	0	?	1	0	0	1	0	0	1	?	1
43	1406	1	1	?	?	1	?	0	?	2	?	?	?
44 45	1407	?	0	0	0	0	?	?	0	?	0	?	. 0
46	1408	?	?	ů 0	1	?	?	?	?	?	?	?	?
47	1409	?	?	° ?	2	1	2	0	?	?	?	?	?
48	1410	· ?	0	1	1	1	2	1	1	?	?	0	1
49 50	1410	0	0	0	2	2	0	0	0	0	· ?	1	1
51	1/12	0 2	0	0	2	0	2	0	0 2	2	2	1	1 9
52	1412	· 0	0	0	! ?	0	2 2	2	י י	2 2	י י	2	· 2
53	1413	0	י ר	י ר	י פ	י ר	י ר	י ר	י ר	י ר	י ר	י ר	י פ
54 55	1414	<u>'</u>	؛ م	؛ ۲	؛ ۵	؛ م	໌ ົ	? 9	? ٩	؛ م	? ባ	? 9	? م
56	1415	<i>!</i>	<i>!</i>	? 2	U	<i>!</i>	? 0	<i>!</i>	<i>!</i>	? 0	<i>!</i>	<i>!</i>	? 0
57	1410	<i>!</i>	<i>!</i>	? 9	? 0	<i>!</i>	/ 0	<i>!</i>	<i>!</i>	<i>!</i>	? ባ	<i>!</i>	! 1
58 59	141/	!	!	!	!	!	!	!	!	!	!	!	I

1 2													
3 4 5	1418 1419	0 ?	?	?	0	0	1	?	?	?	?	?	?
6 7	1420	Rhabdognat	thus_sp.	?	0	0	0	0	0	?	1	0	1
8	1421	?	?	?	?	?	0	?	?	0	?	?	0
9	1422	1	0	0	?	0	?	?	?	0	?	0	0
10	1423	2	?	?	?	?	?	0	?	0	1	1	1
12	1424	0	0	1	0	0	0	0	0	0	0	0	?
13	1425	0	?	0	0	0	0	0	0	?	?	?	0
14	1426	1	0	0	0	2	1	0	0	1	1	1	1
15 16	1427	1	?	?	1	0	0	0	0	0	0	?	?
17	1428	?	0	1	0	?	1	0	1	?	0	?	0
18	1429	?	?	?	?	?	?	?	?	1	?	?	?
19	1430	?	?	?	?	?	?	3	1	0	?	0	0
20 21	1431	0	?	?	?	?	?	?	0	1	?	?	?
22	1432	?	1	?	1	0	?	?	2	?	?	0	0
23	1433	0	0	0	0	?	?	?	?	0	?	0	?
24	1434	?	0	?	?	?	?	?	?	?	?	?	?
25 26	1435	?	?	?	1	?	. 0	?	?	?	?	?	?
27	1436	?	?	?	?	?	$\tilde{2}$	?	?	?	?	?	?
28	1437	?	?	?	?	. ?	2	0	0	?	?	?	?
29	1438	: ?	?	?	?	?	. 2	2	0 2	?	9	· ?	· ?
30	1439	: ?	?	?	· ?	?	. 2	2	· ?	· ?	9	· ?	· ?
32	1440	: ?	?	?	?	?	2	2	?	?	9	· ?	· ?
33	1440	: ?	· ?	· ?	· ?	· ?	· ?	2	2	· ?	· ?	· ?	· ?
34	1/1/2	· 9	· ?	· ?	2	· ?	2	2	2	· ?	2	2	· ?
35	1442	· 9	2 2	י ר	· 2	י י	2	2	! ?	! ?	· 2	2	י ר
37	1443	· 2	י 2	י ר	· 2	י י	י י	2	? 2	2	· 2	2	י ר
38 30	1444	·	1	!	· 2	د ۲	? 0	! 0	· •	·	? 0	<u>'</u>	؛ ۱
40	1445	Machimosa	urus_mo	sae	2	1	0	0	?	0	0	1	1
41	1446	1	0	0	0	<i>!</i>	0	<i>!</i>	2	1	1	0	<i>!</i>
42	144/	?	1	0	?	0	0	0	0	?	?	?	0
43 44	1448	?	2	?	?	?	?	?	0	?	0	0	0
45	1449	0	?	1	0	0	0	1	0	0	0	0	0
46	1450	0	0	?	?	?	?	?	0	0	0	0	0
47	1451	1	0	0	0	?	0	0	?	1	?	?	?
48 ⊿0	1452	1	2	0	?	1	0	0	0	1	0	0	?
49 50	1453	?	2	0	?	?	?	1	0	?	?	?	?
51	1454	0	?	?	?	1	2	?	?	?	?	?	?
52	1455	?	0	?	?	?	?	?	?	?	0	0	?
53 E4	1456	?	?	?	?	?	?	?	?	?	1	?	?
54 55	1457	?	0	?	?	?	0	0	?	?	?	?	0
56	1458	0	0	1	0	0	1	?	0	?	0	?	0
57 58	1459	?	?	?	1	?	?	?	1	?	?	?	?

1 2													
3	1460	0	1	0	0	r	2	0	2	0	Ο	2	0
4	1400	0	1	0	0	2	ے 1	0		0	0	? 0	0
5	1401	0	0	0	0	1	1	0	0	0	1	0	0
6 7	1402	0	0	2 9	י נ	1	? 0	0	0	0	0	0	1
8	1403	? 9	? 0	? 0	? 9	? 0	0	3	1	? 0	? 0	<i>!</i> 1	<i>!</i>
9	1464	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	0	1	0
10	1465	0	?	?	?	?	1	0	?	?	?	?	?
11 12	1466	1	?	?	?	?	?	?	?	?	?	?	?
13	1467	?	?	?	?	l	l	?	?	?	?	?	?
14	1468	?	?	?	?	l	?	?	?	?	?	?	l
15	1469	1	0	?	0	0	0	2	?	?	?	?	2
16 17	1470	0											
18	1471	Machimos	aurus bi	uffetauti	{1,2}	} 1	0	0	?	0	0	1	1
19	1472	1	0	0	0	?	0	?	2	1	1	0	1
20	1473	?	1	0	0	0	0	0	0	?	?	?	0
22	1474	?	2	?	?	?	?	?	0	?	0	0	0
23	1475	0	?	1	0	0	0	1	0	0	0	0	0
24	1476	0	0	?	0	0	0	?	?	0	0	0	0
25 26	1477	1	0	0	0	?	0	0	?	?	?	1	?
27	1478	1	2	0	?	1	0	0	0	1	?	?	?
28	1479	?	2	0	?	2	1	1	0	?	?	?	0
29	1480	0	?	?	?	1	1	?	?	0	?	1	?
30 31	1481	° ?	?	?	?	?	0	?	?	° ?	0	0	?
32	1482	?	?	?	?	?	2	$\frac{1}{2}$	?	?	1	° ?	?
33	1483	?	0	?	?	?	0		. ?	?	2	?	0
34	1484	· 0	0	. 1	0	0	1	2	· O	?	0	?	0
35 36	1485	2	2	1 9	2	2	2	· ?	1	· ?	0	· ?	2
37	1486	: ?	9	?	?	2	3		1	0	0	?	0
38	1400	· 0	0	0	0	0	1	0	1	0	1	0	0
39	1407	0	0	0	2	1	1	0	0	0	0	0	50 1 L
40 41	1400	1	2	0	י י	1	0	3	1	0	0	0	ر0,1 ر ۲
42	1409	1	י 2	י ר	י ר	י 9	0	ן ר	1	! 2	2	י ר	י 2
43	1490	! 2	י פ	י ר	י ר	י פ	2 9	י ר	י ר	?	י ר	י ר	י ר
44 45	1491	2 2	י ר	? 9	י ר	؛ ۲	2 9	י ר	? 9	? 2	י ר	? 9	י ר
45 46	1492	2 2	י נ	י ר	? ዓ	2 9	2 9	י ר	? 9	? 2	י ר	? 2	? ዓ
47	1495	ِ ۲	/ 9	י נ	? 9	? 9	? 2	? 2	? 9	? 9	? 9	? 9	/ 1
48	1494	? 1	? 9	? 0	? 0	? 0	? 0	? 2	? 9	? 2	? 2	? 2	1
49	1495	1	?	!	0	0	0	!	!	?	!	?	!
50 51	1496	!											
52	1497	Steneosaur	us_obtu	sidens	1	0	0	0	?	?	?	1	1
53	1498	?	0	0	0	?	0	?	?	1	?	0	?
54 55	1499	?	1	?	?	0	0	0	0	?	?	?	?
56	1500	?	2	?	?	?	?	?	0	?	?	?	?
57 58	1501	?	?	?	?	0	0	1	?	?	?	?	?

2													
3	1502	?	?	?	?	?	?	?	0	0	0	0	?
4	1503	1	?	?	0	?	?	?	?	1	?	?	?
6	1504	1	2	?	?	1	0	?	?	?	?	?	?
7	1505	9	?	?	?	?	?	1	?	?	?	?	?
8	1506	?	?	?	?	1	?	2	?	?	9	9	?
9	1500	: 9	0	י ר	: 9	1		: 9	2	י ר	2	0	י ר
10	1507	2 2	0	י ר	י נ	י ר	0	י פ	י ר	י ר	י פ	0	י ר נ
12	1508	? 0	? 0	? 9	? 2	? 0	? 0	? 0	? 0	? 9	? 0	? 0	/ 9
13	1509	<i>!</i>	0	<i>!</i>	<i>!</i>	<i>!</i>	0	0	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>
14	1510	?	0	l	0	0	l	?	?	?	0	?	0
15	1511	?	?	?	?	?	?	?	?	?	?	?	?
16 17	1512	?	?	?	?	1	4	?	1	?	0	?	0
18	1513	?	0	?	?	?	1	?	?	?	1	?	0
19	1514	0	?	?	?	1	?	0	0	0	0	?	1
20	1515	1	1	1	1	1	0	3	1	?	?	?	?
21	1516	?	?	?	?	?	?	?	?	?	?	1	?
22	1517	0	?	?	?	?	?	?	?	?	?	?	1
23 24	1518	?	?	?	?	?	?	?	?	?	?	?	?
25	1519	?	?	?	0	1	1	?	?	?	?	1	?
26	1520	9	?	?	?	1	?	?	?	?	?	9	1
27	1521	. 1		?	0	0	$\dot{0}$	2	. 1	. 1	?	?	2
28	1521	0	0	·	Ū	0	U	-	1	1	·	·	-
29 30	1322	0											
31	1523	Steneosauru	ıs_edwa	ardsi	1	0	0	0	?	0	?	1	1
32	1524	1	0	0	0	1	0	0	2	1	1	0	1
33	1525	0	1	0	0	0	0	0	0	?	0	1	0
34 35	1526	0	2	?	?	?	?	?	0	?	0	0	0
36	1527	0	?	1	0	0	0	0	0	0	0	?	0
37	1528	0	0	?	0	0	0	0	0	0	0	0	0
38	1529	1	0	0	0	0	0	0	1	1	?	?	?
39	1530	1	2	Ő	$\overset{\circ}{2}$	1	1	Õ	0	2		0	?
40 41	1530	2	2	0	9	0	1 9	1	0	O	0	0 2	. ?
42	1522	: 9	2	0	· 0	0	(1 2)	1	0	0	2	: 1	י ר
43	1552	2 2	2 0	0	0	י ר	{1,2) 0	<u>}                                    </u>	2 0	2	? 0	1	؛ م
44	1555	? 0	0	? 9	? 2	? 0	0	? 0	0	0	0	? 0	0
45 46	1554	0	0	<i>!</i>	? 0	0	<i>!</i>	0	1	0	1	? 0	? 0
40 47	1535	?	0	?	?	?	0	0	?	?	?	?	0
48	1536	0	0	1	0	0	1	3	0	?	0	?	0
49	1537	?	?	?	1	?	?	?	1	0	?	?	0
50	1538	0	1	0	1	?	3	0	1	0	0	?	0
51 52	1539	?	0	0	0	0	1	0	0	0	1	?	1
52 53	1540	0	?	0	?	0	?	0	0	0	0	?	?
54	1541	?	?	?	?	?	0	3	0	0	?	?	?
55	1542	0	0	0	?	?	0	0	0	0	0	0	0
56	1543	0	?	?	0	0	1	0	?	?	2	0	1
57 59	1544	ů 0	?	?	2	?	?	? ?	?	?	2	° ?	?
50 50		v	•	•	-	•	•	•	•	•	·	•	•

1 2													
3	1545	9	0	?	0	1	1	0	2	2	0	1	2
4	1546	· 0	0	· ?	0 ?	1	2	2	· ?	· ?	2	2	•
5	1540	1	0	· ?	0	0	0	2	· ?	· ?	· ?	2	1
7	1548	1	U	÷	0	U	U	2	÷	÷	÷	-	1
8	1540	0											
9	1549	Steneosauru	is_graci	ilirostris	0	0	0	0	3	?	?	1	1
10	1550	1	0	0	0	1	0	0	2	1	1	0	1
12	1551	?	1	?	?	0	0	0	?	?	?	?	0
13	1552	?	1	?	?	1	0	0	0	0	0	0	0
14	1553	0	?	?	0	0	0	0	1	0	0	?	0
15	1554	0	0	?	0	0	0	?	0	0	0	0	0
17	1555	1	0	0	0	0	0	0	?	1	0	?	?
18	1556	1	2	0	?	2	1	0	0	1	0	?	?
19	1557	?	2	0	?	?	?	1	0	0	?	?	?
20 21	1558	?	?	?	?	?	?	?	?	?	?	?	?
22	1559	?	?	?	0	?	0	?	?	?	0	0	?
23	1560	?	?	?	?	?	?	?	?	?	?	?	?
24	1561	?	0	?	?	?	0	0	?	?	?	?	?
25 26	1562	?	0	1	0	0	?	?	?	0	0	?	0
27	1563	?	?	?	?	?	2	?	?	?	?	?	?
28	1564	?	?	?	?	?	4	?	0	0	?	?	?
29	1565	· ?	?	?	?	?	2	· ?	?	?	?	?	?
30 31	1566	?	?	?	?	0	. ?		0	0	.0	?	?
32	1567	?	?	?	?	2		$\frac{1}{2}$	° ?	° ?	° ?	?	?
33	1568	: ?	· ?	?	?	?	0 ?	2	· 9	?	?	· ?	· ?
34	1560	· 0	· ?	· ?	· ?	?	· ?	2	$\frac{1}{2}$	· ?	· ?	· ?	· ?
35	1570	0 9	2	2	1	: ?	2	2	2	· 2	· ?	2	· 2
37	1570	· 9	2	2	1	: ?	0	· ?	2	2	· ?	2	· 2
38	1571	י י	י 2	י 2	י ר	: 0	0	י ר	! ?	· 2	י ר	2	؛ 1
39	1572	2 1	2 1	2 2	? 0	0	2 0	2	? ?	· 2	? 2	? 2	1
40 ⊿1	1575	1	1	1	0	0	0	2	1	!	!	4	1
42	13/4	1											
43	1575	Steneosauru	ıs_bolle	ensis	{0,1}	0	0	0	3	0	?	1	1
44	1576	1	-0	0	0	1	0	0	2	1	1	0	1
45 46	1577	0	1	0	0	0	0	0	0	0	0	0	0
40	1578	0	1	?	?	?	0	0	0	0	0	0	0
48	1579	0	?	1	0	0	0	0	0	0	0	0	0
49	1580	0	0	?	0	0	0	0	0	0	0	0	0
50 51	1581	1	0	0	0	0	0	0	1	0	0	1	1
52	1582	1	2	0	?	1	1	0	0	1	1	0	?
53	1583	2	2	Õ	0	0	1	1	Ő	0	0	0	?
54	1584	í O	0	Õ	0	2	, 9	, 9	2	2	0 0	1	· N
55 50	1585	0	1	0	0	?	· ?	· ?	0	0	0	1 9	0
วง 57	1586	0	л П	0 9	0	0	: 1	: 0	1	0	1	í O	1
58	1300	U	U	1	U	U	1	0	1	0	1	U	1

2													
3	1587	0	0	?	0	1	0	0	0	1	0	?	0
4 5	1588	0	0	1	0	0	3	3	0	0	0	0	0
5 6	1589	1	1	0	1	1	1	1	1	0	?	1	0
7	1590	0	1	0	0	1	4	0	1	Õ	0	?	0
8	1591	ů 0	0	0	0	0	1	0	0	2	0	0	1
9	1507	0	0	1	2	0	0	0	0	0	0	1	1
10	1502	2	0	1 9	· 2	0	0	3	0	0	2	1	0
12	150/	0	0	?	י 1	0	0	0	0	$\frac{0}{2}$	· 2	0	2
13	1505	0	0	· 0	1	0	1	0	0	ہ 1	2	0	، 1
14	1595	0	· •	0	0	0	1	0	0	1	2	· 0	1
15 16	1590	0	0	1	2	0	0	0	0	0	0	0	0
17	1597	0	0	1	0	0	0	0	<i>!</i>	? 2	0	1	? 1
18	1598	0	0	!	1	0	0	0	0	2	0	0	1
19	1599	l	0	0	0	0	0	2	I	I	0	0	I
20	1600	0											
21	1601	Steneosaurus	leedsi	0	0	0	0	3	0	?	1	1	1
23	1602	0	0	0	1	Ő	0 0	2	1	1	0	?	0
24	1602	ů 1	0	0	0	Ů	0	0	0	0	0	0	0
25	1604	1	0 ?	0 ?	0 2	0	0	0	0	0	0	0	0
20 27	1605	1	· ?	0	0	0	0	0	0	0	2	0	0
28	1605	· 0	· ?	0	0	0	0	0	0	0	0	0	1
29	1607	0	! 0	0	0	0	0	1	0	0	0	0	1
30	1609	0	0	0	0	1	0	1	0	0	2 0	2 9	1
31	1600	2	0	: 0	1	1		0	? 0	0	0	2 9	؛ ۵
33	1610	2	0	0	0	1		0	0	0	0	? 0	0
34	1010	0	0	0	1	1	0	0	0	0	1	0	0
35	1611	l	0	0	l	0	?	0	0	0	?	0	0
36	1612	0	?	?	0	l	0	1	0	l	0	l	0
38	1613	0	?	0	l	0	0	0		?	?	0	0
39	1614	0	1	0	0	3	{2,3}	0	0	0	?	0	1
40	1615	1	0	1	1	1	1	?	0	?	1	0	0
41	1616	1	0	0	1	4	0	0	0	0	?	0	?
42 43	1617	0	0	0	0	1	0	0	0	0	0	1	0
44	1618	0	1	?	0	0	0	0	0	0	1	?	?
45	1619	?	?	?	?	0	3	0	0	1	0	0	0
46	1620	0	1	1	0	0	0	0	0	1	0	0	0
47 78	1621	0	0	0	0	1	0	0	1	2	0	1	0
40 49	1622	0	0	2	0	0	0	0	0	0	0	0	0
50	1623	0	1	0	1	1	0	0	0	0	1	1	0
51	1624	0	0	1	1	0	?	0	?	0	2	1	1
52 53	1625	0	?	0	0	0	2	1	1	0	?	1	0
54 55	1626	Steneosaurus	heberti	1	?	?	0	?	?	?	1	1	?
วว 56	1627	0	0	0	?	?	?	?	1	?	0	0	?
57 58	1628	1	?	?	0	?	0	0	?	?	?	?	?

1 2													
3	1629	2	2	2	?	2	2	0	2	?	2	2	2
4	1630	2	· ?	· ?	· ?	?	?	0	· ?	· ?	· ?	?	· ?
ວ 6	1631	?	?	?	?	?	?	0	0	0	0	?	. 1
7	1632	?	?	0	?	?	?	° ?	Ő	?	1	. 1	1
8	1633	2		0	1	1	· ?	· ?	1	0	0	2	2
9	1634	2	0 2	2	1 9	2	1	· ?	1 9	2	2	· ?	· ?
10	1635	· 2	י י	י י	י י	· 2	1	· 2	י י	י 2	· 2	· 2	· 2
12	1636	2 1	י י	י י	י י	! 0	2	2	י י	2 2	· 0	· 2	· 2
13	1627	1	י ר	י ר	י ר	0	י 2	! 1	י ר	י 2	0	י 2	י ר
14	1629	? 0	י ר	י ר	י ר	2 0	2 0	1	י ר	י ר	י ר	2 9	י ר
15	1620	0	? 9	? 9	? 9	0	0	? 9	? 0	2 0	? 0	؛ ۵	? 2
17	1039	? 9	? 2	? 2	? •	2	? 2	? 9	0	0	0	0	? م
18	1040	<i>!</i>	? 0	<i>!</i>	<i>!</i>	? 	? 0	<i>!</i>	<i>!</i>	? 0	? 0	? 0	? 0
19	1641	<i>!</i>	<i>!</i>	?	1	4	<i>!</i>	0	0	<i>!</i> 1	<i>!</i>	<i>!</i>	0
20	1642	0	0	0	0	1	0	0	<i>!</i>	l	<i>!</i>	<i>!</i>	<i>!</i>
22	1643	?	?	?	0	?	?	0	0	0	?	l	?
23	1644	?	?	?	?	?	3	?	?	?	?	?	?
24	1645	?	?	?	?	?	?	?	?	?	?	?	?
25 26	1646	?	?	?	?	?	?	?	?	?	?	?	?
20	1647	?	?	?	?	?	?	?	?	?	?	?	?
28	1648	?	?	?	?	?	?	?	?	?	?	?	?
29	1649	?	?	?	?	?	?	?	?	?	?	?	?
30 21	1650	?	?	?	?	?	?	?	?	?	?	?	?
32	1651	Teleosaurus	cadom	ensis	?	0	0		3	0	2	1	1
33	1652	10100544145	_cadom ?	?	?	1	2	0	2	1	1	0	2
34	1653	0	1	0	0	0	0	0	0	0	0	2	0
35 36	1654	0	1	0 2	2	1	0	0	0	0	0	0	0
37	1655	0	1	1	0	1	0	0	0	0	0	0	0
38	1656	0	· 0	1	0	1	0	0	0	0	0	0	0
39	1657	0	0	0	1	0	0	0	1	0	0	1	1
40 41	1658	1	2	0	1	1	0	0	1	0	1	1	1
42	1650	1	2	0	י ר	1	1	1	0			0	· 0
43	1660	? 0	2	0	2 0	0	1	1	0	0	0	0	0
44	1661	0	0	0	0	1	؛ 1	0	0	0	0	1	0
45 46	1662	0	0	0	0	1	1	2 0	0	0	1	0	1
47	1662	0	0	? 0	0	0	1	0	0	0	1	י נ	1
48	1003	0	0	0	0	1	0	0	? 0	1	0	? 2	0
49	1004	0	0	1	0	0	? 0	3	0	<i>!</i>	0	<i>!</i> 1	? 0
50 51	1665	<i>!</i>	<i>!</i>	<i>!</i>	1	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	0	<i>!</i>	1	0
52	1666	0	1	0	0	0	4	0	0	?	?	?	?
53	1667	?	?	?	?	?	?	?	?	?	?	0	?
54	1668	?	0	l	?	0	0	0	0	0	0	l	?
55 56	1669	?	?	?	?	?	0	?	?	?	?	0	?
57	1670	0	?	?	?	?	0	?	?	?	?	0	?
58 50	1671	?	?	?	?	0	?	?	0	?	?	?	1

Journal of Systematic Palaeontology	

3	1672	?	?	?	1	?	?	?	?	0	?	0	0
4 5	1673	0	?	?	?	0	0	?	?	?	?	1	?
6	1674	?	?	?	?	?	?	?	?	?	?	?	1
7	1675	1	1	?	0	0	0	2	1	1	0	0	0
8 9	1676	0	-	·	Ū	Ū	Ū	_	-	-	0	Ũ	Ũ
10	1677	Platysuchus_r	nultiscr	obicula	atus	1	0	0	0	3	0	?	1
12	1678	1	1	0	?	?	1	?	0	2	1	1	0
13	1679	1	0	1	0	0	0	0	0	?	0	0	0
14	1680	0	0	1	?	?	?	0	0	0	0	0	0
15	1681	0	?	?	1	0	0	0	0	0	0	0	0
16 17	1682	ů 0	0		?	ů 0	0	0	0	0	0	0	0
18	1683	ů 0	1	Ő	1	1	Õ	Õ	Õ	1	° ?	0	1
19	1684	1	1	$\frac{0}{2}$	0	1 9	1	1	0	0	1	1	1
20	1685	1	1	$\frac{2}{2}$	0	: ?	1 9	1 9	1	0	1	1	1 9
21	1696	2	2 0	$\frac{2}{2}$	0	፡ ዓ	? ዓ	י ר	1	0	፡ ዓ	0	י ר
22 23	1080	? 0	0	{ 0	! 2	? 2	? 9	? 0	? 0	? ጋ	? 0	0	? 9
24	168/	<i>!</i>	? 0	0	<i>!</i>	!	<i>!</i>	0	? 0	? 0	<i>!</i>	0	? 0
25	1688	?	?	?	?	?	?	?	?	?	?	1	?
26	1689	?	?	?	?	0	l	0	0	?	?	?	?
27	1690	0	0	0	1	0	0	?	3	0	0	0	0
20 29	1691	0	1	1	0	?	?	?	?	?	?	?	?
30	1692	0	0	1	0	0	0	4	0	0	?	?	?
31	1693	?	?	0	0	0	0	?	?	?	?	?	0
32	1694	?	?	0	1	?	0	0	0	0	0	0	1
33 34	1695	1	?	?	?	?	?	0	3	?	?	?	0
35	1696	0	0	0	?	?	?	0	?	?	?	?	0
36	1697	?	0	?	0	?	?	?	?	0	1	2	?
37	1698	1	?	?	0	1	0	0	0	0	0	0	0
38	1699	0	0	0	?	0	0	0	0	?	?	?	1
39 40	1700	?	0	?	?	1	0	0	0	0	2	?	0
41	1701	1	1	1	?	0	0	0	2	1	1	0	0
42 43	1702	0	0			-	-	-				-	
44	1703	Steneosaurus	brevior	1	0	0	0	3	0	9	0	1	1
45	1704	0	0	0	1	° ?	0	2	1	1	0	1	?
46 47	1705	ů 1	0 0	0	0		Õ	0	2	2	0 2	0	?
48	1706	1	0 2	2	1	0	0	0	0	0	0	0	
49	1700	1	؛ 1	: 0	1	0	0	0	0	0	0	0	0
50	1700	? 0	1	0	0	0	0	0	0	? 0	? 0	0	1
51	1700	0	<i>!</i>	0	0	<i>!</i>	? 0	0	0	0	0	0	1
52 53	1709	0	0	0	0	0	0	?	l	?	?	?	?
53 54	1710	?	?	?	1	0	0	0	l	1	0	?	?
55	1711	2	0	?	0	1	1	0	0	0	?	?	?
56	1712	?	0	0	1	?	0	0	0	?	1	0	0
57 58	1713	0	0	0	1	0	?	0	0	0	?	0	?

1													
∠ 3	1714	0	0	0	0	9	0	0	0	1	0	0	9
4	1/14	0	? 2	<i>!</i>	<i>!</i>	<i>!</i>	0	0	0	1	<i>!</i>	<i>!</i>	<i>!</i>
5	1/15	<i>!</i>	? 1	? 0	<i>!</i>	<i>!</i>	0	? 2	<i>!</i>	<i>!</i>	? 0	0	0
67	1/10	0	1	0	0	2	<i>!</i>	<i>!</i>	0	0	0	0	<i>!</i>
8	1717	?	?	?	?	?	?	?	?	?	?	?	?
9	1718	?	?	?	2	3	0	l	?	?	?	?	?
10	1719	0	0	0	0	?	?	?	?	?	?	?	?
11	1720	?	?	?	0	?	?	0	0	0	?	?	?
12	1721	?	?	?	?	0	?	?	?	?	?	?	?
14	1722	?	?	?	?	?	?	?	?	?	?	?	?
15	1723	?	?	?	?	?	?	?	?	?	?	?	?
16 17	1724	?	?	?	?	?	?	?	?	?	?	?	?
17	1725	?	?	?	?	?	?	?	?	?	?	?	?
19	1726	?	?	?	?	?	?	?	?	?	?	?	?
20	1727	?	?	?	?	?	?	?	?	?	?	?	?
21	1728	Dainahsuchus	talaar	hinus	2	0	0	0	n	0	2	1	1
22	1720		2	iiiius ว	2	0	0	0	2	1	؛ 1	1	1
24	1729	1	؛ ۱	؛ ۵	? 0	0	? 0	0	2	1	1	? 0	1
25	1/30	0	1	0	0		0	0	? 0	0	0	0	0
26 27	1/31	? 0	1	{ 1	? 0	<i>!</i>	0	0	0	? 0	0	0	0
27	1/32	0	0	1	0	0	0	0	0	0	0	0	0
29	1/33	0	0	<i>!</i>	0	0	!	0	0	0	<i>!</i>	0	0
30	1/34	l	0	0	0	0	0	0	1	1	?	?	?
31	1/35	1	2	0	?	1	1	0	0	?	1	?	?
32 33	1736	?	2	0	?	?	?	1	?	?	?	?	?
34	1737	0	?	0	0	l	?	0	0	0	0	l	0
35	1738	0	0	0	?	l	?	?	0	0	0	?	0
36	1739	0	0	?	?	0	?	0	0	0	l	?	?
38	1740	?	?	?	?	?	?	?	?	1	?	?	?
39	1741	?	?	?	?	?	?	?	?	?	?	?	?
40	1742	?	?	?	?	?	?	?	?	?	?	?	?
41 42	1743	?	?	?	?	2	3	0	?	?	?	?	?
42 43	1744	?	?	?	?	?	?	?	?	?	?	0	?
44	1745	?	?	?	?	?	?	?	?	?	?	?	?
45	1746	?	?	?	?	?	?	3	?	?	?	?	?
46 47	1747	?	?	?	?	?	?	?	?	?	?	?	?
47 48	1748	?	?	?	?	?	?	?	?	?	?	?	?
49	1749	?	?	?	?	?	?	?	?	?	?	?	?
50	1750	?	?	?	?	?	?	?	?	?	?	?	?
51	1751	?	?	?	?	?	?	?	?	?	?	?	?
5∠ 53	1752	?	?	?	?	?	?	?	?	?	?	?	?
54	1753	?											
55	1754	D-1-	4	0	Δ	0	0	2	0	0	1	0	1
56 57	1/54	Pelagosaurus_	_typus	0	U	U	U	3	0	U 1		U 1	1
57 58	1/55	?	0	0	0	?	U	2	1	1	0	1	0

1 2													
3	1756	1	0	0	0	0	0	0	0	0	0	0	0
4	1757	1	$\frac{0}{2}$	$\frac{0}{2}$	1	0	0	0	0	0	0	0	0
ว 6	1758	?	1	{0 1}	0	Ő	0	0 0	Ő	Ő	Ő	0 0	0
7	1759	0	2	0	0	Õ	0	0 0	Õ	Õ	Ő	0	0
8	1760	ů 0	0	0 0	0	Õ	0	1	1	Õ	1	1	1
9	1761	° 2	0	0	2	0	0	0	1	0	0	1 9	2
11	1762	2	1	0	0	0	1	0	0	0	0	0	0
12	1763	0	0	0	1	2	0	0	0	0	1	0	0
13	1764	ů 0	0	0 0	1	0	Õ	0 0	Õ	Õ	0	0	1
14 15	1765	0 0	0	0	0	0	0	0	0	1	0	1	0
16	1766	ů 0	0	0	1	0	0	2	1	0	2	0	0
17	1767	ů 0	Õ	Ő	0	3	3	0	0	Õ	0	0	1
18	1768	1	0	1	1	1	1	1	0	0	2	0	0
20	1769	1	0	0	1	3	0	0	0	0	· ?	0	0
21	1770	0	0	0	0	1	0	0	0	0	0	1	0
22	1771	0	1	0 2	0	0	0	0	0	0	1	0	0
23	1772	0	0	י י	0	0	0	0	0	1	0	0	0
24 25	1773	0	2	1	0	0	0	0	2	1	0	0	0
26	1774	0	· 0	1	0	1	0	0	2 1	2	0	1	0
27	1775	0	0	1	0		0	0	1	2	· 0	1	0
28	1776	0	0	1	1	0	0	0	0	0	1	0	0
29 30	1777	0	י ר	1	1	0	2	· 0	2 9	0	1	? 1	0
31	1///	0	? 0	1	0	0	2	0	{ 1	0	0	1	1
32	1//0	0	0	0	0	0	2	I	1	1	1	0	1
33 34	1779	Teleidosaurus	s_calv	vadosii	?	0	0	0	3	0	0	1	2
35	1780	1	0	0	0	1	0	0	2	1	1	0	1
36	1781	0	1	0	0	0	0	0	0	0	0	1	0
37	1782	0	2	?	?	?	?	?	0	?	0	0	0
38 39	1783	0	?	?	0	0	0	0	0	0	0	0	0
40	1784	0	0	?	0	1	0	0	0	0	0	0	0
41	1785	0	0	0	0	0	0	0	1	1	0	?	?
42 43	1786	1	2	0	?	2	0	1	1	0	0	0	?
43	1787	?	2	?	?	1	0	1	1	0	1	0	?
45	1788	0	0	0	0	1	2	0	0	0	0	1	0
46	1789	0	?	0	?	?	0	?	0	0	0	0	0
47 48	1790	1	0	?	?	?	0	0	?	0	1	?	1
49	1791	0	0	?	0	1	0	0	0	?	1	?	0
50	1792	0	0	0	0	0	2	2	0	0	0	0	0
51	1793	1	1	0	1	1	1	1	?	0	0	?	0
5∠ 53	1794	0	1	0	0	2	2	0	2	0	0	0	0
54	1795	0	0	0	0	0	1	0	0	0	?	0	?
55	1796	?	?	?	?	0	?	0	0	0	0	1	1
56	1797	?	?	?	?	?	?	?	?	?	?	?	?
57 58 50	1798	?	?	?	?	?	?	?	?	?	?	?	?

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3	1700	9	2	n	9	ŋ	9	2	n	9	2	2	2
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5	1800	? 2	י ר	י ר ר	2 9	י ר ר	2 2	? 2	י ר	י ר	? 2	2 2	: 2
о 7	1001	? 2	? 9	י ר ר	י ר	? 9	י נ	? 9	י ר	? 2	2 9	י נ	؛ م
8	1802	? 9	? 0	? 9	? 2	? 2	? 2	? 0	? 2	? 9	? 2	? 0	? م
9	1803	<i>!</i>	?	!	!	!	!	!	!	?	<i>!</i>	?	!
10	1804	!											
11 12	1805	Eoneustes b	athonic	us?	0	0	0	3	0	?	?	?	?
13	1806	? -	?	?	?	?	?	2	?	1	0	1	0
14	1807	1	?	?	0	0	?	?	0	1	1	0	0
15	1808	2	?	?	?	?	?	1	?	0	0	?	?
10	1809	2	1	0	?	?	?	0	0	0	0	1	0
18	1810	1	0	0	i	. 1	0	ů 0	0	0	0 0	0	Ő
19	1811	0	ů 0	0	0	0	Ő	1	?	?	?	?	?
20	1812	?	° ?	?	2	1	Ő	1	0	0	0	?	?
21 22	1813	2	?	?	1	2	?	1	Ő	$\overset{\circ}{?}$	° ?	?	?
23	1814	0	0	0	$\frac{1}{2}$	?	?	2	$\overset{\circ}{?}$	?	1	?	?
24	1815	0 ?	0 ?	2	?	. 2	. 2	· ?	?	?	2	9	· ?
25	1816	: ?	· ?	· ?	· ?	2	· 2	· ?	· ?	· ?	· ?	· ?	· ?
20 27	1817	· 9	?	· ?	2	2	$\frac{1}{2}$	2	· ?	· ?	2	· 2	· ?
28	1017	: 9	י י	י ר	: 9	2	2	2	י ר	י ר	: 2	: 2	י פ
29	1010	: 2	י ר	י ר ר	י ר	י ר	! 2	· · · ·	י ר	י ר	י פ	י פ	י פ
30	1019	? 2	י ר	י ר ר	י ר	? 9		! 2	? 9	? 9	2 9	2 9	؛ م
31	1020	? 2	י ר	י ר ר	י ר	י ר	0		י ר	י ר	2 9	י פ	י ר ס
33	1021	? 2	? 0	י נ	? 9	? 9	? ዓ	? 2	? 9	? 9	? 2	? 2	? م
34	1022	? 9	0	? 9	? 2	? 2	? 2	?	? 2	? 9	? 2	? 0	? م
35	1823	<i>!</i>	? 0	? 0	? 0	<i>!</i>	? 0	?	!	? 0	? 0	? 0	? 0
30 37	1824	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	!	<i>!</i>	<i>!</i>	<i>!</i>	? 0
38	1825	?	?	?	?	?	?	?	?	?	?	?	?
39	1826	?	?	?	?	?	?	?	?	?	?	?	?
40	1827	?	?	?	?	?	?	?	?	?	?	?	?
41 ⊿2	1828	?	?	?	?	?	?	?	?	?	?	?	?
43	1829	?	?	?	?	?	?	?	?	?	?	?	?
44	1830	Eoneustes g	audrvi	?	0	0	0	3	0	?	2	2	2
45	1831	?	?	?	$\overset{\circ}{?}$	$\overset{\circ}{?}$	?	2	$\overset{\circ}{?}$	1	0	. 1	
46 ⊿7	1832	. 1	?	?	0			0	0	1	1	0	0
48	1833	2	?	?	2	2	2	1	2	0	0	0	2
49	1834	2	1	0	2	· ?	2	2	· ?	0	0	1	0
50	1835	י 1	1	0	ہ 1	1	0		0	0	0	1	0
51 52	1035	1	0	0	1	1	0	0	0	0	0	0	0 9
52	1030	0	0	0	0	0	0	{ 1	? 0	? 0	? 0	י נ	י פ
54	183/	· · · · · · · · · · · · · · · · · · ·	? 0	? 9	1	1	0	1	0	0	0	? 0	/ 0
55	1838	2	<i>!</i>	<i>!</i>	1	U	1	1	U	? 0	0	<i>!</i>	<i>!</i>
56 57	1839	0	0	U	?	<i>!</i>	?	<i>!</i>	<i>!</i>	<i>!</i>	1	?	?
58	1840	?	!	!	!	!	!	!	!	!	!	!	!

# Journal of Systematic Palaeontology

2													
3	1841	?	?	?	?	?	?	?	?	?	?	1	0
4	1842	?	?	?	?	?	?	?	?	?	?	?	?
о 6	1843	?	?	?	?	?	?	?	?	?	?	?	?
7	1844	9	9	?	9	· ?	· ?	9	9	?	. 9	9	. ?
8	1044	י ר	: 2	י ר	י ר	י ר	· 0	: 9	: 9	י ר	2 2	י ר	י פ
9	1843	<u>'</u>	? 0	? 0	? 0	? 0	0	? 0	? 0	? 0	<i>!</i>	? 0	? 0
10	1846	?	<i>!</i>	0	<i>!</i>	<i>!</i>							
11 12	1847	?	?	?	?	?	?	?	?	?	l	l	?
13	1848	?	?	?	?	?	?	?	?	?	?	?	?
14	1849	?	?	?	?	?	?	?	?	?	?	?	?
15	1850	?	?	?	?	?	?	?	?	?	?	?	?
16	1851	?	?	?	?	?	?	?	?	?	?	?	?
17 18	1852	?	?	?	?	?	?	?	?	?	?	?	?
19	1853	?	?	?	?	?	?	?	?	?	?	?	?
20	1854	?	?	?	?	?	?	?	?	?	?	?	?
21		~											
22	1855	Chile_metri	orhynch	loid	?	?	?	?	?	?	?	?	?
23	1856	?	?	?	?	?	?	?	?	?	?	?	?
24	1857	?	?	?	?	?	0	?	?	?	?	?	?
26	1858	?	?	?	?	?	?	?	?	?	?	0	0
27	1859	?	?	1	?	0	0	0	0	1	0	0	2
28	1860	0	1	?	0	1	?	?	0	?	?	?	0
29	1861	0	?	0	0	?	0	0	?	0	?	?	?
30 31	1862	?	?	?	?	2	1	2	?	0	0	0	?
32	1863	· ?	2	?	?	2	2	2	?	?	° ?	?	?
33	1864	9	2	?	9	· ?	· ?	. 2	· 9	?	· ?	9	. ?
34	1865	· 9	י ר	י ר	: 2	2	2	2	2	: 9	2	: 2	י ר
35	1005	! 2	י ר	י ר	י נ	י פ	2 9	? 9	! 2	י ר	2 9	י ר	י ר ר
30 37	1800	<u>'</u>	? 0										
38	186/	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	?	!	<i>!</i>	<i>!</i>	<i>!</i>
39	1868	?	?	?	?	?	?	?	?	?	?	?	?
40	1869	?	?	?	?	?	?	?	?	?	?	?	?
41	1870	?	?	?	?	?	?	0	?	?	?	?	?
42 43	1871	?	?	?	?	?	?	?	?	?	?	?	?
44	1872	?	?	?	?	0	?	?	?	?	?	?	?
45	1873	?	?	?	?	?	?	?	?	?	?	?	?
46	1874	?	?	?	?	?	?	?	?	?	?	?	?
47	1875	?	?	?	?	?	?	?	?	?	?	?	?
48 40	1876	?	?	?	?	?	?	?	?	?	?	?	?
49 50	1877	· ?	?	?	?	?	?	?	?	?	?	?	?
51	1878	: ?	9	9	9	· ?	· ?	9	9	9	· ?	9	?
52	1870	1 9	י ר	י י	י 2	2	2	: 2	י ר	י 2	2	י 2	י ר
53	10/9	2 0	1	1	4	4	4	<u>'</u>	1	1	4	4	1
54 55	1880	<i>!</i>											
56	1881	Zoneait Na	rgorum	?	0	0	?	?	?	?	?	?	?
57	1882	$\frac{1}{2}$	?	?	?	?	?	?	?	?	?	?	?
58	1002	•	•	•	•	•	•	•	•	•	•	•	•

1 2													
3	1883	9	n	າ	0	Ο	n	9	9	9	n	1	2
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5	1004	? 2	? 1	؛ ۱	? 0	؛ ۵	? 0	2 0	2 1	2 0	0	0	0
6 7	1003	? 0	1 0	1	0	0	0	0	1	0	? 9	2	؛ م
8	1007	<i>!</i>	? 0	? 0	<i>!</i> 1	<i>!</i>	? 0	0	<i>!</i>	? 0	? 0	0	0
9	188/	?	0	0	1	0	0	?	0	?	?	?	?
10	1888	?	?	?	?	?	?	?	0	0	0	?	?
11	1889	2	?	?	?	?	?	?	?	?	?	?	?
12	1890	?	?	?	?	?	?	?	?	?	?	0	?
14	1891	?	0	?	?	?	?	?	?	?	?	?	?
15	1892	?	?	?	?	?	0	0	?	?	?	?	?
16	1893	?	?	?	?	?	?	?	?	?	?	?	?
17	1894	?	?	?	?	?	?	?	?	?	?	?	?
19	1895	?	?	?	?	?	?	?	?	?	?	?	?
20	1896	?	?	?	?	?	?	?	?	?	?	?	?
21	1897	?	?	?	?	?	?	?	?	?	?	?	?
22	1898	?	?	?	?	?	?	?	0	?	?	?	?
23 24	1899	?	?	?	?	?	?	?	?	?	?	?	?
25	1900	· ?	?	?	?	?	?	?	?	?	?	?	?
26	1901	· 2	?	?	9	. 2	. ?	?	9	?	?	9	· ?
27	1002	· 9	ະ າ	: 9	: 2	$\frac{1}{2}$		י ר	0	: 9	י ר	י ר	י ר
28	1902	? 2	໌ າ	: ዓ	י פ	2 9	! 9	؛ م	0	י ר	י ר	י ר	2 2
29 30	1903	? 0	? ዓ	: ዓ	י נ	י נ	?	! 2	י נ	? ዓ	? 9	? 9	י פ
31	1904	? 0	? ጉ	? 9	? 0	? 2	<i>!</i>	<i>!</i>	? 2	? 2	? 2	? 2	? 9
32	1905	<u> </u>	<i>!</i>	?	?	?	!	!	?	!	!	!	?
33	1906	Cricosaurus el	egans	?	0	0	0	2	1	?	1	3	3
34 35	1907	? -	?	?	3	0	1	2	1	1	1	1	0
36	1908	1	0	0	0	0	0	0	1	1	1	1	1
37	1909	2	?	?	?	?	?	1	2	1	0	0	0
38	1910	?	1	2	0	0	0	1		1	Ő	2	0
39 40	1911	1	0	0	1	0	0	1	0	0	0	$\frac{2}{2}$	0
40 41	1917	0	1	1	1	2	0	1	0	0	2	2	2
42	1012	2	1	1 9	1	: 1	0	1	0	0	-	- 1	0
43	1913	· 2	1 1	· •	1	1	1	1	0	0	0	1 9	0 2
44	1914	2	1	0	1	0	1	1	0	1	0	י ר	2
45 46	1913	0	0	0	? 0	? 0	? 0	<i>!</i> 1	? 0	0	? 0	? 0	? 0
47	1910	<i>!</i>	<i>!</i>	? 0	<i>!</i>	<i>!</i>	<i>!</i>	1	<i>!</i>	0	<i>!</i>	<i>!</i> 1	<i>!</i>
48	1917	?	?	?	?	?	?	?	?	1	0	l	0
49	1918	?	?	?	?	?	?	0	?	?	?	l	0
50	1919	0	0	0	0	1	3	1	0	0	0	0	1
51 52	1920	1	0	1	1	1	1	?	0	?	1	1	?
53	1921	1	1	1	2	3	0	1	?	?	?	?	?
54	1922	?	?	?	?	?	?	?	?	?	0	0	0
55	1923	0	1	?	0	0	0	?	0	0	1	0	0
56 57	1924	0	0	?	0	0	0	0	?	?	?	?	?
57 58 59	1925	?	?	?	?	?	?	?	?	?	?	?	?

2													
3	1926	?	?	?	?	?	?	?	?	?	?	?	?
4 5	1927	?	?	?	?	?	?	?	?	?	?	?	?
6	1928	?	?	?	?	?	?	?	?	?	?	?	?
7	1929	?	?	?	?	?	?	?	?	?	?	?	?
8 9	1930	?	?	?	?	?	?	?	?	?	?	?	?
10 11	1931	Cricosaurus	s_suevio	cus?	0	0	0	0	1	?	1	3	3
12	1932	?	?	?	3	0	1	2	1	1	1	1	0
13	1933	1	0	0	0	0	0	0	1	1	1	1	1
14	1934	?	?	?	?	?	?	1	?	1	0	0	0
15	1935	?	1	2	0	0	0	1	1	1	0	2	0
17	1936	1	0	0	1	0	0	3	0	0	0	2	0
18	1937	0	1	1	1	?	0	1	0	0	?	?	1
19	1938	2	1	?	3	1	0	1	0	0	0	1	0
20 21	1939	2	1	0	1	0	1	1	0	1	0	?	2
22	1940	0	0	0	?	?	?	?	?	0	?	?	?
23	1941	?	?	?	?	?	?	1	?	0	?	?	?
24	1942	?	?	?	?	?	?	?	?	1	0	1	0
25 26	1943	?	?	?	?	?	?	0	?	?	?	1	0
20	1944	0	0		0	1		1		0	0	0	1
28	10/15	1	0	1	1	1	1	2	0	0 2	1	1	2
29	1046	1	1	1	1	1		1	0	?	1	1	· 2
30	1940	1	1	1 9	1	5	0	1	י פ	י ר	؛ ۵	؛ ۵	· 0
31	1947	? 0	? 1	? ዓ	? 0	1	<i>!</i>		? 0	? 0	0	0	0
33	1940	0	1	? ٩	0	0	0	!	0	0	1	0	0
34	1949	0	0	? 0	0	0	0	0	1	1	1	2	0
35	1950	2	<i>!</i> 1	<i>!</i>	<i>!</i>	0	<i>!</i>	1	!	<i>!</i>	0	<i>!</i>	0
36	1951	l	1	?	0	l	l	1	2	2	?	?	0
38	1952	0	2	0	1	1	1	2	1	1	1	1	1
39	1953	1	?	?	1	0	1	?	?	2	?	?	0
40	1954	0	?	?	3	1	1	3	?	1	2	0	?
41 42	1955	?	0	?	?	?	?	?	?	2	1	?	?
43	1956	Cricosaurus	s_schro	ederi	?	0	0	0	0	1	?	1	?
44	1957	?	?	?	?	?	?	?	?	?	1	1	1
45 46	1958	0	1	?	0	0	0	0	0	0	?	1	1
47	1959	1	2	?	?	?	?	?	1	?	1	0	0
48	1960	0	?	1	3	0	?	0	1	1	1	0	2
49	1961	0	1	0	0	1	0	0	3	0	0	0	2
50	1962	Ő	0	1	1	1	0	ů 0	1	ů 0	ů 0	?	2
51 52	1963	1	2	1	0	3	1	0	1	0 0	0	0	1
53	106/	1	2	1	2	1	0	1	1	0	2	0	2
54	1904	0	2	1	י 2	1	0	1	1	0	י 2	0	י ר
55	1903	2	บ ว	י נ	: ዓ	י ר	י פ	؛ ۵	؛ ۱	؛ م	؛ ۵	؛ ۵	؛ م
56 57	1900	<i>!</i> 1	<i>!</i>	? 0	? 0	? 0	? 0	0	1	U	0	U	<i>!</i>
57 58	196/	1	0	7	7	?	?	!	!	U	1	!	?

59 60

1 2													
3	1068	9	Ο	n	Ο	2	0	0	n	9	1	9	2
4	1908	: 9	0	י ר	0	י י	0	0	1	2 2	1	י י	1 2
5 6	1970	1	י 1	0	י ?	1	1	2	1 9	· ?	0	· ?	· ?
7	1970	0	1	1	· 1	1 9	1 9	0	· ?	· ?	2	· ?	· ?
8	1972	2	2	2	1 9	· ?	· ?	2	· ?	· ?	· ?	0	0
9 10	1973	· 0	0	1	?	0	· ?	0	. 0	0		1	0
11	1974	0	0 0	0	?	0 0	0	0	0 0	1	1	?	° ?
12	1975	ů 0	° ?	° ?	?	° ?	° ?	° ?	?	?	?	?	?
13	1976	?	?	· ?	?	0	· ?	?	?	?	· ?	· ?	?
14	1977	?	?	?	?	?	?	?	?	?	?	?	?
16	1978	?	?	?	?	?	?	?	?	?	?	?	?
17	1979	?	?	?	?	?	?	?	?	?	?	?	?
18	1980	?	?	?	?	?	?	?	?	?	?	?	?
20	1981	?											
21 22	1982	Cricosaurus	arauca	anensis	?	0	0	0	0	1	?	1	3
23	1983	3	?	0	0	3	0	1	2	1	1	1	1
24	1984	1	1	0	0	0	0	0	0	?	1	1	1
25 26	1985	1	2	?	?	?	?	?	1	?	1	0	0
27	1986	0	?	1	2	0	1	0	1	1	1	0	2
28	1987	0	1	0	0	1	0	0	3	0	0	0	2
29 30	1988	0	0	1	1	1	0	0	1	0	0	?	?
31	1989	1	2	1	0	3	1	0	1	0	0	0	1
32	1990	0	2	?	?	?	0	1	1	0	1	0	?
33 34	1991	2	0	0	0	1	?	1	?	1	0	1	0
35	1992	0	?	0	0	2	0	?	1	0	0	0	?
36	1993	1	0	1	0	1	?	0	0	0	1	?	1
37	1994	0	?	0	0	?	0	0	?	1	?	?	1
39	1995	0	0	0	0	0	?	?	?	0	0	0	0
40	1996	?	?	?	?	1	1	1	1	0	?	1	1
41 42	1997	0	1	1	1	2	3	0	1	0	0	0	0
43	1998	0	0	0	0	0	1	0	0	?	?	0	?
44	1999	?	?	l	?	0	0	?	0	0	0	?	0
45 46	2000	0	0	0	?	0	0	0	?	?	?	?	?
40 47	2001	0	?	?	?	?	?	?	?	?	?	?	?
48	2002	?	?	?	?	0	?	?	?	2	2	?	?
49 50	2003	<i>!</i> 1	? 1	2	0	1	1	1	2	1	1	1	1
50 51	2004	1	1 0	? 2	? ງ	? 2	? 2	? 2	? 2	? 2	? 2	? 2	? 9
52	2005	? 2	? 2	? 9	י נו	? 2	? 2	? 2	? 9	? 9	? 2	? 2	? 2
53	2000	? 2	!	!	!	<i>!</i>	<i>!</i>	<i>!</i>	!	1	!	<u>'</u>	2
อ4 55	2007	<i>!</i>											
56	2008	Cricosaurus	_vigna	udi ?	0	0	0	0	1	?	?	?	3
57 58	2009	?	?	?	3	?	?	2	1	1	1	?	0

2													
3	2010	1	?	0	?	0	0	0	?	?	1	1	?
4	2011	2	?	?	?	?	?	?	?	?	0	9	0
6	2012	- ?	1	2	0	1	0	1	1	1	?	2	0
7	2013	1	0	0	1	0	0 0	3	0	0	0	2	0
8	2013	0	1	1	1	° ?	0	1	0	0 0	° ?	2	2
9	2014	2	1	1	1	2	0	1	0	0	2	: 1	
10	2015	2	1	י ר	5	י ר	0	1	· 0	2 1	· •	1 9	0 2
12	2010	2	1	? 0	י ר	? 2	2 9	1	0	1	0	י נ	؛ م
13	2017	0	0	0	? 0	? 0	? 0	? 0	? 0	<i>!</i>	? 0	? 0	? 0
14	2018	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	0	<i>!</i>	<i>!</i> 1	<i>!</i>
15	2019	?	?	?	?	?	?	?	?	?	?	1	0
10	2020	?	?	?	?	?	?	?	?	?	?	?	?
18	2021	0	0	0	0	?	3	1	?	0	?	0	?
19	2022	?	?	1	1	1	?	?	?	?	?	?	?
20	2023	?	?	?	2	2	0	?	?	0	?	?	?
21	2024	?	?	?	?	?	?	?	?	?	?	0	0
22	2025	?	1	?	0	?	?	?	0	0	?	?	?
24	2026	?	?	?	?	?	?	?	1	?	?	?	0
25	2027	?	?	?	?	?	?	?	?	?	?	?	?
26	2028	?	?	?	?	?	?	?	?	?	?	?	?
27	2029	?	?	?	?	?	?	?	?	?	?	?	?
20 29	2030	?	?	?	?	?	?	?	?	?	?	?	?
30	2031	?	?	?	?	?	2	?	?	?	?	?	?
31	2031	?	?	?	?	?	. 2	. 7	?	?	?	?	?
32	2052		·	·	•	·	·		·	·	·	·	·
33 34	2033	Dakosaurus	lissoce	phalus	?	?	?	?	?	?	?	?	?
35	2034	?	?	?	?	?	?	?	?	?	1	1	1
36	2035	0	1	?	?	?	?	?	?	?	1	1	?
37	2036	?	?	?	?	?	?	?	?	?	?	0	?
38	2037	?	?	1	2	0	0	0	?	1	1	?	2
40	2038	0	1	?	0	?	0	0	1	0	0	?	1
41	2039	?	?	1	?	1	0	0	1	0	0	?	?
42	2040	1	2	1	0	?	?	?	1	?	?	?	1
43	2041	0	?	?	?	?	?	1	?	?	?	?	?
44 45	2042	?	?	?	?	?	?	?	?	?	?	?	?
46	2043	?	?	?	?	?	?	?	3	0	?	9	
47	2045	· 1	2	9	9	· ?	2	· 2	2	0 2	· 2	· 9	2
48	2044	1	י 2	י ר	· 0	י ר	! 0	· 0	י י	י ר	י 2	י 2	י 2
49 50	2043	2 2	י פ	י ר	0	י ר	0	0	2 9	י ר	י נ	י נ	י פ
50 51	2040	<i>!</i>	? 0	<i>!</i>	<i>!</i>	? 0	<i>!</i>	<i>!</i>	<i>!</i>	? 0	<i>!</i>	? 0	? 0
52	2047	?	?	?	?	?	?	?	?	?	?	?	?
53	2048	?	?	?	?	?	?	?	?	?	?	?	?
54	2049	?	?	?	?	?	?	?	?	?	?	?	?
55 56	2050	?	?	?	?	?	?	?	?	?	?	?	?
50 57	2051	?	?	?	?	?	?	?	?	?	?	?	?
58	2052	?	?	?	?	?	?	?	?	?	?	?	?

1 2													
3	2053	9	2	2	2	2	2	2	2	2	2	2	2
4	2055	· 9	2	2	2	2	2	2	· ?	· ?	2	2	· ?
5 6	2054	2	2	2	2	· ?	2	· ?	· ?	· ?	2	2	· 2
7	2055	· 9	2	2	2	2	2	2	· ?	· ?	2	2	· ?
8	2050	2	: 2	2	: 2	2	· 2	· 2	י י	י י	2	2	י ר
9	2057	· 2	1	<u>!</u>	1	<u>-</u>	<u>1</u>	<u>!</u>	1	1	<u>-</u>	1	4
10 11	2038	<u>1</u>											
12	2059	Cricosaurus	s_sp_Cu	ıba ?	?	?	?	?	?	?	?	?	?
13	2060	?	?	?	?	?	?	?	?	1	?	?	?
14	2061	1	?	?	?	?	?	?	?	?	?	1	?
15	2062	?	?	?	?	?	?	?	?	?	0	?	0
17	2063	?	1	2	0	0	0	1	1	0	?	2	0
18	2064	1	0	0	1	?	?	1	?	0	?	1	0
19	2065	0	?	?	?	0	0	1	0	?	?	?	?
20 21	2066	2	0	?	3	?	0	1	?	?	?	1	0
22	2067	2	?	?	?	?	?	?	0	?	0	?	?
23	2068	?	?	?	?	?	?	?	?	?	?	?	?
24	2069	?	?	?	?	?	?	?	?	0	?	?	?
25 26	2070	0	?	?	?	?	?	?	0	1	?	1	0
27	2071	?	?	?	?	?	2	?	?	?	?	?	?
28	2072	?	?	?	?	?	?	?	?	?	?	?	?
29	2073	?	?	?	?	?	2	2	?	?	?	?	?
30 31	2074	?	?	?	?	?	0	. ?	?	?	?	?	?
32	2075	?	?	?	?	?	?	$\frac{1}{2}$	?	?	?	?	?
33	2075	?	?	?	0	?	?	2	?	?	?	?	?
34	2070	· ?	?	· ?	2	· ?	9	. ?	· ?	?	· ?	9	?
35 36	2077	: ?	· ?	· ?	· ?	· ?	· ?	· ?	2	· ?	· ?	· ?	· ?
37	2070	: ?	· ?	· ?	· ?	· ?	· ?	· ?	2	2	· ?	· ?	· ?
38	2075	· 9	2	2	2	2	2	2	2	2	2	2	· ?
39	2080	2	2	2	2	2	2	2	2	2	2	2	· 2
40 41	2081	י ר	י 2	י 2	י 2	י י	: 9	י י	י ר	! ?	· 2	י 2	י ר ר
42	2082	! 2	י ר	2 9	י ר	י ר	י פ	י ר	י ר	1 9	· 2	י ר	י ר ר
43	2085	1	1	<i>!</i>	1	<i>!</i>	<i>!</i>	<i>:</i>	1	!	!	<i>!</i>	1
44	2084	Rhacheosau	irus_gra	acilis	?	0	0	0	2	1	?	1	3
45 46	2085	3	?	?	?	3	0	1	2	1	1	1	1
47	2086	0	1	0	0	0	0	0	0	?	1	1	1
48	2087	1	2	?	?	?	?	?	1	?	1	0	0
49	2088	0	?	0	2	0	0	0	1	1	0	0	2
50 51	2089	0	1	0	0	1	0	0	?	0	0	0	?
52	2090	0	0	1	1	1	0	0	1	0	0	?	?
53	2091	?	2	0	?	3	1	ů 0	1	0 0	ů 0	0	. 1
54	2092	0	2	1	0	1	0	1	1	Ő	1	Ő	?
55 56	2093	2	0	0	Õ	2	2	2	, 9	2	0	1	0
50 57	2095	0	2	0	0	2	0	· ?	۰ 1	0	0	0	0
58	2074	v	÷	v	U	4	0	-	T	U	U	0	U
1 2													
----------	------	----------------------	----------------------	---------	--------------	--------	------------	---------------	--------	---	---	--------	--------
3	2095	1	0	2	2	1	9	0	0	0	1	9	1
4	2005	0	0 2	2	0	2	0	0	2	2	1	· ?	1
5 6	2000	0	0	0	0	0	2	3	: 1	0	0	· ?	0
7	2007	1	1	0	1	1	: 1	1	2	0	2	· ?	1
8	2000	1	1	1	1	2	1 52 31	0	2	2	2	2	2
9	2000	· ?	1	2	1 2	2	$\{2,5\}$	$\frac{0}{2}$	2	2	2	0	0
10	2100	· 0	0	: 1	· 2	0	0	0	2	0	0	1	0
12	2101	0	0	0	2	0	0	0	0	1	1	1	2
13	2102	0	2	2	?	0 ?	0	$\frac{0}{2}$	1	2	2	0	2
14 15	2103	0	1	. 1	?	0	1	1	1	?	?	0 ?	· ?
16	2104	0	0	2	?	1	1	1	2	1	1	1	· 1
17	2105	1	1	?	2	1	0	1	2	2	2	2	2
18	2100	0	0	. 2	. 9	3	1	1	2	2	1	2	0
19 20	2107	$\overset{\circ}{?}$	$\overset{\circ}{?}$	0	2	2	?	2	2	2	2	1	2
21	2100	?	·	Ū	$\mathbf{O}$		·	·	·	·	2	1	·
22	2109	·											
23 24	2110	Metriorhyn	chidae_	indet_C	Cuba	?	0	0	?	?	1	?	?
25	2111	?	?	?	?	?	?	?	?	?	?	?	?
26	2112	?	?	?	?	?	?	0	0	?	?	?	?
27	2113	?	?	?	?	?	?	?	?	?	?	?	0
28 29	2114	0	0	?	1	2	0	0	0	1	1	0	0
30	2115	?	?	?	?	?	?	?	0	?	?	0	?
31	2116	1	0	0	?	1	?	0	0	1	0	?	?
32	2117	?	?	?	0	?	3	1	0	1	0	0	0
34	2118	1	0	2	?	?	?	0	1	1	0	?	0
35	2119	?	2	0	?	?	?	?	?	?	?	?	1
36	2120	0	?	?	0	?	?	?	?	0	0	0	?
37 38	2121	?	1	0	?	?	?	0	0	0	0	1	?
39	2122	1	0	?	?	?	?	?	?	?	?	?	?
40	2123	?	?	?	?	?	?	?	?	1	?	?	?
41 42	2124	?	l	l	0	?	l	1	l	?	?	?	?
43	2125	1	?	?	?	?	?	?	?	?	?	?	?
44	2126	?	?	?	?	?	?	?	?	?	?	?	?
45 46	2127	?	?	?	?	?	0	?	?	?	?	?	?
40 47	2128	?	?	?	?	?	?	?	?	?	?	?	?
48	2129	?	?	?	?	?	?	?	?	?	?	?	?
49	2130	?	?	?	?	?	?	?	?	?	?	?	?
50 51	2131	?	?	?	?	?	?	?	?	?	?	?	?
52	2132	?	?	?	?	?	?	?	?	?	?	?	?
53	2133	?	?	?	?	?	?	?	?	?	?	?	?
54	2134	?	?	?	?	?	?	?	?	?	?	?	?
55 56	2135	?	?										
57													
58													

1 2													
3	2136	Maledictos	uchus r	iclaensis	?	0	0	0	2	1	0	1	3
4	2130	3	201140_1 ?	0	0	1	Õ	1	2	1	1	1	1
5 6	2137	0	1	0	0	0	0	0	$\tilde{0}$	1	1	1	1
7	2130	1	2	° ?	?	° ?	$\hat{\gamma}$	° ?	1	2	1	0	0
8	2135	0	2	1	1	1	0		2	. 1	0	0	2
9	2140	0	1	0	0	1	0	0	2	0	0	0	1
10	2141 21/2	1	0	1	1	1	0	0	1	0	0	0 2	1
12	2142	1	2	0	0	3	1	0	1	0	0	0	1
13	2145	0	2	0 2	0	1	0	1	1	0 2	1	0	1 9
14	2144	2	2	0	0	1	1	1	1	1	0	1	0
16	2145	2	· 0	0	0	1	1 9	0	1	1	0	1	0
17	2140 2147	0	0	2	2	1	י ר	0	1	0	1	0	י י
18	2147	1	0	! 9	י ר	1	י ר ר	0 9	0	1	1	י ר	י ר
19	2140	? 2	0	! 0	? 0	2 0	י ר ר	י ר	י ר	1	1	? 0	? 0
20 21	2149	? 2	0	0		0	໌ ງ	? 9	? 9	0	0	0	0
22	2150	? 2	? 2	? 9	1	· · ·	? 	? 0	! 1	? 0	? 0	? 2	? 2
23	2151	? 0	? 0	? 0	!	2	4	0	1	0	0	2	? (0,1)
24 25	2152	0	0	0	0	0	? 9	0	0	? 0	<i>!</i>	0	{0,1}
25 26	2155	0	0		? 9	0	? 0	0	0	0	0	1	0
27	2154	0	0	0	? 0	0	0	0	<i>!</i>	<i>!</i>	<i>!</i>	? 0	? 0
28	2155	<i>!</i>	? 2	? 0	? 9	/ 2	? 9	<i>!</i>	? 9	? 2	<i>!</i>	? 2	? 0
29 30	2156	<i>!</i>	? 0	? 0	? 0	? 0	?	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	? 0	? 0
31	2157	?	?	?	?	?	?	?	?	?	?	?	?
32	2158	?	?	?	?	?	?	?	?	?	?	?	?
33	2159	?	?	?	?	?	?	?	?	?	?	?	?
34 35	2160	?	?	?	?	?	?	?	?	?	?	?	?
36	2161	!											
37	2162	Cricosaurus	s macro	ospondylu	s?	0	0	?	2	1	?	1	3
38	2163	3	- ?	0	0	3	0	1	0	0	1	1	?
39 40	2164	0	1	?	0	0	0	0	0	0	?	1	1
41	2165	1	2	?	?	?	?	?	1	?	?	?	0
42	2166	0	?	1	2	?	?	?	?	?	0	0	2
43 44	2167	?	1	0	0	1	0	1	3	?	0	0	2
45	2168	0	0	?	1	1	0	0	?	?	?	?	?
46	2169	?	?	?	?	3	1	0	1	0	0	0	0
47	2170	1	2	?	?	1	?	?	1	0	?	?	?
48 ⊿0	2171	?	0	0	0	?	?	?	?	?	?	?	0
<del>5</del> 0	2172	0	?	0	?	?	?	?	?	?	?	?	?
51	2173	?	?	?	?	?	?	?	?	?	1	?	?
52	2174	?	?	?	?	?	?	?	?	?	?	?	1
53 54	2175	0	0	0	0	0	?	?	1	?		?	0
55	2176	1	1	Õ	?	1	1	?	1	?	Õ	· ?	?
56	2170	1 9	1	2	?	2	2	0	1	· O	9 9	· ?	· ?
57	2177	· ?	г 9	· ?	· ?	2	2	2	1 9	2	· ?	1	1
58 50	2170	÷	÷	÷	÷	÷	-	÷	-	÷	-	1	1

# Journal of Systematic Palaeontology

2													
3	2179	0	0	1	?	0	?	0	0	0	0	1	1
4	2180	0	0	0	?	0	?	0	0	1	1	?	2
6	2181	0	?	?	?	?	0	?	?	?	?	?	?
7	2182	0	?	?	?	0	?	?	?	?	?	?	?
8	2102	° 2	?	?	9	° 2	9	9	?	?	9	9	?
9	2105	· 9	י ר	י פ	: 2	2	2	2	י ר	י ר	· 2	: 2	י ר
10	2104	: 9	י ר	י ר	י פ	י פ	י פ	י פ	י ר	י ר	י פ	י פ	· 0
12	2103	? 0	? 2	? 2	? 0	? 0	? 0	? 0	? 0	? 2	? 0	? 0	0
13	2186	<i>!</i>	!	!	?	!	!	!	!	!	!	?	!
14	2187	?											
15	2188	Cricosaurus	s saltill	ensis	9	?	0	0	2	?	?	1	3
16	2189	3	??	0	. 0	?	ů 0	1	2	. 1	1	1	1
18	210)	0	1	0	0	· ?	0	0	0	2	2	2	2
19	2100	2	2	2	2	· 2	2	2	1	9	· 2	0	?
20	2191	? 0	2	؛ ۱	2	! 0	! 0	! 0	1	د ۲	2 0	0	י ר
21	2192	0	? 1	1	3	0	0	0	? 2	1	0	? 0	2
22	2193	<i>!</i>	1	0	0	1	0	0	3	0	0	0	2
23 24	2194	0	0	?	l	?	?	0	?	?	0	?	?
25	2195	1	2	0	?	3	?	0	1	?	?	?	0
26	2196	1	2	?	?	?	?	1	?	?	?	0	?
27	2197	?	?	?	?	?	?	?	?	?	?	?	?
28	2198	?	?	?	?	?	?	1	0	0	?	?	?
29 30	2199	1	?	?	?	?	?	?	?	?	?	?	?
31	2200	?	?	?	?	?	0	?	?	?	?	?	?
32	2201	?	?	0	0	0	?	?	1	?	0	0	0
33	2202	?	?	?	?	1	1	1	1	?	?	?	?
34 35	2203	?	?	?	?	2	2	0	2	?	?	0	?
36	2204	0	0	0	0	0	?	?	2	?	?	?	?
37	2205	?	?	?	?	?	0	0	O	0	0	?	?
38	2205	?	?	?	9	?	° ?	° ?	2	$\tilde{2}$	° ?	9	?
39	2200	· ?	· ?	· ?	· ?	2	0	2	$\frac{1}{2}$	2	2	2	· ?
40 41	2207	· 2	י ר	י פ	: 9	2	0	2	י ר	י ר	2	: 9	י ר
42	2200	? 9	? 9	י נ	י נ	י נ	י נ	י נ	? 9	1 9	<i>!</i>	י נ	໌ ງ
43	2209	<i>!</i>	? 0	? 0	? 0	? 0	? 0	? 0	? 0	?	?	? 0	? 0
44	2210	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>
45 46	2211	?	?	?	?	?	?	?	?	?	?	?	?
40 47	2212	?	?	?	?	?	?	?	?	?	?	?	?
48	2213	?											
49	2214	Metriorhyn	chus na	alnehros	sus 9	0	0	0	2	1	2	1	3
50	2214	3	ייי <u>רייי</u> ר	0	0	2	0	1	2	1	1	1	1
51 52	2215	5	1	0	0		0	1	2	1	1	1	1
53	2210	0	1	0	י נ	0	0	0	0	י ר	1	1	1
54	221/ 2210	1	∠ 2	{ 1	؛ ۲	? 0	? 0	? 0	1	۲ ۱	? 0	0	0
55	2218	0	<i>!</i> 1	1	2	0	U	U	0		0	0	ے 1
56	2219	1	1	U	0	1	U	U	<i>!</i>	0	U	U	1
ว7 58	2220	0	0	1	1	?	0	0	1	1	0	?	?

1													
23	2221	9	2	0	9	3	1	0	1	0	0	0	0
4	2221	· 1	2	2	2	1	1	0	1	0	1	0	2
5	2222	1	0	0	0	1 2	2	· ?	1 9	0 2	0	1	0
7	2223	· 0	0	0	0	י 1	· 2	0	0	0	0	1	0 9
8	2224	0	· 0	0	י ר	1	י פ	0	0	0	1	0	؛ 1
9	2223	? 0	0	? 0	? 0	? 1	? 0	<i>!</i>	? 0	0	1	? 0	1
10	2226	0	0	<i>!</i>	0	l	0	0	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	!
11 12	2227	?	0	0	0	0	?	2	l	?	0	?	0
13	2228	1	1	0	1	1	1	1	1	0	?	1	0
14	2229	0	1	1	1	2	3	0	1	0	0	?	?
15	2230	?	?	?	?	?	?	?	?	?	?	?	?
16	2231	?	?	?	?	0	?	?	?	?	0	1	1
17 18	2232	?	?	?	?	?	?	?	?	?	?	?	?
19	2233	?	?	?	?	?	?	?	?	?	?	?	?
20	2234	?	?	?	?	?	?	?	?	?	?	?	?
21	2235	?	?	?	?	?	?	?	?	?	?	?	?
22	2236	?	?	?	2	2	?	?	?	?	?	?	?
23	2230	9	?	?	9	2	9	?	?	?	9	9	?
24 25	2237	· 9	· ?	· ?	· ?	2	2	· ?	?	?	2	· 2	י ר
26	2230	: 9	1	1	1	<u>!</u>	<u>'</u>	1	1	1	<u>'</u>	<u>'</u>	4
27	2239	<i>!</i>											
28	2240	Gracilineus	tes acu	tus ?	0	0	0	?	?	?	1	3	2
29	2241	9	_0	0	0	9	0	2	1	1	9	?	0
30 31	2242	?	?	° ?	?	?	2	2	2	2	?	. 1	?
32	2242	9	?	?	9	9	. 2	. 2	?	?		2	?
33	2243	· 9	: 1	2	· 0	0	0	0	· 2		2	2	
34	2244	? 1	1	· 0	1	0	0	0	· ·	0	· 0	2	0
35	2243	1	0	0	1	0	0	3	<i>!</i>	/ 2	0	0	0
30 37	2240	0	1	? 0	<i>!</i>	0	0	<i>!</i> 1		<i>!</i>	<i>!</i>	<i>!</i>	? 0
38	2247	2	0	?	3	1	0	l	?	?	?	0	0
39	2248	2	?	?	l	?	?	l	?	?	?	?	?
40	2249	0	0	0	?	?	?	?	?	?	1	?	?
41	2250	?	?	?	2	?	?	?	?	0	?	?	?
42 43	2251	?	?	?	?	?	0	0	?	?	?	1	0
44	2252	?	?	?	?	?	?	?	?	?	?	?	?
45	2253	?	?	?	?	?	?	?	?	?	?	?	?
46	2254	?	?	?	?	?	?	?	?	?	?	?	?
47	2255	?	?	?	2	4	?	1	?	?	?	?	?
48 ⊿0	2256	?	?	?	?	?	?	?	?	?	?	?	?
<del>5</del> 0	2257	?	?	?	0	?	?	?	?	?	?	?	?
51	2257	9	9	?	2	9	9	?	?	?	9	9	?
52	2250	2	י 2	י י	י 2	: 2	: 2	2	י י	י י	: 2	2	י ר
53	2239 2229	: 0	י ר	: ົ	י ר	י פ	י פ	: 9	: 9	: 9	י פ	: 9	໌ ດ
54 55	2200	<i>!</i>	? 0	؛ م	? 0	? 0	? 0	<i>!</i>	<i>!</i>	? 0	? 0	<i>!</i>	? 0
56	2261	?	?	?	?	?	?	!	<i>!</i>	<i>!</i>	?	!	?
57	2262	?	?	?	?	?	?	?	?	?	?	?	?
58													

1 2													
3	2263	9	2	2	?	?	2	2	2	9	2	2	2
4	2263	?	?	$\frac{1}{2}$	?	?	?	?	?	?	?	?	?
5 6	2265	Creatiline	Lan landa	: 0	0	0		0	1	ງ	1	2	J
7	2205	Gracinneusi	les_leeds		0	0	0	0	1	<i>!</i> 1	1	5	2
8	2266	0	0	0	l	0	0	2	1	1	1	1	0
9 10	2267	1	0	0	0	0	0	0	?	l	l	l	1
11	2268	2	?	?	?	?	?	l	?	l	0	0	0
12	2269	?	1	1	0	0	0	0	1	0	0	2	0
13	2270	1	0	0	1	0	0	3	0	0	0	0	0
14 15	2271	0	1	0	1	0	0	1	1	0	?	?	1
16	2272	2	0	0	3	1	0	1	0	0	0	0	0
17	2273	2	1	0	1	0	1	1	0	1	0	?	1
18	2274	0	0	0	1	{0,1}	1	?	1	0	1	0	0
19	2275	?	0	0	?	0	0	0	0	0	?	?	1
20 21	2276	0	?	?	1	?	0	0	0	1	?	1	0
22	2277	0	?	0	1	0	0	?	?	?	2	1	0
23	2278	0	0	0	0	1	3	1	0	0	0	0	1
24	2279	1	0	1	1	0	1	1	0	0	1	0	0
25	2280	1	1	1	2	4	0	0	0	1	0	1	0
20 27	2200	0	0	0	0	1	0	0	2	2	0	1	0
28	2201	0	1	2	0		0	0	0	0	1	1	0
29	2202	0	1	י פ	0	0	2	· ·	1	0	1	1 2	0
30	2283	0	0	? 9	0	0	3 1	0	1	? 9	0	2	0
31	2284	<i>!</i>	? 1	{ 1	? 0	0	1		? 2	? 2	0	0	0
33	2285	0	1	1	<i>!</i>	1	1	1	2	2	0	1	0
34	2286	0	2	1	0	0	1	1	l	?	?	?	?
35	2287	?	?	?	?	?	?	0	0	?	2	?	0
36	2288	0	0	1	2	1	1	1	2	1	?	0	?
37 38	2289	?	0	?	?	?	?	?	?	2	1	?	?
39	2290	Metriorhyno	chus sup	ercili	osus	1	0	0	0	3	1	0	1
40	2291	3	2	0	0	0	1	0	0	2	1	1	1
41 42	2292	1	0	1	0	0	0	0	0	0	?	1	1
43	2293	1	1	2	?	?	?	?	?	1	?	1	0
44	2294	0	0	?	1	1	0	0	0	0	1	0	0
45	2295	2	0	1	0	0	1	0 0	0	Õ	0	0	0
46 47	2295	0	0	0	1	0	1	0	0	1	0	1	1
47 48	2290	0	1	2	1	0	1	1	0	1	0	1	1
49	2297	? 0	1	2	0	0	5	1	1	1	0	0	0
50	2298	0	0	2	1	0	1	0	1	1	0	1	1
51	2299	<i>!</i>	1	0	0	0	1	1	1	<i>!</i>	1	0	l
52 52	2300	0	0	?	0	0	1	0	0	0	0	0	0
53 54	2301	0	1	0	1	?	1	0	0	0	0	1	0
55	2302	1	0	0	?	0	1	0	0	0	1	1	2
56	2303	1	0	0	0	0	0	1	2	1	0	0	0
57 58	2304	0	1	1	0	1	1	0	1	1	0	0	1

1 2													
3	2305	0	0	1	1	1	2	3	0	1	0	0	0
4	2305	0	0	1	1	1	2	1	0	1	0	0	0
5 6	2300	0	0	0	1	0	0	1	0	0	0	0	1
7	2307	1	1	0	1	· 2	0	0	3	0	1	1	1
8	2308	1	1	2	2	· 2	0	0	1	1	1	1	0
9	2309	2	0	0	2 1	! 1	· 0	1	1	1	1	1 2	0
10 11	2310	0	0	0	1	1	0	1	1	1	ے 1	ے 1	1
12	2311	1	1	1	1	1	1	0	1	1	1	1	1
13	2312	1	1	1	1	1	1	0	1	1	0	1	2
14	2313	0	0	0	0	1	2	2 9	1	1	2 9	1	ے 1
15	2314	0	? 9	1	0	<u>'</u>	<i>!</i>	<i>!</i>	<i>!</i>	<i>:</i>	<i>!</i>	2	1
17	2515	<u>/</u>	!										
18	2316	Geosaurine	_indet_	Argenti	na ?	1	?	?	?	1	?	?	?
19	2317	?	?	?	?	?	?	?	?	?	?	?	?
20 21	2318	?	?	?	?	?	0	0	?	?	1	?	1
22	2319	0	2	?	?	?	?	?	?	?	?	0	0
23	2320	?	?	?	?	?	?	?	0	1	?	?	2
24	2321	0	1	0	?	?	?	0	0	?	?	?	0
25 26	2322	?	0	?	?	?	0	0	?	0	?	?	?
27	2323	?	?	?	?	3	?	0	1	?	?	?	?
28	2324	?	2	?	?	?	?	?	?	?	?	?	?
29	2325	?	?	?	?	?	?	?	?	?	?	?	?
30 31	2326	?	?	?	?	?	?	?	2	?	?	?	?
32	2327	1	?	?	?	?	?	?	?	?	?	?	?
33	2328	2	?	?	?	?	?	2	2	?	?	?	?
34 35	2329	?	?	?	?	?	?	?	1	?	?	?	?
36	2330	. ?	?	?	?	?	?	?	2	. 0	?	?	?
37	2331	?	?	?	?	?	?	?	2	?	?	?	?
38	2332	. ?	?	?	?	?	?	?	?	. ?	?	?	?
39 40	2333	. ?	?	?	?	0	?	?	?	. ?	. 9	?	?
41	2334	?	?	?	?	?	?	?	?	?	2	?	?
42	2335	?	1	?	?	?	?	?	?	?	2	?	?
43	2336	?	?	?	?	?	?	?	?	?	?	?	?
44 45	2337	?	?	?	?	?	?	?	?	?	?	?	?
46	2338	?	?	?	?	?	?	?	?	?	?	?	?
47	2330	?	?	?	9	· ?	9	9	9	· ?	9	9	· ?
48	2340	?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?	· ?
49 50	2340	· 9	÷	÷	÷	-	-	-	-	-	-	÷	÷
51	2371	<u>.</u>											
52	2342	Metriorhyn	chus_ca	isamiqu	ielai	1	1	0	0	0	1	?	1
53	2343	3	2	?	0	0	2	0	0	2	1	1	1
54 55	2344	?	0	1	0	?	0	0	0	0	?	?	1
56	2345	1	0	2	?	?	?	?	?	1	?	1	0
57 58	2346	0	0	?	1	2	0	0	0	0	1	0	1

1 2													
2	2247	2	0	1	0	0	1	0	0	2	0	0	0
4	2347	2	0	1	0	0	1	0	0	5	0	0	0
5	2348	0	0	0	1	0	1	0	0	1	0	0	? 0
6 7	2349	?	1	2	0	0	3	0	0	1	0	0	0
8	2350	0	0	2	?	?	l	l	l	l	0	l	0
9	2351	?	1	0	0	0	?	?	?	?	?	0	1
10	2352	0	0	?	0	0	3	0	?	2	0	0	?
11	2353	0	1	0	?	0	1	?	?	0	0	1	?
12	2354	1	0	?	0	0	1	0	0	?	1	1	?
13	2355	1	0	0	0	0	0	1	3	1	?	0	0
15	2356	0	1	1	0	?	0	1	0	?	0	?	0
16	2357	0	?	?	?	?	2	2	0	1	?	?	?
17	2358	?	?	?	?	?	?	?	?	?	0	?	?
18	2359	1	0	0	0	?	0	0	0	?	?	0	1
20	2360	0	Ő	?	2	?	?	?	?	?	?	?	2
21	2361	° ?	0	?	. 9	. 9	?		?	?	9	?	?
22	2367	· 9	0 2	י ר	2	2	· ?	0 2	?	?	· 2	י י	· 2
23	2302	! 2	י ר	י ר	י פ	! 2	י ר	י ר ר	י ר	י ר	י נ	י ר	י פ
24	2303	? 0	? 0	? 2	? 0	<i>!</i>	? 2	? 2	? 0	? 9	? 0	? 0	? م
26	2364	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	!	?	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>
27	2365	?	?	?	?	?	?	?	?	?	?	?	?
28	2366	0	?	?	?	?	?	?	?	?	?	?	?
29	2367	?	?										
30 31	2368	Metriorhynd	chus w	esterma	nni?	?	?	0	?	?	?	?	?
32	2369	ົ້	?	?	9	?	2	?	?	?	?	?	?
			-	-	•	-	•		-	•	•	•	•
33	2370	?	?	2	2	2	2	2	0	?	2	?	2
33 34	2370 2371	· ? ?	?	?	?	? ?	? ?	?	0	? ?	? ?	?	?
33 34 35 36	2370 2371 2372	???????????????????????????????????????	? ? ?	? ? 1	? ? 2	? ? ?	? ? 2	? ? 2	0 1 2	? ? 1	? ? ?	? 0 1	? 0 2
33 34 35 36 37	2370 2371 2372 2373	· ? ? ?	???????????????????????????????????????	? ? 1 2	? ? 2 2	? ? ?	? ? ?	? ? ? 2	0 1 ? 2	? ? 1 2	? ? ?	? 0 1 0	? 0 2 0
33 34 35 36 37 38	2370 2371 2372 2373 2274	? ? ? ?	? ? ? ?	? ? 1 ?	? ? 2 ?	? ? ? ?	? ? ? ?	? ? ? ?	0 1 ? 3	? ? 1 ?	? ? 0	? 0 1 0 2	? 0 2 0 2
33 34 35 36 37 38 39	2370 2371 2372 2373 2374 2375	? ? ? ? 0	? ? ? ? ?	? ? 1 ? 1	? ? 2 ? 0	? ? ? ? ?	? ? ? ?	? ? ? ?	0 1 ? 3 ?	? ? 1 ? ?	? ? 0 ?	? 0 1 0 ?	? 0 2 0 ?
<ul> <li>33</li> <li>34</li> <li>35</li> <li>36</li> <li>37</li> <li>38</li> <li>39</li> <li>40</li> <li>41</li> </ul>	2370 2371 2372 2373 2374 2375	? ? ? ? 0 ?	? ? ? ? ?	? ? 1 ? 1 0	? ? 2 ? 0 ?	? ? ? ? 3	? ? ? ? ?	? ? ? ? ?	0 1 ? 3 ? ?	? ? 1 ? ? ?	? ? 0 ? ?	? 0 1 0 ? ?	? 0 2 0 ? ?
<ul> <li>33</li> <li>34</li> <li>35</li> <li>36</li> <li>37</li> <li>38</li> <li>39</li> <li>40</li> <li>41</li> <li>42</li> </ul>	2370 2371 2372 2373 2374 2375 2376	? ? ? ? 0 ? ?	? ? ? ? ? 2	? ? 1 ? 1 0 ?	? ? ? 0 ? ?	? ? ? ? 3 ?	? ? ? ? ?	? ? ? ? ?	0 1 ? 3 ? ? ?	? ? 1 ? ? ? ?	? ? 0 ? ?	? 0 1 0 ? ? ?	? 0 2 0 ? ? ?
<ul> <li>33</li> <li>34</li> <li>35</li> <li>36</li> <li>37</li> <li>38</li> <li>39</li> <li>40</li> <li>41</li> <li>42</li> <li>43</li> </ul>	2370 2371 2372 2373 2374 2375 2376 2377	? ? ? ? 0 ? ? ? ?	? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ?	? 2 ? 0 ? ? ?	? ? ? ? 3 ? ?	? ? ? ? ? ?	? ? ? ? ? ?	0 1 ? 3 ? ? ? ?	? ? ? ? ? ?	? ? 0 ? ? ? ?	? 0 1 0 ? ? ? ?	? 0 2 0 ? ? ? ?
<ul> <li>33</li> <li>34</li> <li>35</li> <li>36</li> <li>37</li> <li>38</li> <li>39</li> <li>40</li> <li>41</li> <li>42</li> <li>43</li> <li>44</li> </ul>	2370 2371 2372 2373 2374 2375 2376 2377 2378	? ? ? 0 ? ? ? ? ?	? ? ? ? ? ? ? ? ? ?	? 1 ? 1 0 ? ? ?	? 2 ? 0 ? ? ? ?	? ? ? ? 3 ? ? ?	? ? ? ? ? ? 0	? ? ? ? ? 1	0 1 ? 3 ? ? ? ? 2	? ? 1 ? ? ? ? ? ?	? ? 0 ? ? ? ?	? 0 1 0 ? ? ? ? ? ?	? 0 2 0 ? ? ? 0
<ul> <li>33</li> <li>34</li> <li>35</li> <li>36</li> <li>37</li> <li>38</li> <li>39</li> <li>40</li> <li>41</li> <li>42</li> <li>43</li> <li>44</li> <li>45</li> </ul>	2370 2371 2372 2373 2374 2375 2376 2377 2378 2379	? ? ? 0 ? ? ? ? ? 1	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ? ? 1	? 2 ? 0 ? ? ? ? 0	? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? 0 ?	? ? ? ? ? ? 1 ?	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ?	? ? 0 ? ? ? ? 0 1	? 0 1 0 ? ? ? ? ? ? ? ?	? 0 2 0 ? ? ? ? ? ? 0 ?
<ul> <li>33</li> <li>34</li> <li>35</li> <li>36</li> <li>37</li> <li>38</li> <li>39</li> <li>40</li> <li>41</li> <li>42</li> <li>43</li> <li>44</li> <li>45</li> <li>46</li> <li>47</li> </ul>	2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380	? ? ? 0 ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ? ? 1 0	? 2 ? 0 ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 0 ? ? ? ? ? ? 0 1 ?	? 0 1 0 ? ? ? ? ? ? ? ? ? ? 2	? 0 2 0 ? ? ? ? 0 ? ?
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<ul> <li>33</li> <li>34</li> <li>35</li> <li>36</li> <li>37</li> <li>38</li> <li>39</li> <li>40</li> <li>41</li> <li>42</li> <li>43</li> <li>44</li> <li>45</li> <li>46</li> <li>47</li> <li>48</li> <li>49</li> </ul>	2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382	? ? ? 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ? 1 0 ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 0 ? ? ? ? ? 0 1 ? ? ?	? 0 1 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 2 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
<ul> <li>33</li> <li>34</li> <li>35</li> <li>36</li> <li>37</li> <li>38</li> <li>39</li> <li>40</li> <li>41</li> <li>42</li> <li>43</li> <li>44</li> <li>45</li> <li>46</li> <li>47</li> <li>48</li> <li>49</li> <li>50</li> </ul>	2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383	? ? ? 0 ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 1 ? 1 0 ? ? 1 0 ? ? ?	? 2 ? 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 1 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 2 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
33         34         35         36         37         38         39         40         41         42         43         44         45         46         47         48         90         51	2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384	? ? ? 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ? 1 0 ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 0 ? ? ? 0 1 ? ? ? ? ? ? ? ? ? ? ? ?	? 0 1 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 2 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
33 34 35 36 37 38 39 40 41 42 43 44 50 51 52 52	2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385	? ? ? 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ? 1 0 ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 0 ? ? ? ? 0 1 ? ? ? ? ? ? ? ? ? ? ?	? 0 1 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 2 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
$\begin{array}{c} 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 9\\ 50\\ 51\\ 52\\ 53\\ 54 \end{array}$	2370 2371 2372 2373 2374 2375 2376 2377 2378 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386	? ? ? 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ? 1 0 ? ? ? ? ? ?	? 2 ? 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 1 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 2 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
$\begin{array}{c} 33\\ 34\\ 35\\ 36\\ 37\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 50\\ 51\\ 23\\ 55\\ 55\\ 55\\ \end{array}$	2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387	? ? ? 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ? 1 0 ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 1 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 2 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
$\begin{array}{c} 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 40\\ 41\\ 42\\ 43\\ 445\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 55\\ 56\end{array}$	2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ? 1 0 ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 0 ? ? ? 0 1 ? ? ? ? ? ? ? ? ? ? ? ?	? 0 1 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 2 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
$\begin{array}{c} 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 50\\ 51\\ 52\\ 54\\ 55\\ 57\\ 55\\ 57\\ 57\\ 56\\ 75\\ 75\\ 75\\ 75\\ 75\\ 75\\ 75\\ 75\\ 75\\ 75$	2370 2371 2372 2373 2374 2375 2376 2377 2378 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? 1 ? 1 0 ? ? 1 0 ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	????????????????????????????????????	????????????????????????????????????	0 1 ? 3 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 1 0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	? 0 2 0 ? ? ? 0 ? ? ? ? ? ? ? ? ? ? ? ?

1													
2	2200	9	9	0	9	9	9	0	9	0	9	n	9
4	2390	<i>!</i>	? 0	? 0	? 0	? 0	<i>!</i>	? 9	? 0	<i>!</i>	? 0	? 0	? 0
5	2391	?	?	?	?	?	?	?	?	?	?	?	?
6	2392	?	?	?	?	?	?	?	?	?	?	?	?
7 8	2393	?											
9	2394	Neptunidrad	co ammo	oniticus	?	1	?	?	?	1	?	?	?
10	2395	?	?	?	?	9	?	?	?	?	1	?	?
11	2396	?	?	?	0	?	?	?	?	?	?	?	1
12	2397	?	?	?	° ?	?	?	?	?	?	?	0	2
14	2398	?	?	?	2		0	0	?	?	?	° ?	· 2
15	2300	9	1	0	0	2	0	0	2	9	9	9	1
16	2377	: 1	2	0	2	: 1	0	0 2	: 1	י ר	2	· ?	1 9
18	2400	1	2	! 2	1 2	2	0	· 0	1	י ר	י ר	: 2	2 2
19	2401	؛ ۲	י ר	! 9	· •	5	י ר	0	1	י ר	י ר	י פ	י ר
20	2402	؛ ۲	2	? 2	· •	? ዓ	? 9	י נ	؛ م	? 9	י ר	י נ	י פ
21	2403	<i>!</i>	? 2	? 2	<i>!</i>	/ 2	? 2	/ 2	? 9	? 2	? 2	? 2	? 9
22	2404	<i>!</i>	<i>!</i>	<i>!</i>	!	<i>!</i>	? 0						
23	2405	?	<i>!</i>	<i>!</i>	?	!	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	?
25	2406	?	?	?	?	?	?	?	?	?	?	?	?
26	2407	?	0	0	0	0	?	?	1	?	0	?	0
27	2408	?	?	?	1	?	?	0	?	?	?	?	?
20 29	2409	?	1	?	?	?	2	?	?	?	?	?	?
30	2410	?	?	?	?	?	?	?	?	?	?	0	1
31	2411	0	0	0	?	0	0	0	0	0	?	{0,1}	?
32	2412	?	?	?	?	?	?	?	?	?	?	?	?
33 34	2413	0	1	?	?	?	?	?	?	?	?	?	?
35	2414	?	?	?	?	?	?	?	?	?	?	?	?
36	2415	?	?	?	?	?	?	?	?	?	?	?	?
37	2416	?	?	?	?	?	?	?	?	?	?	?	?
38	2417	?	?	?	?	?	?	?	?	?	?	?	0
40	2418	?	?	?	?	?	?	?	?	?	?	?	?
41	2419	?											
42	<b>a</b> 4 <b>a</b> a			(1, <b>0</b> )		0	0	2				2	•
43 11	2420	M_brachyrh	iynchus	{1,2}	l	0	0	3	l	0	l	3	2
44	2421	0	0	0	1	0	0	{0,1}	1	1	1	1	0
46	2422	1	0	0	0	0	0	0	?	1	1	1	0
47	2423	2	?	?	?	?	?	1	?	1	0	0	0
48	2424	?	1	1	0	0	0	0	1	0	0	2	1
49 50	2425	1	0	0	1	0	0	0	0	0	0	1	1
51	2426	0	1	0	1	0	0	1	0	0	?	?	1
52	2427	2	0	0	3	1	0	1	0	0	0	0	0
53	2428	2	?	0	1	1	1	1	0	1	0	?	1
54 55	2429	0	0	0	1	3	0	1	0	0	1	0	0
56	2430	?	0	0	3	0	0	2	0	0	0	0	1
57	2431	0	?	?	1	?	0	0	0	1	?	1	0
58		-					-						-

2													
3	2432	0	?	0	1	0	0	?	?	1	2	1	0
4 5	2433	0	0	0	0	1	1	1	0	0	0	0	1
6	2434	1	0	1	1	0	0	1	0	0	1	0	1
7	2435	1	1	1	2	2	0	2	ů 0	0	0	ů 0	0
8	2436	0	0	0	0	1	0	0	1	2	0	51 2V	0
9	2430	0	0	0	0	1	0	0	1	· •	1	{1,4}	0
10	2437	0	0	? 1	0	0	0	0	0	0	1	1	0
12	2438	1	1	1	1	0	3	0	0	1	0	2	0
13	2439	l	2	<i>!</i>	<i>!</i>	0	1	1	1	1	0	0	0
14	2440	0	l	l	0	l	l	l	?	?	?	?	?
15	2441	?	?	?	?	?	?	?	?	?	?	?	?
16	2442	?	1	0	1	0	1	0	0	1	2	0	0
18	2443	0	0	1	1	?	?	?	?	?	2	0	?
19	2444	?	0	?	?	?	?	?	?	2	1	?	?
20	2445	т	4 1	.1 1 .		0	1	0	0	2	1	0	1
21	2445	I yrannoneu	istes_iy	throaeci	ikos	!	1	0	0	3	1	0	1
22	2446	3	2	?		?	?	l	?	l	1	1	?
23 24	2447	1	?	l	0	0	0	0	0	0	?	?	?
25	2448	?	?	?	?	?	?	?	?	?	?	?	0
26	2449	0	0	?	1	1	0	0	0	0	1	0	?
27	2450	2	0	1	1	0	1	0	0	0	0	0	0
28	2451	1	1	0	1	?	1	0	0	1	0	0	?
29 30	2452	?	1	2	0	?	3	1	?	1	?	?	?
31	2453	0	0	2	?	?	?	?	1	1	0	?	0
32	2454	?	?	?	0	0	1	{2,3}	0	1	0	0	1
33	2455	?	?	?	?	?	?	0	?	2	0	0	0
34 25	2456	?	1	0	?	?	?	2	?	?	?	?	?
36	2457	1	0	Ő	?	?	?	?		?	?	?	?
37	2458	1	1	0	0	0		1	1	. 1	0	0	0
38	2450	1	1 2	1	0	0	0	1	1	1	0	0	1
39	2439	0	2	1	0	י פ	2	2	· 1	2	0	0	1
40 ⊿1	2400	0	? 0	? 0	? 0	? 0	2	ے 1	1	5	0	0	1
42	2401	0	0	0	0	0	0	1	0	0	1	<i>!</i>	1
43	2462	<i>!</i>	<i>!</i>	<i>!</i>	!	<i>!</i>	<i>!</i>	0	0	0	0	0	1
44	2463	l	0	l	1	l	l	0	l	0	?	?	?
45	2464	?	0	1	?	?	?	0	1	1	?	?	?
46 47	2465	?	?	?	?	1	?	?	?	?	2	2	0
48	2466	?	?	?	?	1	0	0	1	1	?	?	?
49	2467	?	?	?	?	?	1	0	1	1	1	1	2
50	2468	0	0	0	0	1	?	?	?	?	?	?	?
51	2469	0	?	?	?	?	?	?	?	?	?	2	1
52 53	2470	?	?										
04 55	2471	Metriorhyno	chus_ha	astifer	?	1	0	0	?	1	1	1	?
56	2472	?	?	?	?	?	1	?	1	1	1	1	1
57 58	2473	0	1	0	0	0	0	0	0	?	?	?	1

1 2													
2	2474	0	2	n	ŋ	ე	n	9	1	9	ე	0	9
4	2474	0	2 2	؛ 1	؛ 1	2 0	? 0	2 0	1	2 1	י ר ר	0	י ר
5	2473	? 2	؛ 1	1	1 9	1	0	0	0	1	2 0	· 0	ے 1
о 7	2470	<u>'</u> 1	1	1	י ר	1	0	0	0	0	0	0	1
8	2477	1	0	1	? 2	1	0	0	1	? 0	0	? 0	? 0
9	24/8	<i>!</i>	2	0	<i>!</i>	3	1	0	1	<i>!</i>	<i>!</i>	<i>!</i>	0
10	2479	0	2	?	?	?	?	l	l	?	?	0	?
11	2480	?	?	0	0	1	2	0	1	0	0	1	?
13	2481	?	?	?	0	?	?	?	?	?	0	?	?
14	2482	?	?	?	?	?	?	?	?	?	?	?	?
15	2483	?	?	?	?	?	?	?	?	?	?	?	?
16	2484	?	?	?	?	?	?	?	?	?	?	?	?
17	2485	?	?	?	?	?	?	?	?	?	?	?	?
19	2486	?	?	?	?	2	2	1	?	1	0	?	?
20	2487	?	?	?	?	?	?	?	?	?	?	?	?
21	2488	?	?	?	?	0	?	?	0	0	0	?	?
22	2489	?	?	?	?	?	?	?	?	?	?	?	?
23 24	2490	?	?	?	?	?	?	?	?	?	?	?	?
25	2491	?	?	?	?	?	?	?	?	?	?	?	?
26	2491	: ?	9	?	?	. 2	. 2	9	9	9	?	· ?	· ?
27	2492	· •	י ר	: 2	: 9	$\frac{1}{2}$	2	: 2	י ר	: 9	י פ	2	י ר
28	2493	! 2	ໍ າ	: ዓ	י ר	י ר ר	! 9	! 2	י ר	י פ	י ר	י פ	י פ
29 30	2494	؛ ۲	? ዓ	: ዓ	? 9	? 9	?	? 0	? 0	؛ ۲	? ۲	? 0	؛ م
31	2495	<i>!</i>	!	!	?	!	!	<u>'</u>	!	!	!	!	!
32	2496	?											
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44	2505	0	?	?	?	?	?	?	?	?	?	?	?
45	2506	?	?	0	0	?	?	?	?	?	?	?	?
40 ⊿7	2507	?	?	?	?	?	?	0	?	?	?	?	?
48	2508	?	?	?	?	?	?	?	?	?	0	?	?
49	2509	?	?	?	?	?	1	0	?	?	?	?	?
50	2510	1	?	0	0	0	0	?	1	0	0	0	0
51	2511	2	?	?	?	?	?	?	1	0	0	?	?
5∠ 53	2512	?	1	?	?	?	2	1	?	1	0	?	?
54	2513	?	?	?	?	?	?	?	?	?	?	1	1
55	2514	0	0	?	?	0	?	0	0	0	0	1	1
56	2515	0	1	1	1	1	0	?	0	?	?	?	?
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15 16	2526	2	?	?	?	?	?	1	?	?	?	?	?
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29	2536	?	?	?	?	?	?	?	?	?	?	?	?
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# Journal of Systematic Palaeontology

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4	2559	1	0	1	0	1	? 2	? 0	? 2	? 1	<i>!</i> 1	0	? 1
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25	2576	0	1	0	0	0	0	0	0	?	?	1	?
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28	2578	0	?	1	2	0	0	0	0	?	0	9	2
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42 43	2589	?	?	1	1	2	1	1	?	0	0	0	?
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9 10	2605	?	1	1	0	?	?	0	0	0	0	?	1
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38	2626	Geosaurus	_giganteus	S /	<i>!</i>	<i>!</i>	<i>!</i>	1		!	<i>!</i>	3	2
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43	2630	?	1	2	0	0	0	0	?	0	0	2	?
44	2631	1	1	0	1	0	0	3	?	0	0	1	1
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49	2635	0	0	0	?	?	?	?	?	?	?	?	?
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54	2639	0	0	0	0	1	1	1	0	0	0	0	2
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56	2641	?	1	1	2	1	0	3	?	?	0	?	0
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2	2685	1	0	٥	0	1	5	0	0	0	2	1	2
4	2085	1	0	0	0	1	5	0	0	0	2 0	1	؛ 0
5	2080	1	0	2	· 2	? ?	0	1	2	0	1	0	1
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8	2000	0	0	2 0	0	· 0	1	0	؛ 1	2 0	2 0	2	1
9	2009	1	1	0	0	0	1	1	1	0	0	0	0
10	2090	ے 1	1	0	1	1	0	0	1	0	0	1	1
12	2691	l	1	1	1	2	1	0	3	0	1	0	1
13	2692	0	0	0	0	0	0	0	0	2	<i>?</i>	2	1
14	2693	0	0	0	?	0	0	0	0	0	0	1	1
15	2694	0	2	2	0	l	?	2	0	?	?	?	?
16	2695	?	?	?	?	?	?	?	?	?	?	?	1
18	2696	?	?	?	?	?	?	?	?	?	?	?	?
19	2697	?	?	?	0	?	?	?	?	?	?	?	?
20	2698	?	?	?	?	?	?	?	?	?	?	2	?
21	2699	?	?	?	?	?	?	?	?	?	?	?	?
22	2700	?	?	?	?	?	?	?	?	?	?	?	?
24	2701	?											
25	2702	Dalassa			0		1	0	0	1	0	1	n
26	2702	Dakosaurus		ensis	<i>!</i>	2		0	0	1	<i>!</i> 1	1	3
27 28	2703	3	?	0	0	2	0	0	1	1	1	1	?
29	2704	0	l	0	0	0	0	0	l	?	l	l	l
30	2705	0	2	?	?	?	?	?	1	?	1	0	0
31	2706	0	?	1	3	0	0	0	0	2	0	0	2
32	2707	1	1	2	1	1	0	0	3	0	0	0	2
34	2708	1	0	?	0	1	0	0	1	0	0	?	?
35	2709	1	2	0	0	3	1	0	1	0	0	0	0
36	2710	0	2	1	?	1	1	1	1	0	1	0	0
37	2711	1	0	0	0	?	?	?	?	?	?	1	?
30 39	2712	?	?	0	?	?	?	0	2	0	0	?	?
40	2713	1	0	1	0	?	?	?	?	0	0	?	1
41	2714	0	0	0	?	?	0	0	?	1	1	?	1
42	2715	1	0	0	0	0	1	0	1	1	0	1	0
43 44	2716	2	1	1	?	1	0	?	1	0	?	?	0
45	2717	?	?	1	1	2	0	0	3	?	1	?	?
46	2718	?	?	?	?	?	?	?	?	?	?	2	1
47	2719	0	0	0	1	0	0	0	0	0	?	1	1
48 40	2720	ů 0	2	2	1	2	Ő	0 0	0	?	?	?	?
49 50	2721	$\overset{\circ}{2}$	2	2	2	2	° ?	° ?	° ?	?	?	?	?
51	2721	: 9	9	9	9	9	9	9	9	9	9	9	?
52	2722	2	י 2	י פ	: 2	י י	: 2	: 2	י י	י ר	: 2	: 2	י ר
53	2725	2	י ר	י ר	י פ	י ר	י פ	י פ	י ר	י ר	י פ	י פ	י ר ר
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56	2123	<i>!</i>	? ٩	/ 0	? م	? 9	؛ م	? م	? 9	? 9	? 0	؛ م	U
57	2726	?	!	!	!	!	!	!	!	!	!	!	?
58	2727	?											

1 2													
3	2728	Dakosaurus	maximu	s?	1	1	0	3	1	?	1	3	3
4	2729	0	0	0	2	0	Ő	1	1	1	1	1	2
ว 6	2730	1	0	0	0	Ő	0	1	?	?	1	1	. 0
7	2730	2	° ?	2	2	° ?	° ?	2	?	?	0	0	0
8	2731	· 9	1	3	0	0	0	0	2	0	0 2	2	1
9	2732	1	1	1	1	0	0	1	2	0	· 0	1	1
10	2733	1	ے 1	1	1	· 0	0	1	2 0	0	0	1	1
12	2734	0	1	? 9	1	0	0	1	0	0	? 9	? 0	? 0
13	2735	2	0	/ 0	3	? 0	0	1	? 0	? 0	? 0	0	0
14	2/36	2	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	1	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	<i>!</i>	1
15	2737	0	0	0	?	?	?	?	?	?	1	?	?
10	2738	?	?	?	?	?	?	2	0	0	?	?	l
18	2739	?	?	?	?	?	?	?	?	?	?	1	0
19	2740	?	?	?	?	0	?	?	?	?	?	1	1
20	2741	0	0	0	0	?	1	1	1	0	1	0	2
21	2742	1	1	1	1	0	0	1	0	0	?	0	1
22	2743	1	1	1	2	1	0	3	0	1	2	1	1
24	2744	0	0	0	0	0	0	0	3	?	2	1	0
25	2745	0	0	?	0	0	0	0	0	1	1	1	0
26	2746	2	2	1	2	?	0	0	?	?	?	2	0
27 28	2747	1	?	?	?	0	1	1	?	?	?	1	?
29	2748	?	?	?	?	1	1	?	2	2	?	?	?
30	2749	?	1	?	0	0	1	1	1	?	?	?	?
31	2750	1	?	?	?	?	2	2	?	1	2	?	0
32	2751	0	?	?	?	?	?	. ?	?	?	2	0	?
33 34	2751	$\overset{\circ}{2}$	?	?	?	?	?	2	?	2	1	° ?	?
35	2132	÷	÷	·	÷	÷	÷			2	1	÷	·
36	2753	Suchodus_d	lurobriver	nsis	?	1	0	0	2	1	?	?	3
37	2754	2	?	?	?	?	0	0	1	1	1	?	1
38 30	2755	0	1	0	0	0	0	0	0	?	?	?	?
40	2756	?	2	?	?	?	?	?	?	?	?	0	0
41	2757	0	?	1	1	0	0	0	?	2	0	?	?
42	2758	?	1	?	?	?	?	?	0	0	0	0	1
43 11	2759	?	?	?	?	?	?	?	?	0	?	?	?
45	2760	1	2	0	?	3	?	?	?	?	?	?	0
46	2761	0	2	?	?	?	?	?	?	?	?	?	?
47	2762	?	2		0	1	4	0	0	0	0	1	?
48	2763	. ?	?	?	?	?	0	Ő	° 2	Ő	$\overset{\circ}{?}$	2	?
49 50	2763	1	9	?	9	9	0	0 2	0	2	0	· ?	· ?
51	2765	1	· ?	י 2	0	?	1	0	0 2	· ?	0	· 2	، 1
52	2705	1	· 0	: 0	0	· 0	1	1	2 1	· 0	· 0	! 0	1
53	2700	1	0	0	0	0	2 9	1	1	0	0	0	0
54 55	2/0/	2	1	1	1	? ٩	{ 1	? •	1	0	1	? 0	! 1
56	2708	<i>!</i>	1			? 0	1	U	3	0	1	0	1
57	2769	0	U	U	0	0	U	0	0	1	<i>!</i>	2	1
58	2770	U	0	!	!	U	!	U	U	U	U	1	I

1 2													
3	2771	0	1	1	0	1	?	1	0	?	?	?	?
4 5	2772	?	?	?	?	?	?	?	?	?	?	?	?
6	2773	?	?	?	?	?	?	?	?	?	?	?	?
7	2774	?	?	?	?	?	?	?	?	?	?	?	?
8	2775	?	?	?	?	?	?	?	?	?	?	?	?
9 10	2776	?	?	?	?	?	?	?	?	?	?	?	?
11	2777	· ?	?	?	?	?	?	?	?	?	?	?	?
12 13	2778	?	·	·	·	·	·	·	·	·	·	·	·
14	2779	Mr Leeds D	akosau	r ?	1	1	0	3	1	?	1	3	?
15 16	2780	0	0	0	2	0	0	1	1	1	1	1	0
17	2781	1	0	0	0	0	0	?	?	1	?	1	?
18	2782	2	?	?	?	?	?	1	?	?	0	0	0
19	2783	?	1	1	0	0	0	0	2	0	0	2	1
20	2784	1	1	1	1	0	0	0	0	0	0	1	1
22	2785	0	1	0	1	0	0	1	0	0	?	?	1
23	2786	2	0	?	3	1	?	1	?	?	?	0	0
24	2787	0	?	?	?	?	1	?	?	?	0	?	?
25 26	2788	?	?	?	?	?	?	?	?	?	?	?	?
27	2789	?	?	?	?	?	?	2	0	0	0	?	1
28	2790	?	?	?	?	?	?	?	?	1	?	?	?
29	2791	?	?	0	?	0	0	?	?	?	?	1	1
31	2792	0	0	0	0	?	?	1	0	0	?	0	2
32	2793	1	0	?	1	?	?	1	?	?	?	?	?
33	2794	1	1	1	2	1	0	3	0	0	?	?	?
34 35	2795	?	?	?	?	?	?	?	?	?	2	1	0
36	2796	0	0	?	0	0	0	0	0	1	1	1	0
37	2797	1	1	1	1	0	2	0	?	?	?	?	?
38	2798	?	?	?	?	?	?	?	?	?	0	1	0
39 40	2799	?	?	?	?	1	1	?	?	?	?	?	?
41	2800	?	?	0	0	0	1	1	?	1	1	1	1
42	2801	1	?	?	1	0	1	0	0	?	?	?	?
43 ⊿⊿	2802	?	?	?	?	?	?	?	?	?	?	?	?
45	2803	?	?	?	?	?	?	?	?	?	?	?	?

Page 159 of 161

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Journal of Systematic Palaeontology

1 2		
- 3 4	2805	Synapomorpy list for the main nodes:
5 6	2806	Thalattosuchia:
7 8	2807	Char. 2: 2> 0
9 10	2808	Char. 8: 0> 1
11	2809	Char. 10: 0> 1
12 13	2810	Char. 17: 0> 2
14 15	2811	Char. 18: 0> 1
16 17	2812	Char. 19: 0> 1
18 19	2813	Char. 77: 0> 1
20 21	2814	Char. 79: 1> 0
22	2815	Char. 95: 1> 2
23 24 25	2816	Char. 106: 2> 0
25 26	2817	Char. 122: 0> 1
27 28	2818	Char. 139: 0> 1
29 30	2819	Char. 150: 0> 1
31 32	2820	Char. 159: 0> {2,3}
33 34	2821	Char. 171: 0> 1
35 36	2822	Char. 172: 0> 1
37	2823	Char. 173: 0> 1
30 39	2824	Char. 195: 0> 1
40	2825	Char. 217: 0> 1
42 43	2826	Char. 243: 0> 1
44 45	2827	Char. 246: 0> 1
46 47	2828	Char. 250: 1> 0
48 49	2829	Char. 251: 1> 0
50 51	2830	Char. 274: 1> 0
52	2831	Char. 276: 1> 0
53 54	2832	
55 56	2833	Metriorhynchoidea
57 58 59 60	2834	Char. 96: 0> 1

1 2		
3 4	2835	Char. 99: 1> 0
5 6	2836	Char. 130: 0> 1
7	2837	Char. 241: 0> 1
8 9	2838	Char. 296: 0> 1
10 11	2839	
12 13	2840	Metriorhynchidae
14 15	2841	Char. 72: 0> 1
16 17	2842	Char. 86: 2> 3
18 19	2843	Char. 258: 0> 1
20	2844	
22	2845	Metriorhynchinae
23 24	2846	Char. 34: 0> 1
25 26	2847	Char. 112: 0> 1
27 28	2848	Char. 114: 0> 1
29 30	2849	Char. 222: 0> 1
31 32	2850	
33 34	2851	Geosaurinae
35 36	2852	Char. 2: 0> 1
37	2853	Char. 99: 0> 1
30 39	2854	Char. 122: 1> 3
40 41	2855	Char. 125: 0> 2
42 43	2856	Char. 172: 1> 0
44 45	2857	
46 47	2858	Geosaurini
48 49	2859	Char. 60: 0> 1
50 51	2860	Char. 154: 0> 1
52	2861	Char. 166: 1> 2
53 54	2862	Char. 200: 0> 1
55 56	2863	Char. 237: 0> 1
57 58 59 60	2864	

1		
2 3 ⊿	2865	Geosaurina
5	2866	Char. 5: 3> 1
7	2867	Char. 208: 0> 1
9	2868	Char. 209: 0> 1
$\begin{array}{c} 1 \\ 0 \\ 1 \\ 1 \\ 2 \\ 1 \\ 3 \\ 1 \\ 1 \\ 5 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$	2869	Char. 219: 0> 1