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WHAT'S INSIDE?

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Notes From The Chair

Jeremy Maestas

Greetings my friends, I certainly hope this summer treated you as well as it did me. The Wildlife Habitat Committee (WHC) had a relatively active quarter and I have a number of accomplishments to report on. First, we were able to pull off the development of three special symposia for the upcoming SRM Meeting in Vancouver, B.C. The symposia are:

Grazing, Riparian, Cold Water Fish: Is Beneficial Coexistence Possible?

Wildlife Habitat Analysis of the Future: Examining Multiple Scales using Geospatial Technology

Applications of the Collaborative Resource Stewardship Process

I am thrilled with the broad range of topics being presented by our committee, as it speaks to the capacity and diverse interests of our members. A special thanks to those of you who worked diligently to make these symposia happen. In particular, I want to acknowledge Wendell Gilgert, Kathryn Boyer, Carolyn Nistler, Kent McAdoo, Roy Roath, and Steve Peterson for their outstanding contributions to this effort. By the way if you're the type of person whose calendar fills up months in advance, you had better reserve Sunday, February 12, 1-5 pm, for our annual committee meeting in Vancouver.

In other news, SRM has been invited by Senator Mike Crapo, R-Idaho, to participate in a discussion about improving the role of science in endangered species issues. I'm proud to say that the Society turned to the WHC for leadership, and our own Ted Toombs will represent SRM in this important dialogue. I nominated Ted for this role because of his experience working with the Endangered Species Act on rangelands. Ted works for Environmental Defense's Center for Conservation Incentives whose motto is "Finding the ways that work." Ted will join four other professional societies, including The Wildlife Society, in finding the ways that work to protect the ecosystems upon which at-risk species depend. Our committee will

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continue to be a sounding board on this issue as Ted reports his discussions to us and seeks input.

Finally, SRM has been asked to provide formal support for the Sustainable Rangelands Roundtable Charter and Core Indicators. The WHC provided insightful comments to the SRM Board as they debated this request. At the heart of our comments were the very principles of conservation biology. In short, we emphasized the need for sustainability indicators to capture the amount of rangelands whose "ecological theater" remains intact such that the "evolutionary play" still functions. Indeed, the ecological processes that lead to evolutionary change are vital to any long-term sustainability. I sincerely appreciate all who contributed to this discussion and I thank you for making this committee a thoughtful body worth consulting.

Weisbrot Nominated for Director on SRM Board

Lance Vermeire

Former WHC Chair, Dale Weisbrot is a candidate for Director on the SRM Board of Directors. Dale is a Certified Professional in Rangeland Management (CPRM), Practicing Agrologist and holds a Biology degree. During his 25 years with the Saskatchewan Provincial Government, he has worked with the Department of Agriculture (or Rural Development). Weisbrot has served as a Forage Development Specialist – Rangeland Ecology; Regional Rangeland and Forage Specialist; South Region Saskatchewan Pastures Program Manager; Land Agrologist; and the Pesticide Safety and Regulatory Specialist. Prior to his public service Dale worked in private industry for just under 5 years.

Dale is a very active member of the Society for Range Management both at the local (Prairie Parkland Chapter and Northern Great Plains Section) and international level (Wildlife Habitat Committee). If successful as a candidate for the SRM Board of Directors, he will become the only Canadian on the Board (all other candidates and the present Board members are Americans).

Residing in Regina Saskatchewan, Dale and his wife Brenda raised two children; Roberta and Ryan. They are all graduates of the University of Regina. You can contact Dale at his e-mail dale@weisbrot.ca or home phone (306) 586-8855.

Dale Weisbrot

Considering Wildlife Habitat at Multiple Spatial and Temporal Scales

Steven L. Petersen

Wildlife habitat occurs across heterogeneous landscapes that are influenced by ecosystem dynamics that vary at multiple spatial and temporal scales. Within these heterogeneous landscapes, ecosystems are characterized by processes and patterns that modify the sites ability to capture energy, sustain mineral and nutrient reserves, capture water, and maintain different plant communities. This in turn influences the suitability of that habitat to meet the needs of particular wildlife species. For example, habitat that produces sufficient forage (i.e. perennial grass and forb communities) are often used for feeding whereas habitat that offers protection (i.e. tree stands) are typically used for sleeping and rearing young (Forman and Godron 1986). Understanding the spatial and temporal heterogeneity of habitats within an area can be essential in effectively monitoring and managing wildlife populations. In order to establish useful habitat management strategies, landscape and ecosystem-scale attributes should be considered.

Traditionally, ecological research including wildlife habitat assessment has focused on vegetation measurement at the scale of 1-m^2 plots (Brown and Roughgarden 1990). With the development of geospatial technology (remote sensing, Geographic Information Systems or GIS, and Global Positioning Systems or GPS), researchers and managers can now scale-up to much broader landscapes making it possible to examine wildlife habitat issues at the local, regional, or even global scales.

Wildlife Habitat Issues at Multiple Temporal and Spatial Scales

Much of the landscape throughout North America has experienced significant change in the past century ranging from local disturbances to regional-level effects. There have been many examples recorded in scientific literature dealing with habitat change at multiple scales. A poignant example of this has been the invasion of cheatgrass (*Bromus tectorum*) throughout much of the Intermountain West. This plant has had a significant impact on ecosystem dynamics that has resulted in the modification of wildlife habitat up to the regional-scale. In the wake of this invasion, the sagebrush biome has experienced significant alteration in species composition and ecological processes, primarily due to changes in fire frequencies. Many wildlife species that are dependant on sagebrush ecosystems for survival have experienced a reduction in population and distribution. For example, the greater sage grouse (*Centrocercus urophasianus*) depends on intact sagebrush stands for breeding and rearing young (Figure 1 and 2). Broad-scale habitat loss during the past decade has become a cause for concern due to decreased distribution and stability of sage grouse populations (Figure 3).

Greater Sage Grouse

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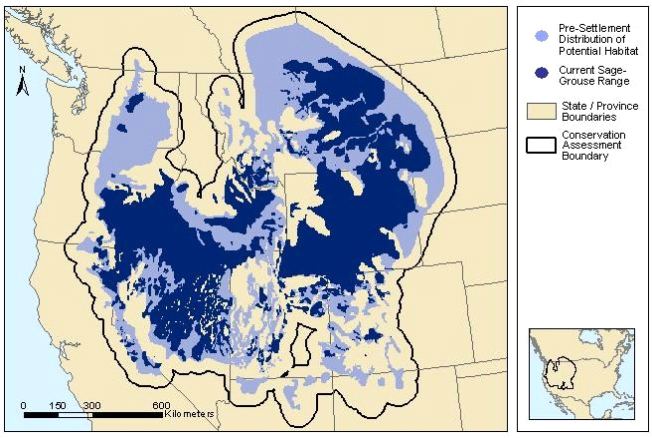
(Multiple scales...Continued from page 3)

Sagebrush fire prior to cheatgrass invasion
T. Wirth

Even though pinyon-juniper communities are native to our rangelands, the encroachment of these tree species on wildlands throughout North America has resulted in tremendous change in habitat for many species at a variety of scales. Habitat changes include a reduction in understory shrub, forb, and grass production and increased potential for predation to ground nesting and/or brood-rearing species. For many species, fragmentation has resulted in a significant decline in useable habitat. This has led to decreased population trends and lower distribution



Change in sage grouse distribution following settlement at the turn of the 19th century (USGS 2005a)

of many wildlife species. For example, roads have dissected much of the landscape throughout the world. This confines species that may depend on more continuous landscapes. For example, elk (*Cervus elaphus*) are inhibited by roads up to 400 meters away and many birds may not utilize areas that are within 1 kilometer of a main highway. Within the last century, the lesser prairie chicken has experienced drastic declines nearing the point of extinction. Much of this decline has been attributed to habitat loss and fragmentation (Fuhlendorf 2002).

To deal with these kinds of issues, it is critical that we understand wildlife responses to these impacts at the scale in which they are meaningful and manageable. It has been shown that different patterns and properties will often emerge as scale changes (Bissonette 1997). The wealth of geospatial technologies available now makes it possible to address these issues of scale which have historically been difficult to recognize.

Research and Resources for Improving Wildlife Habitat at Multiple Scales

New techniques and methods are being developed to improve our understanding of wildlife habitat relations and to increase our ability to effectively monitor wildlife populations at multiple spatial and temporal scales. Remotely sensed imagery (i.e., satellite imagery and aerial photography) and geographic information systems are being used effectively to delineate and characterize wildlife habitat and to manage and display spatially explicit data. For example, Gustafson (2005) used satellite imagery and GIS to successfully classify and characterize black-tailed prairie dog colonies over large areas in central Montana. This type of information can be used to design surveys and monitor change in prairie dog towns that would be challenging from field-

based methods alone. In western Oregon, landscape-scale techniques have been developed to assess and analyze the impacts of Canada geese on rye grass fields (Louhaichi 2002). It was determined that with the use of digital elevation data, high-resolution aerial photography, and ground-truthed measurements, that negative impacts of grazing could be readily detected for areas that were hundreds of hectares in size. Using this data, land owners are able to mediate for grazing impacts and focus efforts on areas at the greatest risk for long-term damage. Bissonette (1997) was able to effectively describe animal distribution patters based on habitat types, suitability rankings, and range maps. These are just a few of the many examples of the application of geospatial technologies used to increase our understanding of wildlife habitat.

Canada geese grazing pastures in Western Oregon - M. Louhaichi

Since the 1990s, habitat models have become an important component to environmental planning. As a result, there is now a widespread application of these techniques to visualize habitat change, to develop accurate and cost effective management practices, and to make predictions of habitat change for the future. Habitat models create new opportunities for complex landscape analysis in research and management. These analyses can assist in detecting the potential risk to wildlife habitat that results from human (direct or indirect) and non-human influences. Based on this association, recommendations can be developed to potentially prevent unwanted impacts and to recognize situations where outcomes may be uncertain or unpredictable. Although geospatial techniques are valuable for understanding wildlife habitat, it is important to understand that these methods cannot replace knowledge gained from on-the-ground assessment. Geospatial technologies are most effective when they are coupled with field-based measurements.

There are a variety of research organizations and programs that have been created to conduct research and implement the utilization of these techniques designed to improve spatial wildlife habitat research and management. The GAP Analysis program was established for the purpose of "providing regional assessments of the conservation status of native vertebrate species and natural land cover types and to facilitate the application of this information to land management activities" (USGS 2005b). This program has been adopted widely as an effective approach for improving wildlife habitat within the United States. Many universities have created labs or programs providing solutions to these questions and concerns. Examples include the Wildlife Spatial Analysis Lab (WSAL) at the University of Montana, the Wildlife Habitat Analysis Lab (WHAL) at Texas A&M, and the Environmental Remote Sensing Applications Laboratory (ERSAL) at Oregon State University to name just a few.

The benefits gained through the use of geo-

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(Multiple scales...Continued from page 5)

spatial technologies in wildlife habitat research and management are tremendous. You are encouraged to attend the Wildlife Habitat Analysis of the Future: Examining Multiple Scales using Geospatial Technology symposium at the 2006 SRM annual meetings in Vancouver, B.C. This symposium will focus on wildlife habitat issues at multiple scales using geospatial technology and will introduce you to the field of spatial wildlife habitat analysis.

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Mixed prairie in Hemphill County, Texas
L. Vermeire

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