Nicholas Boulanger

Grant Proposal

Introduction.

My objective is to test whether fossil evidence of transitional bats (order Chiroptera) in North America can be predicted based on paleontological and stratigraphic data. Modern bats are an incredibly diverse taxon, but discerning evolutionary relationships between bats and other extant mammals is difficult and unreliable without fossil evidence.

Justification.

Research Plan.

I will use the distribution of known fossils to determine where temporal gaps in the Chiroptera fossil record are present. Then, I will determine the age of the rocks that the transitional fossils should be preserved in. After that, I use geologic data to determine where rocks of the desired age are exposed and reachable, and thus where field expeditions should recover transitional fossils.

References.

Eiting, T.P, 2009. Global Completeness of the Bat Fossil Record: Journal of Mammalian Evolution, v.16, n.3, p.151-173.

Teeling, E.C., Springer, M.S., Madsen, O., Bates, P., O'Brien, S.J., and Murphy, W.J., 2005. A Molecular Phylogeny for Bats Illuminates Biogeography and the Fossil Record: Science, v.307, p.580-583.