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request for seal microsatellite data

Dear Prof Hoelzel,

We have a paper coming out in Molecular Ecology detailing the application of Approximate Bayesian Computation (ABC) for detecting a recent population bottleneck in the Antarctic fur seal, a species known to have been heavily exploited by commercial sealers in the 18th and 19th Centuries (see the pre-publication PDF proof, attached). We tested support for a simplified bottleneck model, with prior distributions for bottleneck size and timing broadly bracketed around known values, relative to a model of constant population size. This appears to have worked surprisingly well, not only providing good support for a bottleneck having occurred, but also generating estimates of bottleneck population size and timing that are remarkably consistent with the known hunting history.

We would be extremely interested in exploring how well this approach performs more widely across the pinnipedia, given that different representatives of this group have experienced markedly contrasting exploitation histories. The general idea would be to assemble microsatellite datasets (previously published or new) for as many different pinniped species as possible and to test them all within much the same analytical framework (i.e. determine relative support for two models, a generalized bottleneck model and one of constant population size, and derive posterior estimates where possible for bottleneck size and timing). The main aim would be to test if the degree of support for the former scenario correlates with what is known about each species' exploitation history (ie. heavily hunted, moderately hunted, not hunted). From a brief literature review, it appears that microsatellite datasets have already been published for ~25 different pinniped species.

I was wondering if you would be willing to share some of your data on elephant seals (and for that matter any other pinniped species that you might have data for). Naturally, the data would be used only for the purpose of the proposed analysis and would not be passed onto any third parties. We are not yet sure how well the proposed analysis will work, since the key thing will be generalize the bottleneck model to as many species as possible. However, if meaningful results can be generated, we would aim to write these up for a reasonably high-profile journal.

Although we can do internet searches, it would also be useful to have your best estimates (or 'gut feelings') for the following: historical (pre-bottleneck) population size, bottleneck population size (if the species was heavily hunted, how small is the population known to have gone?), time interval of exploitation, and contemporary population size.

We very much hope that you will be willing to participate in what could prove a very interesting analysis.

With best wishes,

Joe Hoffman and Caleb Philips