

Analysis of Ecological Impacts of Bison Grazing in Shrub Steppe Shortgrass Prairie Using Multispectral Radiometry

**Western Regional Space Grant
Consortium Meeting**

Sept 25-27, 2003

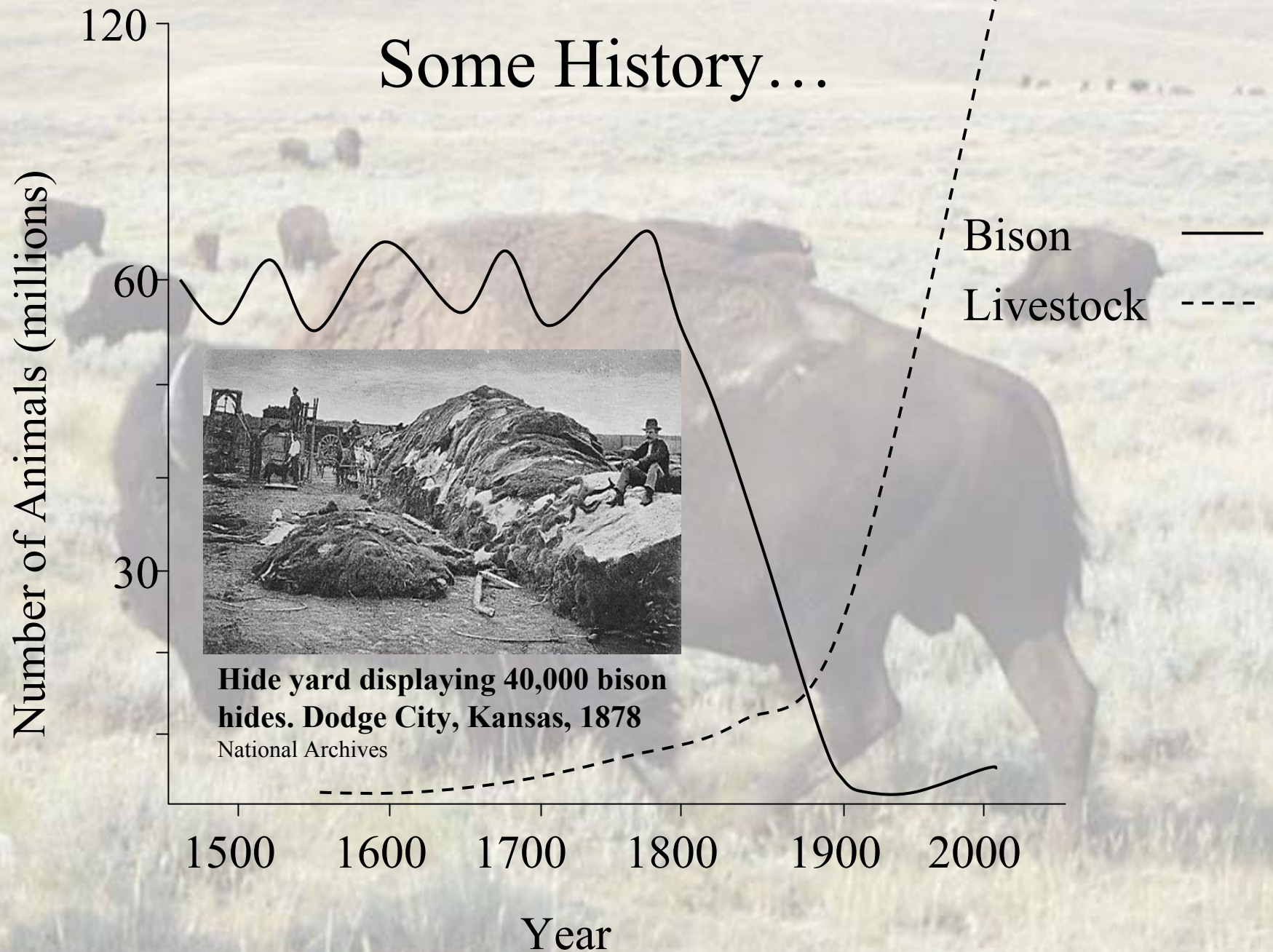
Rapid City, South Dakota

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Some History...



Hide yard displaying 40,000 bison hides. Dodge City, Kansas, 1878

National Archives

Premise behind the research...

How is the Earth system changing, and what are the consequences for life on Earth? – Directive: NASA Earth System Science Fellowship

How can bison reintroduction into Indian Country promote sustainable resource management?



NASA Earth Science Enterprise

“NASA's mission; to understand and protect our home planet by developing a scientific understanding of the Earth system and its response to natural and human-induced changes to enable improved prediction of climate, weather and natural hazards for present and future generations.”

SD Space Grant Consortium

Develop earth systems science and aerospace infrastructure in South Dakota

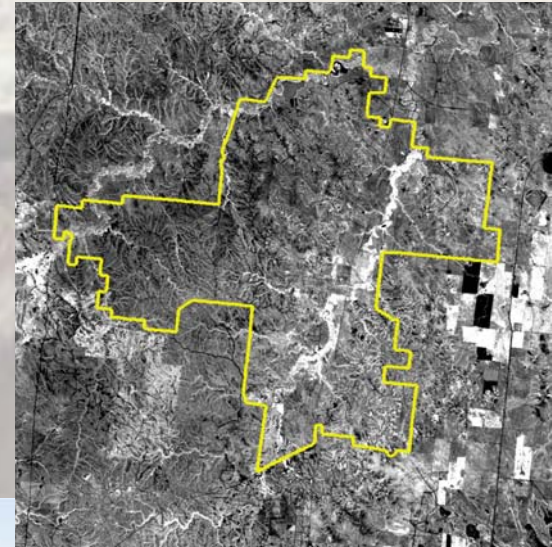
Enhance faculty development through summer faculty fellowships at the USGS EROS Data Center

Provide graduate and undergraduate student fellowships, scholarships and assistantships

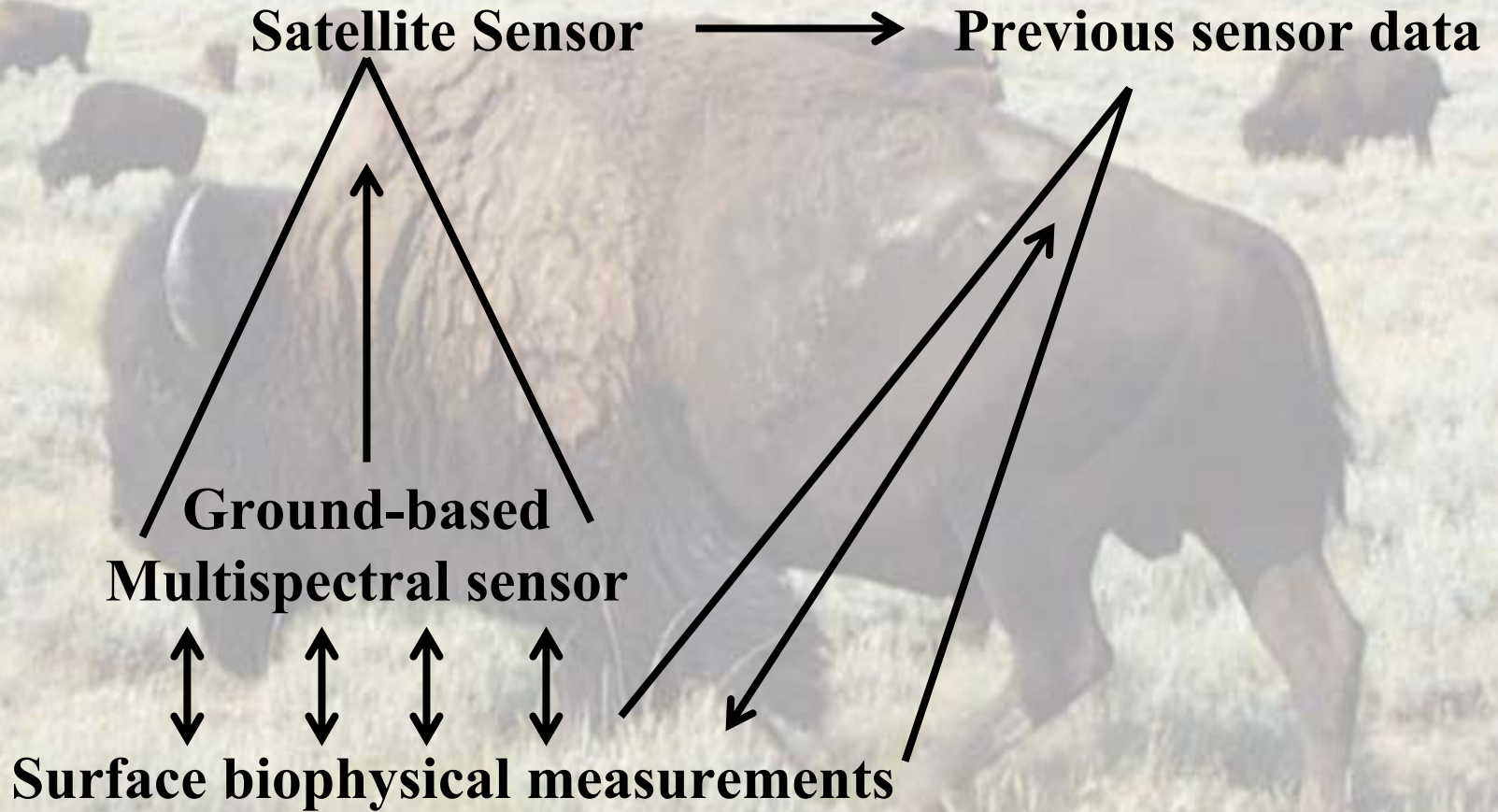
Research Objectives

Utilize satellite derived vegetation indices to determine impacts of Holistic Management on shortgrass shrub-steppe prairie using bison as the primary grazer

Determine the validity of using remotely sensed data to monitor land cover change on shortgrass shrub-steppe prairie



Research Concept



A herd of bison is grazing in a grassy field. The bison are dark brown and are scattered across the field, with some in the foreground and others in the distance. The background is a vast, open landscape under a bright sky.

Management Implications – addressing fundamental questions

Is current land management equivalent to sustainable land management?

Management comparisons: Which management works best?

Do physiological differences in dominant grazers equate to differences in habitat use?

Cultural Implications

To be determined by the Tribes

K-12 and community outreach efforts

NativeView?

Comparative Taxonomy

Bison (*B. Bison bison*)



Not a Bison

