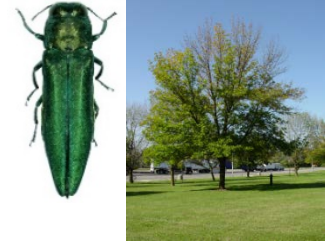


NEBRASKA VIEW 2019 - 2020 ACTIVITIES

The NebraskaView program partnered with the City of Lincoln Parks and Recreation to assess the utility of airborne remote sensing for detecting and managing emerald ash borer infestations within the city's urban forests. The emerald ash borer (EAB) is invasive to Nebraska leading to widespread mortality of ash trees in Lincoln and other communities across the state. Lincoln Parks and Recreation manages the city's ~10,000 ash trees in public areas and is facing a considerable financial investment to either treat or remove EAB-impacted ash trees.



Invasive emerald ash borer and early-stage damage to green ash tree in Lincoln, NE.

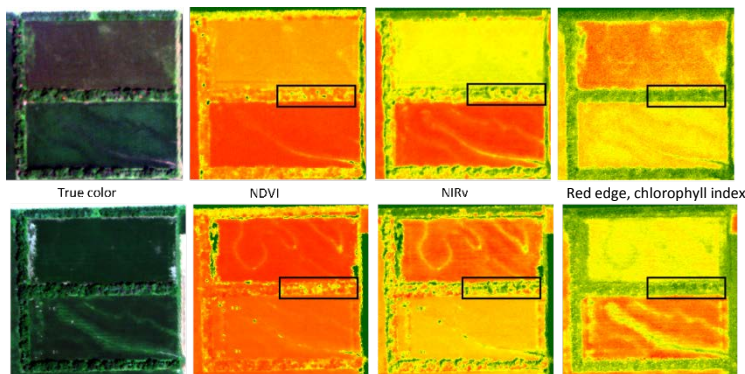
The goal was to investigate the use of free, publicly-available National Agricultural Imagery Program (NAIP) imagery from USDA as a cost-efficient data source for the detection of EAB-infected ash tree areas in Lincoln compared to more expensive airborne hyperspectral imagery.

Results:

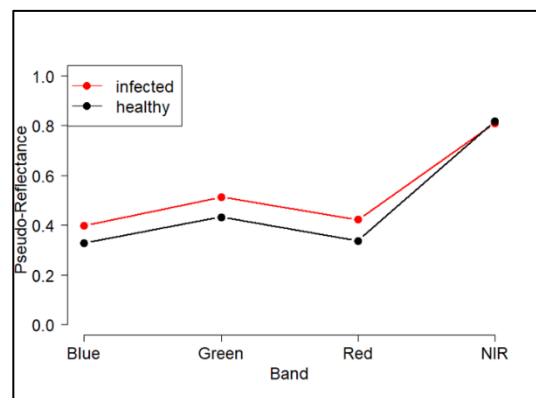
- NAIP imagery could only detect EAB-infested ash trees with part of the tree canopy that was dead.
- EAB-infected ash trees with little to no canopy mortality, were difficult to distinguish from healthy trees in the NAIP imagery.
- Initial analysis of hyperspectral imagery indicates that pre-visual signals of EAB-induced stress can be detected in ash trees not exhibiting mortality, which could serve as an early indicator for urban forest managers.



Multi-year, false-color, USDA NAIP imagery for selected healthy (yellow circles) and EAB-infested (green circles) ash trees in Lincoln, NE



True-color, 1-meter hyperspectral imagery over ash trees (in black rectangle) with simulated EAB-induced damage at the University of Nebraska-Lincoln's Agroforestry site near Mead, NE



Multispectral profiles of remote sensing signal differences between healthy and EAB-infested ash trees obtained from USDA NAIP imagery

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.*

Specific benefits of Nebraska View to the State include:

- Support decision makers in evaluating and selecting the most appropriate remote sensing imagery and other spatial data for a specific application.
- Demonstrate the value of remote sensing data and assist in developing applications.
- Providing remote sensing education and training to students, professionals, and others in the general public.



Hands-on demonstration of basic remote sensing concepts of vegetation for students in Community and Urban Forestry Program, School of Natural Resources at the University of Nebraska-Lincoln.



Airborne hyperspectral imagery over the University of Nebraska-Lincoln East Campus and surrounding area that can be used for a wide range of agricultural, natural resource and other applications.

NEBRASKAVIEW CONSORTIUM MEMBERSHIP



*City of Lincoln, Nebraska
Parks and Recreation*



*Nebraska Forest
Service*



*The Nebraska
Environmental Trust*



*University of Nebraska-Lincoln
Community and Regional
Forestry Program*

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

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