

1 Supplementary File S2 for

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4 A taxonomic reassessment of *Piramys auffenbergi*, a neglected turtle
5 from the late Miocene of Piram Island, Gujarat, India

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14 **This PDF file includes additional information of the phylogenetic analyses**

15 1. List of changes to Ferreira et al. (2018)'s matrix

16 2. Strict consensus tree with node numbers

17 3. Bootstrap, Jackknife & Bremer support information

18 4. List of common synapomorphies for Stereogenyina

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21 **1. Changes to Ferreira et al. (2018)'s matrix**

22 *Char. 5: PF, preorbital skull broad*

23 Scoring: *Lemurchelys diasphax* – 1 > 0

24 *Stereogenys cromeri* – 1 > 0

25 *Shweboemys pilgrimi* – 1 > 0

26 *Brontochelys gaffneyi* – 1 > 0

27

28 *Char. 9: FR, interorbital groove*

29 Scoring: *Mogharemys blackenhorni* – 0 > ?

30 *Brontochelys gaffneyi* – 0 > ?

31

32 *Char. 12: FR, prefrontal/frontal*

33 Scoring: *Bairdemys sanchezi* – 1 > 0

34

35 *Char. 14: Anteroventral emargination*

36 Scoring: *Cordichelys antiqua* – 1 > 0

37

38 *Char. 15: QJ, quadratojugal*

39 Scoring: *Stereogenys cromeri* – ? > 1

40

41 *Char. 19: PA, dorsal portion in relation to adductor fossa*

42 Scoring: *Stereogenys cromeri* – 0 > ?

43

44 *Char. 23: PA, PA-JU contact*

45 Scoring: *Shweboemys pilgrimi* – 0 > ?

46

47 *Char. 25: PA, parietal contacts pterygoid at base of processus trochlearis pterygoidei*

48 Scoring: *Mogharemys blackenhorni* – 0 > 1

49 *Brontochelys gaffneyi* – 0 > 1

50 *Lemurchelys diasphax* – 0 > 1

51 *Stereogenys cromeri* – 0 > 1

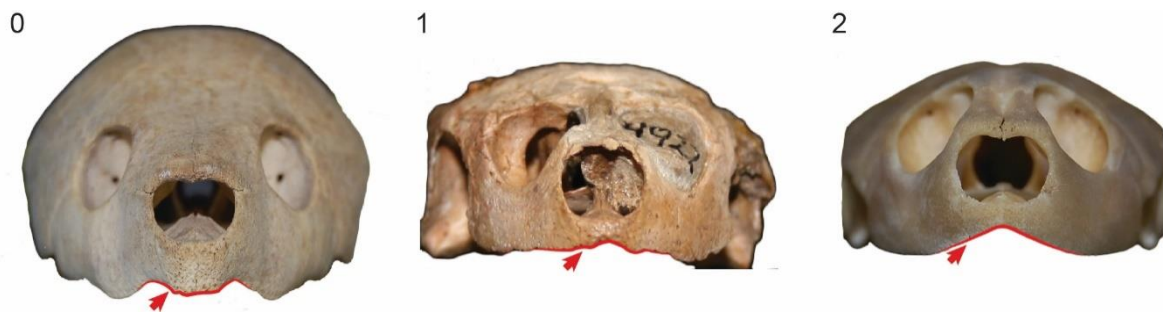
- 52 *Cordichelys antiqua* – 0 > 1
- 53 *Latentemys plowdeni* – 0 > 1
- 54 *Bairdemys thalassica* – 0 > 1
- 55 *Bairdemys sanchezi* – 0 > 1
- 56 *Bairdemys hartsteini* – 0 > ?
- 57 *Bairdemys venezuelensis* – 0 > ?
- 58 *Shweboemys pilgrimi* – 0 > ?
- 59
- 60 *Char. 26: PA, PA-PT contact in septum orbitotemporale*
- 61 Scoring: *Caninemys tridentata* – 2 > 0
- 62
- 63 *Char. 27: PA, interparietal scale*
- 64 Scoring: *Bairdemys sanchezi* – 1 > ?
- 65
- 66 *Char. 29: PA, interparietal scale meeting medially*
- 67 Scoring: *Bairdemys winklerae* – 1 > ?
- 68
- 69 *Char. 41: PM, pinched snout*
- 70 Scoring: *Cordichelys antiqua* – 0 > 1
- 71 *Bairdemys hartsteini* – 0 > 1
- 72
- 73 *Char. 43: PM, protrudes cranially in lateral view beyond apertura narium interna dorsal ridge*
- 74 Statement: this character refers to the premaxilla protruding beyond the dorsal ridge (in lateral
- 75 view) of the apertura narium externa, not interna as originally stated.
- 76 Scoring: *Shweboemys pilgrimi* – ? > 1
- 77
- 78 *Char. 57: MX, triturating surface shape*
- 79 Scoring: *Brontochelys gaffneyi* – 1 > 2
- 80 *Shweboemys pilgrimi* – 1 > 2
- 81 *Stereogenys cromeri* – 1 > 2
- 82 *Cordichelys antiqua* – 1 > 2

- 83 *Latentemys plowdeni* – 1 > 2
84 *Bairdemys venezuelensis* – 1 > 2
85 *Bairdemys hartsteini* – 1 > 2
86 *Bairdemys sanchezi* – 1 > 2
87 *Bairdemys winklerae* – 1 > 2

88
89 *Char. 114: EX-QU contact*

- 90 Scoring: *Cordichelys antiqua* – 1 > 0
91 *Latentemys plowdeni* – 1 > 0
92 *Bairdemys thalassica* – 1 > 0
93 *Bairdemys venezuelensis* – 1 > 0
94 *Bairdemys hartsteini* – 1 > 0
95 *Bairdemys sanchezi* – 1 > 0
96 *Bairdemys winklerae* – 1 > 0

97
98 **New character:** 246. *PM, median notch in upper jaw:* 0, notch absent, mx and pm ventral ridge
99 runs anteroventrally, forming an anterior hook (*Peltocephalus dumerilianus*); 1, notch absent or
100 very shallow, mx and pm ventral ridge runs anteriorly to the midline (*Euraxemys essweini*); 2,
101 notch present, mx and pm ventral ridge runs anterodorsally to the midline (*Podocnemis unifilis*)
102



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104
105

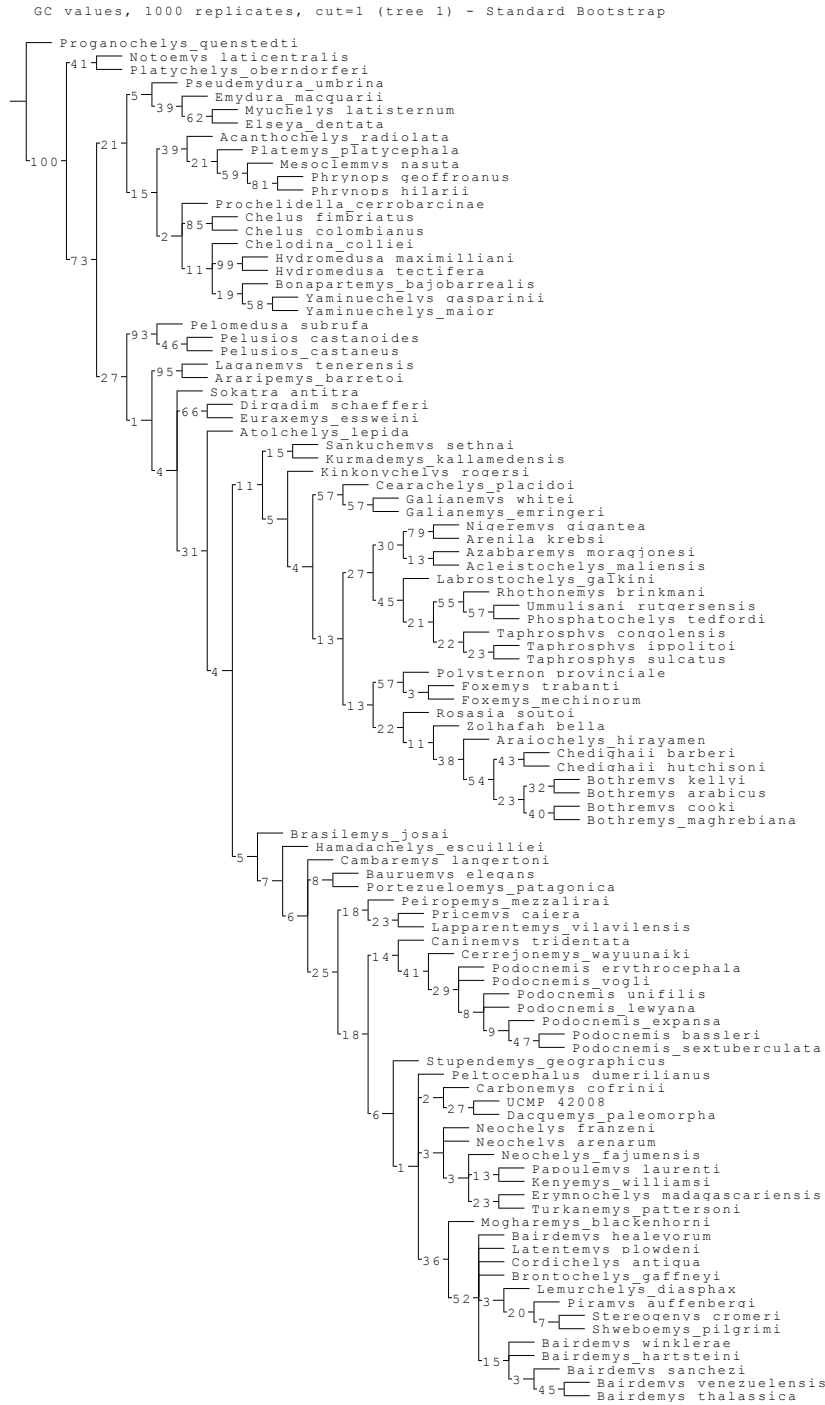
106 **2. Strict consensus tree with node numbers**



107
108 **Figure S2-1. Strict consensus tree from 270 most parsimonious trees with 1134 steps**

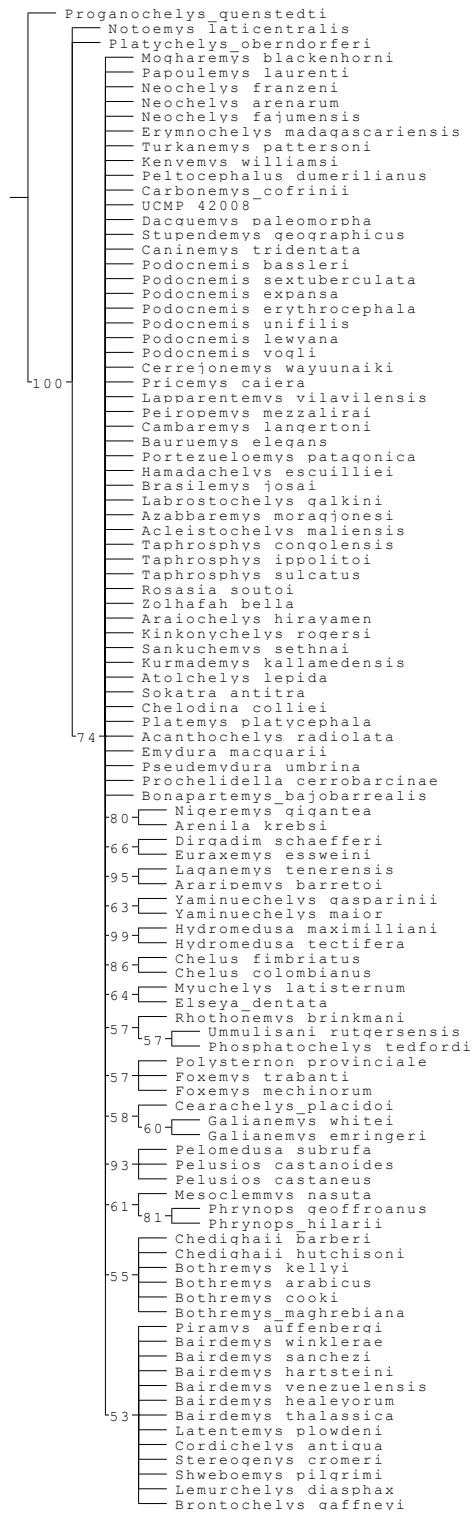
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110 **3. Bootstrap, Jackknife & Bremer support information**



Taxonomic reassessment of *Piramus auffenbergi*: Supplementary File S2

Group freqs., 1000 replicates, cut=50 (tree 0) - Standard Bootstrap

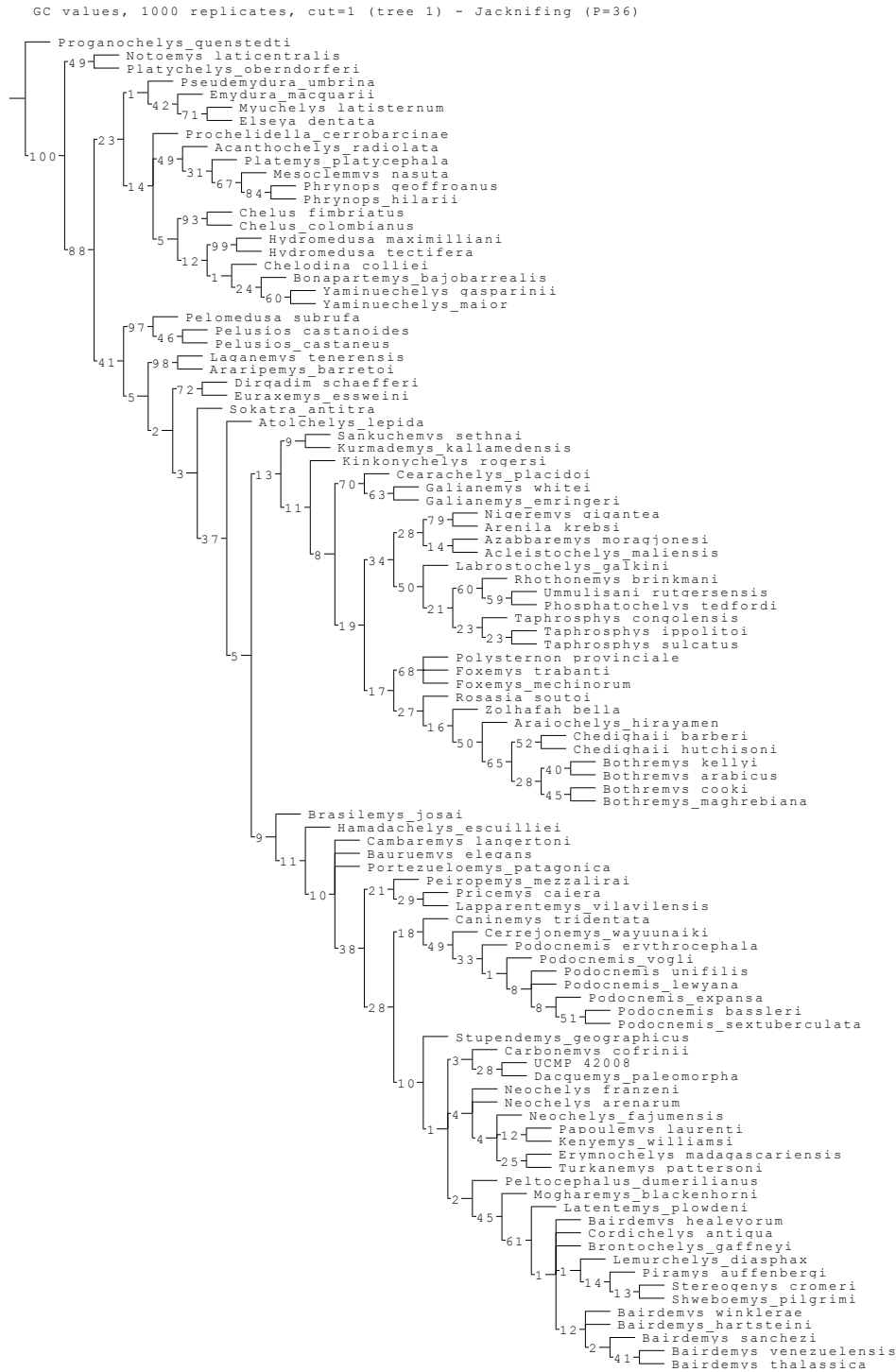


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115 **Figure S2-3.** Group frequencies Bootstrap values of 1000 replicates (cut = 50)

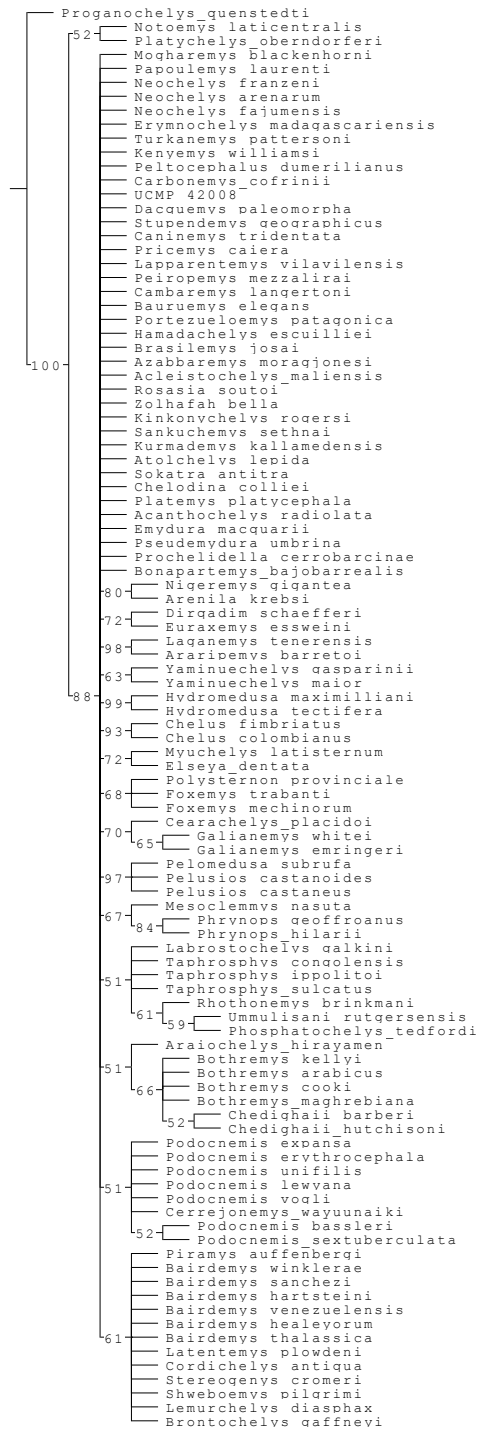
116

Taxonomic reassessment of *Piramus auffenbergi*: Supplementary File S2



Taxonomic reassessment of *Piramus auffenbergi*: Supplementary File S2

Group freqs., 1000 replicates, cut=50 (tree 0) - Jackknifing (P=36)

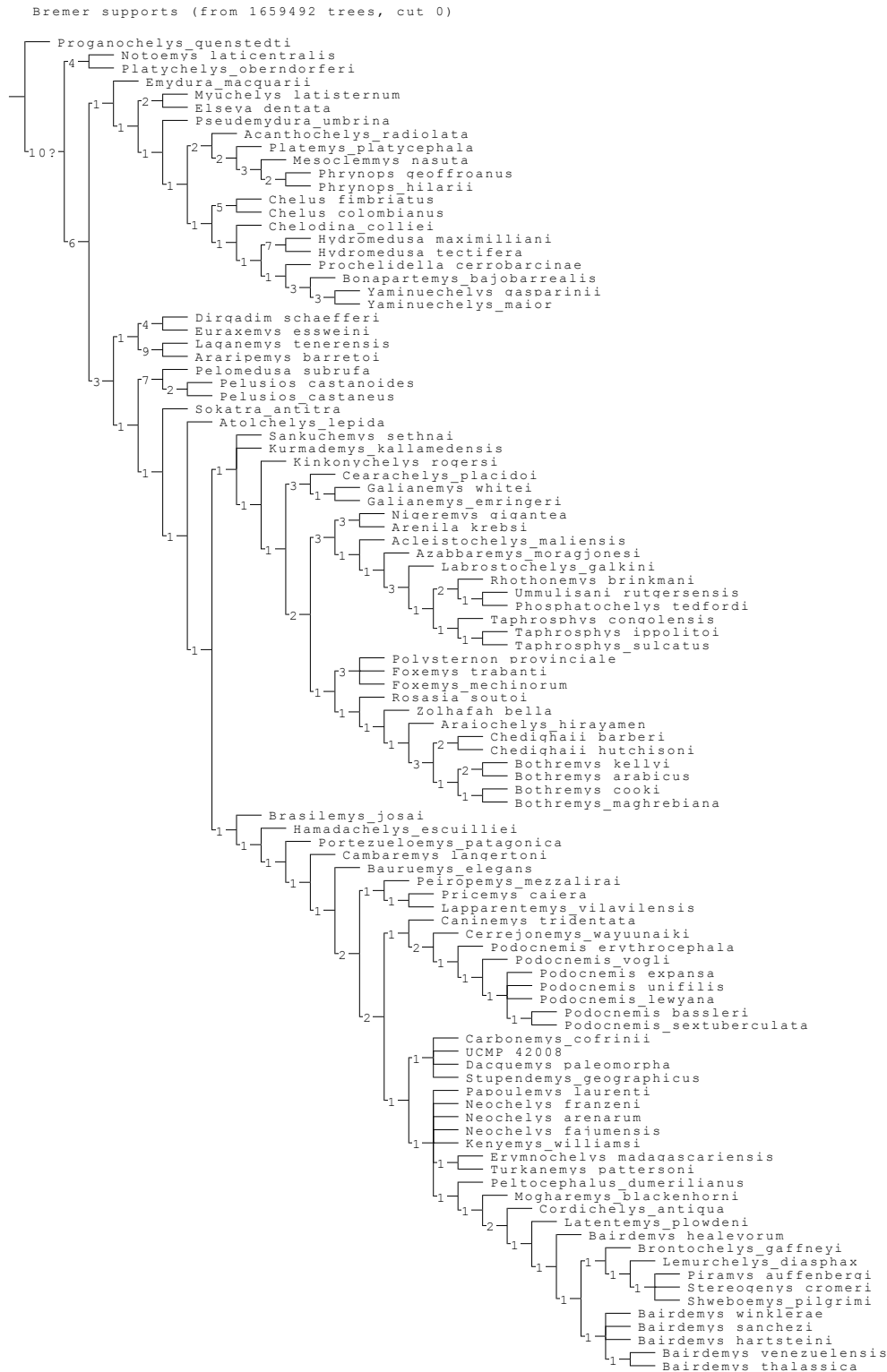


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121 **Figure S2-5.** Group frequencies Jackknife values for 1000 replicates (cut = 50)

122

Taxonomic reassessment of *Pirameys auffenbergi*: Supplementary File S2



123
 124 **Figure S2-6.** Bremer support values using TBR from existing trees retaining suboptimal trees by
 125 10 steps
 126

127 **4. List of common synapomorphies for Stereogenyina**

128	<i>Mogharemys blackenhorni</i> :	159	Char. 182: 1 --> 2
129	All trees:	160	Char. 192: 1 --> 0
130	Char. 53: 0 --> 1	161	Char. 205: 0 --> 1
131	Char. 113: 0 --> 1	162	Some trees:
132	Char. 117: 1 --> 0	163	Char. 233: 1 --> 0
133		164	
134	<i>Brontochelys gaffneyi</i> :	165	<i>Latentemys plowdeni</i> :
135	All trees:	166	All trees:
136	No autapomorphies:	167	Char. 40: 1 --> 0
137		168	Char. 245: 1 --> 2
138	<i>Lemurchelys diasphax</i> :	169	
139	All trees:	170	<i>Bairdemys thalassica</i> :
140	Char. 110: 1 --> 0	171	All trees:
141		172	Char. 102: 0 --> 1
142	<i>Shweboemys pilgrimi</i> :	173	
143	All trees:	174	<i>Bairdemys healeyorum</i> :
144	No autapomorphies:	175	All trees:
145		176	Char. 180: 0 --> 1
146	<i>Stereogenys cromeri</i> :	177	Char. 241: 1 --> 0
147	All trees:	178	
148	Char. 129: 1 --> 2	179	<i>Bairdemys venezuelensis</i> :
149	Some trees:	180	All trees:
150	Char. 42: 1 --> 0	181	No autapomorphies:
151		182	
152	<i>Cordichelys antiqua</i> :	183	<i>Bairdemys hartsteini</i> :
153	All trees:	184	Some trees:
154	Char. 8: 0 --> 1	185	Char. 124: 1 --> 0
155	Char. 32: 1 --> 0	186	
156	Char. 76: 0 --> 1	187	<i>Bairdemys sanchezi</i> :
157	Char. 169: 0 --> 1	188	All trees:
158	Char. 181: 2 --> 1	189	Char. 17: 1 --> 2

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190	Char. 110: 1 --> 0	223	All trees:
191	Some trees:	224	Char. 88: 0 --> 1
192	Char. 11: 1 --> 0	225	
193	Char. 18: 0 --> 1	226	Node 183:
194	Char. 40: 1 --> 0	227	All trees:
195	Char. 58: 1 --> 0	228	Char. 90: 0 --> 1
196	Char. 129: 1 --> 2	229	
197		230	Node 184:
198	<i>Bairdemys winklerae</i> :	231	All trees:
199	Some trees:	232	Char. 54: 1 --> 0
200	Char. 18: 0 --> 1	233	Char. 55: 1 --> 2
201		234	Char. 69: 0 --> 1
202	<i>Piramus auffenbergi</i> :	235	Char. 74: 1 --> 2
203	All trees:	236	Char. 75: 0 --> 1
204	Char. 8: 0 --> 1	237	Char. 89: 0 --> 1
205	Some trees:	238	Char. 127: 0 --> 1
206	Char. 119: 0 --> 1	239	
207		240	Node 185:
208	Node 179:	241	All trees:
209	All trees:	242	Char. 76: 0 --> 1
210	Char. 73: 0 --> 1	243	
211	Char. 78: 0 --> 1	244	Node 186:
212	Char. 110: 0 --> 1	245	Some trees:
213		246	Char. 32: 1 --> 0
214	Node 180:	247	Char. 77: 0 --> 2
215	All trees:	248	Char. 79: 0 --> 1
216	Char. 53: 0 --> 1	249	Char. 114: 1 --> 2
217		250	Char. 245: 1 --> 2
218	Node 181:	251	
219	All trees:	252	Node 187:
220	Char. 140: 1 --> 0	253	All trees:
221		254	Char. 77: 0 --> 1
222	Node 182:	255	Char. 87: 1 --> 0

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256 Some trees:

257 Char. 129: 1 --> 2

258

259 **Node 188:**

260 All trees:

261 Char. 34: 0 --> 1

262 Char. 35: 0 --> 1

263 Some trees:

264 Char. 11: 0 --> 1

265 Char. 58: 0 --> 1

266 Char. 70: 12 --> 0

267 Char. 124: 0 --> 1