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SUPPLEMENTARY ONLINE MATERIAL FOR

**An additional owenettid procolophonoid specimen
from the Middle Triassic of Southern Brazil**

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Published in *Acta Palaeontologica Polonica* 2021 66 (4): 827-836.

<https://doi.org/10.4202/app.00909.2021>

Supplementary Online Material

SOM 1. Data matrix processed in the first phylogenetic analysis.

SOM 2. Full coding of CAPP/UFMS 0225 for the data matrix of Pinheiro et al. (2021).

SOM 3. List of characters employed in the morphospace occupation analysis.

SOM 4. Dataset processed in the morphospace occupation analysis.

SOM 1. Data matrix processed in the first phylogenetic analysis.

Macroleter_poezicus 000000000000001100001
Owenetta_rubidgei 0000110111001?0001010
Saurodekte_kitchingorum 000011011000111101111
Barasaurus_besairiei 00?011010000110001010
Coletta_seca 11?1120???1?1?0000002
Sauropareion_anoplus 1111121200111?0010002
Candelaria_barbouri 00?011?1??001?1101111
Kitchingnathus_untabeni 11?112?001??2?001??01
Procolophon_trigoniceps 111102120111200010002
Ruhuhuaria_reiszi 0???????????1??011??1
CAPPAUFM_0225 ???011??1???1???1???

SOM 2. Full coding of CAPP/UFMS 0225 for the data matrix of Pinheiro et al. (2021).

????0?0001010?0?0??0000????????????????????????????????????

SOM 3. List of characters employed in the morphospace occupation analysis.

- 1- Maxilla premaxillary subnarial process: (0) present, (1) absent, (2) premaxilla posterodorsally expanded.
- 2- External naris: (0) posterior or at level of first premaxillary tooth, (1) anterior to first premaxillary tooth.
- 3- External naris: (0) anteroposteriorly elongated, (1) subcircular or dorsoventrally expanded.
- 4- Wide internarial bar: (0) absent, (1) present.
- 5- Snout: long and flat (0); deep and short (1).
- 6- Maxillary depression: absent (0); present (1).
- 7- Prefrontal: medial border straight (0); medial border with a medial process (1); confined to the orbital rim (2).
- 8- Lacrimal-ectopterygoid contact: absent (0), present (1).
- 9- Orbitotemporal crests: absent (0); present (1).
- 10- Posterior margin of orbitotemporal fenestra: anterior to posterior margin of pineal foramen (0); at level of posterior-most point of the pineal foramen (1); beyond the posterior border of the pineal foramen (2); considerably beyond the posterior border of the pineal foramen (3)
- 11- Pineal opening insertion: in a shallow fossa (0); flush with dorsal surface (1).
- 12- Contour of the pineal opening: rounded (0); 'teardropshaped' (1); straight posterior border (2).
- 13- Postfrontal: contacts frontal, parietal, and postorbital (0); contacts frontal, parietal, postorbital, and supratemporal (1); contacts frontal and parietal only (2); absent and area occupied by parietal or fused to parietal (3).
- 14- Jugal lateral processes: (0) absent, (1) one, (2) two.

- 15-** Temporal ventral margin: roughly straight (0); acutely emarginated (1); broadly excavated (2); convex (3).
- 16-** Quadratojugal lateral surface: (0) spineless, (1) one spine, (2) two or more spines.
- 17-** Squamosal ventral margin terminates: at least as far ventrally as quadratojugal (0); dorsal to quadratojugal in the tympanic notch (1).
- 18-** Posterior margin of the skull roof: concave (0); acute posterior process (1); broad posterior emargination (2).
- 19-** Postparietals: present (0); absent/fused (1).
- 20-** Supratemporal posterolateral margin: rounded (0); acute (1); prominent spine (2)
- 21-** Supratemporal: broader than long (0); approximately as long as broad (1); longer than broad (2).
- 22-** Supratemporal lateral margin: straight (0); with lateral notch (1).
- 23-** Vomer width: broader than choana (0); roughly equal or narrower (1).
- 24-** Epipterygoid columella: ends freely (0); contacts dorsally prootic and supraoccipital (1).
- 25-** Parasphenoid cultriform process: directed anteriorly and tapers to sharp tip (0); projects vertically as robust pillar (1).
- 26-** Relation of basioccipital tuber and quadrate condyle: approximately level (0); basioccipital projected far posteriorly (1).
- 27-** Occipital condyle: uniform (0); tripartite (1).
- 28-** Dentary ventral and dorsal surfaces: nearly parallel (0); oblique (1).
- 29-** Relation of articular bone to marginal dentary teeth: roughly in line (0); well below (1).
- 30-** Number of premaxillary teeth: five or more (0); four (1); three (2); two (3)
- 31-** Premaxillary teeth: subequal in size (0); enlarged mesialmost teeth (1).

- 32- Maxillary teeth with labiolingually expanded bases: absent (0); present (1).
- 33- Presence of prominently bulbous teeth in the maxilla: absent (0); present (1).
- 34- Maxillary tooth cervixes: not constricted (0); constricted (1).
- 35- Maxillary tooth cusps: one (0); two (1); two and anterior monocuspid teeth absent (2).
- 36- Number of maxillary teeth: 40 or more (0); 35 to 15 (1); 12 to 10 (2); eight to six (3); five or less (4).
- 37- Prominent anterior maxillary tooth (caniniform):absent (0); present (1).
- 38- Maxillary dentition formed by: straight conical teeth(0); posteriorly recurved teeth (1).
- 39- Maxillary cheek teeth: not inset (0); inset (1).
- 40- Deep occlusal depression in maxillary teeth: absent (0); present (1).
- 41- Anterior vomerine dentition: (0) several denticles, (1) true teeth, (2) entirely absent.
- 42- Vomerine denticles or teeth along posterior medial suture: present (0); absent (1).
- 43- Palatine dentition: (0) denticles, (1) true teeth, (2) absent.
- 44- Pterygoid dentition: present (0); absent (1).
- 45- Dentary incisors: two or more (0); one (1).
- 46- Dentary teeth in basal cross-section: circular (0); labiolingually expanded (1); mesiodistally elongated (2).
- 47- Dentary molariform teeth cusps: (0) one, (1) two adjacent cusps, (2) two widely separated cusps.

SOM 4. Dataset processed in the morphospace occupation analysis.

| | |
|-------------------------|--|
| Barasaurus_besairiei | 0000000?100010100110100?000000000001000?0000000 |
| Owenetta_rubidgei | 00000000100010100010110?000000000001000?0000000 |
| Saurodekte_kitchingorum | 00000010100010100100110?000000000001110?0000000 |
| Ruhuhuarria_reiszi | ????????1????010????????????0?0?1?001?00????0?0 |
| Candelaria_barbouri | 0000001?1000101????01????0?000000001110?0000??? |
| Coletta | 0010010?000000100????0????0?1010002000?11??0?0 |
| Pintosaurus | 20????????????????????0????0?2010002??0?111??10 |
| Sauropareion | ????01010100202010002000?11001000002000?1110100 |
| Phaanthosaurus | 1010110??0??0????????1????02011002??0?101?010 |
| Youngetta | ?????11?????0????????1????????00003??0?1?1??00 |
| Theledectes | ??????1??2103020?11????????0?2101003??0????0000 |
| Tichvinskia | 10100101?2103020111000100000021110130010101?012 |
| Timanophon | ?????10??20120211010??1?010?02?11013??01010012 |
| Kapes | 1111?111020130201111001????00211?013?01010100?1 |
| Thelephon | ??????1??2012020?111????????0????101???101?10??? |
| Eumetabolodon | 2111110??21020211??2??1??10002111013??101010012 |
| Procolophon | 2111110101102021111220100100021?00?300101?10012 |
| Thelerpeton | 2?111?0??11020211112??1??1?00211101???10101001? |
| Teratophon | 211111?10110?0211112??1?010002111013?01010100?? |
| Pentaedrusaurus | ?111110?1212302111112?1????112111013?01?111001? |
| Neoprocolophon | ??1111??021??021?21?001?????1?????1???1?11?0??? |
| Sclerosaurus | ????????310??32?2????????????3??1??3??1????????? |
| Scoloparia | ?????00??31?3232??121?????1?311002??010????012 |
| Leptopleuron | ?110002??2103132?21200111?1113?111?40?1?11201?1 |
| Soturnia | 10??0?0????????????????1????113111124?0112??120 |
| Hypsognathus | ?01?002?031032320?12211111113111114001121211?? |
| Phonodus | 1?111111?????0000?????1?????????10??00?1121??? |
| Kitchingnathus | ?0??010??00?020?11000?????00?0100120000?????12 |
| Oryporan | ?????1?????????200?????1?1??00??1101200001110012 |
| Mandaphon | 21110?0?02112022111200???1?113111?1300101?????? |
| Lasasaurus | ????????????0201?????????00??1101??000??0??? |