PhD Dissertation Defense

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Defense Date: April 16, 2014

Title: Bridging the Gap between Research and Decision-Making: Empirical Evidence from a Case Study of Gray Wolf (*Canis lupus*) Management in the U.S.

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ABSTRACT

Does science inform decision-making? This question has been the subject of much attention across a wide range of scientific fields generating hundreds, if not thousands, of publications. In this dissertation, the gap between science and decision-making is examined within the context of conservation biology, including commonly proposed reasons that the gap exists and popular suggestions for bridging the gap, as well as areas where the current literature regarding the gap lacks empirical backing. To address the shortcomings in the "bridging the gap" literature, this dissertation had three goals: 1) to provide additional data about purported barriers and solutions to bridging the gap between research and decision-making; 2) to better understand the role that institutional incentives, which often place an emphasis on academic impacts, may have in the persistence of this gap; and 3) to explore the idea of creating a standardized method to measure the non-academic impacts of scientific activities, as a potential way to incentivize behaviors that bridge the gap. A conservation science implementation case study was conducted and focused on the use of scientific publications to support gray wolf (*Canis lupus*) management decisions in the United States (U.S.). For this case study, reviews were

conducted on all wolf literature relevant to this species in the U.S. and bibliometric analyses of U.S. federal regulations governing wolf management were performed. Interviews and surveys with wolf managers and researchers were also conducted in order to better understand the characteristics of research and researchers that are bridging the gap and potentially affecting decision-making. Overall, the results of this case study suggest that 1) science seems to play a role in decision-making; 2) science that is having an impact on decision-making is often the result of collaboration between academic scientists and government employees; 3) scientists based in academia can simultaneously have an impact on decision-making and academic thinking (a "dual-impact"); and 4) analyzing citation data from federal regulations and other similar "decision documents" could provide a new way to measure the impact of scientific research on decision-making. The thesis concludes with brief biographical sketches of scientists who are effectively bridging the gap, and proposes creating a method for measuring the impact of scientific publications on decision-making: a "Management Impact Index."