

Are We Sacrificing Biology for Statistics

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Are We Sacrificing Biology for Statistics?

By the time you read this editorial, I will have officially been Editor-in-Chief (EIC) of the Journal for one year. During that year, I've been humbled by the experience and appreciate the opportunity to serve the wildlife profession in this capacity. Sitting down and writing an editorial for each issue is relatively straightforward, with my focus usually being on trying to provide a little insight into an issue faced by authors when attempting to publish in the Journal. For this editorial, however, I want to provide my thoughts on an issue that has crossed my desk and e-mail inbox a number of times during the past year.

Not long after assuming the role of EIC, I received e-mails from several colleagues whom I respect tremendously. Their e-mails were intended to provide their perspectives on any number of issues pertaining to the Journal, and one that repeatedly came up in their correspondences was the issue of statistics. More specifically, the notion that authors often focus more directly on the techniques used to analyze their data than the underlying biological question that prompted the research, and hence, the manuscript. Clearly, some manuscripts are focused on analytical techniques, but many more are presumed to be focused on a species or system of interest.

Recently, I was dealing with an author who had very simple quantitative results. The statistics to support inferences about relative measures of difference among groups of interest were easy to follow and understand, and the underlying data clearly demonstrated that his inferences were well supported. During the revision process, I asked him to briefly address comments made by a referee, which criticized the lack of quantitative measures and elaborate statistical results. His response deserves repeating, so I'll paraphrase it for you: *I hope my simple biological manuscript is not sacrificed on the altar of statistics.* His concern resonated with me, and I've thought about it often since.

My intention here is not to enter into a debate about which statistical techniques are most appropriate or lament about their use. I'll allow others much more qualified than me to lead that debate. Rather, as an Editor I want to highlight a consistent problem (at least in my eyes) with many papers submitted to the Journal. The scenario is as follows.

Title of manuscript is interesting, abstract contains various mentions of modeling approaches, *P* values, and persistent references to significant differences. The Introduction frames the paper and typically focuses on biology and the underlying reason for the work. The Methods section contains elaborate descriptions of the analytical framework and statistical approaches used to answer questions at hand. Obviously, this reporting is necessary for the reader to

determine what was done, and more importantly, why. The problem arises in the Results. This section is framed entirely around the statistical approach used or the models produced. Often the section is dominated by references to competing models and statistical differences among groups. Former EIC Michael Morrison often harped on the need to include effect sizes in his comments to authors (trust me, I received them on several occasions!). I now completely see his point. Rarely do authors caught up in their analytical techniques actually provide readers with an idea of effect sizes or the magnitude of difference observed. Rather, they refer readers to table after table of model results, parameter estimates, and test statistics without any clear indication to the reader of exactly what the findings mean. The reader is left to make their own judgment and wade through the results to glean the importance of the work.

I find myself openly questioning whether we sometimes forget why we do what we do. Stated differently, what ultimately caused you as an author to conduct the research reported in your manuscript? For the vast majority of papers submitted to the Journal, it is a biological question of interest with a potential link to land management. Don't get me wrong, I'm not criticizing the use of statistics and elaborate analyses in our profession, so don't feel the need to come in search of my head! Rather, I offer that we need to maintain perspective when it comes to reporting results of our work.

As an author, maintain a sharp focus on the biological underpinning of your work. Keep the reader engaged with that biology. Construct the manuscript framed around the biology, and ensure that you do not lose sight of it throughout the presentation. Most importantly, understand that the average reader of the Journal is interested in the biological questions addressed with your work. The analytical framework and resulting results should *support* those questions and flow from them, *not overwhelm and obscure them.* And with that, let's move on.

In This Issue

In my humble opinion, this issue of the Journal encapsulates the essence of our profession. A brief review of the articles reveals a healthy array of manuscripts on wildlife management techniques, papers dedicated to improving our understanding of how land use affects various wildlife populations, and a number of papers dedicated to improving our understanding of wildlife ecology and population dynamics.

I want to highlight one prevalent theme in this issue, that being the application and improvement of techniques in wildlife management. You'll note several traditional articles focused on evaluating and improving field techniques, as well as more contemporary articles focused on evolving genetic techniques that seem increasingly useful in our profession. Other articles articulate new ways of estimating animal

density and modeling abundance. My reason for highlighting these types of articles is simple. Our field is quite diverse, but inextricably linked to field research and the constant search for better ways of doing our job. I'm pleased to see the Journal publish a suite of articles directly focused on helping managers and researchers be more effective and efficient at their jobs. Ultimately, that's why the Journal exists, right?

Thanks

During each of my editorials, I provide thanks to those that are really responsible for ensuring that the Journal remains a focal outlet for important information pertaining to wildlife management. During the past year, I've realized that what I do is actually quite trivial compared to the actions of so many others involved in the peer review process. So many referees take time out of their lives to review science and provide thoughtful feedback. The Associate Editors continue to do yeoman's work when it comes to

critically evaluating manuscripts and making appropriate decisions and recommendations. And the Journal staff of Carly Johnson, Dawn Hanseder, and Anna Knipps handle more tasks than I could have ever imagined. I am constantly impressed with the level of service exhibited by staff, Associate Editors, and referees. They keep the Journal train running, and I appreciate the efforts of all.

In closing, if you have questions, comments, or concerns about the Journal, please do not hesitate to contact me. This is your journal, and I welcome your thoughts about it. Until next time . . .

—**Michael J. Chamberlain**
Editor-in-Chief