

Podium Presentation Abstract (In-Person) for the American Society of Primatologists Meeting, Denver, CO August 25-28, 2022 <https://www.asp.org/asp-meetings/asp-2022-in-denver-save-the-dates/>

Abstract submission ID # 17

Title: Unlocking museum collections for primate phylogenomics and conservation: case studies from lorisiform primates

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Our understanding of primate evolutionary history, diversification, and conservation status is often limited by our ability to obtain high quality data from wild populations. This task has been particularly difficult for small, nocturnal, and elusive species like the lorisiforms (galagos, lorises, and pottos). For these endangered primates, an assessment of genetic relationships can improve taxonomic resolution and inform conservation efforts. Here, we present two case study examples that leverage vast museum collections to improve our knowledge of the evolutionary history and conservation status of lorisiforms. First, we review how mtDNA sequencing of slow lorises (*Nycticebus*) including museum specimens (N=153, 2,835 bp per sample) enabled the most extensive geographic sampling coverage to date for this group. Second, we present results from a target sequence capture approach to generate a genomic level dataset (334 loci, 1,108,850 bp) for 28 lorisiforms (including both galagids and lorises). The results of these analyses confirm the monophyly of Lorisidae and known phylogenetic relationships among galagid genera, but also suggest the potential for some taxonomic revisions and cryptic diversity. Lessons learned from these case studies include pervasive issues of specimen mislabeling or missing information, the impacts of specimen age and type on DNA concentration and sequencing success, and the enormous potential of museomic approaches for advancing studies of primate evolution and conservation.

List of species in the presentation

Garnett's Greater Galago (*Otolemur garnettii*)

Silvery Greater Galago (*Otolemur monteiri*)

Allen's Galago (*Sciurocheirus alleni*)

Tanzania Coast Dwarf Galago (*Paragalago zanzibaricus*)

Kenya Coast Galago (*Paragalago cocos*)

Mozambique Dwarf Galago (*Paragalago granti*)

Southern Lesser Galago (*Galago moholi*)

Northern Lesser Galago (*Galago senegalensis*)

Spectacled Lesser Galago (*Galago matschiei*)

Demidoff's Dwarf Galago (*Galagoides demidoff*)
Thomas's Dwarf Galago (*Galagoides thomasi*)
Southern Needle-clawed Galago (*Euoticus elegantulus*)
Pygmy Slow Loris (*Xanthonycticebus* (gen. nov.) *pygmaeus*)
Kayan Slow Loris (*Nycticebus kayan*)
Greater Slow Loris (*Nycticebus coucang*)
Bengal Slow Loris (*Nycticebus bengalensis*)
Sumatran Slow Loris (*Nycticebus hilleri*)
Javan Slow Loris (*Nycticebus javanicus*)
Bornean Slow Loris (*Nycticebus borneanus*)
Bangka Slow Loris (*Nycticebus bancanus*)
Philippine Slow Loris (*Nycticebus menagensis*)
Red Slender Loris (*Loris tardigradus*)
West African Potto (*Perodicticus potto*)
East African Potto (*Perodicticus ibeanus*)
Calabar Angwantibo (*Arctocebus calabarensis*)