

1 **Complete list of institutional abbreviations**

2 AMNH, American Museum of Natural History, New York, New York; CEUM, College of
3 Eastern Utah Prehistoric Museum, Price, Utah; CM, Carnegie Museum of Natural History,
4 Pittsburgh, Pennsylvania; CCM, Carter County Museum, Ekalaka, Montana; CMN, Canadian
5 Museum of Nature, Ottawa, Ontario; DINO, DNM, Dinosaur National Monument, Jensen, Utah;
6 DMNH, Denver Museum of Nature and Science, Denver, Colorado; FMNH, Field Museum of
7 Natural History, Chicago, Illinois; FWMSH, Fort Worth Museum of Science and History, Fort
8 Worth, Texas; GMNH-PV, Gunma Museum of Natural History Vertebrate Paleontology,
9 Gunma, Japan; GPDM, Great Plains Dinosaur Museum, Malta, Montana; HMNS, Hayashibara
10 Museum of Natural Sciences, Okayama, Japan; LL, cast housed in the University of Manchester
11 Museum; MOR, Museum of the Rockies, Bozeman, Montana; MSC, McWane Science Center,
12 Birmingham, Alabama; NCSM, North Carolina Museum of Natural Sciences, Raleigh, North
13 Carolina; NHMUK, Natural History Museum, London, U.K.; NMMNH, New Mexico Museum
14 of Natural History, Albuquerque, New Mexico; NSM PV, National Museum of Nature and
15 Science, Tokyo, Japan; OMNH, Sam Noble Oklahoma Museum of Natural History, University
16 of Oklahoma, Norman, Oklahoma; OTM, Old Trail Museum, Choteau, Montana; RAM,
17 Raymond M. Alf Museum of Paleontology, Claremont, California; ROM, Royal Ontario
18 Museum, Toronto, Ontario; SM, Senckenberg Museum, Frankfurt, Germany; SMA,
19 Sauriermuseum Aathal, Aathal, Switzerland; SMU, Shuler Museum of Paleontology, Southern
20 Methodist University, Dallas, Texas; TATE, Tate Geological Museum, Casper College, Casper,
21 Wyoming; TMM, Texas Memorial Museum, Austin, Texas; TMP, Royal Tyrrell Museum of
22 Palaeontology, Drumheller, Alberta; UALVP, University of Alberta, Edmonton, Alberta;
23 UCMP, University of California Museum of Paleontology, Berkeley, California; UKMNH,

24 University of Kansas, Museum of Natural History, Lawrence, Kansas; UMMP, University of
25 Michigan Museum of Paleontology, Ann Arbor, Michigan; USNM, Smithsonian Institution,
26 National Museum of Natural History, Washington, D.C.; VFSMA, Verein für das
27 Sauriermuseum, Aathal, Switzerland; YPM, Peabody Museum of Natural History, Yale
28 University, New Haven, Connecticut; YPM PU, Peabody Museum of Natural History, Yale
29 University, New Haven, Connecticut, Princeton University Collection.

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39 **R packages used**

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