



## Commentary

# A Conservation Institution for the 21st Century: Implications for State Wildlife Agencies

CYNTHIA A. JACOBSON,<sup>1</sup> *Alaska Department of Fish and Game, Division of Wildlife Conservation, 333 Raspberry Road, Anchorage, AK 99518, USA*

JOHN F. ORGAN, *United States Fish and Wildlife Service, 300 Westgate Center Drive, Hadley, MA 01035, USA*

DANIEL J. DECKER, *Department of Natural Resources, Cornell University, 245 Roberts Hall, Ithaca, NY 14853-5905, USA*

GORDON R. BATCHELLER, *New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources, Albany, NY 12233-4754, USA*

LEN CARPENTER, *4015 Cheney Drive, Fort Collins, CO 80526, USA*

**ABSTRACT** The wildlife conservation institution (Institution) needs to reform to maintain legitimacy and relevancy in the 21st century. Institutional reform is inherently slow. Limitations resulting from historical and resource dependencies between state wildlife agencies and hunters have left the Institution poorly positioned to meet changing ecological and social complexities. In this paper, we suggest that an ideal Institution would have the following 4 components: broad-based funding, trustee-based governance, multidisciplinary science as the basis of recommendations from professional staff, and involvement of diverse stakeholders and partners. Our suggestions reflect the fundamental tenets of the Public Trust Doctrine, which we believe is the foundation of the Institution. In bringing forth these ideas, we hope to encourage discussion about how the Institution should reform to meet the changing needs of society.

**KEY WORDS** funding, governance, Public Trust Doctrine, state wildlife agency, wildlife conservation institution.

Decades ago, state-level wildlife conservation and management developed the characteristics of an established institution: 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 and Decker 2006). Similar to many institutions whose origins date back to the late 19th century, the need for reform of the wildlife conservation and management institution (Institution) to meet contemporary challenges has been articulated (Heberlein 1991, Manfredo and Zinn 1996, Gill 2004, Jacobson et al. 2007). The question, “reform into what?” has not yet been posed let alone answered. Reform of an institution, if attempted strategically in response to multiple, coupled changes in the ecological and social environment, rather than as a piecemeal reaction to external pressures, requires foresight on the part of leaders and stakeholders to envision what changes might address contemporary and anticipated needs, constraints, and opportunities (Jacobson and Decker 2006). As pressures for change grow, competing ideas will emerge and need to be debated openly within the Institution. We hope to facilitate the discourse with some ideas about the underlying nature of a reformed future Institution. In this paper we do not explicitly consider sport and commercial fisheries management. Our focus is on wildlife management and conservation at the state level; however, certain principles contained herein may apply to fisheries issues as well.

Although the need and some ideas for reform have been suggested previously, it is clear that the Institution largely remains anchored to a paradigm (i.e., philosophy, assumptions, and related practices) that impedes dealing effectively with contemporary challenges (Jacobson and Decker 2006). It has been suggested that the Institution has difficulty with

change because of its historical relationship with and political and financial dependency on a single user group, hunters (Patterson et al. 2003, Nie 2004, Anderson and Loomis 2006). Hunters are key stakeholders; their contributions and integral role in wildlife conservation continue to be important. Maintaining hunter involvement and financial support of the Institution is necessary, but not sufficient. In light of the contemporary challenges facing the Institution due to changing ecological and social conditions, the inadequacy of our existing funding mechanisms to support wildlife management and conservation (Jacobson et al. 2007), increasing uncertainty of political support, and environmental threats of global proportion, we believe that the Institution must expand and evolve. A fundamental overhaul is needed.

We offer 4 considerations for reform to secure the relevance of the Institution into the future: broad-based funding, trustee-based governance, multidisciplinary science as the basis of recommendations from professional staff, and involvement of diverse stakeholders and partners in the Institution. Our suggestions reflect the fundamental tenets of the Public Trust Doctrine (PTD), which we believe is the foundation of the Institution. Our purpose is to encourage wildlife professionals to think about the extent and nature of change needed to position the Institution for greatest effectiveness in the future. Although speculative, we also suggest consequences that might be expected without change and adaptation.

## WHY INSTITUTIONAL REFORM IS NEEDED

Fundamentally, the Institution exists because society values wildlife. The current wildlife conservation paradigm has its grounding in the near and actual extirpation of wildlife and

<sup>1</sup> E-mail: [cindi.jacobson@alaska.gov](mailto:cindi.jacobson@alaska.gov)

destruction of its habitat. These effects were a product of the Industrial Revolution that resulted in a 4-fold increase in urbanization from 1820 to 1860 in the United States (Riess 1995) and growth and expansion of the human population and overexploitation of natural resources that became magnified in the late 19th and early 20th centuries. It was during this era that visionary conservation leaders of the late 19th and early 20th centuries marshaled support for political initiatives that elevated wildlife conservation to a national priority and essentially established the modern conservation movement and subsequently state wildlife agencies (SWAs), federal agencies with wildlife responsibilities, a multitude of nongovernmental organizations, academic institutions, and the wildlife profession. The Institution thus established has remained remarkably stable. Some notable policy initiatives associated with turn-of-the-century and Depression-era legislation, in particular the Pittman–Robertson Wildlife Restoration Act, and legislation associated with the environmental movement of the late 1960s and 1970s (e.g., the Endangered Species Act), reinforced the basic role of the Institution (i.e., restoration of populations and regulation of take). Despite significant economic, land use, ecological, and social changes of the last 3–4 decades, we have not seen a significant paradigm shift in the Institution (e.g., as evidenced by milestone policy initiatives redirecting the Institution) to indicate adjustment and recalibration. Several important individual policy initiatives (e.g., the Sikes Act, the State Wildlife Grants [SWG] program) have occurred, but public policy makers have not been motivated to engage in fundamental reform of national, state, or regional policies that would reconstitute the Institution in any profound way to magnify its ability to sustain wildlife and wildlife habitats in perpetuity. To the contrary, pressure to roll back progress gained by the Ecological Society of America has been strong and sustained (National Research Council 1995). Indeed, the most telling evidence of need to reform the Institution is the degradation and loss of wildlife habitat since World War II (Brown et al. 2005). The Institution has been ineffective in countering United States citizens' apparent unwillingness to support measures to protect wildlife and wildlife habitat in perpetuity at the cost of slowing the pace of national or regional economic growth and self-interest. This reality has had a profound impact on the relevance and functioning of the Institution. A case in point is the status of funding for SWAs and attempts to attain broader societal funding support for their programs (Franklin and Reis 1996). Because a mechanism to secure dedicated, broad funding for most SWAs has not achieved political support, the predominant funding source continues to be generated via a narrow base of stakeholders. Program attention and allocation of resources, including investment in science, privileges those special interests that financially support the Institution (Patterson et al. 2003). The resulting outcomes of institutional actions tend to serve a narrow segment of the public, making it less likely that broader public interests are attended to fully (Anderson and Loomis 2006).

If we accept the premise that the United States has a relatively weak conservation ethic, but that a minority of United States citizens deeply value wildlife, we posit that it is both timely and essential to reexamine both the PTD and the Institution that is based on it.

## **PUBLIC TRUST DOCTRINE AS THE FOUNDATION OF THE INSTITUTION**

The PTD is considered the foundation of the North American Model of Wildlife Conservation, a set of principles applied within the Institution (Geist et al. 2001, Geist and Organ 2004). A postulate of the PTD is that wildlife is owned by no one and held in trust by governments for the benefit of present and future generations (i.e., a public or common resource, not private property). The PTD stems from a United States Supreme Court ruling in 1842 (*Martin v. Waddell*, 41 U.S. 234), and its application to wildlife has been strengthened through subsequent court decisions (Horner 2000). Functionally, the PTD is common law (Sax 1970) that provides legal bedrock for government at the federal and state levels to protect, conserve, allocate, and control wildlife for the benefit of the public. In theory, it defines the limits for human impacts to and withdrawal of wildlife resources.

Smith (1980) identifies 3 criteria that need to be met for the PTD to be an effective tool: 1) the general public must be aware of their legal standing with respect to public ownership of wildlife; 2) this standing and the rights associated with it must be enforceable against the government so that the public can hold it accountable; and 3) interpretation of these rights must be adaptable to contemporary concerns, such as biodiversity and species extinction.

Sax (1970) and Horner (2000) have described the failings of the courts in upholding the public trust doctrine. This stems from the inability of many courts to distinguish between the government's general obligation to act for the public benefit and the greater obligation it has under the PTD as a trustee of certain public resources. For example, a court, in upholding its obligation to act for the public benefit, may consider economic tradeoffs and not exercise the special obligation to perpetuate resources under the PTD. The question arises as to whether the PTD has any judicially enforceable right in and of itself, beyond existing laws.

The implications of a PTD unable to withstand erosion by judicial challenge are profound. If the cornerstone of the Institution's foundation becomes weakened and ultimately destroyed, then the Institution itself will be severely compromised. To ensure that wildlife can be sustained for present and future generations will necessitate not only stronger laws to support the PTD but reform of the Institution as well. Many of the forces weakening the PTD can be attributed to failures of the Institution to address contemporary concerns, and a lack of awareness among the general public about their role in advocacy and enforcement of their rights.

We propose that incorporation of the following 4 components into the fabric of the Institution would be essential in realigning the existing Institution with the PTD. Such realignment will constitute a significant reform of the Institution.

## IDEAL COMPONENTS OF THE INSTITUTION

### Broad-Based Funding

Wildlife conservation, particularly at the state level, is funded primarily by hunters, trappers, and gun owners via license-sale revenue and Pittman-Robertson Wildlife Restoration funds, although some states have successfully augmented this user pay-benefit model by securing broad-based alternative funding that comprises a considerable portion of their overall budgets (Jacobson et al. 2007). The Institution acknowledges that this funding strategy is inadequate to support the growing demands on wildlife agencies (Hamilton 1992, Anderson and Loomis 2006). The SWG program is a notable accomplishment for the Institution, but the uncertainty and limitations associated with these monies makes SWG only part of an overall solution to the larger funding problem (Jacobson et al. 2007).

Other funding options states have pursued include dedicated revenues from vehicle license plates, voluntary tax check-offs, and nonprofit foundations to accept financial gifts. These funding efforts are voluntary, relying on the individual's interest in and willingness to pay for wildlife conservation and, in most states, revenue generated from these sources is negligible relative to conservation needs and stakeholder expectations (McKinney et al. 2005). Willingness to pay is ephemeral and contingent upon unpredictable factors such as perceived benefits derived, individual financial status, and desire or pressure to contribute to other causes (Hoehn and Randall 1987). Similarly, the user pay-benefit model depends on the continuing interest of wildlife users, most notably hunters who pay for wildlife management via license sales and through purchasing firearms and ammunition, versus all beneficiaries of wildlife conservation contributing through a nonvoluntary mechanism. If user numbers decline as has been occurring with hunters on a national level (Responsive Management/National Shooting Sports Foundation 2008), the Institution faces financial difficulty. Applying a funding mechanism that is merely an extension of the current model (e.g., wildlife viewing fees) to additional users ignores what has been learned about the limitations of a user-based approach to funding conservation of wildlife when use and subsequent revenues ebb.

A philosophical question is, should an institution founded on the PTD rely solely on a few user groups that are a small minority of society? Gill (1996:63) suggested that the narrowly based funding of state wildlife management has "blurred the essential distinction between public interest and special interest and inevitably eroded both scientific credibility and public trust." The resource dependency perspective of organizational behavior posits that organiza-

tions become dependent on those entities that have control over critical resources, particularly when options for obtaining those resources are limited (Johnson 1995). So is the user pay-benefit model consistent with the premise behind the PTD? We suggest that it is not, and that wildlife conservation needs to be funded in large part by all beneficiaries; that is, the general public via a nonvoluntary mechanism. Further, this mechanism should be insulated as much as possible from undue influence of special interests. Thus, a general fund appropriation is not the ideal mechanism either. Funding for wildlife conservation, at least at the state level, needs to be reliable, consistent, and broad-based like the Missouri (e.g., receives 0.00125 of sales tax revenue totaling approx. 60% of their budget) or Virginia (e.g., a portion of the sales and use taxes derived from the sale of hunting, viewing, and fishing products, as estimated by the United States Fish and Wildlife Service national survey) models. This may not be achievable in many states, so a strategic funding plan drawing from a diversity of sources may be a more feasible option. For example, in Iowa, an 18-member advisory committee appointed by the governor recommended 5 options that, combined, would meet Iowa's funding goals (US\$150 million) for natural resources conservation (Advisory Committee on Sustainable Natural Resource Funding 2007). The options were 1) using new gaming and gambling revenues, 2) dedicating revenues from a fractional percentage increase in the sales tax, 3) earmarking the 5% tax on lottery tickets, 4) creating tax incentives and credits for conservation actions, and 5) using bonding to insure long-term funding stability. Any of these funding options alone was insufficient, but in combination they would move the Iowa Department of Natural Resources closer to meeting its funding goals.

The user pay-benefit funding model for wildlife conservation has had considerable impact on all aspects of the Institution, including facilitating relationships between consumptive stakeholders and wildlife agencies and policy makers (Anderson and Loomis 2006). Resource-dependency theorists contend that organizations align themselves with other organizations or individuals that are most likely to provide the resources necessary to ensure their survival (Pfeffer and Salancik 2003). Because hunters pay the bills, it is not surprising that they are given much attention and wield a great deal of influence within the Institution (e.g., in terms of representation on boards and commissions, game-focused programs and spending; Nie 2004, Jacobson and Decker 2006); in essence they are privileged while other interested stakeholders remain underrepresented and underserved. One might reason that creating an alternate user pay-benefit model rather than a broader funding model would result in expanded services to nontraditional users of wildlife, as well as increased revenue. The PTD can help evaluate this action from a philosophical perspective.

According to the PTD, wildlife is owned by no one and held in trust for the benefit of all, but with the user pay-benefit model, those who both derive direct benefits from wildlife and fund wildlife conservation from user fees may believe they have the only legitimate voice in governance of

public wildlife conservation and management. Further, this model logically encourages those who pay via licenses and permits for the privilege of using wildlife to expect greater benefits than those who do not pay. This is a potentially fatal, deeply rooted inconsistency between rhetoric and reality in wildlife management in the United States, given the core premise of the PTD that wildlife is a public resource and no single stakeholder group should benefit from wildlife management more than others. If everyone pays for wildlife via a centralized taxing mechanism, all should have standing with respect to input about management of wildlife as a public resource. Of course, some people will have a greater stake and interest in wildlife conservation and management than others, but wildlife managers will not feel beholden to any particular interest group because they are dependent on it to pay their salaries. Ideally, priorities for research, management activities, and other programs would be determined through a value-balanced and science-informed approach, as opposed to a more politically driven process in which particular interest groups have inordinate influence. The next sections discuss in more detail ideas for reform of governance for the Institution.

Broad-based funding carries with it an expectation for expansion of activities and programs to meet the needs of a more diverse stakeholder base (Jacobson et al. 2007). Governing bodies can establish broad direction, but implementation at the ground level in agencies requires priority-setting for allocation of resources as well. Wildlife administrators, researchers, and managers in a reformed Institution will have to prioritize allocation of resources strategically in a process that is responsive to the governing body (Mitchell 1999), transparent to and appropriately involving the public, and efficient so as not to impede implementation. The challenge will be moving from a focus on priorities of a narrow user group toward those of the broader public without alienating stakeholders long invested in wildlife conservation.

### **Trustee-Based Governance**

By definition, a trustee is required to put the interests of the Trust as defined in law or other authority above self interest. Ideally, trustees should be qualified, competent, impartial, and assiduous to the interests of all trust beneficiaries. There should be a mechanism for their replacement if they prove deficient in any of these requirements, and the Trust beneficiaries should have the capacity to initiate the removal of a trustee following due process, along with a voice in the selection of new trustees. In the public sector, therefore, governmental trustees should strictly adhere to principles fundamental to care of the Trust's assets, not those associated with the preservation of the interests of self or those of elected authorities. This necessitates a separation of the political process from the essential components of Trust oversight. Of course, recognition that such independence is appropriate requires a political consensus in the first place. The tendency within state governments, however, is to lessen independence and to demand more political accountability of agency authorities (Organ and Fritzell 2000).

A consequence of this politicization in wildlife conservation is reflected in the tenure of agency leadership. According to the Association of Fish and Wildlife Agencies, the average incumbency of state fish and wildlife directors is <3 years (D. E. MacLauchlan, Association of Fish and Wildlife Agencies, personal communication). Directors typically are replaced for essentially political reasons. This trend implies that agency directors are required to be subservient primarily to political authorities in order to keep their jobs, potentially jeopardizing oversight of the Trust. A primary cause of this is the linkage of constituents with narrow interests to the oversight of agency programs. To perform as a trust-based institution, the conservation community and political authorities must embrace the notion that state trustees should function absent the demands of narrowly focused constituents, especially when those same constituents wholly determine funding and survival of the very institutions upon which the Trust depends.

Diminishment of political authority over fish and wildlife trustees is likely to be resisted by elected officials opposed to a reduction in their power and influence. Such a change is not possible without their recognition of the validity of the concept of the public trust and the need for apolitical trustees. Yet in the absence of this reform, it is highly unlikely that stability of the Institution can be maintained. The sustainability of fish and wildlife populations in the long term would be questionable without stability in programs to protect trust resources. Accomplishment of such reform in governance likely can only be achieved through advocacy of a strong coalition of partners willing to speak with one voice and exert the requisite political pressure.

### **Multidisciplinary Science as the Basis for Recommendations From Professional Staff**

Effective trusteeship requires not only that decision-makers act in the best interests of the Trust, but they do so with the best information available. Professional staff must have adequate resources and intellectual freedom to pursue answers to questions prioritized by trustees and stakeholders, without concerns that findings may be unpopular or inconsistent with conventional assumptions. Transparency is critical in the process of developing science-based analyses for decision-makers. Political manipulation of, interference with, and obstruction in communication of science from professional staff to trustees undermines the PTD and ultimately credibility of the Institution. Recent examples of such interference (e.g., high-ranking Department of Interior officials colluding with industries and undermining agency-sponsored research affecting biological opinions on impacts to listed endangered and threatened species) illustrate how the PTD and Institution can be compromised (U.S. Department of Interior, Office of the Inspector General 2008).

Effectively integrating multidisciplinary science (e.g., biology, ecology, sociology, psychology) into the decision-making process can require a delicate balance between

separating research from politics and ensuring relevance of inquiry. Scientists must be able to pursue investigations and develop recommendations without interference, yet direction and oversight are essential to focus research on questions vital to inform wildlife decision-making processes. Interactive processes among trustees, stakeholders, managers, and scientists must be facilitated such that trustees can determine what the priority issues and questions are, and scientists have a clear direction for investigative focus. Managers can play a key role in facilitation (Riley et al. 2002) and leading approaches that can be used to integrate social science with biological and other sciences needed for effective trusteeship and to answer conservation questions (Enck et al. 2006). Stakeholder engagement in such approaches can help ensure the right questions are pursued and make political interference difficult.

To be effective, scientific input into decision-making has to be strategic and proactive. This requires forecasting areas of investigation and building a broad base of reliable peer-reviewed knowledge from which focused, issue-specific inquiries can be grounded. Without such a base, science-informed decision-making could be crippled by the time necessary to develop reliable information. Ideally, science becomes the common ground within the Institution when polarization occurs among stakeholders over an issue, and stakeholders must trust the integrity of the scientific process for this to prevail. Adequate resources, political insularity, and transparency are essential in achieving this goal.

### **Involvement of Diverse Stakeholders and Partners**

The Institution has been criticized for being captured (unduly influenced) by consumptive interest groups (Loker et al. 1994, Beck 1998). Some have even gone as far as suggesting that an iron-triangle relationship exists among resource management agencies, traditional user groups (e.g., hunters), and policy makers that “limits access to resource management decision processes to those outside the triangle and creates still more social tension and conflict” (Gill 2004:37). The iron-triangle concept suggests that those with different institutional logics (e.g., nonhunters) are excluded, formally (e.g., by not being legitimized through membership on a wildlife board or commission) or informally (e.g., by lack of access to existing informal, long-standing networks), from equal influence on and access to the state wildlife decision-making process. Reality is not that clear-cut, but it is certainly true that consumptive users, wildlife agencies, and some policy makers have close and enduring relationships based on similar institutional logics and shared values. The extent to which this relationship is exclusive likely varies among states, and evidence exists that the Institution is starting to expand its boundaries (Aldrich 1999) to include nontraditional stakeholders (Jacobson and Decker 2006). For example, the number and diversity of partners collaborating on the Teaming With Wildlife effort demonstrates that the Institution’s boundaries are expanding, at least in the context of searching for alternative funding mechanisms for wildlife conservation and management (Jacobson and Decker 2006).

The need for wildlife organizations to embrace nontraditional partners more effectively has been discussed for decades (Trauger et al. 1995), and certainly partnerships are formed regularly among wildlife agencies, traditional and nontraditional nongovernmental organizations, universities, and others. These partnerships, however, are often focused on specific projects or issues and may not be comprehensive or strategic in nature. Some of these partnerships are formed to achieve specific goals (e.g., funding projects) and exist only on paper (Lasker et al. 2001). In such cases, the partners have no meaningful role or influence regarding activities or decision-making associated with the partnership. Although these partnerships clearly serve a purpose in achieving specific goals, we propose that the development of enduring, diverse, and effective partnerships focused on the broad goal of wildlife conservation is essential for the future of the Institution.

Properly created partnerships can develop synergies among organizations and individuals whereby they “support each other by leveraging, combining and capitalizing on their complementary strengths and capabilities” (Lasker et al. 2001:180). Synergy and enhanced capacity are the reasons partnerships are advantageous over actions of single agents. Establishing and growing partnerships with diverse groups (e.g., environmental, outdoor recreation, homeowner, industry, and agricultural groups) can benefit the Institution because these groups have constituencies, political capital, and resources that may not exist within the Institution. If common ground for building partnerships can be found, these alliances may increase public support and, subsequently, political capital of all organizational actors within the Institution. Additionally, they can advocate for grounding of policies in science, further supporting the integrity of SWAs. Traditional partners may feel threatened by inclusion of new partners in the priority-setting and decision-making processes (Nie 2004). Perhaps the core concern is that if consumptive users of wildlife are no longer the primary funding source, traditional uses such as hunting and trapping may become marginalized and even eliminated. This concern should be addressed as part of institutional reform that protects minority interests that are consistent with goals of wildlife conservation and management. Some jurisdictions have safeguards in place for minority interests in wildlife, such as rights embedded in their state constitutions (e.g., Virginia Constitution Article XI, Section 4: Right to Hunt, Fish and Harvest Game).

### **BENEFITS OF SUCCESSFUL INSTITUTIONAL REFORM**

The main outcome desired from reform of the Institution is effective and sustained conservation. To achieve this, a significant portion of society must value and demand conservation that ensures that the basic tenets of the PTD are achieved. That means meeting diverse stakeholder expectations for the broad range of impacts associated with the presence of wildlife. Ultimately, coexistence of humans and wildlife in North America requires interventions that influence all 3 core components of wildlife management and

the interactions among and between them: habitats, wildlife populations, and people. The Institution of the future needs to attend to the broad array of these interactions and deliver benefits for society overall. Such an institution will not be the exclusive domain of wildlife biologists and hunters. It will include the interests and expertise of land-use planners, developers, large and small landowners, political leaders, social scientists, consumers of food, fiber, and energy, and many others.

To retain or increase relevancy of the Institution in the future, it will be necessary for large segments of society to develop increased understanding and appreciation for coexistence of people and wildlife on a sustainable basis. A conservation ethic that fosters passion for positive human interactions with wildlife would be a valuable first step. Much like Leopold's land ethic (Leopold 1949), it will be critical that citizens of all ages increase their understanding and awareness of the importance, on balance, of wild animals and habitats to their quality of life, even in the face of some human-wildlife interactions that have negative impacts for people. Developing an understanding and awareness of the importance of human-wildlife coexistence is a societal trait that should be fostered and reinforced by the Institution.

While the focus of this ethic is on sustainability of human-wildlife coexistence, we recognize this system exists in a larger context. Global forces not under the direct influence of the Institution have profound effects on coexistence. This reality demands a global conservation ethic that engenders an impassioned commitment to avoid or reverse global threats such as climate change. This brings us back to fundamentals: 1) all living things depend upon a place to live, clean air to breathe, clean water to drink, and a secure food supply; and 2) human activities must not irrevocably degrade these requirements for life. The formation of a global conservation ethic, operating to influence individuals, communities, and governments, will provide the context for effectiveness of the Institution of the future.

Reform of the Institution to address the full swath of societal needs and concerns with respect to wildlife should lead to broad, active public support (not just tolerance) for the Institution. The Institution should be capable of minimizing 2 major threats to wildlife conservation in the 21st century: 1) public ignorance, apathy, and values (i.e., lack of a conservation ethic) that lead to irrevocable losses of wildlife and habitat; and 2) human-wildlife interactions, experienced or perceived, that foster negative attitudes toward wildlife and habitat. We are concerned that these threats, if not addressed by the Institution, will have 2 undesirable results. One is loss of biodiversity and the other is devolution of the status of wildlife from resources to pests. Either result may be sufficient to threaten sustainability of wildlife; both taken together are certain to have such an effect. It is our view that if these 2 undesirable results occur, the future of the Institution is at risk because it will have failed in its fundamental purpose. Consequently, these

threats alone represent sufficient concern to warrant reform of the Institution no matter how difficult it may be.

## POLICY IMPLICATIONS

The reality facing the Institution is that contemporary society does not prioritize conservation equal to or above other competing interests and needs. Environmental apathy resulting in human-caused threats to wildlife and habitat (e.g., climate change, habitat destruction) and a lack of connection with nature is a formidable challenge for which we are woefully unprepared. Although we are not suggesting that we throw in the towel and give up, we contend that the Institution has to recognize that the paradigm by which we operate is in need of a considerable overhaul. We can no longer rely on our most committed constituency to carry the brunt of the financial burden and subsequently be the primary beneficiaries of our actions. The 4 components we offer would broaden the Institution to provide practical (e.g., robust political and financial support base) as well as long-term (e.g., greater interest in conservation, increased participation in wildlife-related activities) benefits. This is both a call for fundamental reform and an encouragement to reconnect with the deep and enduring principles on which the conservation movement was founded. Our opportunity and challenge in this endeavor is to set the course for effective wildlife conservation for current and future generations and to make needed adaptations that ensure the Institution itself is sustainable.

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## LITERATURE CITED

- Advisory Committee on Sustainable Natural Resource Funding. 2007. Sustainable natural resource funding study. E. Resources Group, Des Moines, Iowa, USA.
- Aldrich, H. E. 1999. Organizations evolving. Sage, Thousand Oaks, California, USA.
- Anderson, L. E., and D. K. Loomis. 2006. Balancing stakeholders with an imbalanced budget: how continued inequities in wildlife funding maintains old management styles. *Human Dimensions of Wildlife* 11:455-458.
- Beck, T. D. I. 1998. Citizen ballot initiatives: a failure of the wildlife management profession. *Human Dimensions of Wildlife* 3:21-28.
- Brown, D. G., K. M. Johnson, T. R. Loveland, and D. M. Theobald. 2005. Rural land-use trends in the coterminous United States, 1950-2000. *Ecological Applications* 15:851-863.
- Enck, J. W., D. J. Decker, S. J. Riley, J. F. Organ, L. H. Carpenter, and W. F. Siemer. 2006. Integrating ecological and human dimensions in adaptive management of wildlife-related impacts. *Wildlife Society Bulletin* 34:698-705.
- Franklin, T. M., and K. B. Reis. 1996. Teaming with Wildlife: an investment in the future of wildlife management. *Wildlife Society Bulletin* 24:781-782.
- Geist, V., S. P. Mahoney, and J. F. Organ. 2001. Why hunting has defined the North American Model of Wildlife Conservation. *Transactions of the 66th North American Wildlife and Natural Resources Conference* 66:175-185.
- Geist, V., and J. F. Organ. 2004. The public trust foundation of the North American model of wildlife conservation. *Northeast Wildlife* 58:49-56.

- Gill, R. B. 1996. The wildlife professional subculture: the case of the crazy aunt. *Human Dimensions of Wildlife* 1:60–69.
- Gill, R. B. 2004. Challenges of change: natural resource management professionals engage their future. Pages 35–46 in M. J. Manfredi, J. J. Vaske, B. L. Bruyere, D. R. Field, and P. Brown, editors. *Society and natural resources: a summary of knowledge*. Modern Litho, Jefferson, Michigan, USA.
- Hamilton, C. 1992. Pursuing a new paradigm in funding state fish and wildlife programs. Pages 119–135 in W. Mangun, editor. *American fish and wildlife policy: the human dimension*. Southern Illinois University Press, Carbondale, USA.
- Heberlein, T. A. 1991. Changing attitudes and funding for wildlife—preserving the sport hunter. *Wildlife Society Bulletin* 19:528–534.
- Hoehn, J. P., and A. Randall. 1987. A satisfactory benefit cost indicator from contingent valuation. *Journal of Environmental Economics and Management* 14:226–247.
- Horner, S. M. 2000. Embryo, not fossil: breathing life into the public trust in wildlife. University of Wyoming College of Law, Land and Water Law Review 35:1–66.
- Jacobson, C. A., and D. J. Decker. 2006. Ensuring the future of state wildlife management: understanding challenges for institutional change. *Wildlife Society Bulletin* 34:531–536.
- Jacobson, C. A., D. J. Decker, and L. H. Carpenter. 2007. Securing alternative funding for wildlife management: insights from agency leaders. *Journal of Wildlife Management* 71:2106–2113.
- Johnson, B. L. 1995. Resource dependence theory: a political economy model of organizations. University of Utah, Educational Resource, Salt Lake City, USA.
- Lasker, R. D., E. S. Weiss, and R. Miller. 2001. Partnership synergy: a practical framework for studying and strengthening the collaborative advantage. *The Milbank Quarterly* 79:179–205.
- Leopold, A. 1949. *A Sand County almanac and sketches here and there*. Oxford University Press, New York, New York, USA.
- Loker, C. A., D. J. Decker, R. B. Gill, T. D. I. Beck, and L. H. Carpenter. 1994. The Colorado black bear hunting controversy: a case study of human dimensions in contemporary wildlife management. Cornell University, HDRU Series no. 94-4, Ithaca, New York, USA.
- Manfredi, M. J., and H. C. Zinn. 1996. Population change and its implications for wildlife management in the new West: a case study of Colorado. *Human Dimensions of Wildlife* 1:62–74.
- McKinney, C., L. Ris, H. Rorer, and S. Williams. 2005. *Investing in Wildlife: State Wildlife Funding Campaigns*. University of Michigan, Ann Arbor, Michigan, USA.
- Mitchell, C. E. 1999. Violating the public trust: the ethical and moral obligations of government officials. *Public Personnel Management* 28:27–38.
- National Research Council. 1995. *Science and The Endangered Species Act*. National Academy Press, Washington, D.C., USA.
- Nie, M. 2004. State wildlife policy and management: the scope and bias of political conflict. *Public Administration Review* 64:221–233.
- Organ, J. F., and E. K. Fritzell. 2000. Trends in consumptive recreation and the wildlife profession. *Wildlife Society Bulletin* 28:780–787.
- Patterson, M. E., J. M. Montag, and D. R. Williams. 2003. The urbanization of wildlife management: social science, conflict, and decision making. *Urban Forestry & Urban Greening* 1:171–183.
- Pfeffer, J., and G. R. Salancik. 2003. *The external control of organizations: a resource dependence perspective*. Stanford University Press, Stanford, California, USA.
- Responsive Management/National Shooting Sports Foundation. 2008. *The future of hunting and the shooting sports: research-based recruitment and retention strategies*. Produced for U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0, Harrisonburg, Virginia, USA.
- Riess, S. A. 1995. *Sport in industrial America, 1850–1920*. Harlan Davidson, Wheeling, Illinois, USA.
- Riley, S. J., D. J. Decker, L. H. Carpenter, J. F. Organ, W. F. Siemer, G. F. Mattfeld, and G. R. Parsons. 2002. The essence of wildlife management. *Wildlife Society Bulletin* 30:585–593.
- Sax, J. L. 1970. The public trust doctrine in natural resource law: effective judicial intervention. *Michigan Law Review* 68:471–566.
- Smith, F. E. 1980. The public trust doctrine, instream flows and resources. California Water Policy Center and U.S. Fish and Wildlife Service, Newton Corner, Massachusetts, USA.
- Trauger, D. L., W. Tilt, and C. Boyd Hatcher. 1995. Partnerships: innovative strategies for wildlife conservation. *Wildlife Society Bulletin* 23:114–119.
- U.S. Department of Interior, Office of Inspector General. 2008. Report of investigation. <[http://www.biologicaldiversity.org/swcbd/programs/esa/pdfs/DOI-IG-Report\\_JM.pdf](http://www.biologicaldiversity.org/swcbd/programs/esa/pdfs/DOI-IG-Report_JM.pdf)> Accessed 5 Apr 2009.

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