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POLICY PERSPECTIVE

Governance Principles for Wildlife Conservation in the 21st Century

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Abstract

Wildlife conservation is losing ground in the U.S. for many reasons. The net effect is declines in species and habitat. To address this trend, the wildlife conservation institution (i.e., all customs, practices, organizations and agencies, policies, and laws with respect to wildlife) must adapt to contemporary social–ecological conditions. Adaptation could be supported by clear guidelines reflecting contemporary expectations for wildlife governance. We combine elements of public trust thinking and good governance to produce a broad set of wildlife governance principles. These principles represent guidance for ecologically *and socially* responsible wildlife conservation. They address persistent, systemic problems and, if adopted, will bring the institution into line with modern expectations for governance of public natural resources. Implementation will require changes in values, objectives, and processes of the wildlife conservation institution. These changes may be difficult, but promise improved wildlife conservation outcomes and increased support for conservation. We introduce challenges and opportunities associated with the principles, and encourage dialogue about them among scientists, practitioners, and other leaders in U.S. wildlife conservation. The principles alone will not change the course of conservation for the better, but may be necessary for such change to occur.

Wildlife conservation is losing ground. Despite restoring several high profile species (particularly "game" animals) to abundance following decimation in the late 1800s and saving other endangered species from extinction since the environmental movement of the 1960s, over 685 animal species are now listed as "threatened" or "endangered" under the U.S. Endangered Species Act (http://ecos.fws.gov/tess˙public/pub/boxScore.jsp) and hundreds of other species are under consideration for listing. While climate change has generally increased the risk of extinction across all taxa (Urban 2015), some species have become so abundant that they require significant impact mitigation (Riley *et al.* 2003). Government agencies, land trusts, and other nongovernmental organizations add important increments to the conservation estate each year (http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/). For example, during the last two decades the National Park Service expanded by 1.46 million hectares (Gorte *et al.* 2012). Nevertheless, protection of habitat is being outpaced by losses: between 1982 and 2010, newly developed land consumed over 17 million hectares of habitat in the U.S. (USDA 2013).

Early exposure to nature promotes proenvironmental behaviors (Collado *et al.* 2013), but children are spending less time outdoors (Larson *et al.* 2011) and adolescent conservation behaviors have shown a downward trend since the 1970s (Wray-Lake *et al.* 2010). This general disconnection from the undeveloped environment indicates an uncertain future for conservation. Leaders of the wildlife conservation institution in the U.S. (i.e., the entirety of customs, practices, organizations and agencies, policies, and laws with respect to wildlife) need to rethink

governance of wildlife resources. (Governance refers to the practices and procedures that determine how decisions are made and implemented, and how responsibilities are exercised.)

The wildlife conservation institution urgently needs to adopt a more effective, strategic approach to address contemporary social values relative to wildlife and changes in land use and ecological conditions (Jacobson *et al.* 2007, 2010; Decker *et al.* 2011). Such an approach must be grounded on principles that encompass roles and responsibilities of all players in the wildlife conservation institution: elected and appointed officials (trustees), conservation professionals in government (trust managers) and non-government entities, and citizens (beneficiaries; Smith 2011; Wood 2014). Here we articulate 10 wildlife governance principles (WGPs) that combine key components of public trust thinking (PTT; Hare & Blossey 2014) and good governance (GG; Lockwood *et al.* 2010). We argue that these WGPs provide a framework for conserving all species for all citizens, and their application could significantly improve the effectiveness of conservation by encouraging modified behaviors of trust administrators and beneficiaries needed to collaboratively make decisions. Adoption of practices consistent with these principles will help lead to institutional cultural changes that will result in improved delivery of public trust and GG expectations as well as improved wildlife conservation. WGPs provide normative guidance for reform that acknowledges legal realities, societal expectations, and institutional culture while incorporating ecological and social dimensions.

Integrating two powerful ideas for wildlife conservation: PTT and GG

PTT offers a philosophical orientation toward natural resources and a means of addressing persistent and emerging challenges in environmental conservation (Hare & Blossey 2014). It has important implications for wildlife resource governance (Sax 1970; Wood 2014), particularly with respect to ensuring natural resources are conserved for the benefit of current and future citizens. Under PTT, wildlife resources are considered an endowment of natural wealth to be stewarded as an intergenerational inheritance, not suitable for exclusive private ownership (a "trust resource"; Hare & Blossey 2014). According to PTT, all citizens are beneficiaries of the wildlife trust and can expect to benefit from wildlife conservation (Decker *et al.* 2013; Organ *et al.* 2014). Therefore, all beneficiaries' interests should receive fair consideration and trust administrators (trustees such as elected or appointed officials responsible for wildlife resources, and trust managers such as senior officials of public wildlife agencies) should not be unduly influenced by specific stakeholder interests. Beneficiaries in turn are both entitled and obligated to hold trust administrators accountable. Furthermore, wildlife resource management decisions should avoid foreclosing options for future citizens to benefit from the resource.

While aspects of PTT have long been present in wildlife conservation in the U.S., consistency and comprehensiveness of application have been questioned (Horner 2000; Blumm & Paulsen 2013; Bruskotter *et al.* 2014; Wood 2014). Nonetheless, PTT is codified in laws and policies at state and federal levels, and interest is increasing among scholars and wildlife professionals who see the promise of PTT for improving the long-term effectiveness of wildlife conservation (Smith 2011; Blumm & Paulsen 2013; Decker *et al.* 2014a, b; Forstchen & Smith 2014; Hare & Blossey 2014; Jacobson & Haubold 2014; Pomeranz *et al.* 2014). PTT provides normative grounding for governance of wildlife resources as conservation adjusts to ecological and social change.

In addition to PTT, present-day expectations for wildlife governance include incorporating objectives of GG, which seek to establish fairness and transparency in decision-making, policy-formation, and implementation processes (Weiss 2000; Lockwood *et al.* 2010). Weiss (2000) presents four traits of GG relevant to wildlife resources, some consonant with PTT: participatory, transparent, and fair decision-making that incorporates diverse perspectives; future-looking, strategic decisions that consider likely cultural and social conditions; adaptive, effective, and efficient administrators; and citizens who hold administrators accountable. Lockwood *et al.* (2010) articulate a strategic GG approach to natural resource management reliant on inclusive stakeholder engagement, equity and fairness, organizational adaptability, legitimacy of leaders and decisions (e.g., transparency, accountability), and collaboration and coordination in decision-making. They posit that these conditions produce governance systems capable of dealing with environmental change and uncertainty. Taken together, elements of GG identified by Lockwood *et al.* (2010) and Weiss (2000) provide general guidance for inclusive, administratively fair, and sustainable governance of wildlife resources.

Wildlife governance principles

Our emphasis on PTT and GG responds to growing attention to public trusteeship of wildlife (Jacobson *et al.* 2010; Smith 2011; Decker *et al.* 2014b; Hare & Blossey 2014; Wood 2014), coupled with expectations for all entities involved in governance to practice GG (Lockwood *et al.* 2010). Legal and constitutional mandates for PTT

and GG exist in the U.S. (Horner 2000; Blumm & Paulsen 2013; Wood 2014), but arguably they are not adequately, comprehensively, or consistently applied. The work we present here indicates that PTT and GG are mutually reinforcing, but they have not previously been integrated into a single set of principles to guide action.

Articulation and adoption of high-order governance norms is especially urgent as the wildlife conservation institution considers how it will adapt to environmental and social change (Jacobson *et al.* 2010; Decker *et al.* 2011). Governance norms applied consistently will help promote more effective conservation and ensure fair consideration of the allocation of wildlife resource benefits to current and future citizens. We propose 10 WGPs for consideration and discussion among wildlife trust administrators and other participants in wildlife conservation:

1. Wildlife governance will be adaptable and responsive to citizens' current needs and interests, while also being forward-looking to conserve options of future generations.

Wildlife decisions will consider future scenarios and allow for adaptation to social and ecological change. Options must be retained for future citizens whose values, interests, and needs are unknown, while addressing expectations of current beneficiaries (i.e., decision making should respond to present interests without precluding future needs).

2. Wildlife governance will seek and incorporate multiple and diverse perspectives.

Wildlife resources will be managed with consideration given to all citizens' values and interests. Attending only to the interests of narrowly focused or vocal stakeholders is inconsistent with both PTT and GG.

3. Wildlife governance will apply social and ecological science, citizens' knowledge, and trust administrators' judgment.

Trust administrators will apply well-informed, evidence-based, sound judgment in decisions about allocation of benefits produced by wildlife resources. This will require credible, salient, and legitimate social and ecological science, local knowledge, and professional expertise, enabling conservation practitioners to effectively meet conservation goals.

4. Wildlife governance will produce multiple, sustainable benefits for all beneficiaries.

Wildlife resources will provide sustainable ecological, aesthetic, economic, and recreational benefits. Trust administrators must allocate benefits equitably and avoid systematically privileging some beneficiaries over others.

5. Wildlife governance will ensure that trust administrators are responsible for maintaining trust resources and allocating benefits from the trust.

Trust administrators are stewards of an intergenerational inheritance. Responsible trust administrators must be efficient, effective, and adaptive, to ensure the quantity, quality, and sustainability of wildlife resources.

6. Wildlife governance will be publicly accessible and transparent.

A mutually respectful and productive relationship between beneficiaries and trust administrators is fundamental to wildlife governance. Transparency and broad accessibility are crucial to this relationship.

7. Wildlife governance will ensure that trust administrators are publicly accountable.

Appropriate and accessible mechanisms must be in place to allow beneficiaries to hold trust administrators accountable.

8. Wildlife governance will include means for citizens to become informed and engaged in decision making.

Citizens have the responsibility to be both knowledgeable about and to participate in wildlife governance to ensure their needs are recognized; one trait is insufficient without the other. Holding wildlife trust administrators accountable requires citizens be informed and engaged.

9. Wildlife governance will include opportunities for trust administrators to meet their obligations in partnerships with nongovernmental entities.

Efficient, effective, and adaptive trust administrators will recognize when the capacity they control or direct is inadequate for sustaining the wildlife trust. Enhancing capacity to meet trust management goals may require partnerships with other individuals and organizations, including private landowners; such partners essentially become trust managers and must adhere to WGPs.

10. Wildlife governance will facilitate collaboration and coordination across ecological, jurisdictional, and ownership boundaries.

Wildlife resources and beneficiaries' interests do not neatly fall within existing ecological, jurisdictional, and ownership boundaries. Collaboration and coordination across all types of boundaries improve the effectiveness and adaptability of wildlife governance.

Wildlife Governance Principles

1. **Wildlife governance will be adaptable and responsive to citizens' current needs and interests, while also being forward-looking to conserve options of future generations.**
2. **Wildlife governance will seek and incorporate multiple and diverse perspectives.**
3. **Wildlife governance will apply social and ecological science, citizens' knowledge, and trust administrators' judgment.**
4. **Wildlife governance will produce multiple, sustainable benefits for all beneficiaries.**
5. **Wildlife governance will ensure that trust administrators are responsible for maintaining trust resources and allocating benefits from the trust.**
6. **Wildlife governance will be publicly accessible and transparent.**
7. **Wildlife governance will ensure that trust administrators are publicly accountable.**
8. **Wildlife governance will include means for citizens to become informed and engaged in decision making.**
9. **Wildlife governance will include opportunities for trust administrators to meet their obligations in partnerships with non-governmental entities.**
10. **Wildlife governance will facilitate collaboration and coordination across ecological, jurisdictional and ownership boundaries.**

Implications of adoption

WGPs accentuate the necessity for wildlife trust administrators to be cognizant of the many values and benefits people associate with wildlife, and the legitimacy of excluded or often overlooked groups' expectations for wildlife conservation (Horner 2000; Jacobson *et al.* 2007, 2010; Decker *et al.* 2009; Hare & Blossey 2014). Implementation of WGPs should result in fair, inclusive, and transparent decision making. Engaging a variety of perspectives will guard against wildlife conservation being exclusive or myopic (e.g., neglecting to see actions that exclude current beneficiaries or foreclose options for future generations). WGPs explicitly provide a framework for considering multiple perspectives and adopting processes that enable the wildlife conservation institution to address conservation challenges that span social and ecological boundaries. With the application of WGPs, wildlife conservation will be transparent and produce benefits for all beneficiaries, making it reasonable to anticipate wildlife conservation will be valued and supported broadly by society (Decker *et al.* 2009). Creating broader social relevancy of wildlife conservation for a larger portion of citizens is essential to broaden political and financial support for wildlife conservation (Jacobson *et al.* 2007).

Fully adopting WGPs will require significant changes in the U.S. wildlife conservation institution. Such changes include modernizing political and stakeholder-engagement processes; increasing use of social science to understand stakeholders and the impacts they experience; monitoring such impacts; calculating benefits and costs of program alternatives arising from entreaties of diverse stakeholders; and ensuring accountability of trust administrators. It will also require continued expansion of wildlife conservation to include not only programs aimed at species that are economically important, charismatic, imperiled, or of interest to particular stakeholders, but all species and the environmental conditions they require.

Adopting WGPs will expand the availability of benefits from wildlife resources and increase participation in wildlife governance by citizens. This will require renewed focus on the human dimensions of wildlife conservation; consideration of multiple scales and levels of social–ecological systems; improved comanagement of wildlife and habitats; and expanded efforts to increase awareness, appreciation, and support—direct and indirect—of wildlife conservation by all citizens. An example of the type of decision that would benefit from application of WGPs are strategies for large carnivores (e.g., bears, wolves, mountain lions, seals). WGPs would prompt decision processes cognizant of values, needs, and concerns of all stakeholders in these typically contentious issues. Decision processes consistent with WGPs would consider diverse stakeholder interests comprehensively, thereby enhancing public acceptance and reducing vulnerability to immediate reversal or challenge by individuals or groups who might otherwise believe they were excluded.

Negative consequences of *not* adopting WGPs can also be expected. For example, the number of beneficiaries who value wildlife conservation may decline if costs or perceived risks of coexisting with wildlife rise disproportionately to benefits (Decker *et al.* 2012). Wildlife governance that recognizes only a narrow constituency may face decreasing public support to the point that the wildlife conservation institution as a whole becomes irrelevant to the majority of beneficiaries whose interests it is obligated to serve. If irrelevant to enough people, conservation will continue to lose ground and species and habitats will continue to disappear. We propose WGPs as a framework for a wildlife conservation institution that can overcome the persistent challenges of unknown or alienated beneficiaries, special interest group exclusivity, and narrow conservation outcomes.

Discussion: prospects for adoption of WGPs

The wildlife conservation institution in the U.S. is under pressure to transition toward practices that are more ecologically and socially responsible (Jacobson *et al.* 2010; Bruskotter *et al.* 2014). WGPs can aid wildlife agencies and other participants in wildlife governance as they seek to address persistent and systemic cultural biases. WGPs promise to provide coherence and consistency throughout the institution, and simultaneously bring wildlife conservation practices into line with contemporary societal expectations. WGPs are guidelines for governance practices and organizational approaches that are not, at present, universally accepted or consistently implemented within the wildlife conservation institution. Adoption will take time as WGPs are internalized, existing processes are recalibrated, and individuals and organizations become familiar with how WGPs affect their roles. The changes needed to align with WGPs will affect all parties involved in the wildlife conservation institution: trustees (elected and appointed officials such as governors, legislators, and commissioners), trust managers (wildlife agency leaders and staff), nongovernmental partners (including private landowners, community organizations, nontraditional and traditional interest groups, industry, academia, and nonprofit organizations involved in wildlife conservation), and beneficiaries (i.e., all members of the public). The changes required will not come easily, but long-term advantages of clear and consistent guidance provided by WGPs will justify short-term difficulties of adjustment, especially when the current alternative is continued failure to meet trust obligations and persistent uncertainty about the future effectiveness and relevance of wildlife conservation.

Many factors could impede institutional change that would result in broad, inclusive, and collaborative wildlife management (Decker *et al.* 2009, 2011). Resistance might come from individuals and organizations throughout the wildlife conservation institution who embrace the status quo or who are otherwise reluctant to change. Thus, the onus for change lies not only with trust administrators but also with individual beneficiaries and organizations that represent various interests in wildlife, all of whom are responsible for establishing appropriate trustee-beneficiary (vs. agency-special interest/client) relations with public wildlife agencies and supporting necessary change both politically and monetarily (Jacobson *et al.* 2007; Smith 2011; Decker *et al.* 2014b). Ensuring that all interests receive parity of consideration is a significant challenge for trust administrators. Successful application of WGPs necessitates high levels of engagement and trust throughout the wildlife conservation institution, especially with those who do not currently feel included or represented. Successful application also requires engaged beneficiaries to support trust managers and hold them accountable. This web of reinforcing responsibilities in the overall public trust relationship will function most effectively if all participants in wildlife conservation are committed to commonly recognized and valued WGPs.

Conclusion

The wildlife conservation institution needs to take many actions to reduce the decline of species and habitats; key among them is to shift from operating under a framework focused predominantly on a narrow set of wildlife interests, to a social–ecological paradigm and concomitant approach to wildlife conservation that embraces the interests and participation of a broader public (Jacobson *et al.* 2010; Decker *et al.* 2014a). WGPs support the evolution of this paradigm by offering guidance on behaviors, processes, and decisions that embody PTT and GG. We believe comprehensive adoption of WGPs will result in a more focused, cohesive, and informed institution that can elevate the importance of wildlife conservation to all beneficiaries.

The WGPs offered in this article reflect legal realities in the U.S., and contemporary challenges facing the U.S. wildlife conservation institution. We encourage scholars and practitioners outside of the U.S. to consider whether similar sets of principles could enhance wildlife governance in their locations. This will be especially relevant in countries where PTT, GG, or both apply.

We hope the WGPs proposed here will support institutional discourse and change by illuminating desirable characteristics of governance that can improve wildlife conservation. We understand that the potential consequences of adopting WGPs need to be examined from multiple perspectives relative to current and anticipated needs for wildlife conservation. Consequently, we hope wildlife conservation leaders across sectors will create venues for and otherwise facilitate the professional dialogue that will necessarily precede adoption of these principles. We recognize the inevitability and value of argumentation among institutional players, but nevertheless advise that moving briskly through introspection to action is especially prudent given the significant social–ecological changes affecting wildlife conservation in the U.S.

References

Blumm, M. & Paulsen, A. (2013). The public trust in wildlife. *Utah Law Rev.*, **6**, 1437-1504.

Bruskotter, J.T., Vucetich, J.A., Enzler, S., Treves, A. & Nelson, M.P. (2014). Removing protections for wolves and the future of the U.S. Endangered Species Act (1973). *Conserv. Lett.* **7**, 401-407.

Collado, S., Staats, H. & Corraliza, J.A. (2013). Experiencing nature in children's summer camps: affective, cognitive and behavioural consequences. *J. Environ. Psychol.*, **33**, 37-44.

Decker, D.J., Forstchen, A.B., Jacobson, C.A., Smith, C.A., Organ, J.F. & Hare, D. (2013). What does it mean to manage wildlife if public trust really matters? In: *Trans. 78th North Am. Wildl. Nat. Resour. Conf.* **74**, pp. 47-54.

Decker, D.J., Forstchen, A.B., Organ, J.F. *et al.* (2014a). Impacts management: an approach to fulfilling public trust responsibilities of wildlife agencies. *Wildl. Soc. Bull.*, **38**, 2-8.

Decker, D.J., Forstchen, A.B., Pomeranz, E.F. *et al.* (2014b). Stakeholder engagement in wildlife management: does the public trust doctrine imply limits? *J. Wildl. Manage.*, **79**, 174–179.

Decker, D.J., Jacobson, C.A. & Organ, J.F. (2011). Transformation of state fish and wildlife agencies: ensuring the future of conservation in a rapidly changing world. Human Dimensions Research Unit and Cornell Cooperative Extension, Department of Natural Resources, Cornell University, Ithaca, NY, USA.

Decker, D.J., Organ, J.F. & Jacobson, C.A. (2009). Why should all Americans care about the North American model of wildlife conservation? In: *Trans. 78th North Am. Wildl. Nat. Resour. Conf.* **74**, pp. 32-36.

Decker, D.J., Siemer, W.F., Evensen, D.T.N. *et al.* (2012). Public perceptions of wildlife-associated disease: risk communication matters. *Human-Wildlife Interact.*, **6**, 112-122.

Forstchen, A.B. & Smith, C.A. (2014). The essential role of human dimensions and stakeholder participation in states' fulfillment of public trust responsibilities. *Hum. Dimens. Wildl.*, **19**, 417-426.

Gorte, R.W., Vincent, C.H., Hanson, L.A. & Rosenblum, M.R. (2012). Federal land ownership: overview and data. *Congressional Research Service*. Report R42346. 24 pp.

Hare, D. & Blossey, B. (2014). Principles of public trust thinking. *Hum. Dimens. Wildl.*, **19**, 397-406.

Horner, S.M. (2000). Embryo, not fossil: breathing life into the public trust in wildlife. *L. Water Law Rev.*, **35**, 23-75.

Jacobson, C.A., Decker, D.J. & Carpenter, L. (2007). Securing alternate funding for wildlife management: insights from agency leaders. *J. Wildl. Manage.*, **71**, 2106-2113.

Jacobson, C.A. & Haubold, E.M. (2014). Landscape conservation cooperatives: building a network to help fulfill public trust obligations. *Hum. Dimens. Wildl.*, **19**, 427-436.

Jacobson, C.A., Organ, J.F., Decker, D.J., Batcheller, G.R. & Carpenter, L. (2010). A conservation institution for the 21st century: implications for the state wildlife agencies. *J. Wildl. Manage.*, **74**, 203-209.

Larson, L.R., Green, G.T. & Cordell, H.K. (2011). Children's time outdoors: results and implications of the National Kids Survey. *J. Park Recreation Admin.*, **29**, 1-20.

Lockwood, M., Davidson, J., Curtis, A., Stratford, E. & Griffith, R. (2010). Governance principles for natural resources management. *Soc. Nat. Resour.*, **23**, 986-1001.

Organ, J.F., Decker, D.J., Stevens, S.S., Lama, T.M. & Doyle-Capitman, C. (2014). Public trust principles and trust administration functions in the North American model of wildlife conservation: contributions of human dimensions research. *Hum. Dimens. Wildl.*, **19**, 407-416.

Pomeranz, E.F., Decker, D.J., Siemer, W.F., Kirsch, A., Hurst, J. & Farquhar, J. (2014). Challenges for multilevel stakeholder engagement in public trust resource governance. *Hum. Dimens. Wildl.*, **19**, 448-457.

Riley, S., Siemer, W., Decker, D., Carpenter, L., Organ, J. & Berchielli, L. (2003). Adaptive impact management: an integrative approach to wildlife management. *Hum. Dimens. Wildl.*, **8**, 081-095.

Sax, J.L. (1970). The public trust doctrine in natural resource law: effective judicial intervention. *Mich. Law Rev.*, **68**, 471-566.

Smith, C.A. (2011). The role of state wildlife professionals under the public trust doctrine. *J. Wildl. Manage.*, **75**, 1539-1543.

Urban, M. (2015). Accelerating extinction risk from climate change. *Science.*, **348**, 571-573.

USDA. (2013). Summary Report 2010. National Resource Inventory. U.S. Department of Agriculture, Natural Resource Conservation Service. Washington, D.C., and Center for Survey Statistics and Methodology, Iowa State University, Ames, Iowa.

Weiss, T.G. (2000). Governance, good governance and global governance: conceptual and actual challenges. *Third World Q.*, **21**, 795-814.

Wray-Lake, L., Flanagan, C.A. & Osgood, D.W. (2010). Examining trends in adolescent environmental attitudes, beliefs and behaviors across three decades. *Environ. Behav.*, **42**, 61-85.

Wood, M. (2014). *Nature's trust: environmental law for a new ecological age*. Cambridge University Press, New York.

