Ceiba Foundation for Tropical Conservation
Educational Programs

Marine Research Project -- Pre-Proposal Guidelines

General Comments

The scope of your marine project is limited by the short time we have available, and by Galapagos park rules. To expand the horizon of research possibilities, think of your marine field project as a preliminary or **pilot study**. You will incorporate the results of this pilot study into a larger, **future research** project that you will propose as your final paper, written in the form of a funding **grant proposal**. In the future research you propose in this grant application, you can consider much more advanced studies than we can actually complete during our stay here, which may include: a wider range of study sites, greater lengths of field time, permission to manipulate study subjects, a well-outfitted research lab, more advanced equipment, etc.

While you will work in a group on the pilot project, each member can propose their *own* future research, if you choose to pursue an avenue of investigation that differs from that of other group members. Therefore, while the **pilot project proposal** must be written as a group, each member will hand in their own final paper, or **grant proposal**.

In designing your future research project, think carefully about the connection of your study to marine conservation, reserve management, marine ecology, basic biology, or other areas. The best kinds of studies focus on a compact question that will contribute to an important, larger area of scientific interest, such as global climate change, human population growth, increased ecotourism, etc. Esoteric, disconnected questions will be unlikely to receive funding from a conservation granting organization.

Marine Pilot Projects: Must be observational only, due to Galápagos National Park limitations.

Title

The title should be brief but informative, clearly summarizing the research focus. Avoid cute titles and puns.

Background

Provide biological or ecological background on your species, ecological process, or system of interest. Cite the work of previous authors wherever possible. This section should start with general information, then begin to focus on your area of interest, leading up to the explicit rationale for your pilot project. Distinguish between the **future research** that you will propose in your grant application, and the **pilot study** performed at this time. Think carefully, and clearly express, the *sequence of logical connections* that link your pilot project to your broader proposal, and that link the expected results of the future research to the areas of interest that drive your grant proposal; for example:

"Human populations in Galapagos have had negative impacts on wildlife survival and reproductive success (citation1, citation2). We propose to assess the impact of human activities on the Galapagos sea lion. We expect sea lions in or near towns to exhibit more vocalizations, less time foraging, and less time sleeping than sea lions far from towns. Our pilot study of an in-town population only will compare the frequency of these behaviors between periods of high and low human presence. For the full grant application we will propose comparing sea lion behavior on human-visited versus non-visited beaches, and high-visitation versus low-visitation beaches. Additional benefits for the full grant application include creation of a behavioral ethogram, and testing of data collection methods."

Hypotheses for Pilot Study (and Future Research)

State your hypotheses very clearly. The exact phrasing will constrain the manner in which you collect and analyze all data. Distinguish carefully between the hypotheses for your **pilot study**, and those you will test in your **future research**; these may be the same, or logically related.

Methods

This section should be the most detailed. Focus on the methods you will use in your *pilot study*, not the research to be proposed in your grant application. Be explicitly clear about the methods for testing each hypothesis. Include the number of treatments, and replicates, used in each test. Indicate where your study sites are located, and provide a rough outline of your data-collection schedule, so that you can be sure your replicates can be collected in the time allotted. Describe clearly the statistical tests you will employ.

Summary of Research to be Proposed in the Grant Application

Briefly describe an outline of the research you will propose in your grant application; just a few sentences will suffice. Then indicate how your pilot study will contribute to this broader study: are you testing methods, collecting data that will be used, assessing just one of several treatments (e.g., in-town vs. far from town), or assessing whether your initial hypotheses are supported by real-world data? Keep in mind that the best preliminary studies *improve* the design of proposed future research, by refining the hypotheses, suggesting new ones, increasing the number of replicates, adding new study sites, etc.

Literature Cited

Cite at least three articles in your proposal, and include author, year, article title or book title, name of journal, volume (and issue) number, and page numbers. Avoid citing lectures (i.e., "Meisel, pers. comm., 2010"), substitute textbook or article sources instead.