

Oregon Department of Fish and Wildlife  
11/6/2015

Summary of responses received by ODFW as part of an internal solicitation for scientific review of the technical document contained within Appendix B, titled *Assessment of Population Viability of Wolves in Oregon*

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The Oregon Department of Fish and Wildlife requested a courtesy review of the “Assessment of Population Viability of Wolves in Oregon” that will be presented at the November 9<sup>th</sup>, 2015 Commission meeting. We sent the document to 8 scientists and received responses back from 4 individuals. When soliciting a review, we explicitly expressed the individuals should focus on the validity of our population viability analysis (PVA) and not provide input on the process of delisting wolves. All reviewers provided their comments electronically on the Word document we provided with our analysis. Reviewers had until November 5<sup>th</sup>, 2015 to return comments. Our summary and response to reviews received by this date follows. We did not respond to each individual comments made by each reviewer.

### **Dr. Joe Bull – University of Copenhagen, Co-author of published model modified by ODFW to conduct PVA of wolves in Oregon**

Dr. Bull’s review of our model was positive and did not identify any major issues with our approach or conclusions. He stated, *“Overall I think the application of the model makes sense, as do the conclusions drawn, although I had some questions which I think need addressing. Also, I think the language around the way the results are presented needs modifying in some cases to reflect the degree to which conclusions can be drawn from a modelling exercise like this.”*

Dr. Bull included 37 unique comments in the document and 6 technical edits to improve wording. Of 37 comments, 11 were general statements, 3 provided suggestions for rewording, and 21 areas where additional details might improve the document.

### **Dr. Jon Horne – Idaho Department of Fish and Game, Research Biologist**

Dr. Horne stated, *“All in all a very well-done and thorough analysis. But there were a couple of very big issues. I didn't take much time to say all the good stuff I was thinking or really read the Discussion so in the interest of time, here you go”.*

While his review had the most suggestions regarding our modeling approach, he never indicated our model was fundamentally flawed nor were our conclusions inappropriate. His primary concern centered around our use of uniform distributions to randomly draw vital rates. He had some confusion about how we were implementing this based on our description in the text. We agree that our writing was a bit confusing and could be improved, but Dr. Horne was able to determine that we used a uniform distribution. Dr. Horne did not explicitly say our approach was wrong, rather he identified alternative statistical distributions that might have been more appropriate statistically. We agree, there are alternative distributions available. However, we contend our use of the uniform distribution is appropriate and allowed us to implement a more conservative population model for the following reasons:

- Other distributions will have a central mean vital rate that is most commonly chosen through random sampling. This reduces overall variation in randomly drawn vital rates. Using a uniform distribution, we increase variation (i.e., all outcomes are equally likely) in randomly drawn vital rates.
- Increased variation in vital rates will cause a population to perform worse on average – this caused our approach to be conservative.
- Modeling with reduced variation in vital rates would cause a more optimistic view of population viability. We used a conservative approach to follow the precautionary principle.

In total, Dr. Horne provided 16 comments on our analysis. Of 14 comments not related to our use of uniform distributions, 6 were general statements and 8 were suggestions to increase clarity in the document. Dr. Horne, did not review the discussion section of our document.

### **Dr. Katie Dugger – U.S. Geological Survey, Oregon Cooperative Wildlife Research Unit, Assistant Unit Leader**

Dr. Dugger had an overall favorable impression of our analysis and stated *“This was a substantial effort to predict wolf population growth in Oregon relative to conservation and management objectives. You used a rigorous modeling approach and what appears to be the best data available. Most of my attached comments suggest that you increase transparency of the modeling process by including more information regarding 1) the source(s) of the data you used in your model (i.e., full citations should be provided somewhere for vital rates in Table 1), and 2) when data was not available, how/why you decided to use the specific vital rates or values you chose (i.e., based on info for another species, “expert opinion” or just a “best guess”??). In some cases a better explanation of assumptions (and why you made them) would be helpful too”*.

Dr. Dugger’s greatest concern in our modeling approach was related to our application of density-dependence because the numbers used to estimate this value had the most uncertainty. We don’t necessarily disagree with Dr. Dugger on this point. However, we contend that this had little influence on our conclusion that wolves have a low risk of extinction in near term. Our model was designed to assess risk of extinction for a small population. Density-dependent factors would not occur until we had a large population and a large population would indicate an extremely secure and recovered wolf population.

In total, Dr. Dugger provided 22 comments on our analysis. Of these comments, 8 were suggestions to provide additional details in the text, 10 were general statements, and 4 provided suggested wording changes or changes to organization of the document.

### **Dr. Ryan Long – University of Idaho, Assistant Professor**

Dr. Long provided the most positive review of our PVA. He stated, *“This was obviously a hell of a modeling effort, and I enjoyed reading it, so thanks for the opportunity. I have a handful of comments and/or questions scattered throughout, but certainly nothing major. As with any model like this, it would be easy to spend a bunch of time trying to pick apart your choices for parameterizing various components of the model, and ask a bunch of detailed questions about why you did one thing or another. There really doesn’t seem to be much point in that here though. This is a rigorous, well thought-out modeling effort that appears to take full advantage*

*of every bit of relevant data you could get your hands on. As you explain multiple times in the report, your results are likely conservative, and frankly, I find them very convincing”.* We fully agree with this statement by Dr. Long. There are many options available when developing a model, but our approach was valid and rigorous.

In total, Dr. Long made 15 comments addressing our PVA. Of these comments, 9 were general statements and 6 were suggestions to provide additional details in the text.

## **Summary**

Overall, we received 4 positive reviews from scientists that did not identify fatal flaws in our analysis approach. Most reviewers explicitly indicated our modeling approach was sound. Based on our review of comments received, there was only one major comment related to the technical application of our PVA. We provide a response to this comment and contend that our approach is sound and is a more conservative modeling approach than that suggested. For the most part, reviewers made suggestions to improve the clarity of our report and in general, we agree with these suggestions.