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GIBBONS AS PHYLETIC DWARFS

S.M. Ford, M.G. Nowak

Department of Anthropology, Southern Illinois University, Carbondale. U.S.A.

Presenter's email: sford@siu.edu

Living hylobatids are the smallest apes, with a descending scale of body size from *Symphalangus* through *Nomascus*, *Hoolock*, and *Hylobates*. Prior descriptions of siamangs as “scaled up” gibbons suggest that gibbons represent the ancestral body size of hylobatids, and perhaps by extension, of apes. We suggest that the ancestral hominoid was somewhat larger, and that the gibbons are the modern result of phyletic dwarfing in the history of Asian apes. Phyletic size decrease is difficult to document without a rich fossil record, but some markers may include loss and/or simplification of teeth, or altered allometric relationships in dental and/or skeletal features, reflecting differential shifts in growth rate truncation. Using dental and postcranial data from the literature, we evaluate the hypothesis of gibbons as phyletic dwarfs. While general length of the postcanine tooth row and of M1 scale as expected with body weight across apes (approximately .33), length of the second and third molars in hylobatids decreases at a much higher allometric rate. Third molar loss is almost nonexistent in other apes, but occurs with increasing frequency as gibbon species decrease in body size. Allometric scaling of some structures within hylobatids differs from broad ape patterns in ways consistent with an altered pattern of size decrease over time, with siamangs falling on a “pivot” of change from general ape scaling to the unique hylobatic pattern. Phyletic dwarfing in the evolutionary history of gibbons may have affected various aspects of gibbon structure and life history.

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