**ABSTRACT**

Human values and meanings for nonhuman animals are socially constructed. Nonhuman animals provide value through tangible means, such as food or economic value, but they also are valued for providing experiences, symbols, and ecosystem services like diversity. Nonhuman animals are afforded certain rights and considerations in modern society, but these have proved insufficient in ensuring positive outcomes for both social and ecological systems. Considering nonhuman animals as stakeholders could improve natural resource outcomes by more fully addressing transboundary and uncertainty issues.

**BACKGROUND**

How We Currently Consider Animals

- Symbolic value
  - Animals provide “recreational, aesthetic, and scientific experiences” (Rolston, 1991, p.128).
  - Reflected in names – Salmon River, Bear Lake
  - Explicit symbols – state/national animals, sports teams

- Renewable resources
  - Food – meat, dairy, fish
  - Animals are managed like other renewable resources – hunting wolves to manage populations (Treves and Martin, 2011)

- “Things plus”
  - Slaves were considered neither pure object, nor person (Francione, 2004).
  - General acceptance of some animal rights in the United States (Arkline and Lockwood, 1997).

**STAKEHOLDERS**

- “Groups of individuals who affect or are affected by organizational policies” (Freeman, 1984, p.iv).
- Not just affected, but affecting natural resource outcomes (Reed et al., 2009).
- Starik (1995) argues broadly for non-human nature as a stakeholder: “At minimum, organizations which begin to treat non-human nature as one or more stakeholders will be perceiving a more realistic, if more complex, picture of their respective business environments. . . . More importantly, treating non-human nature as one or more stakeholders would provide some organizations a different and, hopefully, more enlightened perspective from which to manage their relationships with their respective natural environments” (p.216).

**REFERENCES**

- Navigating social-ecological systems: building resilience for complexity and change

**THE CASE FOR ANIMALS**

- Human in nature perspective
  - The Age of Enlightenment shifted views to see environment and society as separate entities, which has only recently begun to shift back (Davidson-Hunt and Berkes, 2003).
  - Whatmore, 1999).
  - Leopold (1949) argues moving from seeing humans as conquerors to seeing them as part of the world community made up of animals, plants, soil, etc.

- Transboundary Issues
  - Transboundary issues increase complexity of natural resource management as different communities or governments take unique approaches to management based on local values (Caíñas, 2012; Cosens and Williams, 2012; Flint, 2013).

- Local stakeholder engagement is necessary not only because local knowledge and management practices can inform and improve those proposed by researchers, but also because locals are likely to pursue their own interests (Sadigl, Olson, Berkes, & Folke, 2003).

- Nonhuman animals, more than any other stakeholder, will pursue their own interests regardless of management or policy.
  - Florida recognized that nonhuman animals would pursue their own interests and proposed spending 27 million dollars to construct animal crossings across highways (Rolston, 1991).

- Similar measures were considered to help facilitate caribou migration in Alaska (Rolston, 1991).

- U.S. Department of Transportation Federal Highway Administration (2008), as of 2004 the estimated annual total of animal-vehicle collisions was 300,000, and the estimated total annual cost of these collisions is $8.388 billion.

- Hughes, Saremi, and Parish (1996) suggest signs, driver education, and warning reflectors to help reduce animal-vehicle collisions, but these solutions fail to address the core issue of nonhuman animal interests, which are causing them to be present on roadways to begin with.

- Mitigating Uncertainty
  - Part of the complexity in studying natural resources comes from uncertainty (Gunderson, 2003).

- Animals increase uncertainty by being autonomous, mobile, self-interested beings.

- By giving greater weight to animal interests we are better prepared for uncertainty.

- Changing Constructed Values
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**CONFLICTS OF INTEREST**

- Some people argue that nonhuman animal and human interests are in conflict, and thus disregard nonhuman animal interests (Francione, 2004).

- Among humans there are also frequently conflicts of interest that need to be navigated giving appropriate consideration to stakeholders to ensure the best natural resource outcomes (Daniels and Walker, 2012).

**CONCLUSIONS**

Leopold (1949) claims, “a system of conservation based solely on economic self-interest is hopelessly logisided” (p.251). Some species of nonhuman animals certainly provide economic benefits, but many more provide value through experience, cultural heritage, and symbolic meaning. These socially constructed values may be fickle, or overshadowed by economic considerations in natural resource management. In order to ensure positive outcomes for both nonhuman animals and humans, nonhuman animals should be considered as stakeholders in natural resource management decisions.