

Mammal Biodiversity Committee

Committee Members: J. Esselstyn, P.-H. Fabre, A. Fejjo, A. Ferguson, D. Huckaby, B. Kohli, S. Maher, M. McDonough, R. Norris, O. Ornelas, B. Patterson, N. Pradhan, D. Reeder, B. Roberts, L. Ruedas, F. Schaffer, B. Shaw, B. Tanis, N. Upham (Chair).

Cross-Committee links: Informatics (Maher, Roberts, Tanis), Nomenclature (Norris, Reeder, McDonough, Pradhan), Mammal Images Library (Huckaby, Tanis), and Public Education (Shaw).

Mission:

The Mammal Biodiversity Committee stewards the Mammal Diversity Database (MDD), an ASM-based, readily updatable, and online database of mammal taxonomic and biodiversity information hosted at <http://mammaldiversity.org/> [beta version; official launch in July 2017]. This database aims to serve the global mammalogy community by providing the latest information on species-level and higher taxonomic changes, thereby promoting more rigorous study of mammalian biodiversity worldwide. The initial objective for this online database is to aggregate, curate, and compile new citations on species descriptions and taxonomic revisions into regular releases in comma-delimited format. Downstream goals include expanded hosting of ecological, trait, and taxonomic data, and an online forum for discussing mammalian taxonomy and systematics. By serving as both a platform and forum, this initiative aims to stimulate interest in mammals and promote the ASM's role as a leader in high quality research on mammalian biology.

Information Items:

(1) Activities of the Mammal Biodiversity Committee in 2016-2017 included:

- a. At the ASM Board of Directors (BoD) Meeting in June 2016, a budget of \$25,000 was approved for 2017 under the condition that a detailed plan for the Committee's activities would be approved by the BoD prior to the use of funds.
- b. In November 2016, the BoD approved a detailed plan of activities for 2017.
- c. In January 2017, the Committee hired Philip Kahn of Berkeley, CA to develop the online taxonomic database infrastructure for this initiative.
- d. In April 2017, the Committee hired two student researchers (Jocie Colella, PhD at University of New Mexico; Connor Burgin, undergraduate at Boise State University) to assist with taxonomic data cleaning and compiling for the initial release of the database.

- e. In May 2017, the web version of the Mammal Diversity Database came online in beta release, hosted on the same server as the ASM website (InMotion Hosting) and online at <http://mammaldiversity.org/>
- f. Once fully operational, this website will assemble user-queried information in real time, as based on MySQL relational database, server scripting with PHP, Java, and Polymer.

(2) Extensive email discussions were had with David Huckaby and members of the Mammal Images Library Committee on directly integrating content from their images database with the MDD taxonomic database. Joining these efforts would have the future benefit of making automatic taxon name updates to MIL images, including the overlain name on images, which is currently curated manually. Future options include (i) hosting all MIL images on the MDD (full union), or (ii) joint hosting MIL image content on both the MDD and ASM websites (mirrored union). The complexity of this issue prompted us to agree on holding further talks at the ASM and BoD meetings in Moscow.

(3) Student researchers Colella and Burgin along with Chair Upham have been coordinating a thorough update of mammalian taxonomic information that will serve as version 1 of the MDD taxonomy. This was assembled as a union of a 5,791 extant/wild species names from Upham, Esselstyn, and Jetz in prep and 6,159 extant/wild species names from Burgin's own listing. To date, we have unified the majority of listing to now include 6,162 extant valid species, 83 recently extinct species, and 41 synonyms from that union. A total of 834 new species are new since MSW3, along with 267 species transferred in genus.

(4) Report on budgeted activities for 2017 (through 2 May 2017)

(a) Construction of website:

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| One-time construction of database and website (~300 hrs of web developer time @ \$30/hr; charitable non-profit rate) | \$9,000.00 |
| Actual (Jan-Apr): Philip Kahn | \$4,332.50 |
| Remaining, May 2017 | \$4,667.50 |
| Projected 2017 total | (cap) \$9,000.00 |

(b) Hiring of graduate student research assistant(s):

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| Student's hourly employment (~10 hrs/week @ \$20/hr, 50 weeks) | \$10,000.00 |
| Actual (Apr): Jocie Colella (\$15/hr) | \$302.50 |
| Actual (Apr): Connor Burgin (\$10/hr) | \$452.50 |
| Remaining, May 2017 | \$9,245.00 |
| Projected 2017 total | \$6,795.00 |

(c) Soft launch of website: (Aimed for March/April 2017, with full launch in June 2017, and then continued maintenance and feature modification through end-2017)

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| Website maintenance, hosting, continued design changes | \$6,000.00 |
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| Actual: (none) | \$0 |
| Remaining, May 2017 | \$6,000.00 |
| Projected 2017 total | \$4,000.00 |

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| Current Total, May 2017 | \$5,087.50 |
| Current Remaining, May 2017 | \$19,912.50 |
| Projected Total, 2017 | \$19,795.00 |
| Projected Remaining, 2017 | \$5,205.00 |

Action Items:

(1) We propose to officially shorten our name to the ASM “Biodiversity Committee” — dropping the “Mammal” for clarity and to avoid redundancy with “Mammalogists” in the ASM acronym.

(2) Proposed budget for year 2

Student research assistants: We aim to expand the efforts of MDD student researchers in curating this taxonomy database for per-species pages, descriptions, ecological trait summaries. In Year 2, we propose to increase the hourly wages of existing researchers by \$5/hr each on basis of merit and experience. Optionally [*c'*], we may additionally hire a third student to assist in these efforts. We plan to continue this rate of funding for Year 3 as well.

- a. ~10 hrs/week @ \$20/hr, 50 weeks (graduate student) \$10,000
- b. ~10 hrs/week @ \$15/hr, 50 weeks (undergraduate student) ... \$7,500
- c'*. ~10 hrs/week @ \$15/hr, 50 weeks (additional student)[\$7,500]

Website maintenance:

- a. Web hosting, continued design changes (~250 hrs @ \$30/hr)\$7,500

Years 2 and 3, annual total (1a + 1b + 2a) \$25,000
Optional: Years 2 and 3, annual total (1a + 1b + 1c' + 2a) [\$32,500]

(3) Goals for end-2017 and 2018:

- a. **Improved organization of volunteers:** We will assemble a network of per-clade volunteers (ASM members and non-member specialists) to vet the initial draft taxonomy, looking for additional citations and revised classifications.
 - o Given the ~6,200 species of mammals, we will target ~40 volunteers willing to monitor literature for ~150 species/each
 - o We plan on a 6-month schedule for releasing versions of the mammal taxonomy as updated with new publications, as coordinated by Committee
 - o Aim to democratize the process of contributing to a taxonomic resource and spread out the workload among more individuals.

- b. Use of the data curation backend by student researchers and volunteers:** The Polymer platform allows for user-based permissions to be established, so that a dispersed network of volunteers will be able to add content/edit the site (useful!)
- c. Integration of Mammal Images Library content:**
- Improvement over current need to manually edit image names with each revision
 - Direct inclusion of image files (jpgs) in new website will avoid the need to link-up the Mammal Diversity Database to the ASM's existing MIL repository
- d. Editorial oversight by a small group of taxonomic experts:** Aim to provide a consistent framework by which taxonomic changes are accepted to the database
- This may include MSW4 authors (2018 publication?) and in order to promote coordination between that volume and this database.
- e. Other content-based priorities:**
- Hyperlinks to new species citations (e.g., in *J. Mammalogy*, *Mamm Species*, *Zootaxa*)
 - Online forum for discussing taxonomic changes and engaging the public in issues of mammalian biodiversity and conservation—may be a moderated Wiki-style group.
 - Expansion of per-species content to include detailed natural history, ecological, and geographic information (e.g., collaboration with Animal Diversity Web).
 - Downstream: per-species info on phylogenetic position (VertLife tree of mammals), geo-distributions by region (continent, country, state in USA), and NCBI/IUCN links.

Respectfully submitted,
Nathan S. Upham, Chair
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