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## CULTIVATING AN ECOLOGICAL AND CULTURAL PARADIGM SHIFT TO RESTORE BISON ON LARGE PRAIRIE LANDSCAPES

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The North American prairie was historically occupied by a wide assemblage of herbivores such as bison (*Bison bison*), elk (*Cervus elaphus*), deer (*Odocoileus* spp.) and pronghorn (*Antilocapra americana*) as well as a complementary suite of predators such as wolves (*Canis lupus*) and bears (*Ursus* spp.). Most prominent on the prairie grasslands was the enormous populations of bison that served as a keystone herbivore shaping the structure and composition of the prairie plant communities. In archeological sites throughout the plains bison remains dominate the faunal record (Fischer and Roll, 1999) and there is little doubt the modern version of this grazing bovid was ecologically important for 12,000 years. There is also little doubt that this large grazing bovid was of cultural significance to American Indian populations thriving on this ocean of grass for as long. In recent decades there has been a significant shift in thinking about the relative abundance, ecological role and cultural importance of bison on prairie landscapes of North America. With the decimation of bison in the late 19th century and the introduction of cattle the role of the most numerous native herbivore was diminished and replaced by a domestic bovid (Isenberg 2000). The disappearance of bison inspired much of our modern conservation ideals however bison were virtually absent as a free-ranging species as the conservation movement matured. Most early conservation thought and modern wildlife management theory developed after this grazing bovid was nearly extinct. Hence, the modern conservationists developed a keen sense for managing and restoring large numbers of cervid-like wildlife but had little experience with the most important native grazer present on the prairies for 12,000 years. Most prairie grasslands in North America have been managed during modern times to sustain bird populations and vast herds of free-roaming cervid-like animals such as mule deer, pronghorn and elk. Predators were mostly removed in the 19th Century to protect the favored game populations. Most of the early literature on population management of these wild prairie herbivores was based on the goal of producing a sustainable crop harvested annually by sportsmen. The emphasis was on gradualistic and incremental control of wild ungulate populations through annual harvest and habitat conservation to produce crops of game animals. This formed a modern traditional paradigm of wildlife management that has operated for many decades. In recent times conservation thought has shifted toward a more complete or holistic view of wild animals in natural environments. This paradigm shift has emphasized restoring the various roles and relationships of wildlife to create functional ecosystems. The management model has been slowly moving toward cultivation and protection of functional relationships between animals, plant communities and man instead of managing a standing crop. However, this paradigm shift has yet to fully embrace large scale restoration of one of the most significant native grazers and biological engineer of grassland ecosystems. For many, bison still remain a species replaceable and interchangeable with cattle or an extinct relic. Despite our growing knowledge of the ecological and cultural importance of bison there remains a reluctance to envision large scale bison restoration on grassland ecosystems.