



http://app.pan.pl/SOM/app64-Raven_etal_SOM.pdf

SUPPLEMENTARY ONLINE MATERIAL FOR

**A reassessment of the purported ankylosaurian dinosaur
Bienosaurus lufengensis from the Lower Lufeng
Formation of Yunnan, China**

Thomas J. Raven, Paul M. Barrett, Xing Xu, and Susannah C.R. Maidment

Published in *Acta Palaeontologica Polonica* 2019 64 (X): xxx–xxx.

<https://doi.org/10.4202/app.00577.2018>

Supplementary Online Material

SOM 1. Strict consensus tree of Arbour and Evans (2017) dataset.

SOM 2. Strict consensus tree of Baron et al. (2017) dataset and data matrix.

SOM 3. Strict consensus of Raven and Maidment (2017) dataset and data matrix.

Gobisaurus_domoculus

11100110?01101010??100000000101?1000?110?111012120100111?011110000??00110100?1????????1????????
???11????????11????????????????????0????0?0000???1????????????????????0?????????00

Hungarosaurus_tormai

?0????01?0?10000????????????1?0????????????1?0??111?????0????101??0??????1?1????1101110??0?00?1??1
111111110001000?00111012001?1?10??1010?11000??1211010????12????????10????11?0????00

Hylaeosaurus_armatus

????????????????????????????????????????1????????????????????????????????????????????????????????01
??00?0????0100011100?0100000??111??0??????0????????????00??111??2??????????2??12?0?

Liaoningosaurus_paradoxus

????????????????????????????????????????????????????????????????????????????????????????0111?????
?????0?0??01010????0?0?00?111000110010000?102?00?111000????????????????????????????

Kunbarrasaurus_jeversi

111000?????????0????2????????1101?10??210??1??????00??00111110??1??01001010?1?11????11?0??01
??????10?????0??1?????????????0010??0?00?000????????????????121????1110011102?1212??

Mymoorapelta_maysi

????????????????????????????????????????????????????????????????????????????????????????????????
??11010?010?10010?????????????1011010?01?00010??1??????????122????????????122?2?2?00

Niobrasaurus_coleii

1????????????????1000?????1????0??1????????11????????????????????????????????????????111?????
?1??1111110000?????1????????1110??101?00011??2111010111112?????????010?????00

Nodocephalosaurus_kirtlandensis

111????????????????2?21??1?1??1011?22????1012120?0??1??11??????????1?111????????????????????
?????????0????????????????????????????????????????????????????????222120????0??????????

Nodosaurus_textilis

????????????????????????????????????????????????????????????????????????????????????????????????
???111111??000?0????????????111??1101????????1111?1?011?12????2?????000?0312???

Panoplosaurus_mirus

10101100?????000??21101101?1??101??110??1?0011100100?0101111111??0111101?1111?101211??0111
????1?11?????????10001102001????????????1101?1?1??????1??121????12100????????????

Paw_Paw_scuteling

????????????????????????????1????????????????????????????0?0?1????????????11????????????111??01
?11?????????0??000?0??21??1?100?????0000?????0?1????????????????????????????

Pawpawsaurus_campbelli

10101000?02?00010??22211102110001011?11011101111001001100111111101110110101????????01??????
????????????????????????????????????????????????????????????????????????????????????0??????????

Peloroplites_cedrimontanus

?0101?00?111??????2?10????????????110?01?001110000110?0101?0??????11?1??0??000??1000??01
?10011?1012?0?????1??1112101?111000111????????0110111000????????????????????????

Pinacosaurus_grangeri

11110100111110101?01000200?111011?2022101100121101??11111111000011101101110111100111110??01
?11111100?0011111010011?10?011110011110100100101201011121122????02210101020?12212

Pinacosaurus_mephistocephalus

11110100??????101??0?010????11??0?1?211?1100222101??1?0????????????????????????1?10??1111101???
?????11????011111????1111??0?11100????????10?10????????????122????022100???1??????

Polacanthus_foxii

????????????????????????????????????????1??211????????????????????????????????????????0?????01?
?1?01?110101000?1100?11?????1010001011????????121101011??122100???101?0202021??00

Hoplitosaurus_marshi

????????????????????????????????????????????????????????????????????????????????????????????????
????????????????????1000110200????????????????10??210110?1??121?????????020??2?????

Zaraapelta_nomadis

111?00?????????02?22??2?1??1?221220?111012121100011111111001?1??1111110?????????????????
????????????????????????????????????????????????????????????????????????????????????

Zhejiangosaurus_luoyangensis

????????????????????????????????????????????????????????????????????????????????????
?1??1101?001????????????????11100?111?1??????1211011?12????????????????????????

Ziapelta_sanjuanensis

1111010??11??1110??231010111111??011?211?11101??01021??????1?0?0?1??1111??0?????????1??????
????????????????????????????????????????????????????????????????????????????2??????220????????

Zuul_cruravastator

11110100?110?1110??231010111111?1012?211111012121102111111100001?00111111?1111000?001000??0?
??1?1??0?0?011111????????????1??0011????????????????????????122?????1?????1112??12211

Bienosaurus_lufengensis

????????????????????????????????????????????????????????????????????????????????????
????????????????????????????????????????????????????????????????????????????????????

;
proc /;
comments 0
;

0000000200000?00?10010000000020100000000?00011000110100110000000?010000001000000?000??000101000000
000000000?00001?000
Pisanosaurus_mertii
0?0????????????????????????????????????????????????????????????????????????????????????????????????????????000?10
?000000????1??0?00?00?11110??0????????????????????????????????????????????????????????????????????????????0?????????????????
0?0?????0??0001??000
Abrietosaurus_consors
0000??10011??011000?100??0100100000?0????????????????????????????????????????????????????????????????????????????011000?10000110
00?00?0030011?0?0?001?11110?????????0?????????0?10000?10?0?1?01000000?11?100????????????????????????????0?2?200??1?
??010110????0001?11??
BMNH_A100
0??0??1?0??1?01100??100?00100??????0?0?00?00????????????????????????000?????0????????????????????0??????0000???
??????0030111?0?0??01111110????????????????????????????????????????????????????????????????????????????????????
????????????????1?????
Echinodon_becklesii
0??0?????0??1?????0?????????01????????????????????????????????????????????????????????????????????????????????1?????0000??0
?????0??0??1100?00?00?011110????????????????????????????????????????????????????????????????????????????????????
????????????????????
Fruitadens_haagarorum
0??0??1?0??1??11?????0??001????????????????????????????????????????????????????????????????????????????????0000??0
????????03101100?00?01101110??0??3????????????????0001????????????????????????????????????????????????????0021200011
1??????????????011110
Heterodontosaurus_tucki
0000??110111011000110010010010000000?00100100?0000001000000000200000??000000000000000?00011000?10000110
00000100301111011?11111011?001?03?00000010?01100001101001101000000?111100000000?110?00100010021200001?
?0010110100000111110
Lycorhinus_angustidens
0??????????????011????100??010????????????????????????????????????????????????????????????????????????????????
????????????11?0?0??0?111110????????????????????????????????????????????????????????????????????????????????
????????????????1?????
Eocursor_parvus
0?0????????????????????????????????????????????????????????????????????????????????0000????????????00????????????1000010
0010000????11?0?0?00?01?110?0?0?2????????????0010000?01?01?01?00000?1110000000100110?00100010020200001?
??0?????1??0000000?1
Lesothosaurus_diagnosticus
0000??100011000?000?10000010110000000?0000000010000001000000000000000??000000000000000?0?00010000001000010
001000000101100?00?000011110000?0120?000?????00100000000?00001000000?010000000011110?001000100202000011
1001?110100000100001
Scutellosaurus_lawleri
0?00?????0?11????00?????????10??????10?00000000100?????0?0?0??1100????????????????????????1?????????0000??
??1?0?000?01100?00?0?00111100?01012?0?1??????1?000?00?00001000000?1?0?0000000110?0010?10020200001?
??0?????01??110000001
Emausaurus_ernstii
00?0???000?1000?000?10000010010100010?0000000010000001000?00000?00000??0000??00?00?000?1?0?????1100010
001000001101100?00?000011110????????????????????????????01????????????????????????????????????????????
????????0??11?0?????
Scelidosaurus_harrisonii
0000??100??0?0??0?10100010011?2?010?000010001000000100000000100000??000000?001001?10001?0?????1100010
101000101101100?00?000011110000022000000010?0010000?????????01001000?0000000000001110?011000100202100011
10000111100111100001
Ankylosauria
0000??100011000?000011?00010011?2??10?00001100000000?1?10010000101?10??100000?00100001100110000?11100010
10000011?101101111000001111011000?000000010100?1000?010100011111000?000000100?001111?111000110??0100011
1?121111100111?0?0?1
Agilisaurus_louderbacki
0000??100011000?00011000?010?10111000?00000000000000?1000100000100000??000010?00000??0?00010?00001000110
100000001101100?00?0200111100101012000000010?1010100?????????01000000?0100010000110110?001010100202000011
10010110100000100001
Hexinlusaurus_multidens
0?00????0?????????011000??10?10000100?00000000000000?1000?00000?00000?000001????????????0????????1000110

????000????1101000?0?00111100101012000000010?1010000000000001000000?1101010000011110?001111100202000011
11010110100000000001
Othnieliosaurus_consors
0????????????????????????????????????????????????????????????????????????????????????????????????????????000??
????0?0????1110?00?0??1?1?0??0?013?000?011010010000?????????01000000?111110000011110?001111101312000011
110101101?0000?00001
Anabisetia_saldiviai
0????????????????????????????????????????????????????????????????????????????????????????????????????????0101??
??????0????11?110?????111?????????????????????00100100000?0001100000?111110001011110?001011101312010111
1?01?1101?0000?00?0?
Gasparinisaura_cincosaltensis
000????????????10????1010??10010000100?0000000000000?01100?000?0??00?0??000000000?????????0????????000110
1100010????111111?000?111100?0??3100??1?10??00?00?????????01000010?111110000011110?001111101312000011
11020110110000?00001
Hypsilophodon_foxii
0000??1001110110000110010010010000100?0000000000000011000000111010000??000010000000100?00011100001000110
11000100110111?01000001110010101310000011010010000000000001000000?1211110000011110?001111101312000011
11000110110000100001
Orodromeus_makelai
0000??100011?10?000110101010010000000?001000000001001100000000010000??0000100000000?????01??0?01000110
110000001101100?00?00001111001010131000?0?1010010?000000000001000000?1211110000011110?001111101312000?11
110001101?000010001?
Parksosaurus_warreni
000????0?????10????01010??10010?0?100?0000001?00?000?1100?000?00?0000????000????????0????????0000110
????0010????111?100?000011110????023?00?0111?10000000?????????01000000?????1?000001111?001111101312100?1?
??0001101100001?0001
Thescelosaurus_neglectus
0000??1001110110000?10101010010010100?0000000000010011000?00?11000000??0000?00100001?????011100101000110
112000000101101101000001111001010231001?011000010000000000001000010?1111011000011110?001111101312100011
11000110110000100001
Yandusaurus_hongheensis
0????????????????????100000100?????00?0000000000????????????0????????????????????????????????????????0000??
????????????111?10??0??11110??0?0????????????0010?00????????????????????????????????????????????????0000??
????????0?????10????
Zephyrosaurus_schaffi
0?0?0?1?01110?10000?10??1010?10100?00?00100000?0?100?0?0?100??010000??00?0100000001?????0????????????????
????????010111?100?00?011110????????????????????????????????????????????????????????????????????????????????
????????????????1?????
Tenontosaurus_tilleti
0000??11110100??001010100110010000100?0000000000100011100000111000000??0000101100001?0?00011010001010111
11200001??21110010100011110001202310011001010000000000110001000010?11111000101111000101111312111111
11000110110000100001
Tenontosaurus_dossi
0000??111010010001010100110010000100?0000000000100011100000111000000??000010110??0??0?011010001010111
??00000??21110010100011110?0120?3?00110?1010000000000??0001000010?111110001011110?0010111?1312111111
1?000110110000100001
Talenkauen_santacruensis
0?00??101??1?010000?10??0100????????????????????????????????????????????????????????????????????????????0110?10100011?
????0?001????1??10??0??11110?00102?????????10?0010010?????????01000010?1111?1????????11?0010111?1312????11
1?000?101?0000??00??
Rhabdodontidae
0000??10010100??0000101000100?????100?00000000011000111000000?0200000??0000101000?01?????011000101010111
??000001??21111010100011110?11?0?3?001?0?10?000?00?????????01001000??111011010001????????????11312111?11
1????????11?000100001
Dryosauridae
0000??11110110??001010100110110001000?000000000100001110000011?000000??000010110000100?00011010101000111
10000001??21110110100011110?11101310010001010000000?????????01000010?111111011011110?001011101312011111
11020110100000100001
Ankylopollexia
0000??11110100??001010100110010000000?0000000001000011100000?10000000??000010110000200?00011010101010111

11000101???2111011010001111011?02??00100010?00?00000001100010000?0?1111110110111110001011111?12111111
10000110102000100001
Micropachycephalosaurus_hongtuya
0????????????????????????????????????????????????????????????????????????????????????????????????????????????
????????????????11?0?0?0?11?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?
????????????0?????
Stenopelix_valdensis
0????????????????????????????????????????????????????????????????????????????????????????????????????????????
????????????????????????????????????????????????????????????????????????????????????????????????????????????
??000110100000??001
Wannanosaurus_yansiensis
0????????????????????????????????11????00?000101000000????????????????0001001101????????????????0??????0000100
1000000????11?0?0?0?0?11110?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?
????????????0001?0
Goyocephale_lattimorei
0?0?0?0?0?1??01100001?????10?11?1?200?0001?10?????1????????????000010011110?????1?1?0?0?0?0?0?0?0?0?0?0?0?0?0?
10?0100031111??00?0?1?11?00??1?2?????????2????111????????0101110101211?????????????????????????????????
?1?????011100010????
Homalocephale_calathocercos
0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?
????0????11?110?0?0?11110?0?0?1?3111?0?0?2????????????????0101110111211111000011111013111013110?0?11
?10?????110001?010?
Pachycephalosauridae
0000?100111001?000011??010011?1?00?000111000000?11000000000001?100111110?0011010?0?0?0?0?0?0?0?0?0?0?0?0?
100010003??11??00?0?0?0?1110????1?3?11?0?0?2010111????????01011011121111100001????????????013110?0??
?????????110001001?1
Chaoyangosaurus_youngi
01?1001?00?0?000110?1????011????????2100001????000????1000?000002????????????????0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?
100110004101110?00?000011110?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?
????????????????1?????
Psittacosauridae
01110011001000?11001??0011010100?2101000000100001100000000200001010000?00000010?10011?00001001111
??00001??11111110000011110010?003100?0001110?1000000000001000000??211?1000000111100121010?312010011
10000110100000100001
Liaoceratops_yanzigouensis
00?111110010001000011000?0110?????0211100010110000101100000100020010111000001?010001?0?00011001001001111
1001100031011111111000011110?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?
????????????????1?????
Archaeoceratops_oshimai
001111100010001000001000?01001010002111011011000010?1011?0100020010111000001?01??01?0??011101101000111
1011100031011??1?1000011111??103110?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?
110001101000001??0?
Coronosauria_Lep
0011111000?000101000101000100100021110010110000101101100100020010111000001?01000?10?100111011010?0111
1011000?4101111111000011111?102?03?00?0001110110000000010001000010?1211110000001111001000101312010011
1100011?100000100001
Yinlong_downsi
0111011?0010?0?00011010??10?100000210100100000000011000?00000200101010110100?00112????0010100101000110
0101100031011?0?0?000?11110?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?
????????0??000?????
Tianyulong
0000?1101??0011000?1000??10????00????00????????????0????????2????????????????????????????????11?00??010110
000?000050?1??0?0?0?0?0?10120????????????????????1?00????????????????????????00010?1110?????10?????1001?
??01??01100000?????
Changchunsaurus_parvus
0000?1?0011?110000?10??010?10?0?00?00110????100????11000000??0????0?0000??0000?0000?00011101101010111
110000001101101?00?0000111100101?1????????????1?010?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?0?
1?01??01?000010000?
Jeholosaurus_shangyuanensis
00?0?110011010?00011000??10?10000100?0001000010000011000000111010000??0000100?00?001??0011100001000110

100000001011?1100?0000111100001??30000?0?1??1001000?????????01000000?1110110000110110??01???101312000011
11010??01?0000??0001

Albalophosaurus_yamaguchiorum

0????????????????????00??0??1010?????0?00?????????????????0?????0?????????000?????02?????0????????????110
?????0?0??11111110??111?0????????????????????????????????????????????????????????????????????????????????
????????????????1?????

Haya_griva

00?0??10001?011011011001001001001010000000001010010011000000111010000??0000100000000?001001110?101000110
110000001101101100?00001111001010131000?0?1010010000?00??0?01000000?121100000001?110?001111101312000011
?1000??0100000000001

Yueosaurus

0????????????????????????????????????????????????????????????????????????????????????????????????????????
?????????????????????????????????0?????00?0?????000?00?????????????????????????????????0?0??110??????10??20??1?
??????000?000?000?

Koreanosaurus

0????????????????????????????????????????????????????????????????????????????????????????????????????????
?????????????????????????????????0????????????????10010?01?????????0??0??????11?0?????????????????0131200011?
?????????0??000?000?1

Laquintasaura

0?????1??????????????1000??0??????1??000000?????00??????000??110?00?????000?????0????????????????????
??????000?1100000?0??01?1?????0??????0?????000?????????????01??00?????000000001111??01?00??0202000110
1??????0??????0?0?01

Huayangosaurus

0000??1000110?0?000010000010011?2?010?0000000000000011000110000100000??0000?0100100001?00010000001100110
0000000??101100?00?000011110110?0?2000100010?0011000?010100001111000?0000000002001110?0?1010110??0100011
1?121111?0011000?001

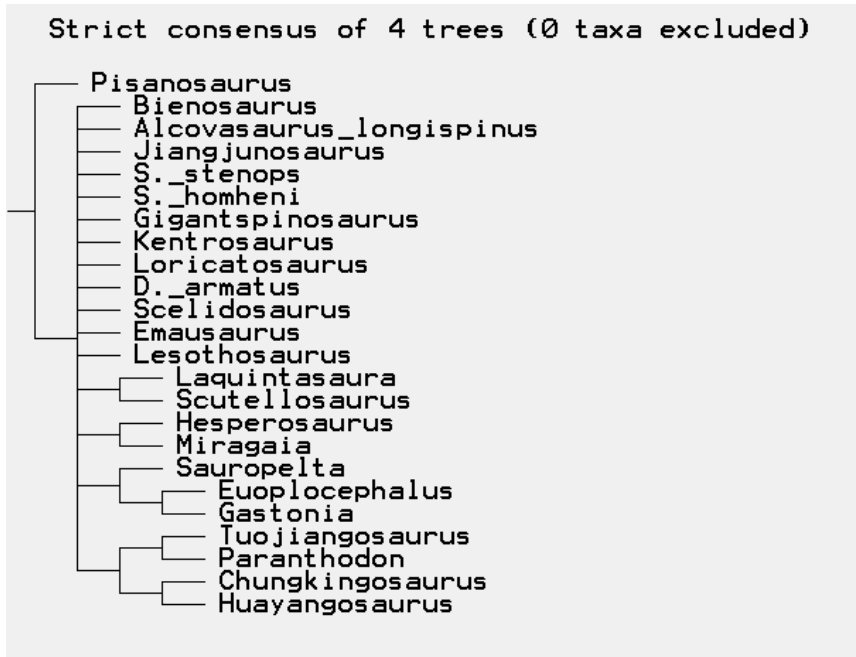
Bienosaurus

0????????????????????????????????????????????????????????????????????????????????????????????????????????
??????1?????1?110?0?10?1111????????????????????????????????????????????????????????????????????????????????
????????????????????

;

proc /;
comments 0
;

SOM 3. Strict consensus of Raven and Maidment (2017) dataset and data matrix.



Raven, T.J. and Maidment, S.C.R. 2017. A new phylogeny of Stegosauria (Dinosauria, Ornithischia). *Palaeontology* 60: 401–408.

nstates cont ;

nstates 32 ;

xread

115 24

&[cont]

Lesothosaurus	0.5 16.0 6.0 0.1 9.0 1.0 3.2 3.2 14.0 ? 2.8 0.2 0.5 0.2 0.57 0.64 0.17 0.8 2.1 ? 2.7 1.6 0.78 5.3
Scutellosaurus	? 18.0 4.0 0.1 7.0 1.0 3.0 3.0 ? 0.8 2.0 0.2 0.6 ? ? 0.83 0.23 ? ? ? ? 1.2 0.87 5.5
Emausaurus	0.59 19.0 6.0 0.65 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
Scelidosaurus	0.5 ? 7.0 0.4 8.0 1.07 2.46 2.56 16.0 0.6 2.68 0.35 ? ? ? ? ? 0.8 2.4 0.25 1.9 ? 1.11 ?
Huayangosaurus	0.8 21.0 6.0 0.5 8.0 ? ? 1.6 16.0 1.25 2.7 0.4 0.8 ? ? ? ? ? 1.7 2.11 ? 2.0 1.3 ? 7.4
D._armatus	? ? ? ? ? 2.6 0.8 2.2 ? ? 1.9 0.3 0.6 0.3 0.78 0.7 ? 1.6 ? 0.7 2.1 1.4 ? 1.4
Miragaia	? ? 5.0 0.2 17.0 1.14 1.53 1.8 ? ? 2.0 0.4 ? 0.5 0.71 ? ? 1.5 ? ? ? ? ? ? ?
Loricatosaurus	? ? ? ? ? 1.91 0.99 1.9 ? ? 2.06 0.35 ? 0.3 0.94 ? ? ? ? ? ? ? 1.7 ? ?
Kentrosaurus	? ? ? ? ? 1.27 0.45 0.62 ? 1.1 2.5 0.46 0.9 0.3 0.95 0.72 ? 1.6 4.57 1.1 1.6 1.69 1.47 1.45
Paranthodon	? ? 6.0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
Chungkingosaurus	? ? ? ? ? 3.2 1.1 3.6 ? ? ? ? ? ? ? ? ? ? 1.4 4.2 ? ? ? ? ?
Tuojiangosaurus	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 2.28 3.6 ? ? ? ? ?
Gigantspinosaurus	? 30.0 ? ? ? ? ? ? 16.0 ? ? 0.36 ? ? 0.8 0.7 ? ? ? ? ? ? 1.6 1.57 ?
S._homheni	? ? ? ? ? 3.2 0.9 2.7 ? ? ? ? ? ? ? ? ? ? ? 1.5 9.3 ? ? ? ? ?
S._stenops	0.3 23.0 6.0 0.3 11.0 3.52 0.8 2.5 14.0 1.6 2.1 0.43 0.97 0.41 0.94 0.67 ? 1.81 6.1 0.71 2.05 1.94 1.72 1.1
Hesperosaurus	? ? ? ? ? 13.0 1.37 1.73 2.51 16.0 ? 2.3 0.5 1.0 0.4 0.93 ? ? 1.48 4.42 0.7 1.8 1.8 1.8 ?
Gastonia	? ? ? ? ? 8.0 1.0 3.1 3.1 ? ? 2.5 0.5 1.1 0.6 0.81 ? ? 1.3 ? ? ? ? 1.9 ? ?
Sauropelta	? ? 5.0 ? 8.0 1.0 1.95 1.95 16.0 0.99 2.9 0.3 ? 0.5 0.8 0.82 0.23 ? ? ? ? ? 1.5 1.3 ?
Euoplocephalus	? 21.0 6.0 ? 8.0 1.0 2.83 2.83 ? 0.9 2.5 0.3 1.4 0.4 0.83 0.58 ? 2.4 2.8 2.5 0.2 ? ? ?
Jiangjunosaurus	? 21.0 7.0 ? 11.0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
Laquintasaura	? ? 4.0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
Alcovasaurus_longispinus	? ? ? ? 8.0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? 1.8 ? ? ? ? ? ? ?
Pisanosaurus	? 15.0 ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? 8.3
Bienosaurus	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?

&[num]

Lesothosaurus

0?700?000??0000?00?000001000?111?00000?1???1010?10000100000000?0?0111??00000100100?00000???

Scutellosaurus
???01??00?????0??00101?0010011??0?00??00?????1?0000?000?000100?0110??000001?01???10000??0
Emausaurus
00??1000??????0??00100?00??????????00?00??1????????0????????????????????10000??
Scelidosaurus
?1?010?10100100100100?0010101000?01?100?10100100001000?000110101110000010000000010100??0
Huayangosaurus
01101101111010111010010010010??001001?000?00110100011?1?011011000001000??11011?1??1100?000
D._armatus
????????????????????1????????1??111?11011????????1??0111010?010100101121????110??0?1
Miragaia
?0001????????????????1011????????????????1?10?100????????????????1????11?????
Loricatosaurus
????????????????????000001?01??211?001?0????1????110????1??01101021????11??11??
Kentrosaurus
??????01?????1??101??1??101?01?0101110111011001101101011100010?1101101021?12211001001
Paranthodon
?1??0?????????????0?11?11????????????????????????????????????????????????????????
Chungkingosaurus
????????????????????0?????????11012????10??10??????0?1011000?0110?1?????????11?0?00?
Tuojiangosaurus
????0?1?0?????11??10111??1????????????????????????????????0?111000?0100?????????11?????
Gigantspinosaurs
?????????????????0?11??1?1??????1?002100?10?10?000?01??0111000?0100?1??21????11001000
S._homheni
????????????????????????????0110????????????????????111111100101????????????11????1??
S._stenops
00011001111101011011001?11100000100012011011011011010010?11111110010101101021112211000111
Hesperosaurus
0??110111110101??????01?10111011001?011011??111101?11??11111110010101101021?1??110001?0
Gastonia
1??11??10000?11?????????1011????01?012000?1010110?1010000?0111000?0100111??11????10110??
Sauropelta
1??11??10000111??0?00111?1111????01?012000?00101100111000110?110000010001110?01000110110??0
Euoplocephalus
10?11??10000111?10?00111?1111????01?0120?????101100101101111110000010010?01011110210110??
Jiangjunosaurus
????1????111??11?0100101011??111??0????????????????0????????????????????????????????1100??1?
Laquintasaura
????????????????????00??0?01?????0?????????????0?0????????????????????101????????00?????
Alcovasaurus_longispinus
????????????????????????????0??211?1??000????????????????????11??0?0??1??0??
Pisanosaurus
??0?????????????10?0?1????????10????????????????????????????0?????0????????????0000000????
Bienosaurus
?????0????????????000010?0????????????????????????????????????????????????????????1??????
;

proc /;
comments 0
;