THE POWER GRID/WILDFIRE NEXUS:
USING GIS AND REMOTE SENSING TO IDENTIFY VULNERABILITIES

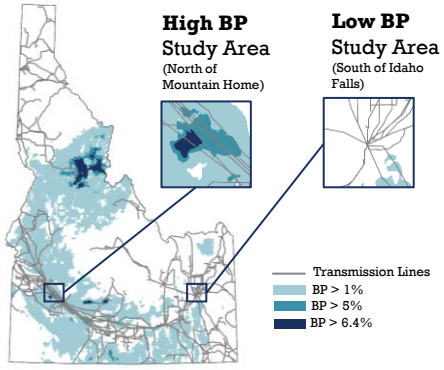
Alyssa Farnes[1], Keith Weber[1], Shiloh Elliot[2], Christopher Forsgren[2], Cassie Koerner[3], Kathy Araujo[3]
Idaho State University GIS Training and Research Center[1], Idaho National Laboratory[2], Boise State University CAES Energy Policy Institute[3]

BACKGROUND

- Wildfires pose a significant threat to lives, property, and critical energy infrastructure
- A number of large wildfires were started by the electrical power grid in recent years
- As a result of wildfires or the risk of wildfire, utilities must manage unplanned or preemptive power outages
- **Goal**: develop a power grid/wildfire database to identify areas where the power grid is most vulnerable to wildfire

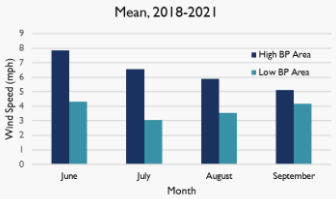
INITIAL METHODS

- Two study areas were identified in Idaho based on current wildfire Burn Probability (BP) data
- Both areas had a high density of power grid infrastructure but highly different BP ratings
- Used satellite remote sensing and GIS data analysis to characterize burn probability drivers
- Obtained data from sources like USGS, Idaho Power, Bureau of Reclamation, (scan QR code for all) and examined data using Geographic Information Systems (GIS)



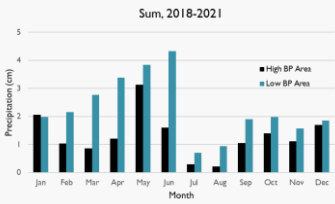
DATA

Wind Speed

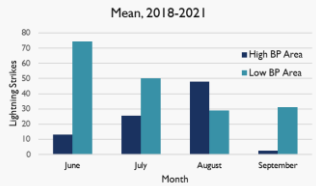


Dominant Vegetation

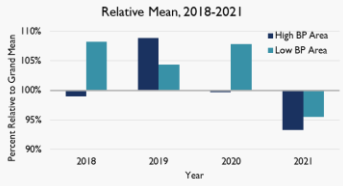
Precipitation



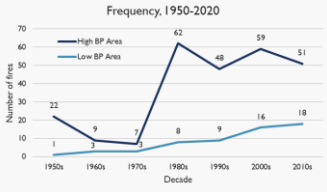
Lightning Strikes



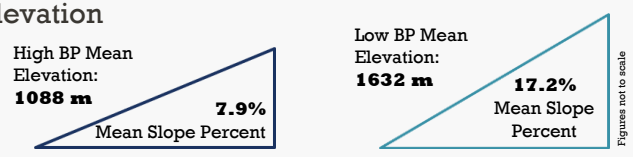
NDVI (Normalized Difference Vegetation Index)



Fire Frequency



Elevation



FUTURE OUTCOMES

Compared to the Low BP study area, the High BP study area has experienced more fires in the last 70 years, has higher prevalence of cheatgrass, and is on average windier and drier. Future work will focus on:

1. Completing a thorough literature review summary paper
2. Developing a Power Grid/Wildfire nexus geodatabase
3. Preparing a manuscript for submission to a targeted peer-reviewed journal by end of 2022

By evaluating these variables within each study area, comparisons will be made and conclusions drawn to determine the variable(s) that most influence vulnerability of the power grid to wildfire. The resulting geodatabase will consolidate information across the fire and energy fields to create a resource that enables land and utility managers to gain actionable information that will support well-informed decisions.

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Scan to read the full paper and see data sources.

farnalys@isu.edu