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Supplement to:

New megaraptorid (Dinosauria: Theropoda) remains from the Lower Cretaceous Eumeralla  
Formation of Cape Otway, Victoria, Australia

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**Institutional Abbreviations**—**AM**, Australian Museum, Sydney, New South Wales, Australia; **AMNH**, American Museum of Natural History, New York, USA; **ANG**, Angeac-Charente Collection, Musée d'Angoulême, Angoulême, France; **ANSP**, Academy of Natural Sciences, Philadelphia, USA; **AODF**, Age of Dinosaurs Fossil, Australian Age of Dinosaurs Museum of Natural History, Winton, Queensland, Australia; **CPPLIP**, Centro de Pesquisas Paleontológicas Llewellyn Ivor Price, Complexo Cultural e Científico Peirópolis, Uberaba, Minas Gerais, Brazil; **ELDM**, Erlianhaote Dinosaur Museum, Inner Mongolia, China; **FMNH**, Field Museum of Natural History, Chicago, Illinois, USA; **FPDM**, Fukui Prefectural Dinosaur Museum, Katsuyama, Fukui, Japan; **FRDC**, Fossil Research and Development Center, Gansu Bureau of Geology and Mineral Resources Exploration, Lanzhou, China; **IMNH**, Idaho Museum of Natural History, Pocatello, Idaho; **IPFUB**, Institut für Geologische Wissenschaften, Fachrichtung Paläontologie, Freie Universität Berlin, Germany; **IVPP**, Institute of Vertebrate Paleontology and Paleoanthropology, Beijing, China; **IWCMS**, Isle of Wight County Museums Service, Isle of Wight, United Kingdom; **KZV**, Bureau of Land and Resources of Kazuo County, Liaoning, China; **LACM**, Los Angeles County Museum, Los Angeles, USA; **LRF**, Lightning Ridge Fossil, Australian Opal Centre, Lightning Ridge, New South Wales, Australia; **MCF-PVPH**, Museo Carmen Funes, Paleontología de Vertebrados, Plaza Huincul, Neuquén, Argentina; **MCNA**, Museo de Ciencias Naturales y Antropológicas Juan Cornelio Moyano de Mendoza, Mendoza, Argentina; **MIWG**, Museum of Isle of Wight Geology, Isle of Wight Museum Service, Sandown, United Kingdom; **MPCA**, Museo Provincial “Carlos Ameghino”, Río Negro, Argentina; **MPM**, Museo Padre Manuel Molina, Río Gallegos, Santa Cruz, Argentina; **MPMA**, Museu de Paleontologia de Monte Alto, São Paulo, Brazil; **MSM**, Arizona Museum of Natural History, Mesa, Arizona; **MUCPv**, Museo de la Universidad Nacional del Comahue, Neuquén, Argentina; **NDC**, Kanna Town Dinosaur Center, Kanna, Japan; **NHMUK**, Natural History Museum United Kingdom, London, United

Kingdom; **NMMNH**, New Mexico Museum of Natural History and Science, Albuquerque, USA; **NMV**, National Museum of Victoria, Museums Victoria, Melbourne, Victoria, Australia; **OMNH**, Sam Noble Oklahoma Museum of Natural History, Norman, USA; **OUMNH**, Oxford University Museum of Natural History, Oxford, United Kingdom; **PRC**, Paleontological Research and Education Center, Maha Sarakham University, Maha Sarakham, Thailand; **QM**, Queensland Museum, Brisbane, Queensland, Australia; **RMM**, Red Mountain Museum (collection curated at the McWane Science Center), Birmingham, USA; **SAM**, South Australian Museum, Adelaide, South Australia, Australia; **SGM**, Ministere de l'Energie et des Mines, Rabat, Morocco; **SM**, Sirindhorn Museum, Department of Mineral Resources, Kalasin, Thailand; **SMNS**, Staatliches Museum für Naturkunde Stuttgart, Stuttgart, Germany; **TNP**, Tianjin Natural History Museum, Tianjin, China; **UFRGS**, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; **UMNH**, Utah Museum of Natural History, Salt Lake City, USA; **UNPSJB**, Universidad Nacional de la Patagonia San Juan Bosco, Comodoro Rivadavia, Chubut, Argentina; **UQL**, The University of Queensland Localities, Brisbane, Queensland, Australia; **UWA**, University of Western Australia, Perth, Western Australia, Australia; **WAM**, Western Australian Museum, Perth, Western Australia, Australia; **ZCDM**, Zhucheng Dinosaur Museum, Shandong, China; **ZIN**, Zoological Institute, Russian Academy of Sciences, Saint Petersburg, Russia.



FIGURE S1. Matrix associated with Megaraptoridae cf. *Australovenator wintonensis* right manual ungual I-2 (NMV P239464; here represented by a scale 3D print) from the Eric the Red West site, Eumeralla Formation, Victoria, Australia. **A**, impression of the lateral surface of the claw; **B**, claw in situ in medial view; **C**, impression of the medial surface of the claw; **D**, claw in situ in medial view. Scratch marks visible in **C–D** were made by tools used in the preparation process. Scale bar = 50 mm.

TABLE S1. Australian Mesozoic theropod fossils. **l**, lower; **NSW**, New South Wales; **Qld**, Queensland; **SA**, South Australia; **u**, upper; **Vic**, Victoria; **WA**, Western Australia. Red rows indicate erroneous reports.

| Specimen                                                           | Element                                                                                                                                                                  | Formation         | Age                    | Locality                                  | State | Identification                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Reference                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------|-------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WAM 90.10.2                                                        | 'Right humerus'                                                                                                                                                          | Miria             | u. Maastrichtian       | Giralia Station, Giralia Range            | WA    | Coelurosauria<br>Coelurosauria<br>Theropoda<br>Testudinata                                                                                                                                                                                                                                                                                                                                                                                                                            | Long (1992)<br>Agnolin et al. (2010)<br>Le Loeuff (2012)<br><i>M. Siversson pers. comm. (2019)</i>                                                                                                                                                                                                                                                                                            |
|                                                                    | Scapula                                                                                                                                                                  |                   |                        |                                           |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                               |
| WAM 92.7.1                                                         | Pedal phalanx                                                                                                                                                            | Molecap Greensand | Cenomanian–Coniacian   | Molecap Hill Quarry, Gingin               | WA    | ?Carnosauria<br>Theropoda (non-Allosauridae)<br>Theropoda                                                                                                                                                                                                                                                                                                                                                                                                                             | Long (1995)<br>Agnolin et al. (2010)<br>Carrano et al. (2012)                                                                                                                                                                                                                                                                                                                                 |
| QM F10322, N/A<br><b>cf.</b><br><b>Tyrannosauropus</b>             | Footprint (cast) and footprints <i>in situ</i>                                                                                                                           | Winton            | Cenomanian–l. Turonian | Lark Quarry, Winton                       | Qld   | Carnosauria: <i>cf. Tyrannosauropus</i><br><u>Ornithopoda: <i>Amblydactylus cf. A. gethingi</i></u><br>Theropoda                                                                                                                                                                                                                                                                                                                                                                      | Thulborn and Wade (1984)<br><u>Romilio and Salisbury (2011)</u><br>Thulborn (2013)                                                                                                                                                                                                                                                                                                            |
| QM F10330<br><b>Skartopus australis</b> (holotype)                 | Footprint                                                                                                                                                                | Winton            | Cenomanian–l. Turonian | Lark Quarry, Winton                       | Qld   | Coelurosauria: <i>Skartopus australis</i><br><u>Ornithopoda: <i>Wintonopus latomorum</i></u>                                                                                                                                                                                                                                                                                                                                                                                          | <u>Romilio and Salisbury (2014)</u><br>Thulborn and Wade (1984)                                                                                                                                                                                                                                                                                                                               |
| QM F10321<br><b>Skartopus australis</b>                            | Footprint                                                                                                                                                                | Winton            | Cenomanian–l. Turonian | Lark Quarry, Winton                       | Qld   | Coelurosauria: <i>Skartopus australis</i><br><u>Ornithopoda: <i>Wintonopus latomorum</i></u>                                                                                                                                                                                                                                                                                                                                                                                          | Thulborn (2017)<br>Thulborn and Wade (1984)<br><u>Romilio et al. (2013)</u>                                                                                                                                                                                                                                                                                                                   |
| QM F10322<br><b>Skartopus australis</b>                            | Footprint (cast)                                                                                                                                                         | Winton            | Cenomanian–l. Turonian | Lark Quarry, Winton                       | Qld   | Coelurosauria: <i>Skartopus australis</i><br><u>Ornithopoda: <i>Wintonopus latomorum</i></u>                                                                                                                                                                                                                                                                                                                                                                                          | Thulborn (2017)<br>Thulborn and Wade (1984)<br><u>Romilio et al. (2013)</u>                                                                                                                                                                                                                                                                                                                   |
| QM F12265<br><b>Skartopus australis</b>                            | Footprint                                                                                                                                                                | Winton            | Cenomanian–l. Turonian | Lark Quarry, Winton                       | Qld   | Coelurosauria: <i>Skartopus australis</i><br><u>Ornithopoda: <i>Wintonopus latomorum</i></u>                                                                                                                                                                                                                                                                                                                                                                                          | Thulborn (2017)<br>Thulborn and Wade (1984)<br><u>Romilio et al. (2013)</u>                                                                                                                                                                                                                                                                                                                   |
| N/A<br><b>Skartopus australis</b>                                  | Footprints <i>in situ</i>                                                                                                                                                | Winton            | Cenomanian–l. Turonian | Lark Quarry, Winton                       | Qld   | Coelurosauria: <i>Skartopus australis</i><br><u>Ornithopoda: <i>Wintonopus latomorum</i></u><br>Coelurosauria: <i>Skartopus australis</i>                                                                                                                                                                                                                                                                                                                                             | Thulborn (2017)<br>Thulborn and Wade (1984)<br><u>Romilio et al. (2013)</u><br>Thulborn (2017)                                                                                                                                                                                                                                                                                                |
| AODF 604, 822–831<br><b>Australovenator wintonensis</b> (holotype) | Dentaries, teeth, dorsal ribs, gastralia, humeri, ulnae, radii, carpals, metacarpals, manual phalanges, femur, tibiae, fibulae, astragalus, metatarsals, pedal phalanges | Winton            | Cenomanian–l. Turonian | 'Matilda' site, Elderslie Station, Winton | Qld   | Allosauroidae: <i>Australovenator wintonensis</i><br>Neovenatoridae: Megaraptora<br>Neovenatoridae: Megaraptora<br>Neovenatoridae: Megaraptora<br>Neovenatoridae: Megaraptora<br>Neovenatoridae: Megaraptora<br>Coelurosauria: Megaraptoridae<br>Neovenatoridae: Megaraptora<br>Neovenatoridae: Megaraptora<br>Tyrannosauroidae: Megaraptoridae<br>Megaraptoridae<br>Megaraptoridae<br>Megaraptora: Megaraptoridae<br>Megaraptora: Megaraptoridae<br>Megaraptoridae<br>Megaraptoridae | Hocknull et al. (2009)<br>Agnolin et al. (2010)<br>Benson et al. (2010c)<br>Benson et al. (2012)<br>Carrano et al. (2012)<br>White et al. (2012)<br>Novas et al. (2013)<br>White et al. (2013a)<br>White et al. (2013b)<br>Porfiri et al. (2014)<br>White et al. (2015a)<br>White et al. (2015b)<br>Bell et al. (2016)<br>Novas et al. (2016)<br>White et al. (2016)<br>Samathi et al. (2019) |
|                                                                    | See Table S2 for a full list.                                                                                                                                            |                   |                        |                                           |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                               |

| Specimen                                                                                   | Element                               | Formation       | Age                        | Locality                                         | State | Identification                                                                                                                                                                                                                                             | Reference                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------|---------------------------------------|-----------------|----------------------------|--------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AODF 664                                                                                   | Tooth                                 | Winton          | Cenomanian–<br>l. Turonian | ‘Pegler’s’ site,<br>Elderslie Station,<br>Winton | Qld   | Megaraptora                                                                                                                                                                                                                                                | White et al. (2015b)                                                                                                                                                                                                                                                                                 |
| AODF 820                                                                                   | Tooth                                 | Winton          | Cenomanian–<br>l. Turonian | ‘Pete’ site,<br>Elderslie Station,<br>Winton     | Qld   | Megaraptora                                                                                                                                                                                                                                                | White et al. (2015b)                                                                                                                                                                                                                                                                                 |
| AODF 819                                                                                   | Tooth                                 | Winton          | Cenomanian–<br>l. Turonian | ‘Ho-Hum’ site,<br>Belmont Station,<br>Winton     | Qld   | Megaraptora                                                                                                                                                                                                                                                | White et al. (2015b)                                                                                                                                                                                                                                                                                 |
| NHMUK R3717<br><i>Fulgurotherium<br/>australe</i> (holotype;<br><i>nomen dubium</i> )      | Right femur (distal)                  | Griman<br>Creek | u. Albian–<br>Cenomanian   | Unknown locality,<br>Lightning Ridge             | NSW   | Coelurosauria: <i>Fulgurotherium australe</i><br>Coeluridae<br><u>Ornithopoda: Hypsilophodontidae</u>                                                                                                                                                      | von Huene (1932)<br>Steel (1970)<br><u>Molnar (1980a)</u>                                                                                                                                                                                                                                            |
| NHMUK R3719<br><i>Walgettosuchus<br/>woodwardi</i><br>(holotype; <i>nomen<br/>dubium</i> ) | Caudal vertebra                       | Griman<br>Creek | u. Albian–<br>Cenomanian   | Unknown locality,<br>Lightning Ridge             | NSW   | Megalosauria<br>Ornithomimidae: <i>Walgettosuchus woodwardi</i><br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda                                                          | Smith Woodward (1910b)<br>von Huene (1932)<br>Molnar (1980a)<br>Molnar (1980b)<br>Molnar (1982a)<br>Molnar (1984)<br>Molnar and Galton (1986)<br>Molnar (1990)<br>Molnar (1991)<br>Bell et al. (2019)<br>Brougham et al. (2019)                                                                      |
| AM F105562                                                                                 | Right femur<br>(proximal)             | Griman<br>Creek | u. Albian–<br>Cenomanian   | Unknown locality,<br>Lightning Ridge             | NSW   | Avetheropoda                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |
| AM F45890                                                                                  | Dorsal vertebra<br>(centrum)          | Griman<br>Creek | u. Albian–<br>Cenomanian   | Unknown locality,<br>Lightning Ridge             | NSW   | ‘indistinguishable from <i>Allosaurus</i> ’                                                                                                                                                                                                                | Molnar et al. (1981)                                                                                                                                                                                                                                                                                 |
| NHMUK R3718<br><i>Rapator<br/>ornitholestoides</i><br>(holotype; <i>nomen<br/>dubium</i> ) | Left metacarpal I                     | Griman<br>Creek | u. Albian–<br>Cenomanian   | Unknown locality,<br>Lightning Ridge             | NSW   | Coelurosauria: <i>Rapator ornitholestoides</i><br>Coeluridae<br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda<br>Theropoda<br>Tetanurae cf. Alvarezsauridae<br>Tetanurae<br>Neovenatoridae<br>Megaraptora<br>Megaraptoridae<br>Megaraptora | von Huene (1932)<br>Steel (1970)<br>Molnar (1980a)<br>Molnar (1980b)<br>Molnar (1982a)<br>Molnar and Galton (1986)<br>Molnar (1990)<br>Molnar (1991)<br>Holtz et al. (2004)<br>Agnolin et al. (2010)<br>Carrano et al. (2012)<br>White et al. (2013b)<br>Bell et al. (2019)<br>Samathi et al. (2019) |
| QM F37912 (cast)                                                                           | ‘Tibiotarsus’<br>Femur (distal)       | Griman<br>Creek | u. Albian–<br>Cenomanian   | Unknown locality,<br>Lightning Ridge             | NSW   | Ornithothoraces <i>non</i> Enantiornithes<br>Enantiornithes                                                                                                                                                                                                | Molnar (1999)<br>Bell et al. (2019)                                                                                                                                                                                                                                                                  |
| LRF 3310                                                                                   | Anterior caudal<br>vertebra (centrum) | Griman<br>Creek | u. Albian–<br>Cenomanian   | Smiths Field,<br>Lightning Ridge                 | NSW   | Avetheropoda                                                                                                                                                                                                                                               | Brougham et al. (2019)                                                                                                                                                                                                                                                                               |

| Specimen                                               | Element                                                            | Formation    | Age                  | Locality                         | State | Identification                                                                                                                                  | Reference                                                                                                                                                                                                |
|--------------------------------------------------------|--------------------------------------------------------------------|--------------|----------------------|----------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LRF 3311                                               | Anterior caudal vertebra (centrum)                                 | Griman Creek | u. Albian–Cenomanian | Smiths Field, Lightning Ridge    | NSW   | Avetheropoda                                                                                                                                    | Brougham et al. (2019)                                                                                                                                                                                   |
| LRF 3312                                               | Right ilium (pubic peduncle)                                       | Griman Creek | u. Albian–Cenomanian | Smiths Field, Lightning Ridge    | NSW   | Avetheropoda                                                                                                                                    | Brougham et al. (2019)                                                                                                                                                                                   |
| AM F106525                                             | Vertebra (centrum)                                                 | Griman Creek | u. Albian–Cenomanian | The Bone Yard, Lightning Ridge   | NSW   | Avetheropoda                                                                                                                                    | Brougham et al. (2019)                                                                                                                                                                                   |
| AM F112816                                             | Middle caudal vertebra (centrum)                                   | Griman Creek | u. Albian–Cenomanian | Vertical Bill’s, Lightning Ridge | NSW   | Megaraptora                                                                                                                                     | Brougham et al. (2019)                                                                                                                                                                                   |
| LRF 100–106                                            | Ribs, gastralia, ulna, manual ungual I-2, ilium, tibia, metatarsal | Griman Creek | u. Albian–Cenomanian | Carter’s Rush, Lightning Ridge   | NSW   | Megaraptoridae<br>Megaraptoridae<br>Megaraptora                                                                                                 | Bell et al. (2016)<br>Bell et al. (2019)<br>Samathi et al. (2019)                                                                                                                                        |
| AM F102786                                             | ‘Tibiotarsus’<br>Right femur (distal)                              | Griman Creek | u. Albian–Cenomanian | New Field, Lightning Ridge       | NSW   | Ornithothoraces <i>non</i> Enantiornithes                                                                                                       | Molnar (1999)<br>Bell et al. (2019)                                                                                                                                                                      |
| AM F102787                                             | ‘Tibiotarsus’<br>Left femur (distal)                               | Griman Creek | u. Albian–Cenomanian | New Field, Lightning Ridge       | NSW   | Ornithothoraces <i>non</i> Enantiornithes                                                                                                       | Molnar (1999)<br>Bell et al. (2019)                                                                                                                                                                      |
| AM F103590                                             | ‘Tibiotarsus’                                                      | Griman Creek | u. Albian–Cenomanian | New Field, Lightning Ridge       | NSW   | Ornithothoraces <i>non</i> Enantiornithes                                                                                                       | Molnar (1999)<br>Bell et al. (2019)                                                                                                                                                                      |
| AM F103591                                             | Vertebra                                                           | Griman Creek | u. Albian–Cenomanian | New Field, Lightning Ridge       | NSW   | Ornithothoraces <i>non</i> Enantiornithes                                                                                                       | Molnar (1999)                                                                                                                                                                                            |
| QM F12992<br><b><i>Nanantius eos</i></b><br>(holotype) | Left tibiotarsus                                                   | Toolebuc     | u. Albian            | Warra Station, Boulia            | Qld   | Enantiornithes: <i>Nanantius eos</i>                                                                                                            | Molnar (1986)                                                                                                                                                                                            |
| QM F12991                                              | Cervical vertebra                                                  | Toolebuc     | u. Albian            | Warra Station, Boulia            | Qld   | Enantiornithes                                                                                                                                  | Kurochkin and Molnar (1997)                                                                                                                                                                              |
| QM F31813<br><b><i>Nanantius sp.</i></b>               | Left tibiotarsus                                                   | Toolebuc     | u. Albian            | Canary Station, Boulia           | Qld   | Enantiornithes: <i>Nanantius sp.</i>                                                                                                            | Kurochkin and Molnar (1997)                                                                                                                                                                              |
| NMV P231650                                            | Footprint                                                          | Eumeralla    | u. Aptian–l. Albian  | Dinosaur Cove (Slippery Rock)    | Vic   | Theropoda                                                                                                                                       | Martin et al. (2014)                                                                                                                                                                                     |
| NMV P199783                                            | Caudal vertebra                                                    | Eumeralla    | u. Aptian–l. Albian  | Dinosaur Cove (Slippery Rock)    | Vic   | Theropoda                                                                                                                                       | Benson et al. (2012)                                                                                                                                                                                     |
| NMV P186076                                            | Left ulna                                                          | Eumeralla    | u. Aptian–l. Albian  | Dinosaur Cove (Slippery Rock)    | Vic   | Theropoda<br>Tetanurae cf. <i>Megaraptor</i><br>Megaraptora<br>Neovenatoridae<br>Neovenatoridae<br>Neovenatoridae<br>Megaraptora<br>Megaraptora | Rich and Vickers-Rich (2003)<br>Smith et al. (2008)<br>Agnolin et al. (2010)<br>Benson et al. (2010c)<br>Carrano et al. (2012)<br>Benson et al. (2012)<br>Poropat et al. (2018)<br>Samathi et al. (2019) |

| Specimen                                            | Element                             | Formation | Age                     | Locality                         | State | Identification                                                                                                                                             | Reference                                                                                                                                                                                           |
|-----------------------------------------------------|-------------------------------------|-----------|-------------------------|----------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NMV P186046                                         | Left and right pubes                | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(Slippery Rock) | Vic   | ‘ornithomimosaur’<br>Tyrannosauroidae<br>Neotetanurae<br>Tyrannosauroidae<br>Tyrannosauroidae<br>Tyrannosauroidae<br>Tyrannosauroidae<br>?Tyrannosauroidae | Currie et al. (1996)<br>Benson et al. (2010a)<br>Herne et al. (2010)<br>Benson et al. (2010b)<br>Benson et al. (2012)<br>Novas et al. (2013)<br>Poropat et al. (2018)<br>Delcourt and Grillo (2018) |
| NMV P231650                                         | Two footprints                      | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(Slippery Rock) | Vic   | Aves                                                                                                                                                       | Martin et al. (2014)                                                                                                                                                                                |
| NMV P185858                                         | Caudal vertebra                     | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(East)          | Vic   | Theropoda                                                                                                                                                  | Benson et al. (2012)                                                                                                                                                                                |
| NMV P186386                                         | Right surangular                    | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(East)          | Vic   | Oviraptorosauria<br>Theropoda<br>Theropoda<br>Theropoda                                                                                                    | Currie et al. (1996)<br>Agnolin et al. (2010)<br>Benson et al. (2012)<br>Poropat et al. (2018)                                                                                                      |
| NMV P208234                                         | Middle–posterior<br>dorsal vertebra | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(East)          | Vic   | Tetanurae                                                                                                                                                  | Benson et al. (2012)                                                                                                                                                                                |
| NMV P186343                                         | Tooth                               | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(East)          | Vic   | ‘dromaeosaurid-like’<br>Megaraptora<br>Megaraptora                                                                                                         | Currie et al. (1996)<br>Benson et al. (2012)<br>Poropat et al. (2018)                                                                                                                               |
| NMV P186303<br><i>Timimus hermani</i><br>(holotype) | Left femur                          | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(East)          | Vic   | Ornithomimosauria: <i>Timimus hermani</i><br>Paraves: cf. Unenlagiinae<br>Tyrannosauroidae<br>Coelurosauria<br>?Tyrannosauroidae<br>Coelurosauria          | Rich and Vickers-Rich (1994)<br>Agnolin et al. (2010)<br>Benson et al. (2012)<br>Novas et al. (2013)<br>Delcourt and Grillo (2018)<br>Poropat et al. (2018)                                         |
| NMV P186317                                         | Femur                               | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(East)          | Vic   | Ornithomimosauria: <i>Timimus hermani</i><br><i>Timimus hermani</i>                                                                                        | Chinsamy et al. (1998)<br>Woodward et al. (2011)                                                                                                                                                    |
| NMV P186302                                         | Dorsal vertebra                     | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(East)          | Vic   | Oviraptorosauria<br>Dromaeosauridae<br>Maniraptora ( <i>non</i> Dromaeosauridae/Alvarezsauria)<br>Maniraptora                                              | Currie et al. (1996)<br>Agnolin et al. (2010)<br>Benson et al. (2012)<br>Poropat et al. (2018)                                                                                                      |
| NMV P186323                                         | Left femur                          | Eumeralla | u. Aptian–<br>l. Albian | Dinosaur Cove<br>(East)          | Vic   | Ornithomimosauria: <i>Timimus hermani</i><br>cf. <i>Timimus hermani</i><br>Maniraptora                                                                     | Rich and Vickers-Rich (1994)<br>Woodward et al. (2011)<br>Benson et al. (2012)                                                                                                                      |
| NMV P223063                                         | Caudal vertebra                     | Eumeralla | u. Aptian–<br>l. Albian | Eric the Red West                | Vic   | Theropoda                                                                                                                                                  | Benson et al. (2012)                                                                                                                                                                                |
| NMV P252700                                         | Right cervical rib                  | Eumeralla | u. Aptian–<br>l. Albian | Eric the Red West                | Vic   | Tetanurae                                                                                                                                                  | This paper                                                                                                                                                                                          |
| NMV P252704                                         | Middle caudal<br>vertebra           | Eumeralla | u. Aptian–<br>l. Albian | Eric the Red West                | Vic   | Tetanurae                                                                                                                                                  | This paper                                                                                                                                                                                          |

| Specimen                                         | Element                              | Formation                           | Age                     | Locality            | State | Identification                                                                                                      | Reference                                                                                                                                        |
|--------------------------------------------------|--------------------------------------|-------------------------------------|-------------------------|---------------------|-------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| NMV P221081                                      | Cervical vertebra                    | Eumeralla                           | u. Aptian–<br>l. Albian | Eric the Red West   | Vic   | Spinosauridae<br>Spinosauridae<br>Averostra / Tetanurae<br>Spinosauridae<br><b>Megaraptoridae</b>                   | Barrett et al. (2011)<br>Benson et al. (2012)<br>Novas et al. (2013)<br>Poropat et al. (2018)<br><b>This paper</b>                               |
| NMV P239459                                      | Tooth                                | Eumeralla                           | u. Aptian–<br>l. Albian | Eric the Red West   | Vic   | <b>Megaraptoridae cf. <i>Australovenator</i></b>                                                                    | <b>This paper</b>                                                                                                                                |
| NMV P252264                                      | Tooth                                | Eumeralla                           | u. Aptian–<br>l. Albian | Eric the Red West   | Vic   | <b>Megaraptoridae cf. <i>Australovenator</i></b>                                                                    | <b>This paper</b>                                                                                                                                |
| NMV P239464                                      | Right manual ungual<br>phalanx I-2   | Eumeralla                           | u. Aptian–<br>l. Albian | Eric the Red West   | Vic   | <b>Megaraptoridae cf. <i>Australovenator</i></b>                                                                    | <b>This paper</b>                                                                                                                                |
| NMV P252715                                      | Right manual ungual<br>phalanx III-4 | Eumeralla                           | u. Aptian–<br>l. Albian | Eric the Red West   | Vic   | <b>Megaraptoridae cf. <i>Australovenator</i></b>                                                                    | <b>This paper</b>                                                                                                                                |
| NMV P253701                                      | Right astragalus                     | Eumeralla                           | u. Aptian–<br>l. Albian | Eric the Red West   | Vic   | <b>Megaraptoridae cf. <i>Australovenator</i></b>                                                                    | <b>This paper</b>                                                                                                                                |
| NMV P252405                                      | ?Right ?pedal<br>phalanx             | Eumeralla                           | u. Aptian–<br>l. Albian | Eric the Red West   | Vic   | <b>Megaraptoridae cf. <i>Australovenator</i></b>                                                                    | <b>This paper</b>                                                                                                                                |
| NMV P229456                                      | Caudal vertebra                      | Eumeralla                           | u. Aptian–<br>l. Albian | 'Eric the Red West' | Vic   | Theropoda<br><u><i>Ornithopoda: Diluvicursor pickeringi</i></u><br>?                                                | Benson et al. (2012)<br><u>Herne et al. (2018)</u><br><u>This paper</u>                                                                          |
| NMV P180856                                      | Right metatarsal II                  | Eumeralla                           | u. Aptian–<br>l. Albian | Point Franklin      | Vic   | Theropoda                                                                                                           | Benson et al. (2012)                                                                                                                             |
| NMV P180880                                      | Right pubis                          | Eumeralla                           | u. Aptian–<br>l. Albian | Point Franklin      | Vic   | Coelurosauria                                                                                                       | Benson et al. (2012)                                                                                                                             |
| NMV P230845                                      | Right femur                          | Eumeralla                           | u. Aptian–<br>l. Albian | Blanket Bay         | Vic   | Coelurosauria                                                                                                       | Benson et al. (2012)                                                                                                                             |
| NMV P180889                                      | Right femur                          | Eumeralla                           | u. Aptian–<br>l. Albian | Point Lewis         | Vic   | Unenlagiinae                                                                                                        | Benson et al. (2012)                                                                                                                             |
| NMV P180899                                      | Manual phalanx                       | Eumeralla                           | u. Aptian–<br>l. Albian | Marengo             | Vic   | Theropoda                                                                                                           | Benson et al. (2012)                                                                                                                             |
| AM F57843                                        | Pedal phalanx                        | Doncaster<br>Member,<br>Wallumbilla | Aptian                  | White Cliffs        | NSW   | Theropoda<br>Theropoda<br>Theropoda<br><u>possibly Theropoda</u>                                                    | Molnar (1980a)<br>Molnar (1980b)<br>Molnar (1991)<br><u>Bell et al. (2019)</u>                                                                   |
| SAM P17926<br><i>Kakuru kujani</i><br>(holotype) | Right tibia                          | Bulldog<br>Shale                    | Aptian                  | Andamooka           | SA    | Coeluridae: <i>Kakuru kujani</i><br>Theropoda<br>Theropoda<br>Theropoda<br>Abelisauroidae<br>Averostra<br>Tetanurae | Molnar and Pledge (1980)<br>Molnar (1982a)<br>Norman (1990)<br>Molnar (1991)<br>Rauhut (2005b)<br>Agnolin et al. (2010)<br>Barrett et al. (2010) |
| SAM P18010                                       | ?First pedal phalanx                 | Bulldog<br>Shale                    | Aptian                  | Andamooka           | SA    | Theropoda<br>Theropoda<br>Coeluridae: <i>Kakuru kujani</i><br><u>Archosauria</u>                                    | Molnar (1980a)<br>Molnar (1980b)<br>Molnar and Pledge (1980)<br><u>Barrett et al. (2010)</u>                                                     |

| Specimen    | Element                  | Formation                 | Age                        | Locality                             | State | Identification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Reference                                                                                                                                                                                                                                                                                                                                                                       |
|-------------|--------------------------|---------------------------|----------------------------|--------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SAM P35321  | Left metatarsal III      | Bulldog Shale             | Aptian                     | Coober Pedy                          | SA    | Theropoda<br><u>Dinosauria</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Long (1998)<br><u>Barrett et al. (2010)</u>                                                                                                                                                                                                                                                                                                                                     |
| WAM 96.5.1  | ‘Caudal vertebra’        | Birdrong Sandstone        | u. Barremian–<br>l. Aptian | Murchison House<br>Station, Kalbarri | WA    | Theropoda<br>Theropoda<br>Theropoda<br><u>Elasmosauridae</u>                                                                                                                                                                                                                                                                                                                                                                                                                                          | Long and Cruickshank (1996)<br>Agnolin et al. (2010)<br>Carrano et al. (2012)<br><u>M. Siversson pers. comm. (2019)</u>                                                                                                                                                                                                                                                         |
|             | <u>Cervical vertebra</u> | <u>Windalia Sandstone</u> | <u>Aptian</u>              |                                      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                 |
| NMV P186054 | Manual phalanx           | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | San Remo                             | Vic   | Theropoda                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Benson et al. (2012)                                                                                                                                                                                                                                                                                                                                                            |
| NMV P221202 | Left astragalocalcaneum  | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | San Remo                             | Vic   | Ceratosauria<br>Ceratosauria<br>Averostra                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Fitzgerald et al. (2012)<br>Benson et al. (2012)<br>Novas et al. (2013)                                                                                                                                                                                                                                                                                                         |
| NMV P186153 | Manual ungual phalanx    | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | West of The Punchbowl                | Vic   | Neovenatoridae<br><b>Megaraptoridae</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Benson et al. (2012)<br><b>This paper</b>                                                                                                                                                                                                                                                                                                                                       |
| NMV P186168 | Caudal vertebra          | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | West of The Punchbowl                | Vic   | Ornithomimosauria<br>Theropoda                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Benson et al. (2012)<br>Novas et al. (2013)                                                                                                                                                                                                                                                                                                                                     |
| NMV P186151 | Pedal phalanx            | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | West of The Arch                     | Vic   | Theropoda                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Benson et al. (2012)                                                                                                                                                                                                                                                                                                                                                            |
| NMV P186057 | Right ilium              | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | East of The Arch                     | Vic   | Avetheropoda                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Benson et al. (2012)                                                                                                                                                                                                                                                                                                                                                            |
| NMV P212840 | Neural arch              | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | Kilcunda                             | Vic   | Theropoda                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Benson et al. (2012)                                                                                                                                                                                                                                                                                                                                                            |
| NMV P10058  | Ungual phalanx           | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | Eagle’s Nest                         | Vic   | Megalosauria<br>“ <i>Megalosaurus</i> ”? (subgenus c) sp.<br>Carnosauria<br>Theropoda                                                                                                                                                                                                                                                                                                                                                                                                                 | Smith Woodward (1906)<br>Huene (1926)<br>Molnar (1980a)<br>Benson et al. (2012)                                                                                                                                                                                                                                                                                                 |
| NMV P150070 | Left astragalus          | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | Eagle’s Nest                         | Vic   | Allosauridae<br>Allosauridae: <i>Allosaurus</i> sp.<br>Allosauridae: <i>Allosaurus</i> sp.<br>‘ornithomimoid’<br>Allosauridae: <i>Allosaurus</i> sp.<br>Allosauridae: <i>Allosaurus</i> sp.<br>similar to <i>Fukuiraptor</i><br>Allosauroida cf. <i>Australovenator</i><br>Abelisauroida<br>Neovenatoridae: Megaraptora<br>Neovenatoridae: Megaraptora<br>Neovenatoridae: Megaraptora<br>Neovenatoridae: Megaraptora<br>Coelurosauria / Tyrannosauroida: Megaraptoridae<br>Megaraptora<br>Megaraptora | Molnar (1980b)<br>Molnar et al. (1981)<br>Molnar (1982a)<br>Welles (1983)<br>Molnar et al. (1985)<br>Molnar (1991)<br>Azuma and Currie (2000)<br>Hocknull et al. (2009)<br>Agnolin et al. (2010)<br>Benson et al. (2010c)<br>Fitzgerald et al. (2012)<br>Benson et al. (2012)<br>Carrano et al. (2012)<br>Novas et al. (2013)<br>Poropat et al. (2018)<br>Samathi et al. (2019) |
| NMV P203700 | Caudal vertebra          | u. Strzelecki Group       | u. Barremian–<br>l. Aptian | Eagle’s Nest                         | Vic   | Theropoda                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Benson et al. (2012)                                                                                                                                                                                                                                                                                                                                                            |

| Specimen                                                                                                    | Element               | Formation           | Age                    | Locality          | State | Identification                                                     | Reference                                                                                         |
|-------------------------------------------------------------------------------------------------------------|-----------------------|---------------------|------------------------|-------------------|-------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| NMV P186327                                                                                                 | Right coracoid        | u. Strzelecki Group | u. Barremian–l. Aptian | East of The Caves | Vic   | Avetheropoda                                                       | Benson et al. (2012)                                                                              |
| NMV P210090                                                                                                 | Caudal vertebra       | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Theropoda                                                          | Benson et al. (2012)                                                                              |
| NMV P212806                                                                                                 | Caudal vertebra       | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Theropoda                                                          | Benson et al. (2012)                                                                              |
| NMV P216642                                                                                                 | Caudal vertebra       | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Theropoda                                                          | Benson et al. (2012)                                                                              |
| NMV P199050                                                                                                 | Manual phalanx        | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Theropoda                                                          | Benson et al. (2012)                                                                              |
| NMV P199085                                                                                                 | Ungual phalanx        | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Theropoda                                                          | Samathi et al. (2019)<br>Benson et al. (2012)                                                     |
| NMV P208512                                                                                                 | Manual ungual phalanx | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Theropoda                                                          | Benson et al. (2012)                                                                              |
| NMV P209990                                                                                                 | Metatarsal ?IV        | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Theropoda                                                          | Benson et al. (2012)                                                                              |
| NMV P221187                                                                                                 | Dorsal vertebra       | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Neovenatoridae                                                     | Benson et al. (2012)                                                                              |
| NMV P208096                                                                                                 | Caudal vertebra       | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Neovenatoridae                                                     | Benson et al. (2012)                                                                              |
| NMV P186457, P198947, P198958, P199070, P210025, P210084, P212859, P221204, P221205, P229111, P230871, etc. | >90 teeth             | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Megaraptora                                                        | Benson et al. (2012)                                                                              |
| NMV P216672                                                                                                 | Dorsal vertebra       | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Maniraptora                                                        | Benson et al. (2012)                                                                              |
| NMV P208183                                                                                                 | Furcula               | u. Strzelecki Group | u. Barremian–l. Aptian | Flat Rocks        | Vic   | Ornithothoraces: Enantiornithes<br>Ornithothoraces: Enantiornithes | Close et al. (2009)<br>Mayr (2017)                                                                |
| NMV P186879A/B (GSV 61831A/B)                                                                               | Feather               | u. Strzelecki Group | u. Barremian–l. Aptian | Koonwarra         | Vic   | Aves<br>Aves<br>Aves<br>Coelurosauria                              | Talent et al. (1966)<br>Vickers-Rich (1991)<br>Kellner (2002)<br>Poropat et al. (2018)            |
| NMV P250594 (GSV 61832)                                                                                     | Feather               | u. Strzelecki Group | u. Barremian–l. Aptian | Koonwarra         | Vic   | Aves<br>Aves<br>Coelurosauria                                      | Talent et al. (1966)<br>Vickers-Rich (1991)<br>Poropat et al. (2018)                              |
| NMV P26059A/B                                                                                               | Feather               | u. Strzelecki Group | u. Barremian–l. Aptian | Koonwarra         | Vic   | Aves<br>Aves<br>Aves<br>Aves<br>Coelurosauria                      | Waldman (1970)<br>Rogers (1987)<br>Vickers-Rich (1991)<br>Kellner (2002)<br>Poropat et al. (2018) |
| NMV P32192                                                                                                  | Feather               | u. Strzelecki Group | u. Barremian–l. Aptian | Koonwarra         | Vic   | Aves<br>Coelurosauria                                              | Rich (1976)<br>Poropat et al. (2018)                                                              |

| Specimen                                                      | Element                   | Formation           | Age                    | Locality                           | State | Identification                                            | Reference                                                                |
|---------------------------------------------------------------|---------------------------|---------------------|------------------------|------------------------------------|-------|-----------------------------------------------------------|--------------------------------------------------------------------------|
| NMV P160550                                                   | Feather                   | u. Strzelecki Group | u. Barremian–l. Aptian | Koonwarra                          | Vic   | Aves<br>Coelurosauria                                     | Vickers-Rich (1991)<br>Poropat et al. (2018)                             |
| NMV P162963                                                   | Feather                   | u. Strzelecki Group | u. Barremian–l. Aptian | Koonwarra                          | Vic   | Aves<br>Aves<br>Coelurosauria                             | Rich and van Tets (1982)<br>Vickers-Rich (1991)<br>Poropat et al. (2018) |
| NMV P165474                                                   | Feather                   | u. Strzelecki Group | u. Barremian–l. Aptian | Koonwarra                          | Vic   | Aves<br>Coelurosauria                                     | Kellner (2002)<br>Poropat et al. (2018)                                  |
| WAM 66.2.51<br><i>Megalosauropus broomensis</i><br>(holotype) | Footprint (cast)          | Broome Sandstone    | Valanginian–Barremian  | Gantheaume Point (Minyirr)         | WA    | Theropoda: <i>Megalosauropus broomensis</i><br>Theropoda  | Colbert and Merrilees (1967)<br>Salisbury et al. (2017)                  |
| WAM 64.6.5<br><i>Megalosauropus broomensis</i><br>(paratype)  | Footprint (cast)          | Broome Sandstone    | Valanginian–Barremian  | Gantheaume Point (Minyirr)         | WA    | Theropoda: <i>Megalosauropus broomensis</i><br>Theropoda  | Colbert and Merrilees (1967)<br>Salisbury et al. (2017)                  |
| WAM 64.6.7<br><i>Megalosauropus broomensis</i><br>(paratype)  | Footprint (cast)          | Broome Sandstone    | Valanginian–Barremian  | Gantheaume Point (Minyirr)         | WA    | Theropoda: <i>Megalosauropus broomensis</i><br>Theropoda  | Colbert and Merrilees (1967)<br>Salisbury et al. (2017)                  |
| N/A<br><i>Megalosauropus broomensis</i><br>(topotypes)        | Footprints <i>in situ</i> | Broome Sandstone    | Valanginian–Barremian  | Gantheaume Point (Minyirr)         | WA    | Theropoda: <i>Megalosauropus broomensis</i><br>Theropoda  | Colbert and Merrilees (1967)<br>Salisbury et al. (2017)                  |
| WAM G10328<br><i>Megalosauropus broomensis</i>                | Footprint (cast)          | Broome Sandstone    | Valanginian–Barremian  | West of Gantheaume Point (Minyirr) | WA    | Dinosauria<br>Theropoda: <i>Megalosauropus broomensis</i> | Glauert (1952)<br>Salisbury et al. (2017)                                |
| WAM 64.6.10<br><i>Megalosauropus broomensis</i>               | Footprint (cast)          | Broome Sandstone    | Valanginian–Barremian  | Reddell Beach                      | WA    | Theropoda: <i>Megalosauropus broomensis</i><br>Theropoda  | Colbert and Merrilees (1967)<br>Salisbury et al. (2017)                  |
| UQL-DP9-8<br><i>Yangtzeus clarkei</i><br>(topotype)           | Footprint (cast)          | Broome Sandstone    | Valanginian–Barremian  | DP3, Yanijarri-Lurujarri           | WA    | Theropoda: <i>Yangtzeus clarkei</i>                       | Salisbury et al. (2017)                                                  |
| WAM 12.1.4:<br>UQL-DP6-3                                      | Footprint (cast)          | Broome Sandstone    | Valanginian–Barremian  | DP6, Yanijarri-Lurujarri           | WA    | Broome theropod morphotype C                              | Salisbury et al. (2017)                                                  |
| WAM 12.1.5:<br>UQL-DP8-18                                     | Footprints (cast)         | Broome Sandstone    | Valanginian–Barremian  | DP8, Yanijarri-Lurujarri           | WA    | Broome theropod morphotype C                              | Salisbury et al. (2017)                                                  |
| UQL DP11-1<br><i>Megalosauropus broomensis</i>                | Footprint (cast)          | Broome Sandstone    | Valanginian–Barremian  | DP11, Yanijarri-Lurujarri          | WA    | Theropoda: <i>Megalosauropus broomensis</i>               | Salisbury et al. (2017)                                                  |
| WAM 12.1.2:<br>UQL-DP25-1–4                                   | Footprints (cast)         | Broome Sandstone    | Valanginian–Barremian  | DP25, Yanijarri-Lurujarri          | WA    | Broome theropod morphotype A                              | Salisbury et al. (2017)                                                  |
| UQL DP35-1<br><i>Megalosauropus broomensis</i>                | Footprint (cast)          | Broome Sandstone    | Valanginian–Barremian  | DP35, Yanijarri-Lurujarri          | WA    | Theropoda: <i>Megalosauropus broomensis</i>               | Salisbury et al. (2017)                                                  |

| Specimen                                                                   | Element                   | Formation          | Age                   | Locality                              | State | Identification                                                                                                                                                                                                 | Reference                                                                                                                        |
|----------------------------------------------------------------------------|---------------------------|--------------------|-----------------------|---------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| UQL DP45-10<br><b><i>Megalosauropus broomensis</i></b>                     | Footprint (cast)          | Broome Sandstone   | Valanginian–Barremian | DP45, Yanijarri-Lurujarri             | WA    | Theropoda: <i>Megalosauropus broomensis</i>                                                                                                                                                                    | Salisbury et al. (2017)                                                                                                          |
| WAM 12.1.3:<br>UQL-DP52                                                    | Footprint (cast)          | Broome Sandstone   | Valanginian–Barremian | DP52, Yanijarri-Lurujarri             | WA    | Broome theropod morphotype B                                                                                                                                                                                   | Salisbury et al. (2017)                                                                                                          |
| WAM 12.1.1:<br>UQL-DP57-1<br><b><i>Yangtzeus clarkei</i></b><br>(holotype) | Footprint (cast)          | Broome Sandstone   | Valanginian–Barremian | DP57, Yanijarri-Lurujarri             | WA    | Theropoda: <i>Yangtzeus clarkei</i>                                                                                                                                                                            | Salisbury et al. (2017)                                                                                                          |
| QM F5700<br><b><i>Changpeipus bartholomaii</i></b><br>(holotype)           | Footprint                 | Injune Creek Group | Bathonian–Callovian   | Westvale No. 5 Colliery, Rosewood     | Qld   | Theropoda<br>Theropoda<br>Theropoda: <i>Changpeipus bartholomaii</i><br>Theropoda: <i>Changpeipus bartholomaii</i><br>Theropoda: <i>Changpeipus bartholomaii</i><br>Theropoda: <i>Changpeipus bartholomaii</i> | Bartholomai (1966)<br>Hill et al. (1966)<br>Haubold (1971)<br>Molnar (1982a)<br>Molnar (1991)<br>Molnar (1982a)<br>Molnar (1991) |
| QM F12221<br><b><i>Changpeipus bartholomaii</i></b>                        | Footprint (cast)          | Injune Creek Group | Bathonian–Callovian   | Westvale No. 5 Colliery, Rosewood     | Qld   | Theropoda: <i>Changpeipus bartholomaii</i><br>Theropoda: <i>Changpeipus bartholomaii</i>                                                                                                                       | Molnar (1982a)<br>Molnar (1991)                                                                                                  |
| N/A                                                                        | Footprints <i>in situ</i> | Injune Creek Group | Bathonian–Callovian   | Westvale No. 6 Colliery, Rosewood     | Qld   | Dinosauria<br>Theropoda<br>Theropoda                                                                                                                                                                           | Anonymous (1952a)<br>Molnar (1982a)<br>Molnar (1991)                                                                             |
| N/A                                                                        | Footprints <i>in situ</i> | Injune Creek Group | Bathonian–Callovian   | Lanefield No. 2 Colliery, Rosewood    | Qld   | Dinosauria (?Ornithopoda)<br>Dinosauria<br>Dinosauria<br>Dinosauria<br>Theropoda<br>Theropoda                                                                                                                  | Ball (1933)<br>Ball (1934b)<br>Ball (1934a)<br>Anonymous (1952a)<br>Molnar (1982a)<br>Molnar (1991)                              |
| N/A                                                                        | Footprints <i>in situ</i> | Injune Creek Group | Bathonian–Callovian   | Lanefield Extended Colliery, Rosewood | Qld   | Dinosauria<br>Dinosauria<br>Theropoda<br>Theropoda<br>Theropoda                                                                                                                                                | Ball (1946)<br>Colliver (1956)<br>Molnar (1982a)<br>Molnar (1991)<br>Turner et al. (2009)                                        |
| N/A                                                                        | Footprints <i>in situ</i> | Injune Creek Group | Bathonian–Callovian   | Caledonian No. 5 Colliery, Rosewood   | Qld   | Dinosauria<br>Theropoda                                                                                                                                                                                        | Cameron (1970)<br>Molnar (1991)                                                                                                  |
| QM F5702<br><b><i>Changpeipus bartholomaii</i></b>                         | Footprints                | Injune Creek Group | Bathonian–Callovian   | Balgowan Colliery, Balgowan           | Qld   | Theropoda<br>Theropoda<br>Theropoda: <i>Changpeipus bartholomaii</i><br>Theropoda: <i>Changpeipus bartholomaii</i><br>Theropoda                                                                                | Bartholomai (1966)<br>Hill et al. (1966)<br>Molnar (1982a)<br>Molnar (1991)<br>Turner et al. (2009)                              |
| QM F3278                                                                   | Footprints                | Injune Creek Group | Bathonian–Callovian   | Balgowan Colliery, Balgowan           | Qld   | Dinosauria<br>Dinosauria<br>Dinosauria<br>Dinosauria<br>Theropoda<br>Theropoda                                                                                                                                 | Anonymous (1951)<br>Anonymous (1952b)<br>Anonymous (1952a)<br>Colliver (1956)<br>Molnar (1982a)<br>Molnar (1991)                 |

| Specimen                                                   | Element                   | Formation          | Age                      | Locality                          | State | Identification                                                                                                                                                                                                                       | Reference                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------|---------------------------|--------------------|--------------------------|-----------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N/A                                                        | Footprint <i>in situ</i>  | Injune Creek Group | Bathonian–Callovian      | Oakleigh No. 3 Colliery           | Qld   | Theropoda: <i>Eubrontes</i>                                                                                                                                                                                                          | Turner et al. (2009)                                                                                                                                                                                                                                                                        |
| UWA 82469<br><b><i>Ozraptor subotaii</i></b><br>(holotype) | Left tibia (distal)       | Colalura           | Bajocian                 | Bringo Railway Cutting, Geraldton | WA    | Theropoda<br>?Theropoda<br>Abelisauroidea<br>Abelisauroidea<br>Theropoda<br>Abelisauroidea<br>Abelisauroidea<br>Basal Neoceratosauria<br>Abelisauroidea<br>Theropoda<br>Theropoda<br>Theropoda                                       | Long and Molnar (1998)<br>Rauhut (2005a)<br>Rauhut (2005b)<br>Rauhut (2007)<br>Carrano and Sampson (2008)<br>Agnolin et al. (2010)<br>Ezcurra et al. (2010)<br>Langer et al. (2010)<br>Ezcurra and Agnolin (2012)<br>Fitzgerald et al. (2012)<br>Rauhut (2012)<br>Rauhut and Carrano (2016) |
| QM F54079                                                  | Footprints (cast)         | Razorback Beds     | Sinemurian–Pliensbachian | Mount Morgan Mine                 | Qld   | Theropoda<br>Theropoda<br>Theropoda<br>Theropoda                                                                                                                                                                                     | Staines (1954)<br>Colliver (1956)<br>Molnar (1982a)<br>Molnar (1991)                                                                                                                                                                                                                        |
| N/A<br><b>cf. <i>Eubrontes</i></b>                         | Footprints <i>in situ</i> | Razorback Beds     | Sinemurian–Pliensbachian | Mount Morgan Mine                 | Qld   | Theropoda: cf. <i>Eubrontes</i>                                                                                                                                                                                                      | Cook et al. (2010)                                                                                                                                                                                                                                                                          |
| N/A<br><b><i>Skartopus</i></b>                             | Footprints <i>in situ</i> | Razorback Beds     | Sinemurian–Pliensbachian | Mount Morgan Mine                 | Qld   | Theropoda: <i>Skartopus</i>                                                                                                                                                                                                          | Cook et al. (2010)                                                                                                                                                                                                                                                                          |
| N/A<br><b><i>Grallator</i></b>                             | Footprints <i>in situ</i> | Razorback Beds     | Sinemurian–Pliensbachian | Mount Morgan Mine                 | Qld   | Theropoda: <i>Grallator</i>                                                                                                                                                                                                          | Cook et al. (2010)                                                                                                                                                                                                                                                                          |
| N/A<br><b>cf. <i>Grallator</i></b>                         | Footprints                | Blackstone         | Carnian/Norian           | Rylance No. 5 Colliery, Ipswich   | Qld   | Theropoda: cf. <i>Grallator</i><br>Theropoda: cf. <i>Grallator</i>                                                                                                                                                                   | Thulborn (1986)<br>Thulborn (2000)                                                                                                                                                                                                                                                          |
| QM F5474<br><b>cf. <i>Eubrontes</i></b>                    | Footprint (mould)         | Blackstone         | Carnian/Norian           | Rhondda Colliery, Dinmore         | Qld   | Theropoda<br>Theropoda<br>Theropoda<br>Theropoda (similar to <i>Eubrontes</i> )<br>Theropoda: cf. <i>Eubrontes</i><br>Theropoda (similar to <i>Eubrontes</i> )<br>Theropoda: cf. <i>Eubrontes</i><br>Theropoda: cf. <i>Eubrontes</i> | Staines and Woods (1964)<br>Hill et al. (1965)<br>Bartholomai (1966)<br>Molnar (1982b)<br>Thulborn (1986)<br>Molnar (1991)<br>Thulborn (2000)<br>Thulborn (2003)                                                                                                                            |

TABLE S2. *Australovenator wintonensis* type elements. **H2009**, Hocknull et al. (2009); **L**, left; **N2016**, Novas et al. (2016); **R**, right; **W2012**, White et al. (2012); **W2013a**, White et al. (2013a); **W2013b**, White et al. (2013b); **W2015a**, White et al. (2015a); **W2015b**, White et al. (2015b); **W2016**, White et al. (2016). Grey rows indicate holotype specimens and white rows indicate paratypes. \*The *Australovenator* ‘ilium’ is part of *Diamantinasaurus* and is removed from the holotype.

| Element                | H2009              | W2012                  | W2013a | W2013b                                                  | W2015a                                 | W2015b                       | N2016                                     | W2016 |
|------------------------|--------------------|------------------------|--------|---------------------------------------------------------|----------------------------------------|------------------------------|-------------------------------------------|-------|
| Tooth (AODF 822)       | Fig. 20A–B, 21A–B  | -                      | -      | -                                                       | -                                      | Fig. 7B                      | -                                         | -     |
| Tooth (AODF 823)       | Fig. 20G–H         | -                      | -      | -                                                       | -                                      | Fig. 7C                      | -                                         | -     |
| Tooth (AODF 824)       | Fig. 20C–D, 21C    | -                      | -      | -                                                       | -                                      | Fig. 7D                      | -                                         | -     |
| Tooth (AODF 825)       | Fig. 20E–F         | -                      | -      | -                                                       | -                                      | Fig. 7E                      | -                                         | -     |
| Tooth (AODF 826)       | Fig. 20K–L, 21E–F  | -                      | -      | -                                                       | -                                      | Fig. 7F                      | -                                         | -     |
| Tooth (AODF 827)       | Possibly mentioned | -                      | -      | -                                                       | -                                      | Fig. 7I                      | -                                         | -     |
| Tooth (AODF 828)       | Fig. 20I–J, 21D    | -                      | -      | -                                                       | -                                      | Fig. 7H                      | -                                         | -     |
| Tooth (AODF 829)       | Possibly mentioned | -                      | -      | -                                                       | -                                      | Fig. 7G                      | -                                         | -     |
| Tooth (AODF 830)       | Possibly mentioned | -                      | -      | -                                                       | -                                      | Fig. 7J                      | -                                         | -     |
| Tooth (AODF 831)       | Measurements given | -                      | -      | -                                                       | -                                      | Fig. 7A                      | -                                         | -     |
| Dentary (L)            | Fig. 22A–F         | -                      | -      | -                                                       | -                                      | S. Fig. 3                    | -                                         | -     |
| Dentary (R) with teeth | -                  | -                      | -      | -                                                       | -                                      | Fig. 4A–H, 6A–D; S. Fig. 1–2 | -                                         | -     |
| Dorsal rib I (R)       | Fig. 23A–B         | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Dorsal rib II/III (R)  | Fig. 23C–D         | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Dorsal rib VI/VII (R)  | Fig. 23E–F         | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Gastralium A           | Fig. 23G           | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Gastralium B           | Fig. 23G           | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Gastralium C           | Fig. 23G           | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Gastralium D           | Fig. 23G           | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Gastralium E           | Fig. 23G           | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Gastralium F           | Fig. 23G           | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Gastralium G           | Fig. 23G           | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Gastralium H           | Fig. 23G           | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Gastralium I           | Fig. 23G           | -                      | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Humerus (L)            | -                  | Fig. 4A–F              | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Humerus (R)            | -                  | Fig. 3A–M, 5A–B        | -      | -                                                       | S. Fig. 1                              | -                            | Fig. 1B, 2A–B                             | -     |
| Ulna (L)               | Fig. 25A–F         | Fig. 5C–D, 6A–M (as R) | -      | -                                                       | S. Fig. 2 (reversed but labelled as R) | -                            | -                                         | -     |
| Ulna (R)               | Fig. 25G–L         | Fig. 7A–F (as L)       | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Radius (L)             | -                  | Fig. 9A–F (as R)       | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Radius (R)             | Fig. 26A–F         | Fig. 8A–M (as L)       | -      | -                                                       | S. Fig. 3 (labelled as R)              | -                            | -                                         | -     |
| Radiale (R)            | -                  | Fig. 10A–H             | -      | -                                                       | S. Fig. 4                              | -                            | -                                         | -     |
| Distal carpal I (R)    | -                  | Fig. 11A–N             | -      | -                                                       | S. Fig. 5                              | -                            | Fig. 5I                                   | -     |
| Metacarpal I (L)       | Fig. 27A–F         | Fig. 13A–D             | -      | -                                                       | -                                      | -                            | -                                         | -     |
| Metacarpal I (R)       | -                  | Fig. 12A–N             | -      | Fig. 3A, 4A, C, E, G, I, K, M, O, Q, S, U, W (reversed) | S. Fig. 6                              | -                            | Fig. 8C (labelled as <i>Rapator</i> ), 8H | -     |

| Element                  | H2009                                                                                                                  | W2012                                                                                   | W2013a                 | W2013b | W2015a                                      | W2015b | N2016                              | W2016        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------|--------|---------------------------------------------|--------|------------------------------------|--------------|
| Metacarpal II (R)        | Fig. 27G–L (as L)                                                                                                      | Fig. 17A–Q                                                                              | -                      | -      | S. Fig. 9                                   | -      | -                                  | -            |
| Manual phalanx I-1 (L)   | Fig. 29J–O (as R)                                                                                                      | Fig. 14A–M                                                                              | -                      | -      | S. Fig. 7 (reversed)                        | -      | -                                  | -            |
| Manual phalanx I-1 (R)   | Fig. 29D–I (as L)                                                                                                      | Fig. 15A–F                                                                              | -                      | -      | -                                           | -      | Fig. 9B, 10B, 10D                  | -            |
| Manual ungual I-2 (R)    | Fig. 29A–C                                                                                                             | Fig. 16A–K                                                                              | -                      | -      | S. Fig. 8                                   | -      | Fig. 11B, D; 12C–D, G–H (reversed) | -            |
| Manual phalanx II-1 (L)  | -                                                                                                                      | Fig. 18A–M                                                                              | -                      | -      | S. Fig. 10 (not reversed but labelled as R) | -      | -                                  | -            |
| Manual phalanx II-2 (L)  | -                                                                                                                      | Fig. 19A–S                                                                              | -                      | -      | S. Fig. 11 (reversed)                       | -      | -                                  | -            |
| Manual ungual II-3 (R)   | -                                                                                                                      | Fig. 20A–I                                                                              | -                      | -      | S. Fig. 12 (reversed)                       | -      | -                                  | -            |
| Manual phalanx III-3 (L) | -                                                                                                                      | Fig. 23A–F                                                                              | -                      | -      | -                                           | -      | -                                  | -            |
| Manual phalanx III-3 (R) | Fig. 28D–I                                                                                                             | Fig. 22A–M                                                                              | -                      | -      | S. Fig. 13                                  | -      | -                                  | -            |
| Manual ungual III-4 (R)  | Fig. 28A–C                                                                                                             | Fig. 24A–I                                                                              | -                      | -      | S. Fig. 14                                  | -      | -                                  | -            |
| Manual ungual III-4 (L)  | -                                                                                                                      | -                                                                                       | -                      | -      | -                                           | -      | -                                  | -            |
| ‘Ilium’*                 | Fig. 24A–B                                                                                                             | -                                                                                       | -                      | -      | -                                           | -      | -                                  | -            |
| Femur (R)                | Fig. 30A–F                                                                                                             | -                                                                                       | Fig. 2A–L; S. Fig. 2   | -      | -                                           | -      | -                                  | -            |
| Tibia (L)                | Fig. 31A–F                                                                                                             | -                                                                                       | Fig. 3N–S              | -      | -                                           | -      | -                                  | -            |
| Tibia (R)                | Fig. 31G–M                                                                                                             | -                                                                                       | Fig. 3A–M; S. Fig. 3   | -      | -                                           | -      | -                                  | -            |
| Fibula (L)               | -                                                                                                                      | -                                                                                       | Fig. 4M–Q              | -      | -                                           | -      | -                                  | -            |
| Fibula (R)               | Fig. 32A–F                                                                                                             | -                                                                                       | Fig. 4A–L; S. Fig. 4   | -      | -                                           | -      | -                                  | -            |
| Astragalus (R)           | Fig. 33A–F                                                                                                             | -                                                                                       | Fig. 5A–N; S. Fig. 5   | -      | -                                           | -      | -                                  | -            |
| Metatarsal I (L)         | Fig. 34A–D (as R; listed as L in Table S25)                                                                            | -                                                                                       | Fig. 6A–J; S. Fig. 6   | -      | -                                           | -      | -                                  | -            |
| Metatarsal II (R)        | Fig. 34E–J (labelled Mt III in caption)                                                                                | -                                                                                       | Fig. 7A–L; S. Fig. 7   | -      | -                                           | -      | -                                  | -            |
| Metatarsal III (R)       | Fig. 35A–F                                                                                                             | -                                                                                       | Fig. 8A–L; S. Fig. 8   | -      | -                                           | -      | -                                  | -            |
| Metatarsal IV (L)        | -                                                                                                                      | -                                                                                       | Fig. 9A–K; S. Fig. 9   | -      | -                                           | -      | -                                  | -            |
| Pedal phalanx I-1 (R)    | -                                                                                                                      | -                                                                                       | -                      | -      | -                                           | -      | -                                  | S. Fig. 1A–L |
| Pedal ungual I-2 (L)     | -                                                                                                                      | -                                                                                       | Fig. 11A–J; S. Fig. 10 | -      | -                                           | -      | -                                  | S. Fig. 2A–J |
| Pedal ungual I-2 (R)     | Not figured (‘...too badly preserved to determine its placement, other than that is most-likely the tip...of Mc II-3’) | Not figured (‘...manual phalanx II-3...[is]...a near complete left pedal phalanx I-2.’) | Fig. 11K–O             | -      | -                                           | -      | -                                  | S. Fig. 2K–O |

| Element                 | H2009                                                                                                                  | W2012                                                                                   | W2013a                                            | W2013b | W2015a                                           | W2015b | N2016 | W2016         |
|-------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------|--------|--------------------------------------------------|--------|-------|---------------|
| Pedal ungual I-2 (R)    | Not figured ('...too badly preserved to determine its placement, other than that is most-likely the tip...of Mc II-3') | Not figured ('...manual phalanx II-3...[is]...a near complete left pedal phalanx I-2.') | Fig. 11K–O                                        | -      | -                                                | -      | -     | S. Fig. 2K–O  |
| Pedal phalanx II-1 (L)  | -                                                                                                                      | -                                                                                       | Fig. 12A–L; S. Fig. 12                            | -      | -                                                | -      | -     | S. Fig. 3A–L  |
| Pedal phalanx II-2 (L)  | Not figured (Rt Mt IV-2 in Table S25)                                                                                  | -                                                                                       | Fig. 13A–L; S. Fig. 13                            | -      | -                                                | -      | -     | S. Fig. 4A–L  |
| Pedal ungual II-3 (L)   | -                                                                                                                      | -                                                                                       | Fig. 18A–J; S. Fig. 18 (as L pedal ungual III-4)  | -      | -                                                | -      | -     | S. Fig. 5A–J  |
| Pedal phalanx III-1 (L) | Fig. 36M–R (as right pedal phalanx III-2; Rt Mt II-2 in Table S25)                                                     | -                                                                                       | Fig. 16A–L; S. Fig. 16 (as R pedal phalanx III-1) | -      | -                                                | -      | -     | S. Fig. 6M–X  |
| Pedal phalanx III-1 (R) | -                                                                                                                      | -                                                                                       | Fig. 15A–L; S. Fig. 15                            | -      | -                                                | -      | -     | S. Fig. 6A–L  |
| Pedal phalanx III-2 (L) | Fig. 36A–F (Lt Mt II-2 in Table S25)                                                                                   | -                                                                                       | Fig. 17A–L; S. Fig. 17 (as R pedal phalanx III-3) | -      | -                                                | -      | -     | S. Fig. 7A–L  |
| Pedal phalanx III-2 (R) | -                                                                                                                      | -                                                                                       | Fig. 17M–Q (as L pedal phalanx III-3)             | -      | -                                                | -      | -     | S. Fig. 7M–Q  |
| Pedal phalanx III-3 (L) | Fig. 28J–O (as manual phalanx II-2)                                                                                    | Fig. 21A–M (as R manual phalanx III-1)                                                  | -                                                 | -      | Excluded; had been described as a manual phalanx | -      | -     | S. Fig. 8A–L  |
| Pedal phalanx III-3 (R) | -                                                                                                                      | -                                                                                       | -                                                 | -      | -                                                | -      | -     | S. Fig. 8M–R  |
| Pedal ungual III-4 (L)  | Fig. 37F–J (Lt Mt II-3 in Table S26)                                                                                   | -                                                                                       | Fig. 14A–J; S. Fig. 14 (as R pedal ungual II-3)   | -      | -                                                | -      | -     | S. Fig. 9A–J  |
| Pedal phalanx IV-1 (L)  | Fig. 36G–L (Lt Mt II-1 in Table S25)                                                                                   | -                                                                                       | Fig. 19A–L; S. Fig. 19                            | -      | -                                                | -      | -     | S. Fig. 10A–L |
| Pedal phalanx IV-2 (L)  | -                                                                                                                      | -                                                                                       | Fig. 20A–L; S. Fig. 20                            | -      | -                                                | -      | -     | S. Fig. 11A–L |
| Pedal phalanx IV-3 (L)  | -                                                                                                                      | -                                                                                       | Fig. 21A–L; S. Fig. 21                            | -      | -                                                | -      | -     | S. Fig. 12A–L |
| Pedal phalanx IV-4 (L)  | Fig. 36S–X (Rt Mt IV-3 in Table S25)                                                                                   | -                                                                                       | Fig. 22A–L; S. Fig. 22 (as R)                     | -      | -                                                | -      | -     | S. Fig. 13A–L |
| Pedal ungual IV-5 (R)   | Fig. 37A–E (Rt Mt IV-5 in Table S26)                                                                                   | -                                                                                       | Fig. 23A–J; S. Fig. 23                            | -      | -                                                | -      | -     | S. Fig. 14A–J |

TABLE S3. Non-tyrannosaurid tyrannosauroid taxa from Laurasia (not including the coelurids *Coelurus fragilis* and *Tanycolagreus topwilsoni* or the probably chimaeric taxon *Bagaraatan ostromi*).

| Taxon                                   | Specimen                                | Formation                                 | Locality                      | Age                   | Reference(s)                                                                        |
|-----------------------------------------|-----------------------------------------|-------------------------------------------|-------------------------------|-----------------------|-------------------------------------------------------------------------------------|
| <i>Dryptosaurus aquilunguis</i>         | ANSP 9995                               | New Egypt                                 | New Jersey, USA               | Maastrichtian         | Cope (1866); Cope (1868); Carpenter et al. (1997); Brusatte et al. (2011)           |
| <i>Bistahieversor sealeyi</i>           | NMMNH P-27469                           | Kirtland                                  | New Mexico, USA               | upper Campanian       | Carr and Williamson (2000); Carr and Williamson (2010)                              |
| <i>Bistahieversor sealeyi</i>           | NMMNH P-25049                           | Kirtland                                  | New Mexico, USA               | upper Campanian       | Archer and Babiarz (1992); Carr and Williamson (2000); Carr and Williamson (2010)   |
| <i>Bistahieversor sealeyi</i>           | OMNH 10131                              | Fruitland or Kirtland                     | New Mexico, USA               | upper Campanian       | Lehman and Carpenter (1990); Carr and Williamson (2000); Carr and Williamson (2010) |
| <i>Bistahieversor sealeyi</i>           | NMMNH P-32824                           | Fruitland                                 | New Mexico, USA               | upper Campanian       | Carr and Williamson (2010)                                                          |
| <i>Appalachiosaurus montgomeriensis</i> | RMM 6670                                | Demopolis                                 | Alabama, USA                  | middle Campanian      | Carr et al. (2005)                                                                  |
| <i>Alectrosaurus olseni</i>             | AMNH 6554                               | Iren Dabasu                               | Inner Mongolia, China         | Campanian             | Gilmore (1933); Mader and Bradley (1989)                                            |
| <i>Labocania anomala</i>                | Mex. 20877/JHG 65 (formerly LACM 20877) | La Bocana Roja                            | Baja California, Mexico       | Campanian             | Molnar (1974)                                                                       |
| <i>Timurlengia euotica</i>              | ZIN PH 1146/16                          | Bissekty                                  | Navoi Viloyat, Uzbekistan     | middle–upper Turonian | Brusatte et al. (2016)                                                              |
| <i>Suskityrannus hazelae</i>            | MSM P4754                               | Moreno Hill                               | New Mexico, USA               | lower middle Turonian | Nesbitt et al. (2019)                                                               |
| <i>Suskityrannus hazelae</i>            | MSM P6178                               | Moreno Hill                               | New Mexico, USA               | lower middle Turonian | Nesbitt et al. (2019)                                                               |
| Tyrannosauroida indet.                  | NCSM 33393, NCSM 33276                  | Mussentuchit Member, upper Cedar Mountain | Utah, USA                     | upper Cenomanian      | Zanno et al. (2019)                                                                 |
| <i>Moros intrepidus</i>                 | NCSM 33392                              | Mussentuchit Member, upper Cedar Mountain | Utah, USA                     | upper Cenomanian      | Zanno et al. (2019)                                                                 |
| <i>Xiongguanlong baimoensis</i>         | FRDC-GS JB16-2-1                        | Xinminpu Group                            | Gansu, China                  | Aptian–Albian         | Li et al. (2010)                                                                    |
| <i>Sinotyrannus kazuoensis</i>          | KZV-001                                 | Jiufotang                                 | Liaoning, China               | Aptian                | Ji et al. (2009)                                                                    |
| <i>Yutyrannus huali</i>                 | ZCDM V5000; ZCDM V5001; ELDM V1001      | Yixian                                    | Liaoning, China               | Barremian–Aptian      | Xu et al. (2012)                                                                    |
| <i>Eotyrannus lengi</i>                 | IWCMS 1997.550                          | Wessex                                    | Isle of Wight, United Kingdom | Barremian             | Hutt et al. (2001); Naish (2006)                                                    |
| <i>Dilong paradoxus</i>                 | IVPP V14243; IVPP V14242; TNP01109      | Yixian                                    | Liaoning, China               | Valanginian–Barremian | Xu et al. (2004)                                                                    |
| <i>Juratyran langhami</i>               | OUMNH J.3311–30                         | Kimmeridge Clay                           | Dorset, England               | lower Tithonian       | Benson (2008); Brusatte and Benson (2013)                                           |
| <i>Stokesosaurus clevelandi</i>         | UMNH 2938                               | Morrison                                  | Utah, USA                     | lower Tithonian       | Madsen (1974); Benson (2008); Brusatte and Benson (2013)                            |
| <i>Aviatyrannis jurassica</i>           | IPFUB Gui Th 1 (and others)             | Alcobaça                                  | Leiria, Portugal              | Kimmeridgian          | Rauhut (2003)                                                                       |
| <i>Guanlong wucaii</i>                  | IVPP V14531                             | Shishugou                                 | Xinjiang, China               | Oxfordian             | Xu et al. (2006)                                                                    |
| <i>Proceratosaurus bradleyi</i>         | NHMUK R4860                             | Great Oolite                              | Gloucestershire, England      | upper Bathonian       | Smith Woodward (1910a); Rauhut et al. (2010)                                        |
| <i>Kileskus aristotocus</i>             | ZIN PH 5/117 (and others)               | Itat                                      | West Siberia, Russia          | Bathonian             | Averianov et al. (2010)                                                             |

TABLE S4. Neovenatorid and megaraptoran records from Laurasia (including the possible megaraptoran *Vayuraptor*).

| Taxon                                           | Specimen                                    | Formation                | Locality                      | Age                               | Reference(s)                                                     |
|-------------------------------------------------|---------------------------------------------|--------------------------|-------------------------------|-----------------------------------|------------------------------------------------------------------|
| <i>Siats meekerorum</i>                         | FMNH PR 2716<br>FMNH PR 3059                | Cedar Mountain           | Utah, USA                     | Cenomanian                        | Zanno and Makovicky (2013)                                       |
| <i>Fukuiraptor kitadaniensis</i>                | FPDM-V97122, etc.                           | Kitadani                 | Fukui, Japan                  | Albian                            | Azuma and Currie (2000); Currie and Azuma (2006)                 |
| <i>Chilantaisaurus tashuikouensis</i>           | IVPP V.2884.1–7                             | Ulanhsuhai               | Nei Mongol, China             | ?Aptian–Albian                    | Hu (1964); Benson and Xu (2008)                                  |
| <i>Phuwiangvenator yaemniyomi</i>               | SM-PW9B, SM-PW9A                            | Sao Khua                 | Khon Khaen, Thailand          | probably upper Barremian          | Samathi et al. (2019)                                            |
| <i>Vayuraptor nongbualamphuensis</i>            | SM-NB A1-2, PRC-NB A1-3–4, 10–11, A2-16, 20 | Sao Khua                 | Khon Khaen, Thailand          | probably upper Barremian          | Samathi et al. (2019)                                            |
| <i>Neovenator salerii</i>                       | MIWG 6348, NHMUK R10001                     | Wessex                   | Isle of Wight, United Kingdom | Barremian                         | Hutt et al. (1996); Brusatte et al. (2008); Barker et al. (2017) |
| ‘ <i>Neovenator</i> ’                           | ANG 10-51, 262                              | Angeac lignitic bone bed | Charente, France              | Hauterivian–Barremian             | Néraudeau et al. (2012)                                          |
| <i>Fukuiraptor</i> aff. <i>F. kitadaniensis</i> | NDC-P0001                                   | Sebayashi                | Gunma, Japan                  | upper Hauterivian–lower Barremian | Molnar et al. (2009)                                             |

TABLE S5. Australian and Brazilian theropod specimens assigned to Neovenatoridae and Tyrannosauroidae.

| Taxon                               | Specimen                     | Formation              | Locality                                          | Age                          | Reference(s)                                                                                                                                                    |
|-------------------------------------|------------------------------|------------------------|---------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Santanaraptor placidus</i>       | MN 4802-V; MCT 1502-R (cast) | Santana                | Santana do Cariri, Ceará, Brazil                  | Albian                       | Kellner (1996); Kellner and Campos (1998); Kellner (1999); Holtz (2004); Novas (2009); Delcourt and Grillo (2018)                                               |
| Tyrannosauroidae gen. et sp. indet. | NMV P186046                  | Eumeralla              | Slippery Rock, Dinosaur Cove, Victoria, Australia | upper Aptian–lower Albian    | Benson et al. (2010a); Herne et al. (2010); Benson et al. (2010b); Benson et al. (2012); Novas et al. (2013); Poropat et al. (2018); Delcourt and Grillo (2018) |
| <i>Timimus hermani</i>              | NMV P186303                  | Eumeralla              | Dinosaur Cove East, Victoria, Australia           | upper Aptian–lower Albian    | Rich and Vickers-Rich (1994); Agnolin et al. (2010); Benson et al. (2012); Novas et al. (2013); Poropat et al. (2018); Delcourt and Grillo (2018)               |
| Neovenatoridae gen. et sp. indet.   | NMV P208096                  | upper Strzelecki Group | Flat Rocks, Victoria, Australia                   | upper Barremian–lower Aptian | Benson et al. (2012)                                                                                                                                            |
| Neovenatoridae gen. et sp. indet.   | NMV P221187                  | upper Strzelecki Group | Flat Rocks, Victoria, Australia                   | upper Barremian–lower Aptian | Benson et al. (2012)                                                                                                                                            |

TABLE S6. African and South American theropods classified within Bahariasauridae by Motta et al. (2016).

| Taxon                        | Specimen                                             | Formation    | Locality                | Age                       | Reference(s)                         |
|------------------------------|------------------------------------------------------|--------------|-------------------------|---------------------------|--------------------------------------|
| <i>Deltadromeus agilis</i>   | SGM-Din 2                                            | Kem Kem Beds | Kem Kem region, Morocco | upper Cenomanian–Turonian | Sereno et al. (1996)                 |
| <i>Gualicho shinyae</i>      | MPCN PV 0001                                         | Huincul      | Río Negro, Argentina    | upper Cenomanian–Turonian | Apesteguía et al. (2016)             |
| <i>Aoniraptor libertatem</i> | MPCA-Pv 804/1–25                                     | Huincul      | Río Negro, Argentina    | upper Cenomanian–Turonian | Motta et al. (2016)                  |
| <i>Bahariasaurus ingens</i>  | 1922 X 47 [destroyed in World War II]                | Baharia      | Bahariya region, Egypt  | Cenomanian                | Stromer (1934); Sereno et al. (1996) |
| <i>Deltadromeus agilis</i>   | 1912 VIII 60, 62, 69, 70 [destroyed in World War II] | Baharia      | Bahariya region, Egypt  | Cenomanian                | Stromer (1934); Sereno et al. (1996) |

TABLE S7. South American megaraptoran records. **l**, lower; **m**, middle; **u**, upper.

| Taxon                              | Specimen         | Formation             | Locality              | Age                       | Reference(s)                                                                                  |
|------------------------------------|------------------|-----------------------|-----------------------|---------------------------|-----------------------------------------------------------------------------------------------|
| ?Megaraptora gen. et sp. indet.    | MPMA 08-003-94   | São José do Rio Preto | São Paulo, Brazil     | Maastrichtian             | Méndez et al. (2012); Motta et al. (2016); Porfiri et al. (2018)                              |
| ?Megaraptora gen. et sp. indet.    | CPPLIP 1324      | Uberaba               | Minas Gerais, Brazil  | Campanian                 | Martinelli et al. (2013); Porfiri et al. (2018)                                               |
| ?Megaraptora gen. et sp. indet.    | UFRGS-PV-032-K   | ‘Morro do Cambambe’   | Mato Grosso, Brazil   | Santonian or younger      | Sales et al. (2017)                                                                           |
| <i>Tratayenia rosalesi</i>         | MUCPv 1162       | Bajo de la Carpa      | Neuquén, Argentina    | Santonian                 | Porfiri et al. (2018)                                                                         |
| Megaraptora gen. et sp. indet.     | MPCA-Pv 247      | Bajo de la Carpa      | Río Negro, Argentina  | Santonian                 | Gianechini et al. (2011); Porfiri et al. (2018)                                               |
| Megaraptora gen. et sp. indet.     | UNPSJB-PV 1028   | Lago Colhué Huapi     | Chubut, Argentina     | Coniacian–Maastrichtian   | Casal et al. (2016)                                                                           |
| Megaraptora gen. et sp. indet.     | UNPSJB-PV 1046   | Lago Colhué Huapi     | Chubut, Argentina     | Coniacian–Maastrichtian   | Casal et al. (2016)                                                                           |
| <i>Aerosteon riocoloradensis</i>   | MCNA-PV-3137     | Plottier              | Mendoza, Argentina    | u. Coniacian–l. Santonian | Sereno et al. (2008); Novas et al. (2013); Ezcurra and Novas (2016)                           |
| <i>Aerosteon riocoloradensis</i>   | MCNA-PV-3139     | Plottier              | Mendoza, Argentina    | u. Coniacian–l. Santonian | Sereno et al. (2008); Rauhut (2012)                                                           |
| <i>Murusraptor barrosaensis</i>    | MCF-PVPH-411     | Sierra Barrosa        | Neuquén, Argentina    | m. Coniacian              | Coria and Currie (2016); Paulina-Carabajal and Currie (2017); Aranciaga Rolando et al. (2019) |
| <i>Megaraptor namunhuaiquii</i>    | MCF-PVPH 79      | Portezuelo            | Neuquén, Argentina    | u. Turonian–l. Coniacian  | Novas (1998)                                                                                  |
| <i>Megaraptor namunhuaiquii</i>    | MUCPv 341        | Portezuelo            | Neuquén, Argentina    | u. Turonian–l. Coniacian  | Calvo et al. (2004); Calvo et al. (2007); Porfiri et al. (2007b); Novas et al. (2016)         |
| <i>Megaraptor namunhuaiquii</i>    | MUCPv 412        | Portezuelo            | Neuquén, Argentina    | u. Turonian–l. Coniacian  | Porfiri et al. (2007a)                                                                        |
| <i>Megaraptor namunhuaiquii</i>    | MUCPv 413        | Portezuelo            | Neuquén, Argentina    | u. Turonian–l. Coniacian  | Porfiri et al. (2007a)                                                                        |
| <i>Megaraptor namunhuaiquii</i>    | MUCPv 595        | Portezuelo            | Neuquén, Argentina    | u. Turonian–l. Coniacian  | Calvo et al. (2007); Porfiri et al. (2014); Novas et al. (2016)                               |
| <i>Megaraptor namunhuaiquii</i>    | MUCPv 1353       | Portezuelo            | Neuquén, Argentina    | u. Turonian–l. Coniacian  | Novas et al. (2016)                                                                           |
| ?Megaraptoridae gen. et sp. indet. | MCF-PVPH-320     | Portezuelo            | Neuquén, Argentina    | u. Turonian–l. Coniacian  | Paulina-Carabajal and Coria (2015); Paulina-Carabajal and Currie (2017)                       |
| <i>Orkoraptor burkei</i>           | MPM-Pv 3457      | Mata Amarilla         | Santa Cruz, Argentina | Cenomanian–l. Coniacian   | Novas et al. (2008); Novas et al. (2013); Ezcurra and Novas (2016)                            |
| <i>Aoniraptor libertatem</i>       | MPCA-Pv 804/1–25 | Huincul               | Río Negro, Argentina  | u. Cenomanian–Turonian    | Motta et al. (2016)                                                                           |
| <i>Megaraptor</i> sp.              | UNPSJB-PV 944    | Bajo Barreal          | Chubut, Argentina     | l. Cenomanian–u. Turonian | Lamanna (2004); Casal et al. (2009)                                                           |
| <i>Megaraptor</i> sp.              | UNPSJB-PV 958    | Bajo Barreal          | Chubut, Argentina     | l. Cenomanian–u. Turonian | Lamanna (2004); Casal et al. (2009)                                                           |
| Megaraptora gen. et sp. indet.     | SMNS 58023       | Santana               | Ceará, Brazil         | Albian                    | Frey and Martill (1995); Aranciaga Rolando et al. (2018)                                      |

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