



# NEBRASKAVIEW 2023 - 2024

**AmericaView**<sup>SM</sup>  
Empowering Earth Observation Education  
[americaview.org](http://americaview.org)

## NEBRASKAVIEW 2023 - 2024 ACTIVITIES

This project allowed NebraskaView to establish new partnerships with the Nebraska Game & Parks Commission (NGPC), the Applied Wildlife Ecology & Spatial Movement Lab (AWESM) at the University of Nebraska-Lincoln, and the Center for Resilience in Agricultural Working Landscapes (CRAWL) at the University of Nebraska-Lincoln.

The primary goal of this project was to use freely available satellite imagery to detect burning, haying, and grazing—three common grassland management practices—and investigate their effects of these disturbances on ring-necked pheasant habitat. An important initial step for this work involved developing an approach for detection and elimination of cloud interference in satellite imagery.

- Graduate student training and research experience.
  - Remote sensing imagery and techniques.
  - Google Earth Engine (GEE).
- Developed an approach for detecting and removing cloud interference in multispectral Sentinel-2 satellite imagery.
- Identified spectral indices that most effectively detected burned areas in grasslands.
- Trained algorithms to detect burned areas with cloud-free satellite images.
- Mapped burned areas across large landscapes.



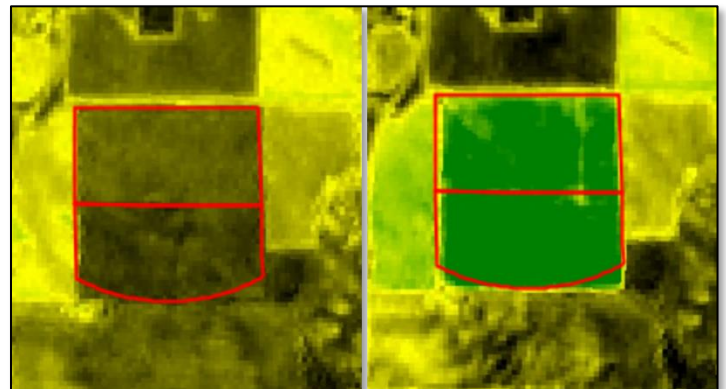
*A grassland not recently managed with burning, haying, or grazing.*



*A recently burned grassland from an area in eastern Nebraska.*



*Satellite images showing detection of burning within an area of interest. (Left) Before burning. (Right) After burning.*



*Spectral index from satellite images showing detection of burning within an area of interest. (Left) Before burning. (Right) After burning.*

NebraskaView is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state. AmericaView is funded by USGS grant agreement G23AP00683.

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## BENEFITS TO NEBRASKA

The mission of NebraskaView is to ensure *that Nebraskans make full use of satellite and airborne imagery, aerial photography and other geospatial data products through technologies such as geographic information systems (GIS) and remote sensing.*

### Benefits of NebraskaView to the State included:

- Provided training and guidance to a Ph.D. student at the University of Nebraska-Lincoln on remote sensing data sources to detect grassland disturbance for pheasant habitat evaluation as part of her dissertation research.
- Assisted the graduate student in understanding and applying cloud detection and removal in satellite imagery.
- Provided guidance and assistance to the graduate student in the use and development of writing Google Earth Engine code for this project.
- This project has contributed to Nebraska Game and Parks Commission's goal of investigating the utility of satellite-based remote sensing to fill the information gap about grassland disturbances to increase pheasant populations in the state and assess different management strategies.
- Demonstrated the value of remote sensing data and assist in developing new applications.



*Detection and removal of clouds from a Sentinel-2 satellite image.*

## NEBRASKAVIEW CONSORTIUM MEMBERSHIP



*Federal consortium members identified above do not receive funding from AmericaView.*

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