



Peer Community In Paleontology

Sauropods under one (very high) roof

Jordan Mallon based on peer reviews by **Kenneth Carpenter** and **Femke Holwerda**

Emanuel Tschopp, John A. Whitlock, D. Cary Woodruff, John R. Foster, Roberto Lei, Simone Giovanardi (2019) The Morrison Formation Sauropod Consensus: A freely accessible online spreadsheet of collected sauropod specimens, their housing institutions, contents, references, localities, and other potentially useful information. Missing preprint_server, ver. 3, peer-reviewed and recommended by Peer Community in Paleontology.

<https://doi.org/10.31233/osf.io/ydvra>

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Fossils get around. Any one fossil locality might be sampled by several collectors from as many institutions around the world. Alternatively, a single collector might heavily sample a site, and sell or trade parts of their collection to other institutions, scattering the fossils far and wide. These practices have the advantage of making fossils from any one locality available to researchers across the globe. However, they also have the disadvantage that, in order to systematically survey any one species, a researcher must follow innumerable trails of breadcrumb to get to where the relevant materials are held. This is true of many famous fossil localities, such as the Eocene Green River Formation in the USA, the Cretaceous Kem Kem beds of Morocco, or the Devonian Miguasha cliffs of Canada. It is especially true of the Upper Jurassic deposits of the Morrison Formation in the western USA, which have yielded an impressive assemblage of megaherbivorous sauropod dinosaurs over the last 150 years. Today, these bones are to be found in museums not just in the USA, but also in Canada, Argentina, Japan, Australia, Malaysia, South Africa, and throughout Europe. Trawling museum databases in search of sauropod material from the Morrison Formation can therefore be a daunting task, never mind traveling the globe to actually study them. A new paper by Tschopp et al. (2019) seeks to ease the burden on sauropod researchers by introducing a database of Morrison Formation sauropods, consisting of over 3000 specimens housed in nearly 40 institutions around the world. The authors are themselves sauropod workers and, having suffered first-hand the plight of studying material from the Morrison Formation, came up with a solution to the problem of keeping track of it all. The database is founded largely on material personally seen by the authors, supplemented by information from the literature and museum catalogs. The database further provides information on bone representation, ontogeny, locality details, and fine-scale stratigraphy, among other fields. Like any database, it is a living document that will continue to grow as new finds are made. Tschopp et al. (2019) have wisely chosen to allow others to contribute to the listing, but changes must first be

vettted for accuracy. This product represents 10 years of work, and I have little doubt that it will be well-received by those of us who work on dinosaurs. Speaking personally, my PhD research on megaherbivorous dinosaurs from the Dinosaur Park Formation of Canada led me to institutions in Canada, the USA, and the UK, and further stops to Spain and Argentina would have been beneficial, if affordable. Planning for this work would have been greatly assisted by a database like the one provided us by Tschopp et al. (2019). Many a future graduate student will undoubtedly owe them a debt of gratitude.

References:

Tschopp, E., Whitlock, J. A., Woodruff, D. C., Foster, J. R., Lei, R., & Giovanardi, S. (2019). The Morrison Formation Sauropod Consensus: A freely accessible online spreadsheet of collected sauropod specimens, their housing institutions, contents, references, localities, and other potentially useful information. *PaleorXiv*, version 3, peer-reviewed by PCI Paleo. doi: [10.31233/osf.io/ydvra](<https://dx.doi.org/10.31233/osf.io/ydvra>)

Reviews

Evaluation round #1

DOI or URL of the preprint: [10.31233/osf.io/fy43t](https://doi.org/10.31233/osf.io/fy43t)

Authors' reply, 30 September 2019

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Decision by [Jordan Mallon](#), posted 06 September 2019

A most useful database

The database and accompanying manuscript submitted by Tschopp et al. is of considerable value to sauropod researchers, as both reviewers agree. However, as emphasized by Dr. Carpenter, some explicit mention needs to be made as to how other researchers can contribute to the database. I also sympathize with his concerns that this database not become a simple means by which the authors are able to push their preferred taxonomy. An entry assuaging these concerns by making explicit an objective protocol for updates would, I think, help to this end. With these few relatively minor revisions, I should think this database would greatly help sauropod researchers everywhere, as material from the Morrison Formation (as with material from Alberta, which I am familiar with) is scattered across the globe. In fact, we have here at the Canadian Museum of Nature some Morrison Formation sauropod material that I noticed has not yet made the list. I should be happy to contribute to the database, then, when it is made public.

- Jordan Mallon Canadian Museum of Nature

Reviewed by [Kenneth Carpenter](#), 09 August 2019

The Morrison sauropod database by Tschopp et al has the potential to be useful for anyone working on the group. I appreciate their willing to make their database freely available. It would be helpful if they would make it more explicit how researchers can provide update of new specimens, correct errors, submit additions, etc. I presume that Tschopp et al. would like to have this database up in perpetuity, in which case there needs to be a way to ensure database updates in the event that the lead (Tschopp) is no longer able to make those.

This database will only remain useful if it does not become a “work-around” to proper taxonomic argument. To be blunt, the database should not be a way to do revisionist taxonomy. So long as the database remains neutral, then this is a superb tool for anyone interested in Morrison sauropods. Hopefully, other researchers will follow their lead and develop similar databases for other dinosaur groups, and not just from the Morrison.

(I assume there is a reason why *Maraapunisaurus* is excluded?)

Reviewed by [Femke Holwerda](#), 02 September 2019

Dear authors and editors,

I would say this paper should have very minor corrections. The paper reads like a train, and I only had some small grammatical or style remarks, and errors to report (see annotated pdf). It is nice to read the process as it happened with this database; this paper is a good example of how a database needs to grow via trial and error (and doesn't come to life completely perfect) and is never completely done. I can definitely appreciate the amount of work having gone into this database, and hope that it can be repeated for other collections as well. For my PhD, I got a few sheets of paper with the collection numbers and references of my 'PhD animal' *Patagosaurus*, of which nobody knows anymore what the numbers refer to, and where some material is stored. So this paper is very useful in addressing these type of issues. One last suggestion is maybe adding a piechart with the amount of specimens, taxa etc, to demonstrate visually the amount of work that went into this database.

Please let me know if you need more information from me.

Best wishes,

Femke Holwerda

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