U.S. Fish & Wildlife Service

USGS Land Remote Sensing Data Access Workshop March 13-14, 2012 Denver, CO

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Division of Refuge Planning
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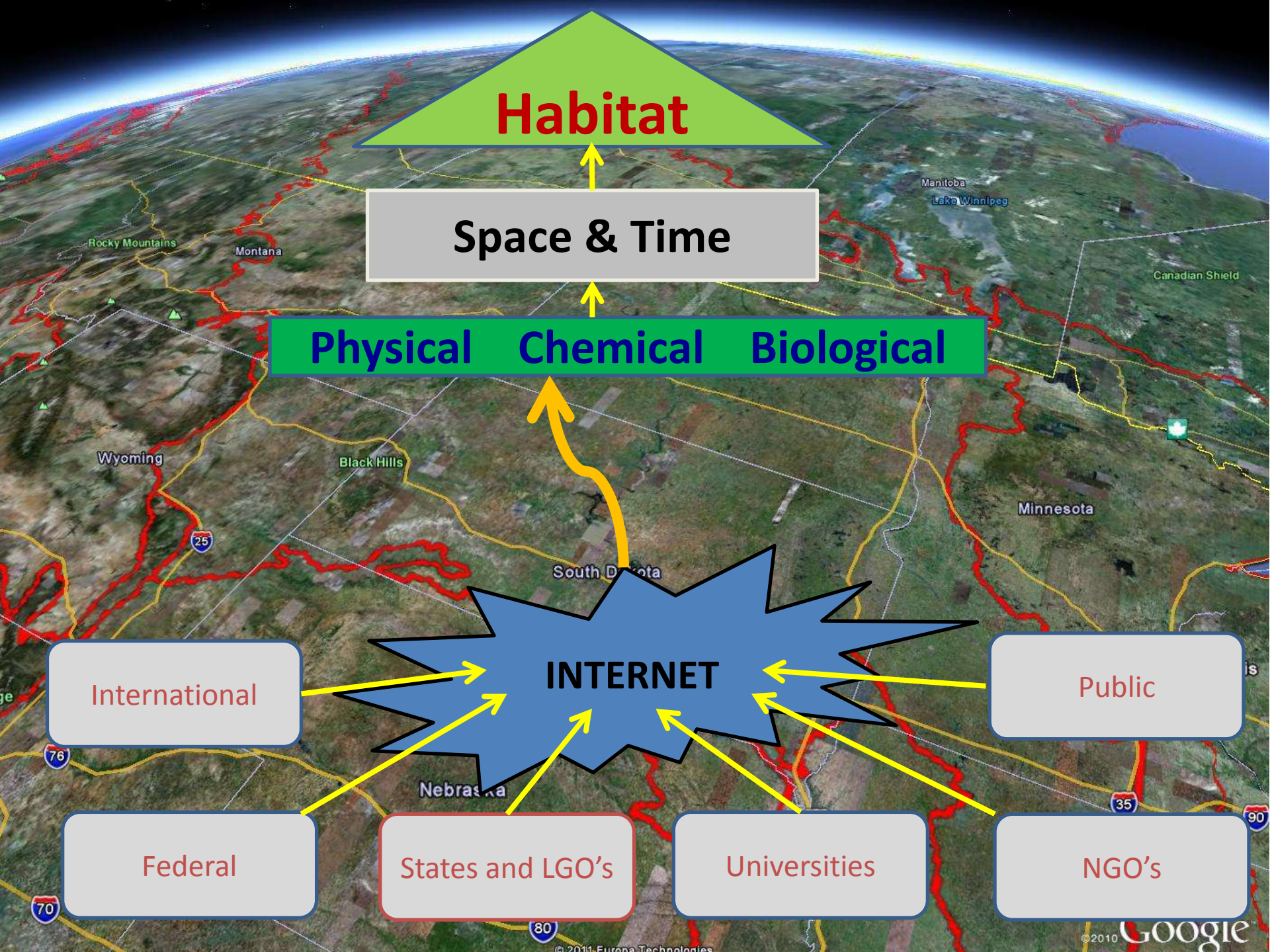
The Mission of the U.S. Fish & Wildlife Service:
working with *others* to conserve, protect and enhance fish, wildlife, and plants and their *habitats* for the continuing benefit of the American people.


Habitat
Space & Time
Physical Chemical Biological
INTERNET
International
Public
Federal
States and LGO's
Universities
NGO's
Rocky Mountains
Montana
Manitoba
Lake Winnipeg
Canadian Shield
Wyoming
Black Hills
Minnesota
South D ota
Nebras a
25
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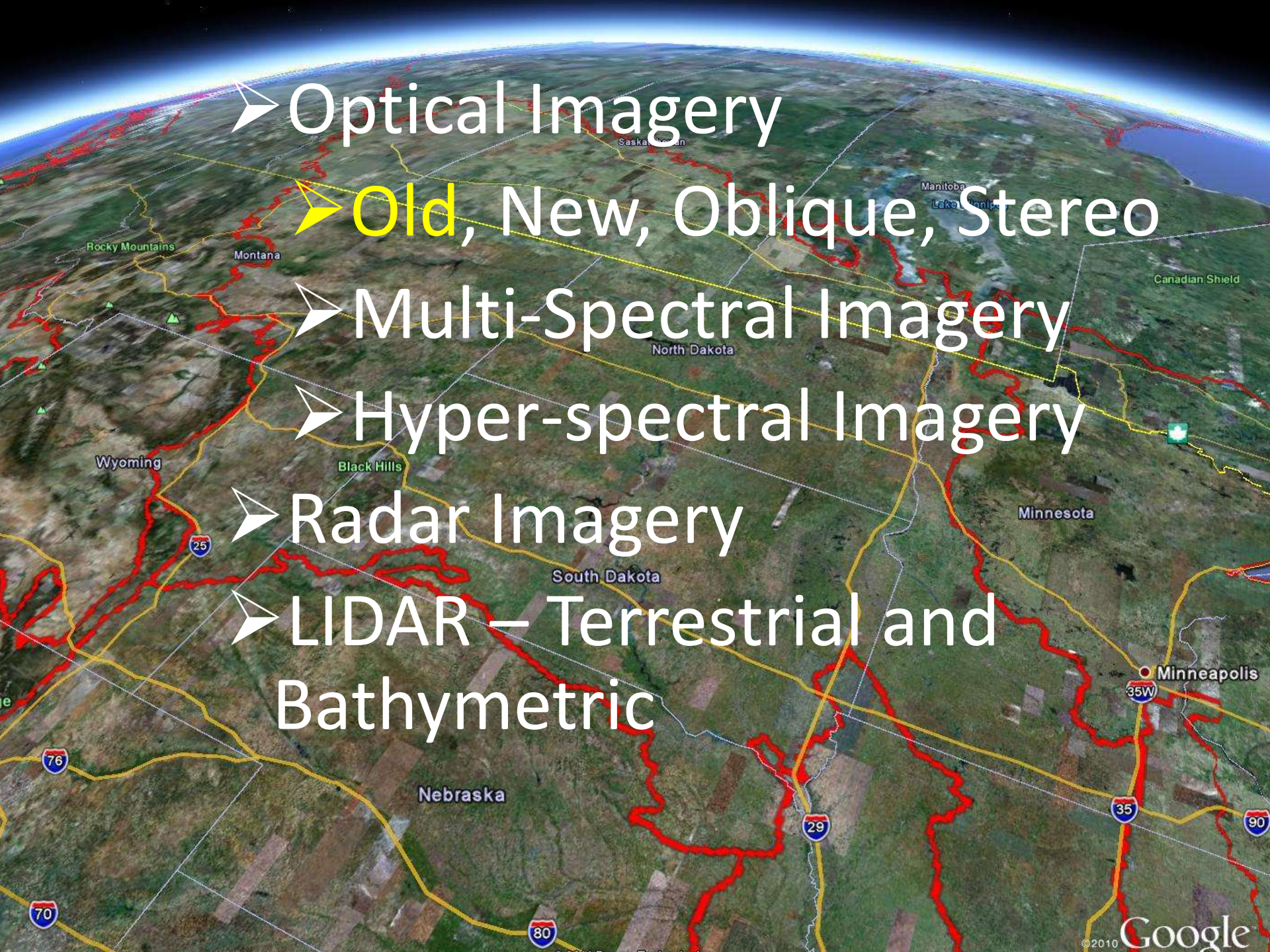
FWS Remote Sensing Data Needs:

EVERYTHING!

All types, dates, scales at varying resolutions

- Optical Imagery
  - Old, New, Oblique, Stereo
  - Multi-spectral Imagery
  - Hyper-spectral Imagery
- Radar Imagery
- LIDAR – Terrestrial and Bathymetric
- SONAR
- Thermal Imagery


Optical Imagery
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South Dakota
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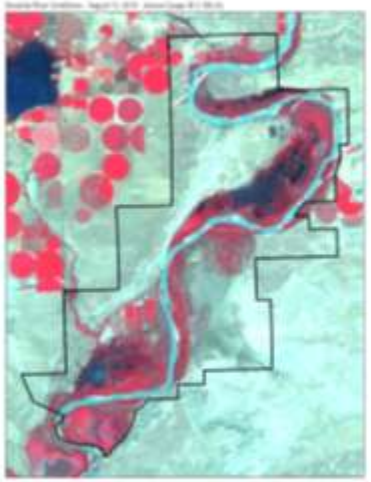
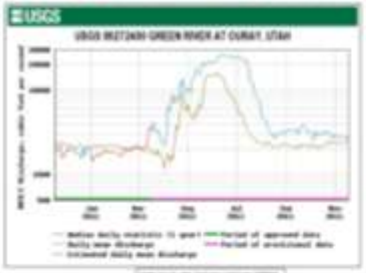
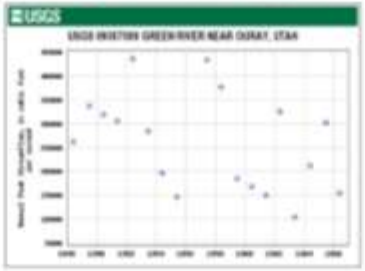
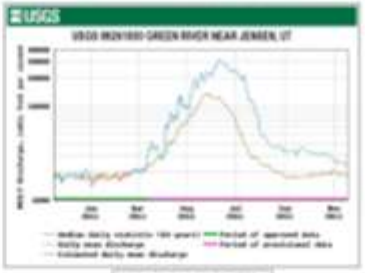
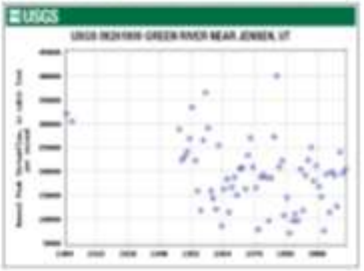
Ouray National Wildlife Refuge - Flooding Event - 2011

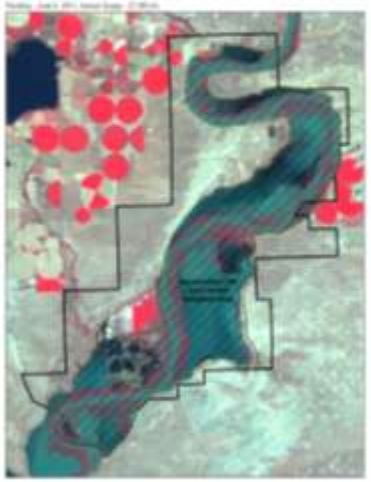


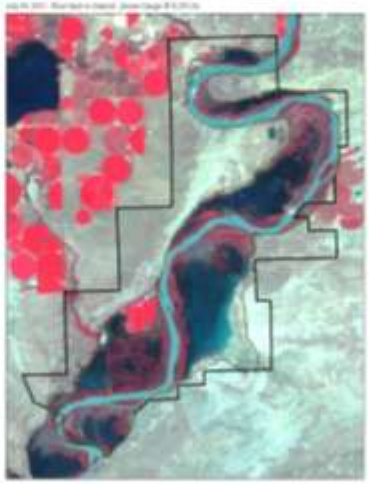


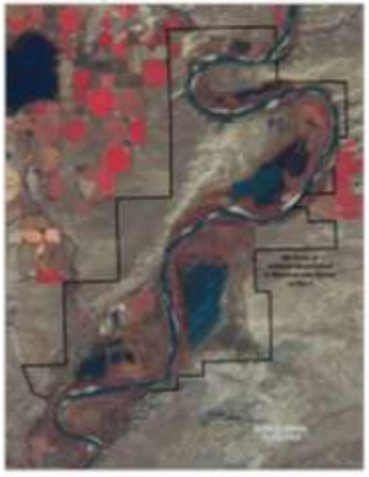






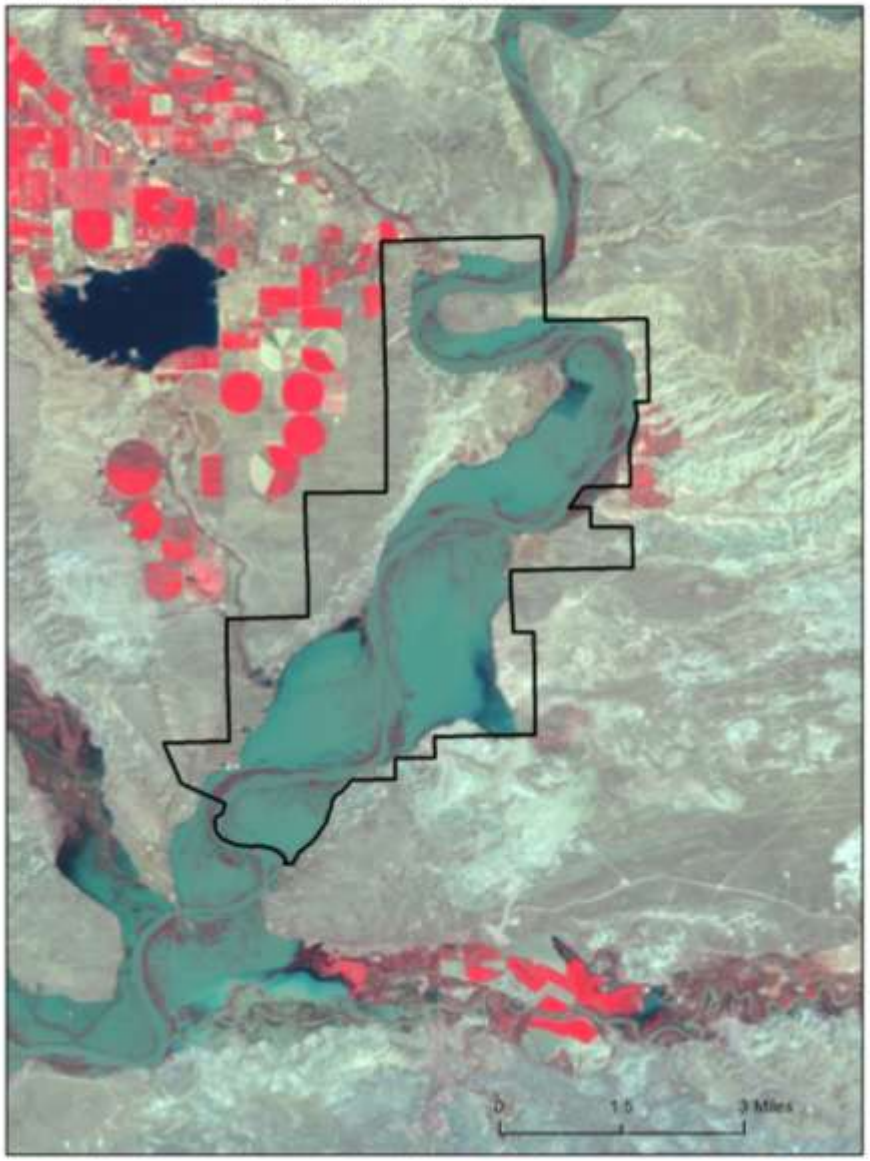




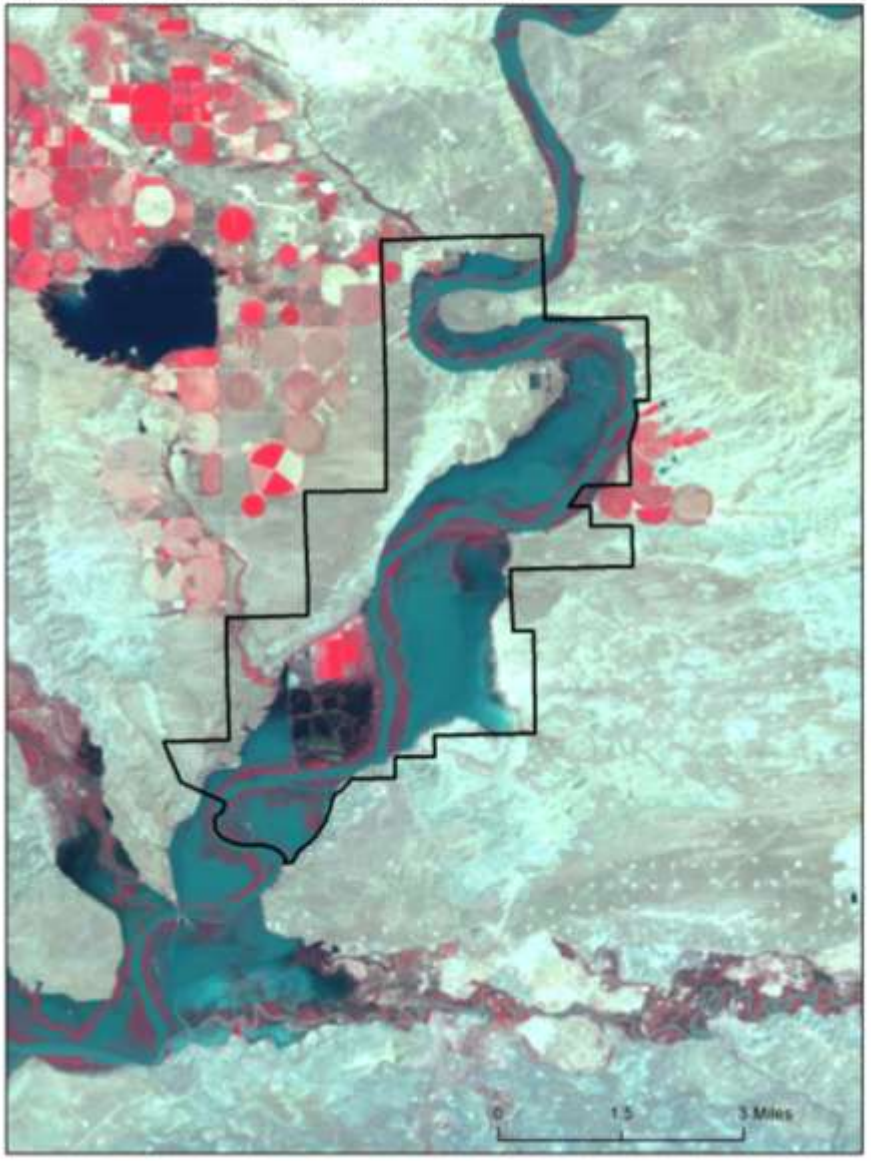


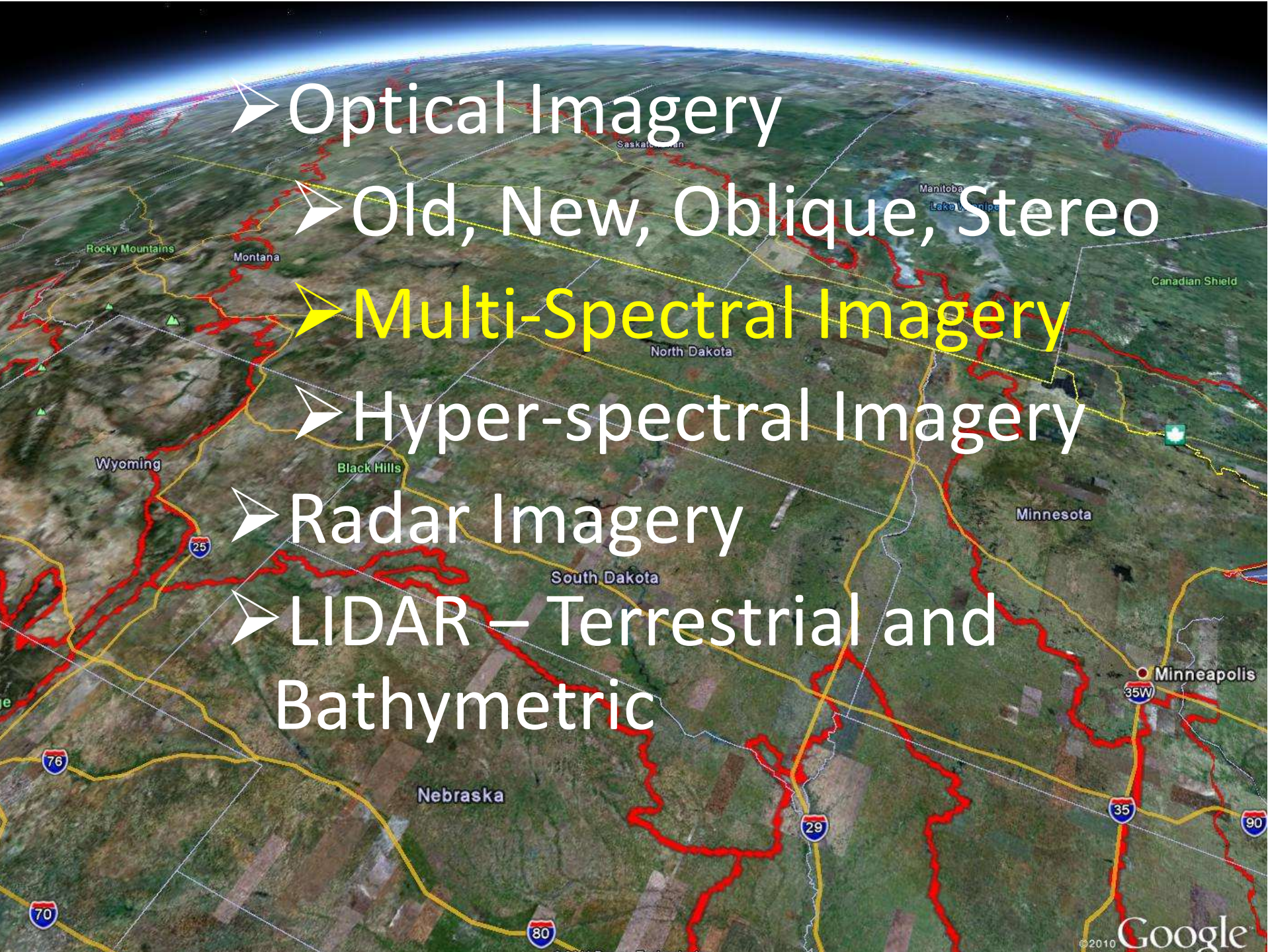
Comparison of major flooding events at Ouray NWR (1984 - highest flow since 1947; 2011 4th highest @ Jensen Gage)

Landsat 5 - May 26, 1984. Jensen Gage @ 40,000 cfs on May 18, 1984.



Landsat 5 - June 22, 2011. Jensen Gage @ 34,400 cfs on June 11, 2011.

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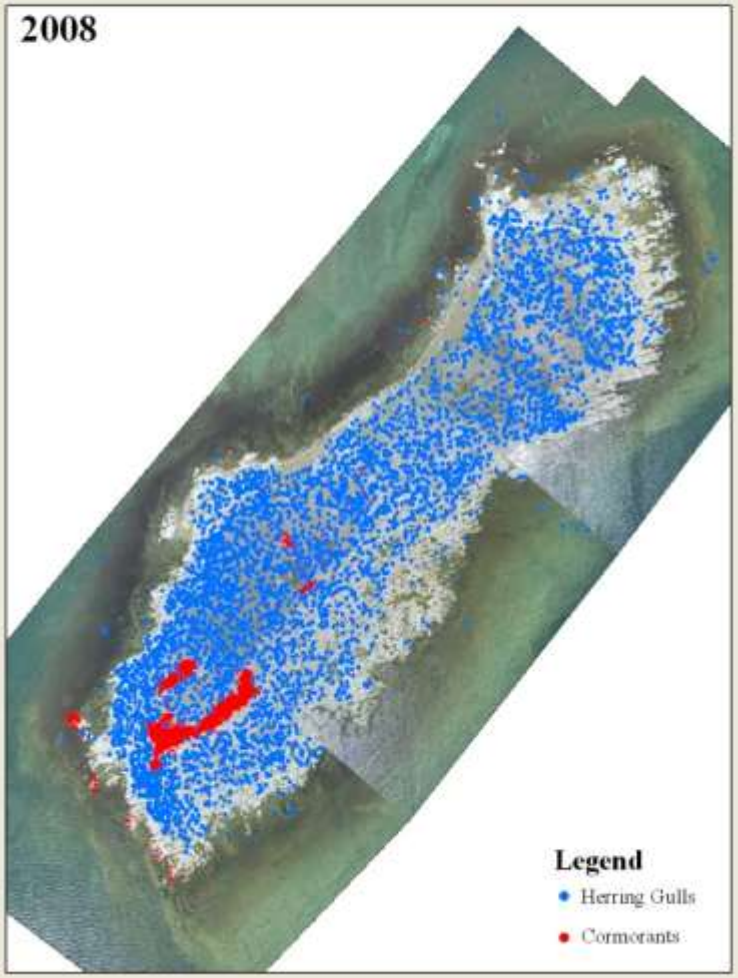
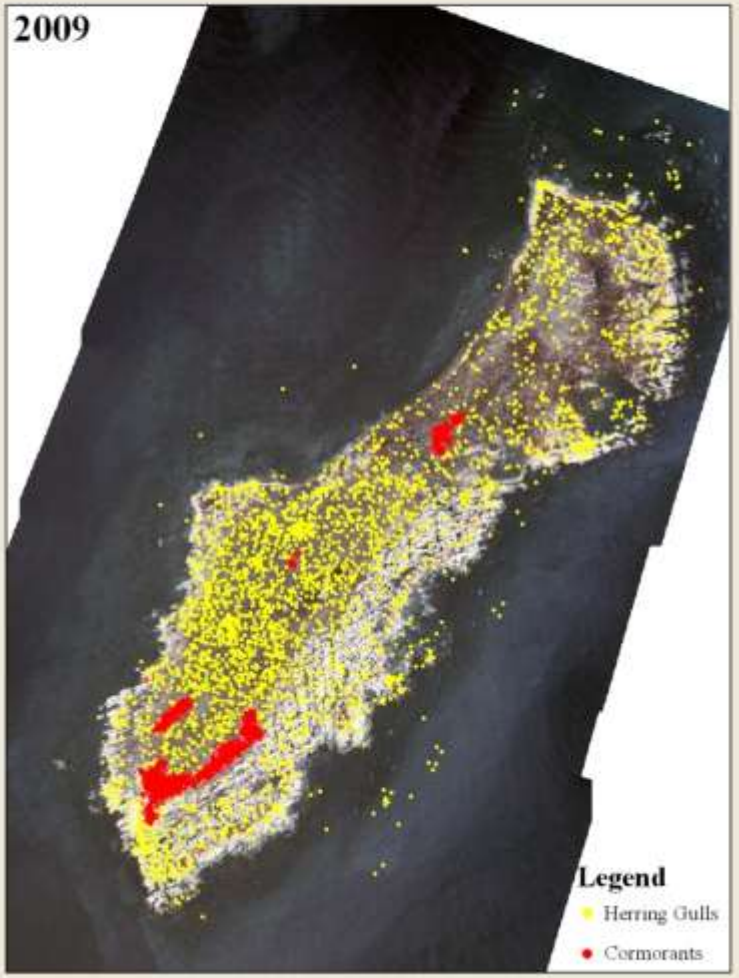
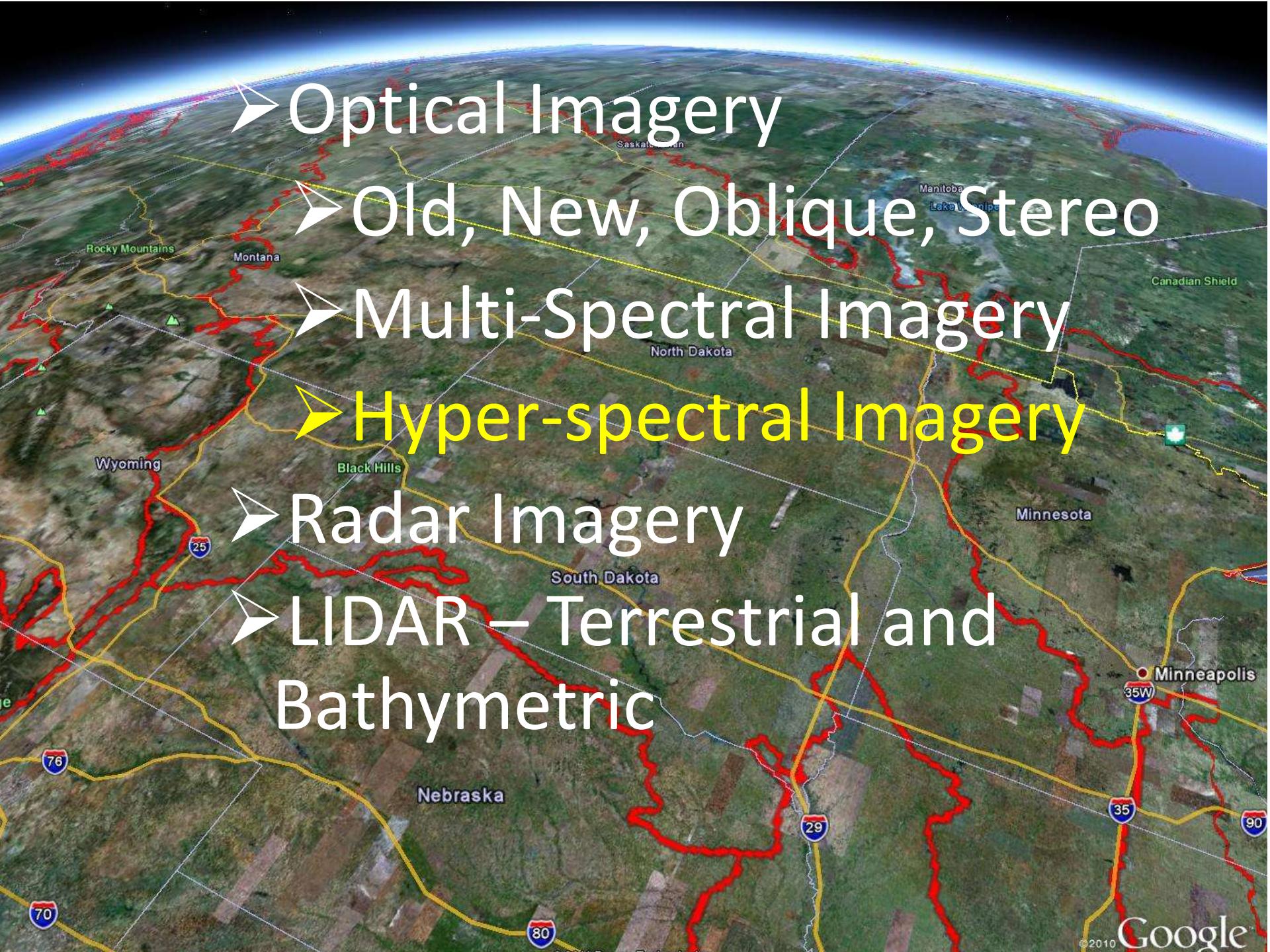
Annual Great Lakes Waterbird Survey

Spider Island Gravel Island NWR



Change
-15 %

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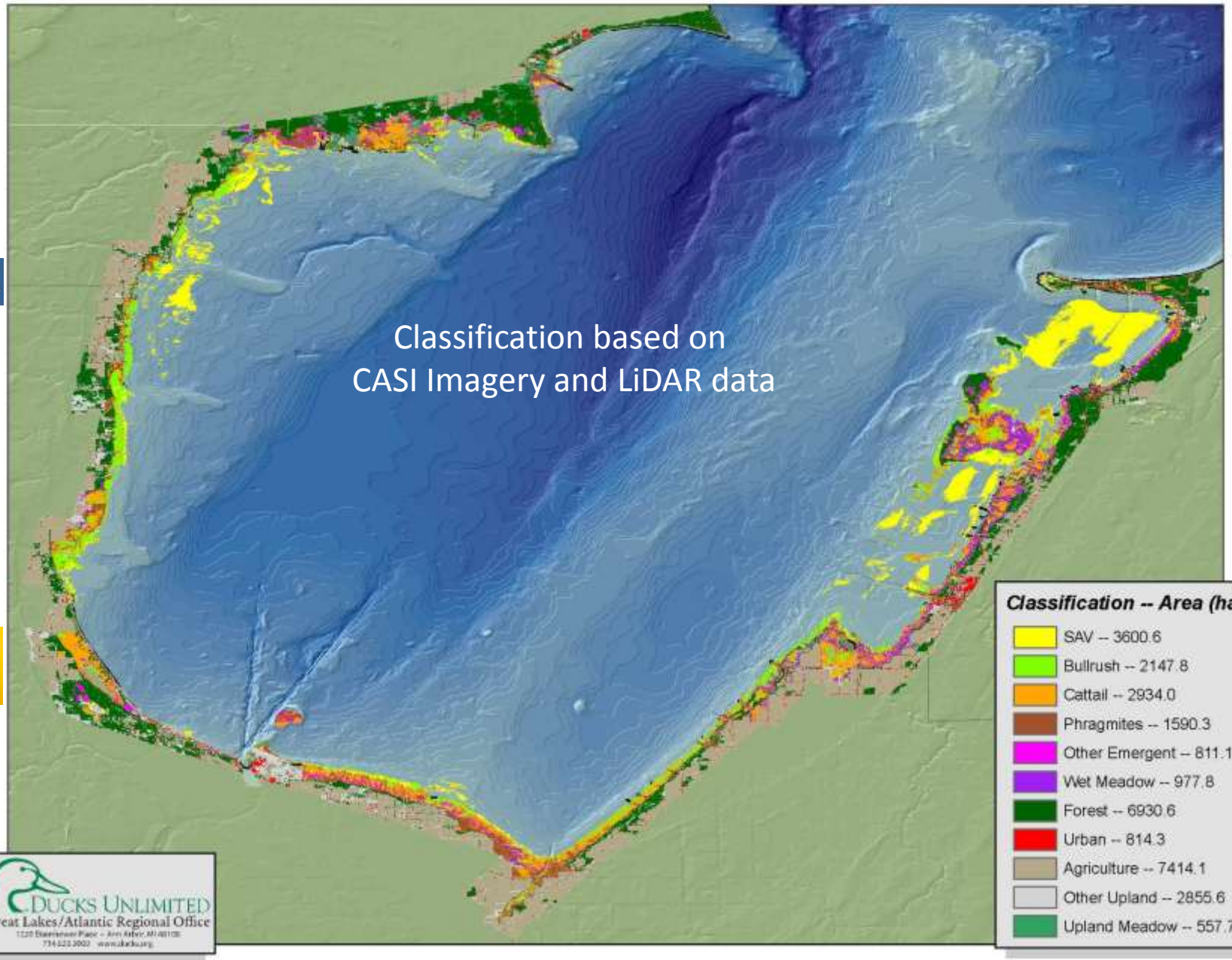
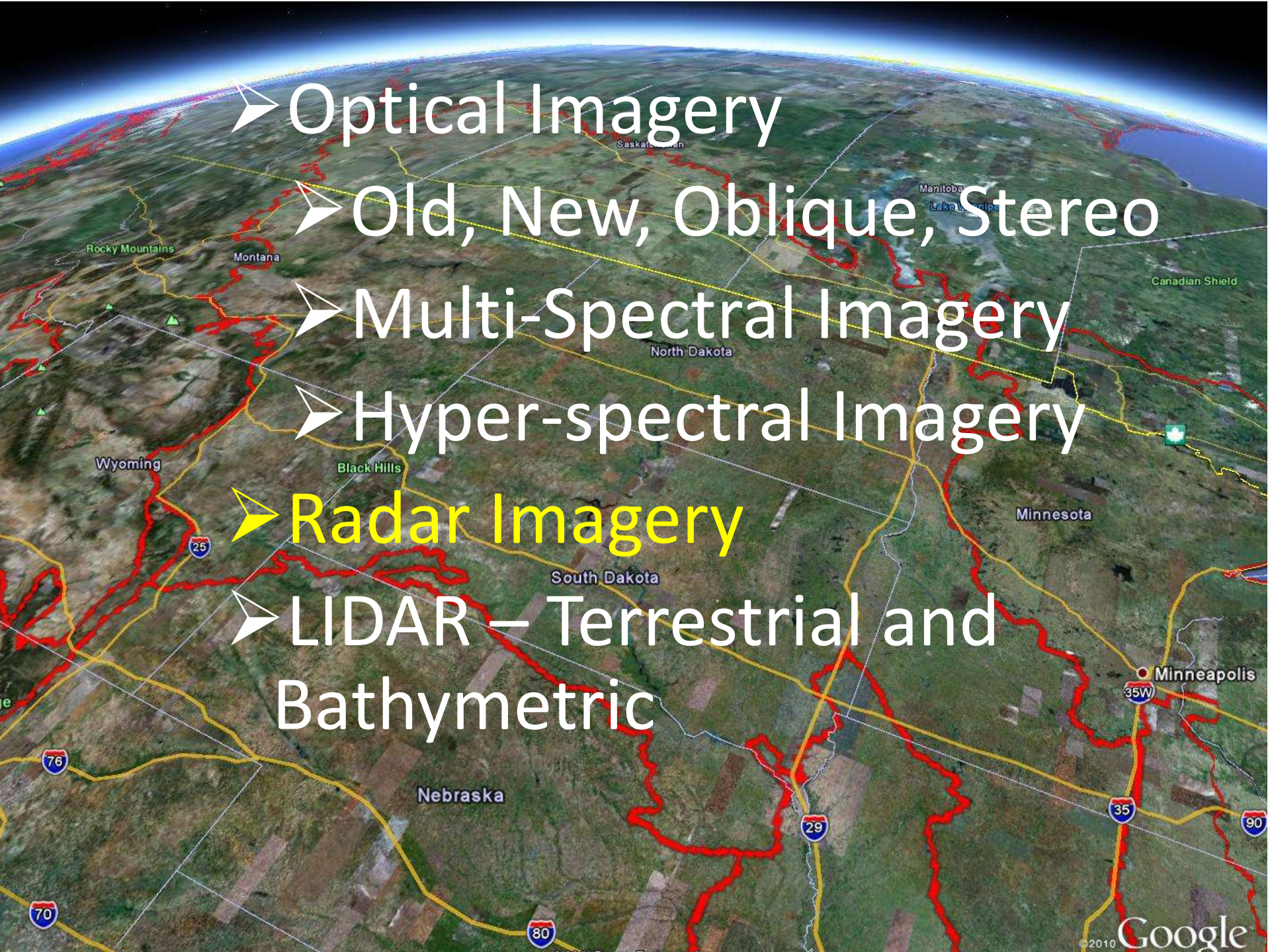
Saginaw Bay Coastal Wetlands Classification



Ducks Unlimited
Great Lakes/Atlantic Regional Office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Canadian Shield
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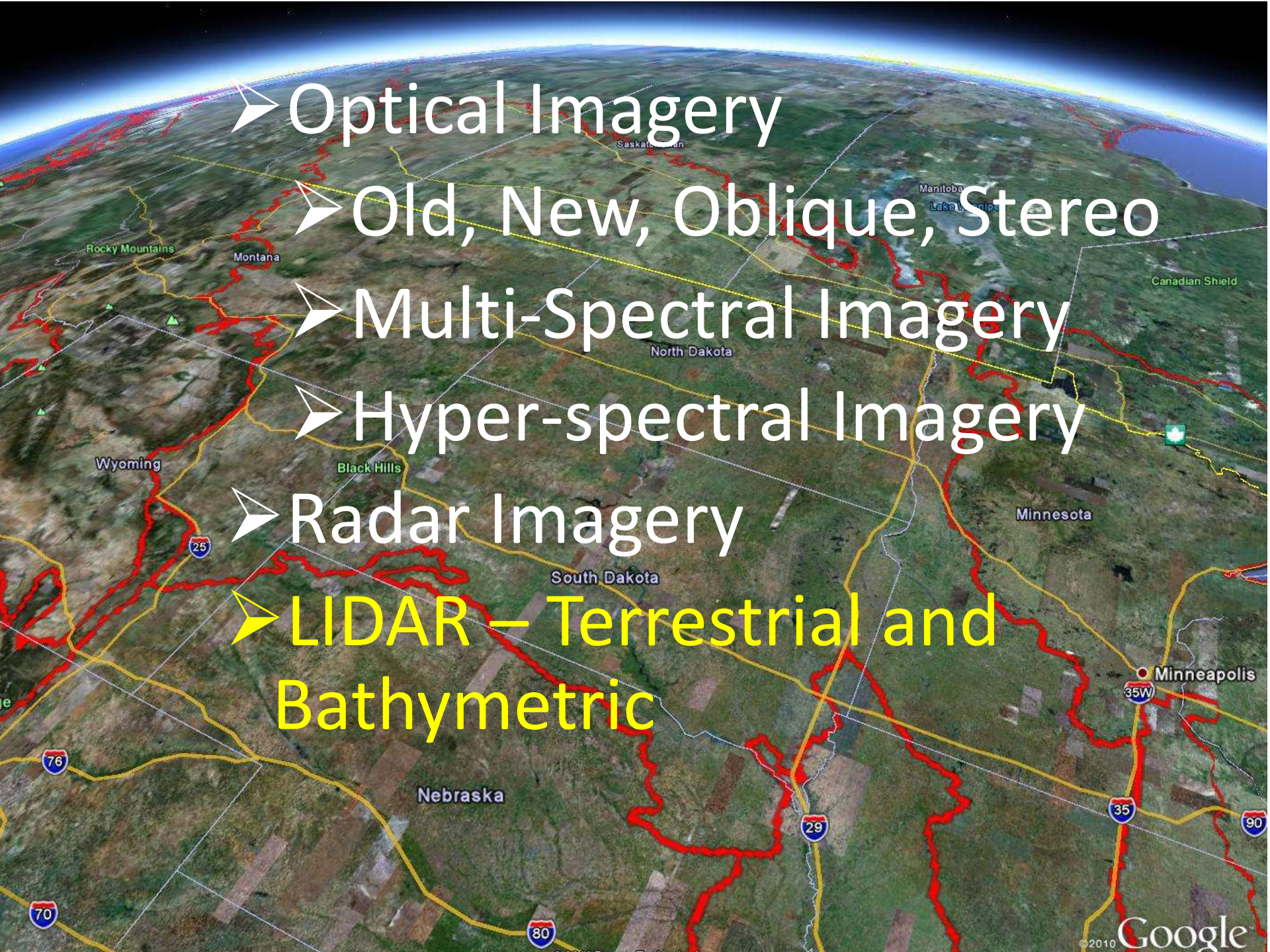
Mich. Tech. Research Institute phragmites mapping of *entire* Great Lakes Shoreline

Northern Lake St. Clair Potential Invasive Phragmites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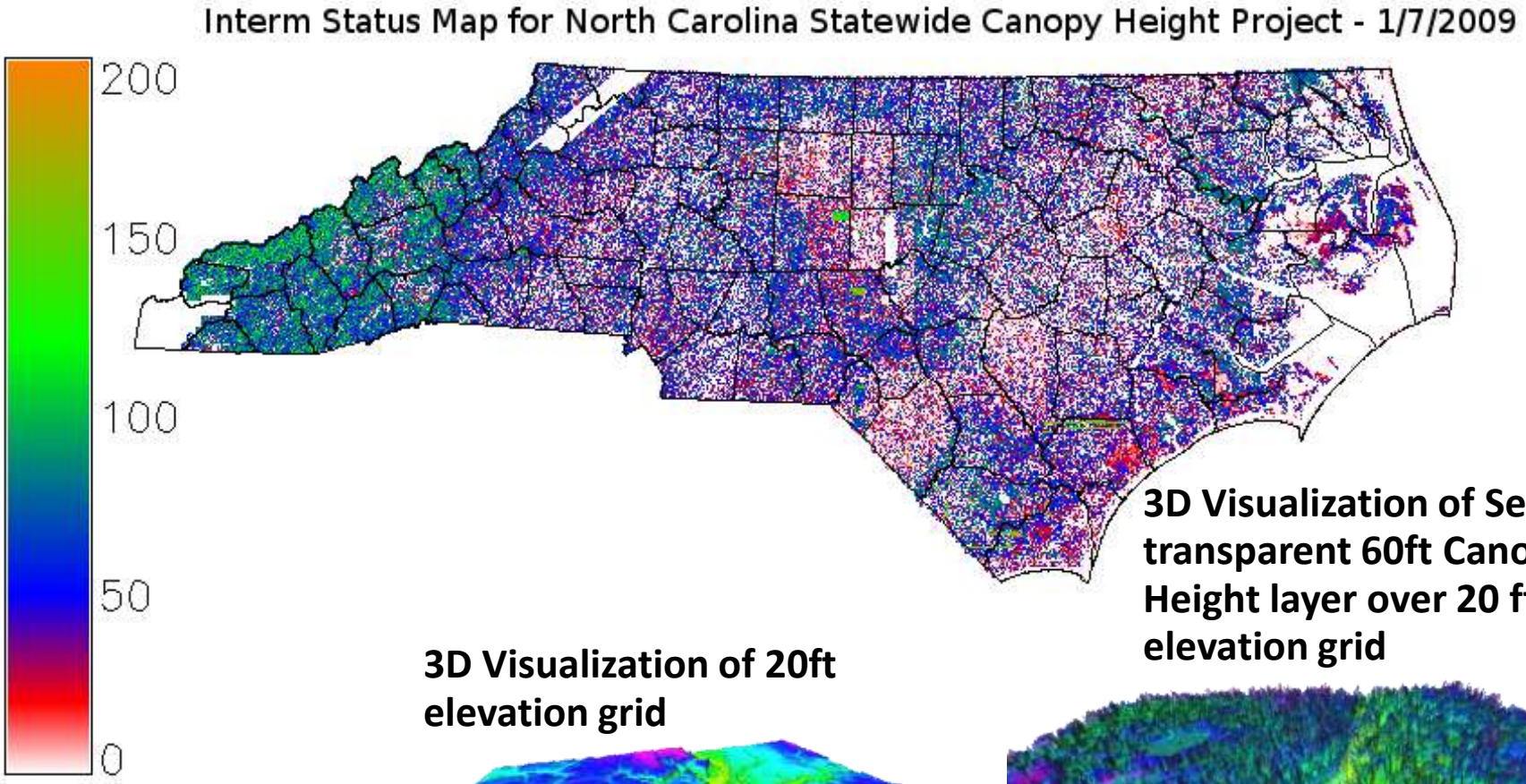
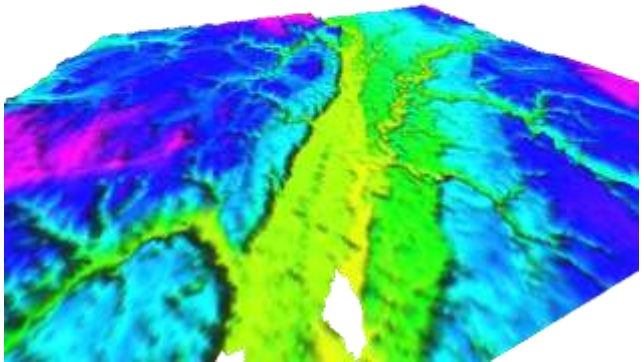
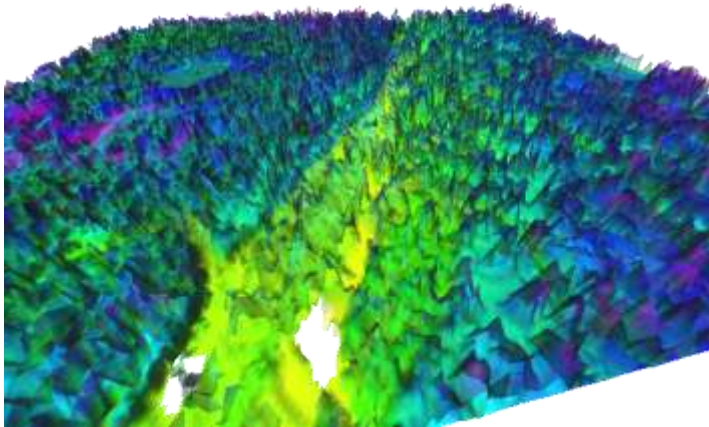
Light Detection and Ranging (LIDAR) Used to Determine Ground Elevation & Tree Canopy Height



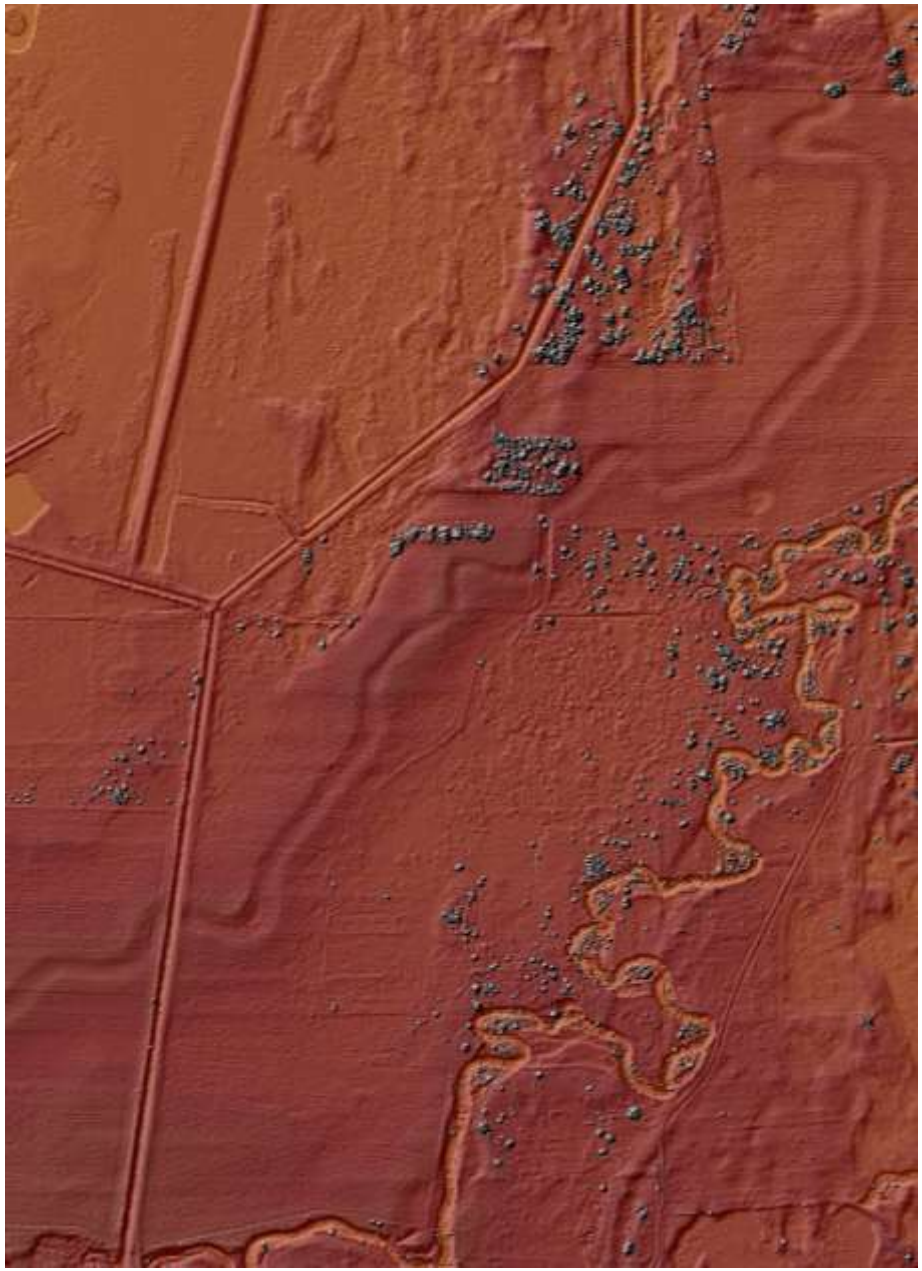
3D Visualization of 20ft elevation grid



3D Visualization of Semi-transparent 60ft Canopy Height layer over 20 ft elevation grid



Light Detection and Ranging (LIDAR) – Quivira NWR, Kansas

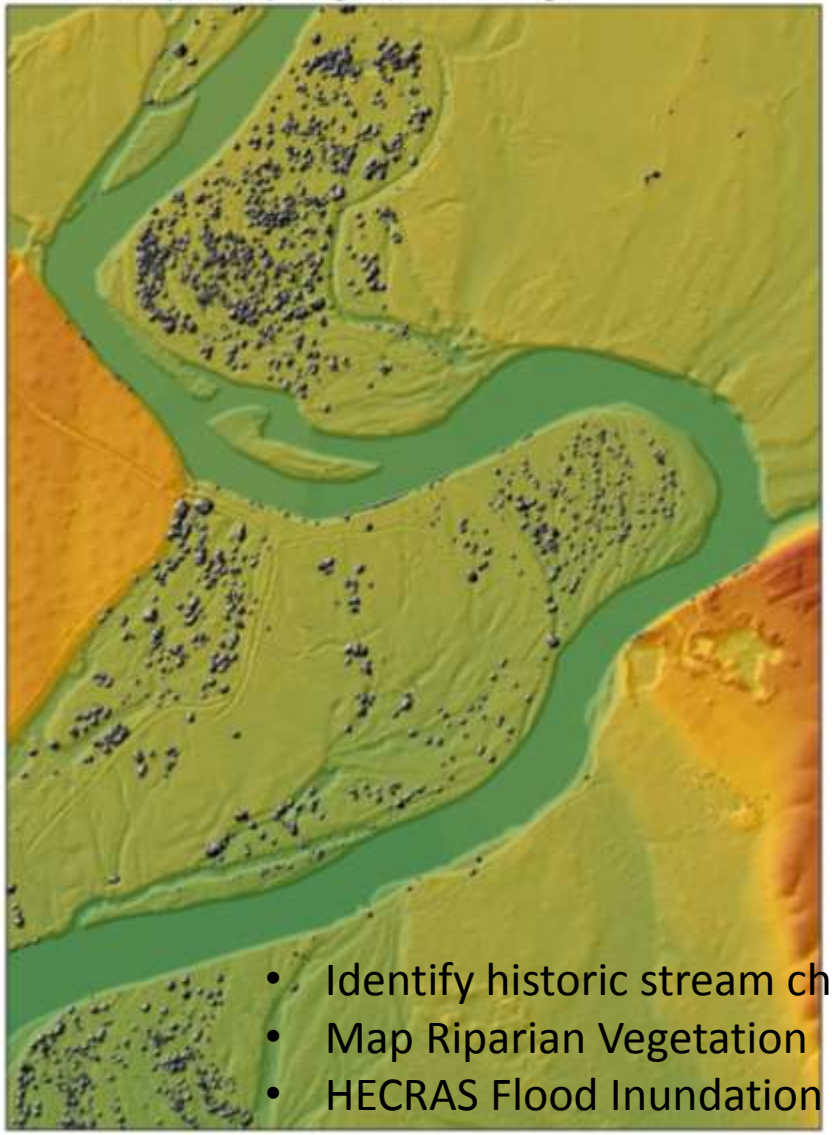


- Identify historic stream channels
- Wetland area-capacity information
- Accurately map trees in prairie landscape
- Model effects of tree removal on area-sensitive grassland nesting birds

Light Detection and Ranging (LIDAR)
Seedskadee NWR, Wyoming

2009 CIR NAIP - 1-Meter

2010 LIDAR (1-Meter) - Vegetation 6ft in height

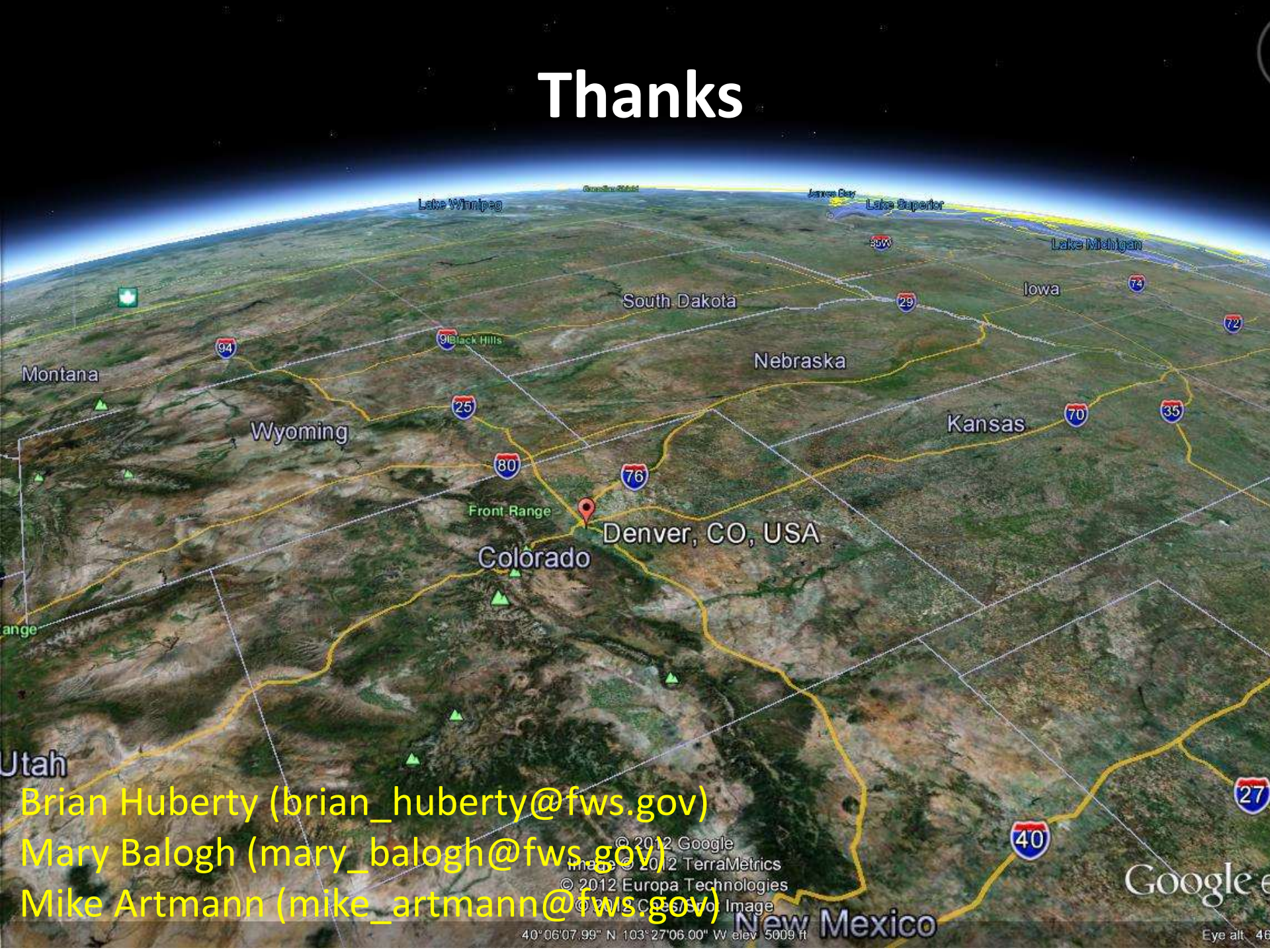


- Identify historic stream channels
- Map Riparian Vegetation
- HECRAS Flood Inundation Models

2012 U.S. Fish & Wildlife
Remote Sensing Data Access Needs

- *Continue to promote data access and maintain long-term data repository*
  - *Knowing what information is available is critical*
- *Bandwidth is a continual challenge – we need more on both ends*
  - *Data storage?? – WMS, WFS*
- *Aerial Imagery – all kinds, including historical*
  - *Earth Explorer and Glovis sites*
- **LIDAR – valuable data set**
  - **CLICK site and USGS liaisons are helpful**

Thanks



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