

Pre-proposal defense committee meeting agenda

Comments on current proposal draft

- Michael's concerns
 - Trait assignments
 - * Current substrate and habitat assignments are preliminary
 - Review literature for improved site/formation descriptions
 - Increase assignment resolution
 - * Currently, there are no reef(-like) assignments for habitat in the PBDB data
 - Scaling up of traits
 - * Proposal has shifted from testing “emergence” directly
 - * Precise language in proposal and talk necessary
 - Preliminary results
 - * Very poor/rough right censoring criterion
 - * To be improved with more conservative “study end” date
 - * LAD uncertainty via interval censoring
 - * No climatic context
 - Regional/local climate proxies instead of purely global
 - * Mammals: unknown, must research
 - * Brachiopods: well resolved glacial patterns for Australia thanks to Tracy Frank and Christopher Fielding

Proposal talk

Current outline

- Introduction to theory
 - Law of Constant Extinction and survival analysis
- Brachiopod survival

- Biotic traits and climatic context
- Proposed analysis
- Preliminary results without conclusions
- Mammal survival
 - Biotic traits and climatic context
 - Proposed analysis
- Mammal community connectedness
 - Bipartite biogeographic networks
 - Community measures
 - Hypotheses/predictions
 - Preliminary results without conclusions
- Synthesis

Future concerns and directions

Projects

- Preliminary results
 - Improve censoring (combination right, left and interval)
 - More conservative “thresholds” near boundaries
 - Execute phylogenetic measures for community connectedness
- Survival analysis
 - In context of phylogeny? Some work has been done recently to include pedigrees and such.
 - Develop (new) PCM method (with Rick)?
 - Survival analysis is similar to a regression problem, though likelihood is calculated differently to allow for different censoring methods.
- Brachiopods
 - Assign affixing strategies
 - Improve on current coarse assignments

- Site/formation descriptions from literature
- Include Chinese record for latitudinal comparison
 - * Latitude/temperature has not been found to limit dispersal/range in modern Brachiopods
- Mammals
 - Hind’s Fund: obtained
 - South American mammal taxonomy congruence between FMNH and AMNH
 - Review catalogue information from FMNH collection
 - Body size from literature search

Conferences

- Preliminary brachiopod results at Evolution 2014
 - currently have substrate preference and habitat affinity assigned
- Simulation of effects of differential preservation on survival at GSA 2014
 - time-homogeneous birth–death simulation implemented
 - Poisson process fossilization implemented