Postmortem of Peter Smits' Fall 2015 Committee Meeting

The committee meeting was structured via a presentation seperated into three parts: past, present, and future. Kenneth Angieczyk, Michael Foote, Rick Ree, and Graham Slater were present. David Polly, while originally scheduled to attend, ended up having an unexpected conflict. Peter Smits will be meeting with him seperatly to go over the material covered in the committee meeting. Graham Slater is a new addition to the committee which needs to be made official with CEB, but that shouldn't be an issue.

The past section of the presentation was focused on what had been accompmlished since the last committee meeting in Winter quarter 2015. Since then, Peter Smits has published one paper in PNAS and submitted a second to Evolution. Both of these papers are expected to serve as independent chapters. Peter Smits solicited reviews of the paper submitted to Evolution from committee members, as he had not sent a copy of it to Rick, David, or Graham prior to submission.

There are two current projects: accumulation of regional diversity accumulation in brachiopods, and ratio of ecotype occurrences in Cenozoic mammals. Both of these projects were started after the previous committee meeting and this was the first time they were presented to the committee as a group.

For the project on regional diversity accumulation in brachiopods, there were a few major concerns. The general consensus was that the project is very much at risk of unimportance or irrelevancy. The focus on latitudinal diversity gradients and the use of not biologically meaningful regions really sinks the impact/utility of the paper. This is a continuing reminder that methodological complexity is no subsitute for interesting research.

A few suggestions included focusing on a specific temporal window and taxonomic combinations where actual hypotheses of assembly can be test (e.g. glacial-interglacial periods), identifying real bio-geographic units, and generally refocusing on a possibly GEOSSE-style analysis of how taxa move into and out of regions during the assembly of a regional species pool.

Peter is also most likely including either biological or environmental covariates in future analysis. A key future advance, however, is identifying meaningful bio-geographic provinces in order to better approximate regional-level assembly.

For the project on the ratio of ecotype occurrence over the Cenozoic, there were generally fewer concerns regarding the focus or direction of the project. Instead, however, most of the concerns were regarding data-types and choice of covariates of interest. A general problem that was identified was the fact that "ground dwelling", one of my responses of intesest, is way too broad a category and is skewing/obfuscating possible results. Graham Slater suggested breaking up ground dwelling by locomotor form (i.e. plantigrade, digitigrade, unguligrade), which should be very do-able with a little research.

Additionally, the use of the δO^{18} isotope curve as a proxy for climate was called into question for a few reasons. First, it is a measure of global temperature, not the temperature of North America. Second, it is a very assumption laden temperature proxy. And finally, it does not actually reflect the aspects of the environment actually of interest. Some alternatives that were considered were the Mg/Ca isotope record as it may be a less assumption laden temperature proxy, or the use of a North American plant-biome reconstruction. The source of this reconstruction is ambiguous but two possibilities were brought up: using published compedia of Cenozoic biome reconstructions, or analysis of Cenozoic fossil plant record. Incidentally, Rick Ree currently has a post-doc who may potentially have a lot of information for the latter. Peter Smits will be meeting with Rick and his post-doc in the near future to discuss this and other research questions.

Finally, Peter will be working on better ways of presenting the results of this analysis as presentation is currently unoptimised.

The final section of the committee meeting was discussion of the future. Rick and Ken had to leave by this point, so the only committee members prsent were Graham and Michael. Discussion was focused around what events and requirements there are going forward, what should be ready/completed by next committee meeting in Spring quarter 2016, when Peter Smits can be expected to finish, and how Peter Smits should approach marketing himself in terms of both post-doc positions and future jobs. Graham, Michael, and Ken (prior conversation) agree that Peter will most likely finish in Spring/Summer 2017 with four papetrs/chapters: the published PNAS one, the paper submitted to Evolution, and whatever comes of the two current projects. Peter Smits is expected to have prepared a list of potential post-doc positions/setups should apply for come Fall 2016 which start in Fall 2017.