



EDITOR'S MESSAGE

Are Management Implications for the *Journal* Ceremonial?

The idea that a gap exists between wildlife researchers and managers or practitioners is not a new one (Wagner 1989, Finch and Patton-Mallory 1993, Hanley 1994, Prendergast et al. 1999, DeMaso 2012) nor is it limited to our field (Steffens et al. 2014). Joseph Sands and his well-known colleagues published a book in 2012 that addresses this issue for the wildlife field: *Wildlife Science: Connecting Research with Management*. Sands et al. (2012) include an exploration of the possible historical roots, present case histories, and make suggestions for how to bridge the gap. Understanding the short version of why this gap might exist serves well as context for this message on writing Management Implications.

First, there is the view that growing environmental and conservation problems are in urgent need of addressing, yet many researchers do not research what is germane to practitioners who are trying to solve problems (Whitten et al. 2001, Fazey et al. 2005, Gordon et al. 2014). As a result, managers often view research outputs as irrelevant, too simplified, not sufficiently quantitative or spatially explicit, or not pragmatic (McNie 2007, Arlettaz et al. 2010). Some have attributed the discrepancy to different frames of reference of the respective groups (Cascio 2007, Brennan 2012). For example, the reward structure for academic researchers focuses on publications and they are afforded little credit for seeing research through to its implementation. Researchers also seek novel and general solutions, provide tentative and well-qualified recommendations, promote rigor that can obscure results in statistical jargon rather than practical results, and expect understanding to evolve over time often in the face of debate.

On the other hand, managers may want to implement science- or evidence-based management; however, they may have limited access to the scientific literature due to finances or time to devote to synthesizing an ever expanding, and fragmented knowledge base that is getting more sophisticated and requires technical expertise to fully appraise the outputs. Further, practitioners want credible solutions to specific problems now and may shy away from novelty or rely on experience in the face of uncertainty (Rynes et al. 2001, Arlettaz et al. 2010, Cook et al. 2013). Even when managers embrace evidence-based management, a lack of economic, social, or political support can jeopardize implementation resulting in “knowing but not doing” (Knight et al. 2008, Arlettaz et al. 2010). Thus, it is not surprising that managers are challenged to understand and implement new findings (Brennan 2012).

There is considerable discussion in the literature on how to bridge this gap with most focusing on better collaboration and more communication: managers articulating their

information needs, researchers developing research collaboratively with managers, altering the rewards for researchers to foster their engagement in implementation, and training students in research and decision making (Finch and Patton-Mallory 1993, Sands et al. 2012, Cook et al. 2013, Jacobson et al. 2013). This vision of combining science and management has been the major philosophy of The Wildlife Society since its inception in 1937 (Krausman 2012). The Mission Statement of The Wildlife Society includes providing through its publications relevant scientific information that managers take into consideration in managing and conserving populations and their habitats. The continued publication of the *Journal of Wildlife Management* since 1937, the recent resurrection of the *Wildlife Society Bulletin* in 2011, and the emergence of the *Wildlife Professional* have focused on the science delivery to wildlife managers and other professionals. The *Wildlife Society Bulletin* was reestablished to engage managers (Ballard et al. 2011), and the *Wildlife Professional*, in particular, focuses on being translational, connecting the end-users to the available information and its application. But the *Journal* has its role to play.

Wildlife research acts as a catalyst for the wildlife profession because it generates new knowledge and tools for the profession to use in managing wildlife populations and their habitats within a socio-economic context. The *Journal* requests authors publishing Research Articles and Notes to provide a section on Management Implications. Even if a study introduces a new method or was not originally intended for direct application, we ask authors to reflect on how the study's findings might support or improve current practices, refute practices and offer alternatives, or simply make managers cognizant of new information for their consideration.

Some may argue that few managers read the *Journal* but rely on other translations, so why address management implications directly in research articles? I suggest managers not only read the *Journal* but also actively contribute it to. For example, out of the 18 research articles we published in the last issue, 11 had at least 1 author from an agency or NGO and another 4 were written by authors from government agencies only. We also hear from agencies who clamor for better access to the TWS journals in terms of site licenses. Nonetheless, researchers often feel unqualified to address the management implications of their study, perhaps because it is unfamiliar territory, their findings provide only a piece of a complex problem, or they fear it might reduce the theoretical value (Bartunek and Rynes 2010). But transfer of research findings to management is slow and who better to start the discussion on how they might be used? Many of the researchers who submit articles to the *Journal of Wildlife*

Management, I submit, want their research to benefit the conservation and management of wildlife but rely on a “strategy of hope”—hoping their work will engage management professionals by doing nothing further (Gibbons et al. 2008). Some feel we need to do more (Sands et al. 2012).

Guidelines to the *Journal of Wildlife Management* currently give succinct directions for developing the Management Implications: keep it short and direct, do not repeat results or discussion, explain important issues or address management opportunities, and do not make recommendations beyond the scope of your study. To these I add the following considerations. First, in structuring your Management Implications section, be clear to include a concise statement of the problem that the implications are meant to address. This clearly links any prescription or set of recommendations to an actual issue or problem. Second, identify your targeted audience. Although that audience often will be wildlife managers, it also might include land managers, specific agencies, or stakeholders. Third, include a small set of focused recommendations based on the study’s findings. Explicitly state what is expected to be gained as outcomes of implementing these recommendations and any limitations; give examples to illustrate your point. Do not presuppose the reader will make the linkages between your results and the recommendations. At any point if future research is needed, provide specific direction or next steps and indicate why those directions are needed. Bringing new awareness to a particular management context may be as worthwhile as a specific management action. Managers are less likely to use research from a single study than to amalgamate their knowledge. Fourth, do not go beyond what your findings support, but also refrain from using an overly tentative tone that may discourage managers from imagining ways to use your findings. Finally, keep to the key messages, make them clear and simple, and leave out the statistical jargon and obscure language, or the message will not be understandable no matter how hard readers strive to appreciate your findings.

—Evelyn Merrill

Editor-in-Chief

LITERATURE CITED

- Arlettz, R., M. Schaub, J. Fournier, T. S. Reichlin, A. Sierro, J. E. Watson, and V. Braunsch. 2010. From publications to public actions: when conservation biologists bridge the gap between research and implementation. *BioScience* 60:835–842.
- Ballard, W., J. Wallace, and T. E. Boal. 2011. The road back for the Wildlife Society Bulletin. *Wildlife Society Bulletin* 35:1.
- Bartunek, J. M., and S. L. Rynes. 2010. The construction and contributions of “implications for practice”: What’s in them and what might they offer. *Academy of Management Learning and Education* 9:100–117.
- Brennan, L. A. 2012. Universities and the disconnect between wildlife research and management. Pages 27–30 in J. P. Sands, S. J. DeMaso, M. J. Schnupp, and L. A. Brennan, editors. *Wildlife science: connecting research with management*. CRC Press, Boca Raton, Florida, USA.
- Cascio, W. F. 2007. Evidence-based management and the marketplace for ideas. *Academy of Management Journal* 50:1009–1012.
- Cook, C. N., M. B. Mascia, M. W. Schwartz, H. P. Possingham, and R. A. Fuller. 2013. Achieving conservation science that bridges the knowledge-action boundary. *Conservation Biology* 27:669–678.
- DeMaso, S. J. 2012. A history of the disconnect between wildlife research and management. Pages 3–12 in J. P. Sands, S. J. DeMaso, M. J. Schnupp, and L. A. Brennan, editors. *Wildlife science: connecting research with management*. CRC Press, Boca Raton, Florida, USA.
- Fazey, I., J. Fischer, and D. B. Lindenmayer. 2005. What do conservation biologists publish. *Biological Conservation* 124:63–73.
- Finch, D. M., and M. Patton-Mallory. 1993. Closing the gap between research and management. Pages 12–16 in D. M. Finch, and P. W. Stangel, editors. *Status and management of neotropical migratory birds*. USDA Forest Service General Technical Report Rocky Mountain 229:12–16.
- Gibbons, P., C. Zammit, K. Youngtob, H. P. Possingham, D. B. Lindenmayer, S. Bekessy, M. Burgman, M. Colyvan, M. Considine, A. Felton, R. J. Hobbs, K. Hurley, C. McAlpine, M. A. McCarthy, J. Moore, D. Robinson, D. Salt, and B. Wintle. 2008. Some practical suggestions for improving engagement between researchers and policy-makers in natural resource management. *Ecological Management and Restoration* 9:182–186.
- Gordon, I. J., D. M. Evans, T. W. J. Garner, T. Katzner, M. E. Gompper, R. Altwegg, T. A. Branch, J. A. Johnson, and N. Pettorelli. 2014. Enhancing communication between conservation biologists and conservation practitioners: Letter from the conservation front line. *Animal Conservation* 17:1–2.
- Hanley, T. A. 1994. Interaction of wildlife research and forest management—the need for maturation of science and policy. *Forestry Chronicle* 70:527–532.
- Jacobson, C., A. Lisle, R. W. Carter, and M. T. Hockings. 2013. Improving technical information use: what can be learnt from a manager’s perspective. *Environmental Management* 52:221–233.
- Knight, A. T., R. M. Cowling, M. Rouget, A. Balmford, A. T. Lombard, and B. M. Campbell. 2008. Knowing but not doing: Selecting priority conservation areas and the research-implementation gap. *Conservation Biology* 22:610–617.
- Krausman, P. R. 2012. Strengthening the ties between wildlife research and management. Pages 13–24 in J. P. Sands, S. J. DeMaso, M. J. Schnupp, and L. A. Brennan, editors. *Wildlife science: connecting research with management*. CRC Press, Boca Raton, Florida, USA.
- McNie, E. C. 2007. Reconciling the supply of scientific information with user demands: an analysis of the problem and review of the literature. *Environmental Science and Policy* 10:17–38.
- Prendergast, J. R., R. M. Quinn, and J. H. Lawton. 1999. The gaps between theory and practice in selecting nature reserves. *Conservation Biology* 13:484–492.
- Rynes, S. L., J. M. Bartunek, and R. L. Daft. 2001. Across the great divide: knowledge creation and transfer between practitioners and academics. *Academy Of Management Journal* 44:340–355.
- Sands, J. P., S. J. DeMaso, L. A. Brennan, and M. J. Schnupp. 2012. Moving forward: connecting wildlife research and management for conservation in the twenty-first century. Pages 287–302 in J. P. Sands, S. J. DeMaso, M. J. Schnupp, and L. A. Brennan, editors. *Wildlife science: connecting research with management*. CRC Press, Boca Raton, Florida, USA.
- Steffens, P. R., C. S. Weeks, P. Davidsson, and L. Isaak. 2014. Shouting from the ivory tower: a marketing approach to improve communication of academic research to entrepreneurs. *Entrepreneurship Theory and Practice* 38:399–426.
- Wagner, F. H. 1989. American wildlife management at the crossroads. *Wildlife Society Bulletin* 17:354–360.
- Whitten, T., D. Holmes, and K. MacKinnon. 2001. Conservation biology: a displacement behavior for academia. *Conservation Biology* 15:1–3.