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Wildlife Economics in the American West - Summary

James Caudill, Guest Editor¹

Dana Hoag: Western Economic Forum Editor

Scarcely a day goes by that each of us is not affected by wildlife in one way or another, sometimes routinely, sometimes profoundly, sometimes to our detriment but most often to our benefit. The complex relationship between humans and wildlife is sometimes misunderstood or even neglected in laws, policies, programs, and other human-centric approaches to defining the sphere of possibilities for the relationship between wildlife and humans. Economics can help strip away some of the cobwebs to better understand this relationship. The focus of this special edition of the Western Economics Forum is **Wildlife Economics in the American West**. The eight manuscripts address a variety of issues in the context of human-wildlife interactions with a focus on a number of species including wild pigs, brown bears, livestock guardian dogs, wolves, migratory birds and migratory ungulates. The focus of the papers can be classified into four categories: (1) economic damages; (2) economic benefits; (3) economic assessments; and (4) migratory species. An abstract for each paper follows:

Economic Damages

Economic Damages of Wild Pigs in Non-Traditional Areas: From the Fairway to the After Life

Authors: **Sophie McKee, Julie Elser, Maryfrances Miller, Lirong Lui, Ryan Miller, Steven S. Shwiff, and Stephanie A. Shwiff**. Invasive wild pigs are widely known to cause damage to agricultural properties and commodities, but less has been reported about damages to other types of property. A survey was distributed to golf courses and cemeteries across Texas to explore the extent of damage these properties experience. While both property types reported significant damages, golf courses were found to experience more damage than cemeteries. Using average reported costs and predicted county-level damage, total costs for all golf courses and cemeteries across the state were estimated to exceed \$1.6 million USD per year.

Economic Benefits

The Economic Benefits of Wildlife: The Case of Brown Bears in Alaska

Author: **Leslie Richardson**. Wildlife is an important resource protected by public lands and waters in the West, a resource that supports locally important tourism and provides significant public value. Economic information can be used to not only document the range of benefits supported by wildlife resources, but to evaluate complex tradeoffs and guide policy and management decisions in a manner that improves social well-being. This paper presents a typology of the various economic aspects of wildlife, discussing relevant uses of the information, challenges, and opportunities for future research. An example of each component is presented within the context of Katmai National Park and Preserve, a prime wildlife viewing destination in Alaska that protects one of the world's largest concentrations of brown bears ever documented.

Economic Benefits Supported by Surface Water in Eastern Oregon's Harney Basin

Authors: **Christopher Huber, Matthew Flyr & Lucas S. Bair**. The Harney Basin is a closed river basin in southeastern Oregon. Surface water in the basin is used for a variety of social, economic, and ecological

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benefits. While some surface water uses compete with one another, others are complementary or jointly produce multiple beneficial outcomes. The objective of this study is to conduct a baseline economic assessment of surface water in the Basin as it relates to wet meadow pasture production and outdoor recreation. Given the complex interactions between surface water management on public and private land, identifying and quantifying these economic outcomes can be used to assist future decision making in the Basin.

Economic Assessments

Are These Big White Dogs Worth the Expense? The Challenge of Determining the Costs and Benefits of Livestock Guardian Dogs

Authors: **Dan Macon and Carolyn Whitesell.** Livestock guardian dogs are used by sheep and goat producers throughout the West to protect livestock from predators. Recent analysis of data from the UC Hopland Research and Extension Center suggests that the costs of keeping dogs may outweigh the benefits of death loss prevention. However, this analysis omits several key economic benefits associated with using livestock guardian dogs. We offer an alternative framework for evaluating benefits, as well as for identifying potential cost savings. We also suggest a framework for incorporating simple economic analyses into an objective case study approach. We identify key drivers (economic and management) that may increase the economic efficiency of using livestock guardian dogs. Finally, we suggest future needs for research into the economics of nonlethal livestock protection tools, including livestock guardian dogs.

Integration of Wildlife Economics with Land Use and Management Policies

Authors: **Bengt ‘Skip’ Hyberg and Don English.** We examine the effects of incomplete economic wildlife assessments in analyses of land use management strategies. We demonstrate that the use of a single important charismatic species or a single wildlife-based activity to capture the wildlife effects can result in a substantial understatement of the economic contributions and economic benefits resulting from land use management. We further examine the potential errors that may be introduced by using benefits transfer techniques to estimate wildlife benefits, even in areas considered to have similar characteristics.

Economic Consequences of the Wolf Comeback in the Western United States

Authors: **Dana Hoag, Stewart Breck, Kevin Crooks & Becky Niemiec.** Gray wolves were eradicated from most of the United States in the 1940’s but have made a comeback in parts of their historic range over the last two decades. First reintroduced into the Greater Yellowstone Ecosystem and central Idaho in the mid-1990’s, wolves have subsequently dispersed into at least 7 western states. Coloradoans became the latest state to take interest in bolstering wolf populations, as residents passed a ballot initiative in November 2020 to reintroduce a self-sustaining population of gray wolves by the end of 2023. Conflicts between people in rural areas that might incur costs (such as livestock loss) and people in urban areas geographically removed from direct contact with wolves suggest that the distribution of benefits may not align uniformly with the distribution of costs. Given that Colorado will imminently make many policy decisions that have an impact on costs and benefits, we review available literature to better understand the magnitude of gainers and losers from wolf reintroduction in western states. Although no single study has included all possible economic values, the magnitude of impacts can be inferred by assembling a broad range of estimates for different types of values into a single space. Our review of existing valuation literature from western states indicates that the magnitude of economic benefits of wolves is many times higher than what it costs to manage wolves and to reduce or compensate for losses to livestock producers and others.

Migratory Species

Economic Approaches for Managing Migratory Bird Habitat Across Multi-Owner Landscapes

Authors: **Sonja H. Kolstoe, Jeffrey D. Kline, Luanne Lohr.** Migratory bird populations rely on a continuum of habitat along their migratory path. Along the Pacific Flyway in the United States, this habitat consists of land under a mix of different management entities and landownerships including federal, state, and local land management agencies, Tribes, and private landowners. Effective management of migratory bird habitat relies on coordination among these different entities to ensure both sustained flyway continuity and habitat quality sufficient to maintain healthy migratory bird populations. We consider the challenges involved in the conservation planning problem in managing migratory bird habitat and suggest how economics can inform developing and facilitating coordinated strategies.

Incorporating Landowner Preferences into Successful Migratory Species Conservation Policy

Authors: **Chian Jones Ritten, Amy Nagler, Kristiana M. Hansen, Drew E. Bennett, and Benjamin S. Rashford.** Migratory species present a unique challenge in formulating conservation policies with different types of land uses, different private and public landowners with different objectives frequently resulting in a difficult and complex path to successful conservation measures for migratory ungulates (or any migratory species). This paper looks at the importance of addressing landowner preferences in developing successful spatial conservation policies for migratory ungulates in Wyoming.

We wish to thank all of the authors for their time and effort in exploring what economics can bring to the table in dealing with complex and sometimes contentious issues. We hope that readers find these papers both interesting and useful.

James Caudill and Dana Hoag, editors.