

Threatened Paradise: Mapping an Invasive Fern Using Machine Learning

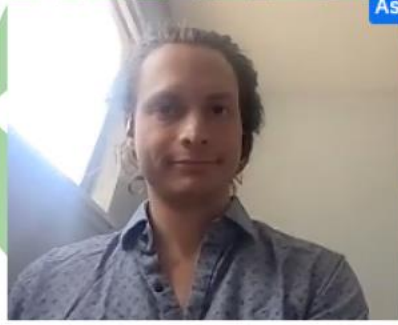
TEAM HAWAI'I
ISGEO 2022



MEET OUR TEAM



YOKO



DANIEL



LISSA



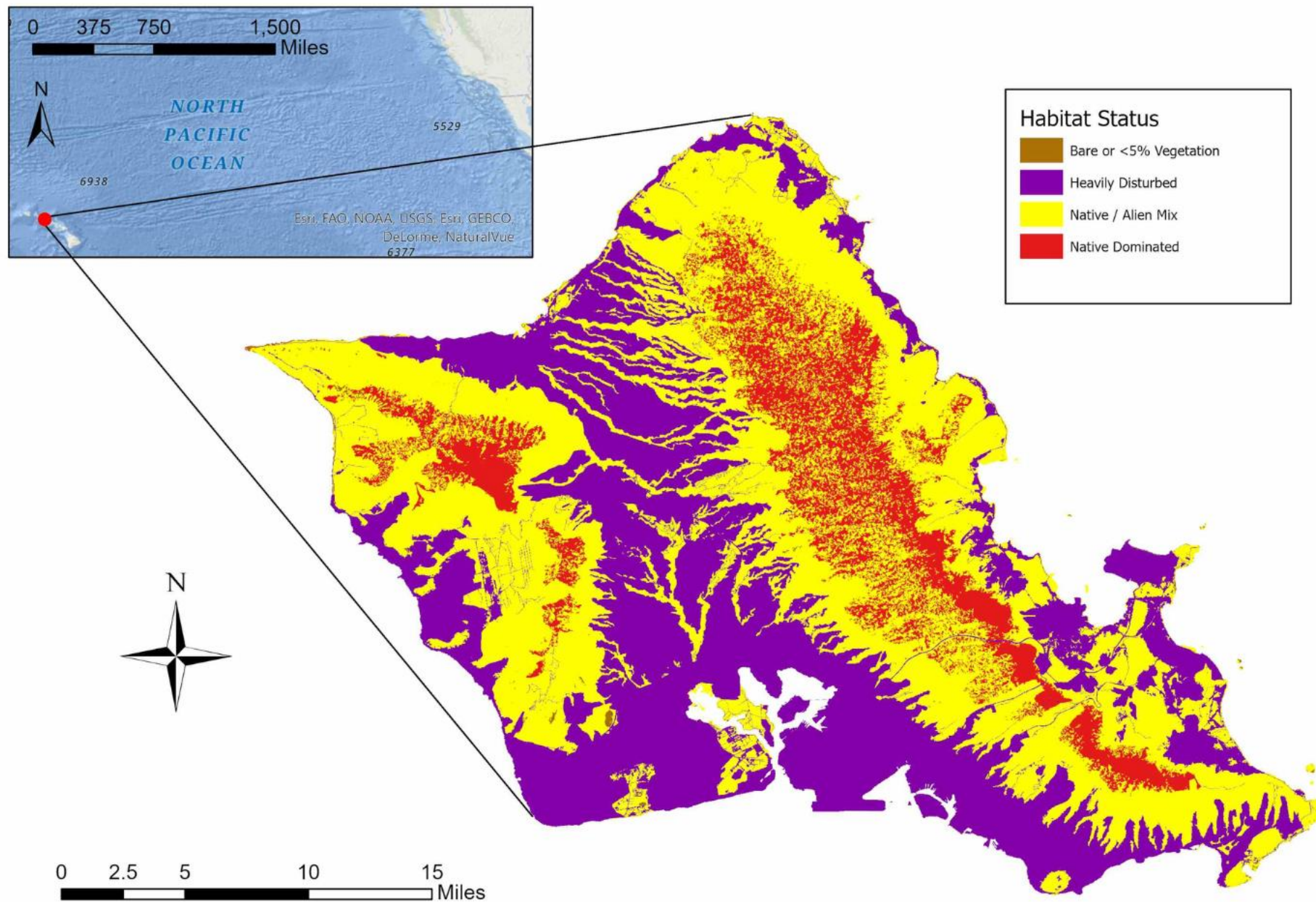
JOE

- **Problem: Invasive fern**

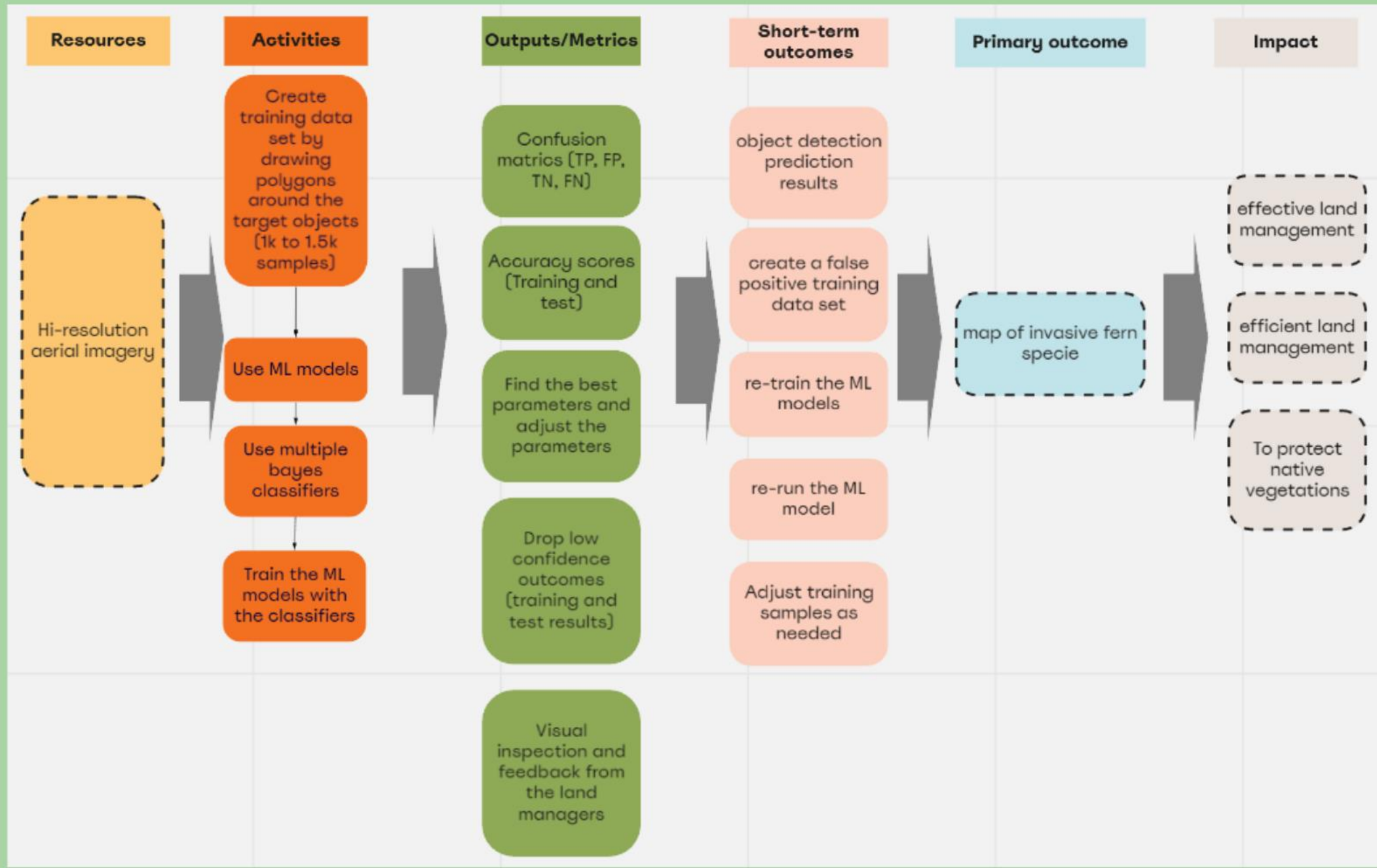
- Growing fast
- Aggressively outcompetes
- Extending dense canopies over vegetations
- Native ferns and other native plants to be displaced

Goal: To map the invasive fern using Machine Learning object detection technique to assist land managers to combat against the invasive fern effectively and efficiently.

Study Site



PROJECT LOGIC MODEL



PROJECT TIMELINE

Task	Status
Obtain High Resolution Aerial Imagery: raster files	Completed
Manually draw a polygon around the target invasive fern	Completed
Write a python code to crop raster files by each polygon	Completed during ISGEO-22
Create training data set using the python code	by August 31, 2022
Machine Learning (ML) model selection (find research papers)	October 2022
Create a formal proposal using research papers	November 2022
Set up an environment in High Performance Computer	October, 2022
Run ML models including tune-up, re-train, re-test, accuracy assessment using confidence scores and a visual inspection, and obtaining the feedback from stakeholders.	November, 2022 to March, 2023
Generate a final invasive fern map	April, 2023

Thank you!

