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In My Opinion

Wildlife Governance in the 21st Century—Will Sustainable Use Endure?

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ABSTRACT In light of the trajectory of wildlife governance in the United States, the future of sustainable use of wildlife is a topic of substantial interest in the wildlife conservation community. We examine sustainable-use principles with respect to "good governance" considerations and public trust administration principles to assess how sustainable use might fare in the 21st century. We conclude that sustainable-use principles are compatible with recently articulated wildlife governance principles and could serve to mitigate broad values and norm shifts in American society that affect social acceptability of particular uses. Wildlife governance principles emphasize inclusive discourse among diverse wildlife interests, which could minimize isolated exchanges among cliques of like-minded people pursuing their ambitions without seeking opportunity for sharing or understanding diverse views. Aligning governance practices with wildlife governance principles can help avoid such isolation. In summary, sustainable use of wildlife is likely to endure as long as society 1) believes the long-term sustainability of wildlife is not jeopardized, and 2) accepts practices associated with such use as legitimate. These are 2 criteria needing constant attention. © 2017 The Wildlife Society.

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The future of sustainable-use principles applied to wildlife has global relevance (e.g., addressed by 1992 Earth Summit in Rio de Janeiro, 2002 Plan of Implementation of the World Summit on Sustainable Development), and is being considered with respect to both developing and developed countries as reflected in Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (Secretariat of the Convention on Biological Diversity 2004), where maintaining or losing various uses of wildlife has marked differences in consequences depending on context. Sustainable use has been a feature of modern wildlife conservation in the United States since its inception in the late 19th century (Organ et al. 2012, 2013), embedded in the bundle of government policies, philosophical values, professional norms, and conventional practices guiding wildlife management. State and federal policies and laws have fixed sustainable use as a core aspect of wildlife management; in some cases, mandating availability of animals for food and income (Musgrave and Stein 1993). History notwithstanding, the wildlife management approach in the United States has been subject to growing criticism for its dominant focus on sustainable use and users. Arguably, the approach has been challenged not so much because of concerns about sustainable use *per se,* but because of privileged access to and dominance in institutionally sanctioned policy and management decision-making enjoyed by certain sustainable-use interests (e.g., hunting), resulting in varying degrees of policy capture and exclusivity (Nie 2004, Beucler and Servheen 2008, Clark and Rutherford 2014).

We explore how governance of wildlife management in the United States during the 21st century is likely to influence the future of sustainable use of wildlife. The question "will hunting and trapping endure?" reflects the primary interest in this topic. The 'wildlife conservation institution' is the enduring formal and informal rules, articulation of values and beliefs, and development of norms and related behavior patterns that sustain and constrain its activities (Jacobson

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et al. 2010). Some people in the wildlife conservation institution are worried that sustainable use is threatened. This concern has multiple bases:

1) following a period of decline during the closing decades of the 20th century, the number of hunters and trappers has remained stable (thus, the proportion of U.S. citizens participating in these activities has declined, resulting in a reduced political base);
2) persistent resistance to killing wildlife among some U.S. citizens (e.g., concern for individual animal welfare and not accepting motivations for hunting and trapping);
3) a decreasing proportion of United States society rooted in a rural, agrarian culture that embraces ethical, regulated hunting and trapping;
4) a perceived decline in interest in sustainable use among students and professionals (particularly young professionals from more urban backgrounds) who will be guiding the future of wildlife conservation;
5) a rise in active participation (or expectation for participation) in governance of wildlife management by people collectively having diverse interests in wildlife that do not involve killing animals; and
6) evolution of wildlife management toward a governance paradigm that embraces norms of inclusiveness for governance of wildlife resources.

Taken together, these factors introduce substantial uncertainty about whether hunting and trapping interests will continue to prevail into the future as dominant or privileged stakeholders in governance of wildlife resources. Thus, having concern about the future of sustainable use of wildlife, at least some forms of use, is rational.

We discuss factors contributing to this complex situation, clarify relationships between sustainable-use principles and governance principles, point out some issues society needs to be cognizant of moving forward, and draw conclusions about the future of sustainable use. In so doing, we hope to allay some of the concern that is creating angst in the wildlife-management community about how hunting and trapping will fare if governance becomes more inclusive. Our analysis requires us to define sustainable use and make some assumptions about the approach to governance we expect to prevail for the wildlife conservation institution in the United States as the 21st century unfolds.

WHAT IS SUSTAINABLE USE OF WILDLIFE?

In the international arena, sustainable use typically is framed broadly as pertaining to biological diversity. Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (Secretariat of the Convention on Biological Diversity 2004:1) defines sustainable use as "the utilization of biodiversity in a manner that maintains its potential to meet current and future human needs and aspirations and to prevent its long term decline." A simple edit to provide focus creates a reasonable definition for sustainable use of wildlife: utilization of "the wildlife resource" in a manner that maintains its potential to meet current and future human needs and aspirations and prevent its long-term decline.

In the United States, sustainable use generally refers to uses of wildlife that do not negatively affect quality, quantity, or distribution of wildlife populations and habitat over time. Sustainable use includes killing wild animals when the wildlife population can be managed effectively as a renewable resource (i.e., one that is replenished over relatively short periods of time). Sustainable use can cover many activities, but our focus is regulated hunting and trapping. Thus, the underlying question is less about whether sustainable-use principles will endure, but about how hunting and trapping will fare if governance of wildlife resources becomes more inclusive of all interests in wildlife. We begin to address this topic with a brief description of relevant traits of the current wildlife management context in the United States, then describe governance principles we believe will guide the wildlife management institution through the 21st century. We next elaborate on sustainable-use principles. Thereafter, we address the specific question of how ongoing changes in governance are likely to affect how sustainable use will fare in the future.

FEATURES OF THE U.S. WILDLIFE MANAGEMENT CONTEXT RELEVANT TO SUSTAINABLE USE

Transformation of wildlife management in the United States is underway (Jacobson et al. 2010). Extent and rate of change might vary among states across the continent, but the institution is heading determinedly toward 'managing all wildlife for all people' (Organization of Wildlife Planners 2012). A central feature of transformation is adoption of an inclusive approach to governance (Decker et al. 2015*a*). Governance refers to practices and procedures that determine how decisions are made and implemented, and how responsibilities are exercised in a particular enterprise. This means the institution is broadening from a focus on stakeholders with hunting and trapping interests to more inclusive consideration of all people who value or use wildlife in a myriad of ways.

Some discomfort with "opening the tent" of governance in wildlife management to broader interests seems inevitable (Jacobson et al. 2010, Decker et al. 2013), but such a change in the institution does not suggest or obligate agencies to abandon their traditional stakeholders who collectively have invested heavily and reliably in the institution for decades. These stakeholders retain legitimate expectations for benefits from wildlife management while contributing base funding through license fees, Wildlife Restoration excise taxes, and Duck Stamps, as well as many important services that enable conservation programs. However, most people attentive to wildlife management are familiar with data showing the percentage of Americans who hunt is small and declining (USFWS 2013, Winkler and Warnke 2013); whereas, the percentage of Americans with interests in wildlife other than hunting and trapping is much larger (USDI et al. 2012). The growing imbalance creates potential for a shift in degree of influence on wildlife-use policy, from hunters to others with

an interest in wildlife. This prospect is where much of the angst about the future of sustainable use arises: some stakeholders in wildlife management feel killing wildlife, even if regulated conservatively to ensure populations are ecologically sustainable (renewable), is inconsistent with their wildlife-use interests or personal values (Regan 1987, Hoyt 1994).

Survival of hunting and trapping depends on society's continued acceptance of these sustainable uses. Some sustainable-use advocates are worried that with the emergent governance philosophy that invites all citizens to have equitable inputs into wildlife policy decision-making, their interests will be overshadowed. We believe this apprehension is fueled in large part by observations of public reaction to instances such as the killing of Cecil the lion (*Panthera leo*; Nelson et al. 2016) or the controversy over reinstatement of black bear (*Ursus americanus*) hunting in Florida, USA (Wilkinson 2015). The disparity in numbers of hunters compared with people with other interests in wildlife exacerbates fears of subordination among sustainable-use advocates. These fears are understandable, but as we explain below, they need not be realized.

PUBLIC TRUST THINKING—THE FOUNDATION OF WILDLIFE MANAGEMENT

American society's position on the fundamental importance of wildlife is expressed in common law, referred to as the Public Trust Doctrine (Sax 1970). Prevailing interpretations of this legal doctrine assert that wildlife in the United States is managed by state (primarily) and federal governments as public trust resources for the benefit of current and future generations (Horner 2000, Organ and Batcheller 2009, Batcheller et al. 2010).

The wildlife conservation institution in the United States is examining implications of managing wildlife as a public trust resource in the 21st century (Decker et al. 2016*a*, 2017). Many agencies are reaffirming their responsibilities with respect to the Public Trust Doctrine (Batcheller et al. 2010, Decker et al. 2013). Attention to public trust thinking (i.e., longstanding ideas about public ownership of natural resources that include, but are broader than, those normally articulated as the Public Trust Doctrine [Hare and Blossey 2014]) is essential because state wildlife agencies are being encouraged to shift from focusing on a narrow set of stakeholder interests to being more inclusive of all public interests in wildlife (Jacobson and Decker 2008, Jacobson et al. 2010, AFWA 2016). Public trust thinking can serve as a metaphorical gyroscope as wildlife agencies deal with the uncertainties associated with the change afoot (i.e., specific agency objectives and governance processes might be modified), but higher order purposes of conservation and philosophy of the government–citizen relationship expressed in public trust thinking can be sustained. Principles for governance of wildlife management based on an amalgam of public trust thinking and norms of good governance, which is public decision-making that is inclusive, fair, transparent, and participatory (Lockwood 2010, Lockwood et al. 2010), have been proposed. The thought is that these principles can serve as both gyroscope and compass to guide agencies and their partners to manage wildlife consistent with public trust ideals (Decker et al. 2017).

Principles of trusteeship (e.g., Organ et al. 2014) and descriptions of roles for various participants in the administration of public wildlife resources (Smith 2011) emphasize the special responsibility of trust administrators (trustees [elected or appointed officials] and trust managers [wildlife management agency staff]) to assure intergenerational fairness (i.e., keeping options open for future generations). For example, Scott (1999) asserts that the Public Trust Doctrine compels trust administrators to regularly review current scientific knowledge in relation to threats to, or enhancement of, 'natural capital' for future generations and presumably to protect and enhance wildlife populations and the environments in which they live.

Responsibility for the condition of the wildlife resources within the public trust was highlighted by Organ et al. (2014). These authors present 3 key functions that public wildlife managers fulfill under the Public Trust Doctrine: sustaining trust assets, developing trust assets, and distributing trust benefits. With respect to the first function, Organ et al. (2014:411) assert that, "At minimum, the core function of wildlife trust administration is protection of the corpus of the trust (i.e., the wildlife resource)." The function of sustaining the quality and quantity of trust assets (wildlife) is in part about ensuring renewability of wildlife subject to use, and thereby also enabling sustainable use. Organ et al. (2014:412) also discuss the function of distributing trust benefits, arguing: "The trust exists to provide benefits to current and future generations of citizens, therefore trust administrators are obligated, to the extent possible, to distribute benefits from the resource." Distribution of benefits is expected to follow norms of good governance (Decker 2014, Organ et al. 2014).

GOVERNANCE PRINCIPLES FOR WILDLIFE RESOURCE ADMINISTRATION

Wildlife governance principles (adapted from Decker et al. 2016*b*) integrate elements of public trust thinking and good governance into a series of normative statements that describe an approach to conservation. Principles assert that governance of wildlife management will

1) be adaptable and responsive to citizens' current needs and interests, while also being forward-looking to conserve options of future generations;
2) seek and incorporate multiple and diverse perspectives;
3) apply social and ecological science, citizens' knowledge, and trust administrators' judgment;
4) produce multiple, sustainable benefits for all beneficiaries;
5) ensure that trust administrators are responsible for maintaining trust resources and allocating benefits from the trust;
6) be publicly accessible and transparent;

7) ensure that trust administrators are publicly accountable;
8) include means for citizens to become informed and engaged in decision-making;
9) include opportunities for trust administrators to meet their obligations in partnerships with nongovernmental entities; and
10) facilitate collaboration and coordination across ecological, jurisdictional, and ownership boundaries.

Individual principles are not independent of others. They overlap, complement and support each other. Thus, the 10 principles are not an *a la carte* menu of practice choices to be selectively applied based on the trust administrator's preferences, but an interconnected set that should be applied altogether to achieve good governance of public trust resources. Law requires attention to the Public Trust Doctrine and civil society expects good governance, the combination of which is built into the wildlife governance principles.

SUSTAINABLE-USE PRINCIPLES

Renewability and sustainable-use concepts have underpinned natural resource conservation for well over a century (Organ et al. 2012). Sustainable use of wildlife in the U.S. and Canada has been driven by the premise that such use is acceptable given the following (Hamilton et al. 1998):

1) Species and populations are not threatened by its use (factors affecting beliefs about renewability);
2) A legitimate purpose is associated with the use (factors affecting evaluations of intended outcomes of a use); and
3) Methods employed in uses are acceptable to society (factors affecting evaluations of particular practices associated with its use).

As indicated above, each condition reflects societal beliefs or evaluations about sustainable use that, in aggregate, translate into social acceptability. Conditions 2 and 3, in particular, are not reflecting concrete, objective metrics, but potentially modifiable (though unlikely radically so) human cognitions and resulting social norms that might change over time.

SOCIAL CONSIDERATIONS REGARDING THE FUTURE OF SUSTAINABLE USE

How sustainable use will fare as a component of wildlife management will depend ultimately on social acceptability of such use. Thus, it seems prudent to think carefully about the social component of sustainable use. We believe that public attitudes about sustainable use primarily are an amalgam of people's beliefs about the renewability of wildlife (in general or for particular species in specific situations) and their evaluations about the nature of use. This idea can be represented as follows:

Beliefs about Renewability + Evaluations about Use = Attitudes about Sustainable Use

Attitudes have a cognitive and an evaluative component (Rokeach 1968, 1973; Vaske and Manfredo 2012). In other words, they are formed based on a set of beliefs (what one believes to be true, not necessarily objective facts; e.g., a local white-tailed deer [*Odocoileus virginianus*] population is a renewable resource that can be sustained in the presence of regulated hunting) and whether one views the attitude object (hunting, in this case) as "good" or "bad." Sometimes beliefs can be modified by facts, and sometimes attitudes can change when relevant beliefs are modified. Weakly held beliefs are amenable to change in the presence of new information. Strongly held beliefs are more difficult to change (i.e., not as likely to change by the provision of additional information). Values underlying beliefs and attitudes are most resistant to change (Manfredo et al. 2017). Carefully designed research would be required to understand key beliefs that influence attitudes toward sustainable use for any particular human population segment, but based on our observations of public issues related to wildlife use in multiple contexts, we think the following beliefs and evaluations might be playing a key role:

Factors affecting beliefs about renewability of wildlife resource:

1) Perceptions of renewability of the resource (e.g., elk [*Cervus canadensis*], wild turkey [*Meleagris gallopavo*], beaver [*Castor canadensis*])—whether quality and rate of new resource replacement meets some standard in the individual's mind.
2) Confidence (certainty and credibility) in the scientific foundation for claims about renewability of quantity and quality of the resource.
3) Concern about, and priority placed on, availability of wildlife to future generations (options for the future).

Factors affecting positive or negative evaluations of wildlife use:

1) Perceptions of what constitutes humane treatment of animals.
2) Ascribing rights to animals similar to those held by humans.
3) Social justice (fairness regarding access to wildlife by users possessing various traits and for various uses).
4) Economic value derived (and how that value is applied for benefit of conservation).
5) Socio-cultural value derived.
6) Ecological value derived (or lost).
7) Perceptions of motivations of users.
8) Perceptions or observations of behaviors of users.

Another component of people's attitudes about sustainable use is their beliefs about the safety of hunting and trapping and the use or possession of firearms. Factors affecting these beliefs include

1) Fear that hunting causes injury or loss of human life.
2) Fear that trapping causes injury to humans or injury or loss of life to pets.

3) Association of firearms with criminal activity and belief that firearms are inherently bad.

CROSS-WALKING PRECEPTS OF WILDLIFE GOVERNANCE AND SUSTAINABLE USE: IMPLICATIONS FOR THE FUTURE

We can explore how sustainable use of wildlife in the United States will fare in this century in part by examining sustainable-use principles with respect to broader wildlife governance principles, and identifying where these 2 sets of ideas are compatible. Sustainable-use principles and governance principles are normative in nature—they are open to interpretation, modification, and replacement depending on prevailing societal values at any point in time. Currently, sustainable-use principles and governance principles agree on 1) maintaining the quality and quantity of wildlife, 2) managing for use of wildlife or benefits derived from the wildlife resource, and 3) conserving options for the future. Wildlife governance principles (and public trust thinking and good governance norms more generally) are silent on 2 of the 3 sustainable-use principles: 1) a legitimate purpose is associated with the use, and 2) methods employed in uses are acceptable to society. Both of these principles indicate that the future of hunting and trapping as sustainable uses of wildlife in the 21st century will hinge on whether society finds these uses legitimate and acceptable. Divining the future stance of society on this topic is complicated by the fact that legitimacy and acceptability of hunting and trapping depends to some degree on perceived purposes for which these activities take place, as well as the specific methods used by hunters and trappers. For example, Americans view hunting for food as more legitimate than hunting for trophies and consider fair-chase hunting (defined by the Boone and Crockett Club as the ethical, sportsmanlike, and lawful pursuit and taking of any free-ranging wild, native North American big game animal in a manner that does not give the hunter an improper advantage over such animals) as more acceptable than hunting animals in an enclosed area (Duda and Jones 2009, Decker et al. 2015*b*).

Sustainable-use advocates might wonder whether a more inclusive governance structure will allow those who oppose sustainable uses more influence. A reasonable question might be, will voices for traditional sustainable uses be drowned out in a more inclusive process? That is unpredictable, but if society determines that particular uses are not legitimate in purpose or that specific methods are unacceptable in some respect, those concerns will find a way into policy-making venues. If such concerns are not addressed through normal citizen-engagement activities that agencies deploy for routine wildlife management, they eventually will be expressed through litigation or the broader political process either as ballot initiatives or election of legislators who will pursue laws effecting the desired change (Williamson 1998). Thus, while the possibility of policy banning particular forms of sustainable use might be of concern, embracing more wildlife interests in normal governance of wildlife management should not create any additive threats to the viability of sustainable uses of wildlife.

CONCLUSIONS

Generally, we believe application of wildlife governance principles could reduce threats to sustainable use because mutual understanding and respect among interests is more probable if all such interests are engaged in an inclusive discourse about goals of wildlife conservation. Wildlife management that implements practices operationalizing the wildlife governance principles can ensure that the realm of sustainable use is not isolated. These wildlife governance principles discourage the limited and mediated exchanges that can occur among cliques of like-minded people whose interactions are confined to separate, exclusive camps that tend to pursue their policy ambitions in isolation from any opportunity for sharing views and understanding policy tradeoffs (Rosenbaum 2014, Decker et al. 2016*b*).

Reaching the goal of managing all wildlife for all people requires nurturing the interests and participation in governance of all people with an interest in wildlife—in other words, leaving no one out and no one behind. In this ideology, sustainable use should endure in wildlife management as long as 1) society believes the long-term sustainability of wildlife is not jeopardized, and 2) accepts that practices associated with such use are legitimate. These are the 2 criteria needing constant attention, but they are not new, did not arise because of broader public involvement in wildlife decision-making, and will not be made more threatening by inclusive stakeholder engagement promoted by wildlife governance principles.

Embracing sustainable use within a framework of managing all wildlife for all people in the United States can send a powerful message to the global wildlife conservation community. Wildlife use and wildlife protection are not mutually exclusive. Indeed, this is being realized in other nations' conservation efforts (e.g., Somerville 2016). A robust conservation institution overseen with principled governance can sustain wildlife for generations to come, while allowing lifestyles deeply connected to resource use to remain.

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