



Perspective

Fear of failure in conservation: The problem and potential solutions to aid conservation of extremely small populations



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ABSTRACT

The potential for extirpation of extremely small populations (ESPs) is high due to their vulnerability to demographic and environmental stochasticity and negative impacts of human activity. We argue that conservation actions that could aid ESPs are sometimes delayed because of a fear of failure. In human psychology, the fear of failure is composed of several distinct cognitive elements, including “uncertainty about the future” and “upsetting important others.” Uncertainty about the future is often driven by information obstacles in conservation: information is either not easily shared among practitioners or information is lacking. Whereas, fear of upsetting important others can be due to apprehension about angering constituents, peers, funders, and other stakeholders. We present several ways to address these fears in hopes of improving the conservation process. We describe methods for increased information sharing and improved decision-making in the face of uncertainty, and recommend a shift in focus to cooperative actions and improving methods for evaluating success. Our hope is that by tackling stumbling blocks due to the apprehension of failure, conservation and management organizations can take steps to move from fear to action.

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1. Introduction

One aim of species conservation is to prevent extinction. The risk of extinction, however, is high for extremely small populations (ESPs, defined here as those listed as ‘critically endangered’ by the IUCN www.iucnredlist.org). The small population sizes of ESPs make them particularly vulnerable to demographic and environmental stochasticity, including the random effects of variation in birth rate, sex ratio, climate, etc. (Melbourne and Hastings, 2008). This randomness increases the uncertainty associated with the conservation of ESPs. Social, political, biological, and economic components also play key roles in the success of conservation actions (Brechtin et al., 2002; Clark et al., 1994; Decker and Chase, 1997; Jacobson et al., 2010; Murcia and Kattan, 2009). The precarious state of ESPs and the biological and legal requirements for their protection can magnify the conflict between human and conservation interests. This, coupled with the high level of uncertainty associated with ESP conservation actions, reinforces the fear of negative outcomes and may deter necessary conservation actions (Clark et al., 1994). At the same time, decisive and innovative management action may be crucial to reverse the declining trajectories of ESPs and ultimately avert extinction. For example, an overly cautious approach and failure to act quickly have been implicated in the extinctions of the Christmas Island Pipistrelle (*Pipistrellus murrayi*) and the Hawaiian Po’ouli (*Melamprosops phaeosoma*) (Black et al., 2011; Martin et al., 2012b). In contrast, action was taken to capture the last remaining California condors in the 1980s in the face of much fear and protest by external organizations. Today, there is little doubt that condors would now be extinct if not for that decision to establish a captive breeding program (Alagona, 2004).

The combination of uncertainty about outcomes and pressure to succeed can lead to a fear of failure playing a significant role in human behavior, where actions are delayed due to apprehension about negative outcomes (Conroy et al., 2002; Haghbin et al., 2012). The importance of the fear of failure as an obstacle to conservation and ESP management was highlighted during a special symposium, “Conservation of Extremely Small Populations”, held at the University of California, Davis on February 10–11, 2012 (<http://animalscience.ucdavis.edu/savesmallpops/>). Thirty-eight conservation experts gathered to identify the most significant barriers to the conservation and management of species on the brink of extinction in the US. They represented the fields of law, policy, economics, management, ecology, genetics, and evolution, and worked for US management agencies, nonprofit and environmental advocacy organizations, environmental consulting companies, and academic institutions. A unifying theme emerged as participants identified important barriers to conservation (see Appendix for the full list): we need to address the fear of failure and its associated institutional constraints to improve our ability to successfully manage extremely small populations, and species of concern in general. The aversive components of failure identified by symposium participants fit within a framework from cognitive psychology that identifies five dimensions of the fear of failure (Conroy et al., 2002) that may lead to procrastination (Haghbin et al., 2012). We focused on two of those components—fear of an

uncertain future and fear of upsetting important others—because they summarize the roadblocks identified by the symposium participants and can be addressed at the institutional level. Given the expertise of the authors and symposium participants, our focus is on conservation in the United States. Nonetheless, we hope these lessons will be informative to conservation efforts worldwide.

We present the major roadblocks to ESP protection identified in our symposium within this fear of failure framework and provide suggestions for institutional and cultural changes to address the roadblocks. We use the fear of failure framework not because it explains all conservation hurdles or decision-making, but because we found it a useful and novel way to approach existing challenges. Our goal is to identify how the threat of failure impedes ESP protection and the conservation process overall, and then to provide solutions. Our message is not that we should make hasty conservation decisions: there are many valid reasons for delaying a decision, including a lack of scientific information. And indeed conservation successes can bring their own challenges too (Treves and Karanth, 2003). Rather, our message is there are available approaches that would help us decrease unnecessary delays caused by apprehension about outcomes. It is our hope these tools will help us to strike a better balance between action and inaction.

2. Fear of an uncertain future

From a cognitive perspective, uncertainty about the future can reduce felt competence (i.e. ability to act effectively), undermine motivation (Deci and Ryan, 2000), and increase procrastination (Haghbin et al., 2012). Not knowing how to effectively complete a task can reduce the motivation to try. In conservation, uncertainty often comes from a lack of information: information may be truly lacking or exist but not be shared among practitioners. This can include information about management decisions, processes, and outcomes, as well as biological information about species. Conflict and indecision in conservation efforts can stem from inadequate information gathering, processing, integrating, and/or sharing (Clark, 2009).

It is important for conservation management decisions to be based in science (Arletta et al., 2010; Sutherland et al., 2004), and decreasing uncertainty through rigorous scientific study will be greatly beneficial. However, the production of conservation relevant science can be challenging because the scientific timeline until publication is lengthy and can exceed the time required for management (Cook et al., 2013a; Knight et al., 2008; McNie, 2007). The imperiled nature of ESPs necessitates swift conservation decisions to prevent extinction (Martin et al., 2012b) and cannot always wait for findings to appear in peer-reviewed publications (Linklater, 2003; Meffe, 2001).

Below, we outline two factors related to uncertainty that contribute to the fear that ESP conservation actions will fail: lack of information sharing and interpretation, and lack of effective methods for decision-making in the face of uncertainty. These information-related challenges can reduce practitioners’ perceived competence in enacting successful conservation actions. An associated important issue, increased production of conservation

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