

The Molly Waters case: an unintended effect?

Molly Waters is an Assistant Professor in the Ecology, Evolution, and Behavior Program at North State University. She is in her third summer of fieldwork. Last month, her yearly review with the Chair of her department did not go well. The Chair made it clear to her that she was not meeting departmental expectations. Although her teaching evaluations were strong, she had not published much since arriving at North State, and in fact she had had considerable difficulty establishing her field project. She is confident, however, that in her third summer of work, things will take a sharp turn for the better.

Waters studies parental care in two species of birds. These two species are closely related to one another, yet differ in their mating systems. The Honeybee Sparrow is monogamous, and both parents contribute roughly equally to raising the young. The Still-a-Fool Sparrow is polygynous, and the male parent leaves the female shortly after the last egg is laid, leaving the female parent to raise the young alone. Molly Waters's work aims to understand the major environmental factors that influence parental care in these two species.

To conduct her studies, she has marked each individual in her study site with unique combinations of leg bands, under approved federal and state permits and IACUC protocols. Waters and a large number of graduate and undergraduate students will spend the summer collecting data on parental care in these two species. Each morning for at least 30 minutes at each nest, observers will collect a large and diverse array of data, including feeding rates, types of food delivered, vocalizations produced by the parent(s) during feeding, and begging behavior of the young. For some of these measures, the observers have to be positioned within 5m of the nest to collect the data.

About midway through the summer, Waters finds that the data seem to be supporting her hypotheses for the two species. If the trends for the data for the remainder of the summer are even remotely like what she's obtained for the first half of the summer, she will have a major and important research paper to submit in the fall. On the other hand, she finds that a high number of nests in her study site are failing. Normal rates of nest failure for these two species (based on data from older published studies) are around 20%; Waters is finding that over 40% of the nests she and her students have been monitoring have failed. The failed nests by and large show the signs of blue jay or raccoon depredation.

Adjacent to her main study site, Waters has another site of banded birds that she and her students monitor only once every 10 days. At this site, she finds that nest failure rates are only around 15%. Waters begins to think that the daily rates of intensive data collection at each nest on her main study site may be attracting predators to the nests. At this point, midway through the summer, she contemplates two options. One option is to push on and accept the nest (and nestling) losses, knowing that her final sample size will very likely be large enough to obtain statistically significant results to address her hypotheses. The other option is to begin a slower rate of data collection at the nests at her main study site – she thinks this will result in fewer failed nests due to predation, but also knows that this likely will mean she won't obtain enough data to address her hypotheses adequately unless she repeats the entire study again next summer. Optimistic that both options will ultimately result in a study that will be accepted for publication in the major journal in her field, Waters nonetheless realizes that the second option will delay any possible publication an additional year. This will not look good at next year's review with the Chair of her department.

Which option should Molly Waters take and why?