



# Confederated Tribes of the Umatilla Indian Reservation

## Drone Feasibility Study

A collaborative effort among OIT &  
DNR

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# Tribal GIS Drone Meeting Fall 2016





# Outline of this talk

- ◉ Feasibility study
  - › Fisheries
  - › Range
  - › Water Resources
- ◉ Complexities
  - › Purchasing
  - › Maintenance
  - › Software
  - › Data storage
  - › Licensing



# Feasibility Study

- ◉ Water Quality / Temperature mapping
  - > Can we map water temperature using thermal infrared camera
- ◉ Feral Horse Survey
  - > Can we count feral horses using a drone

# Feasibility Study Workflow Steps

## Mission Planning

- At a minimum GIS and DNR staff

## Data Collection

- At a minimum GIS and DNR staff

## Data Processing

- GIS staff

## Data Analysis

- GIS and DNR staff

## Data Summary

- GIS and DNR staff

## Data Distribution

- GIS and IT staff

## Data Archiving

- GIS and IT staff



# Implementation of the Feasibility study; tasks approved by the ED for the Working Group

- ◉ FAA certification
- ◉ Purchasing
  - Drone insurance
  - Drone and accessories
- ◉ Testing
- ◉ Processing and data analysis
- ◉ Report on disk space to IT
- ◉ Present to Management Team, ED
- ◉ Complete a report
- ◉ Develop Procedures and Guidelines for UAS at CTUIR



# DJI Matrice 600 Professional



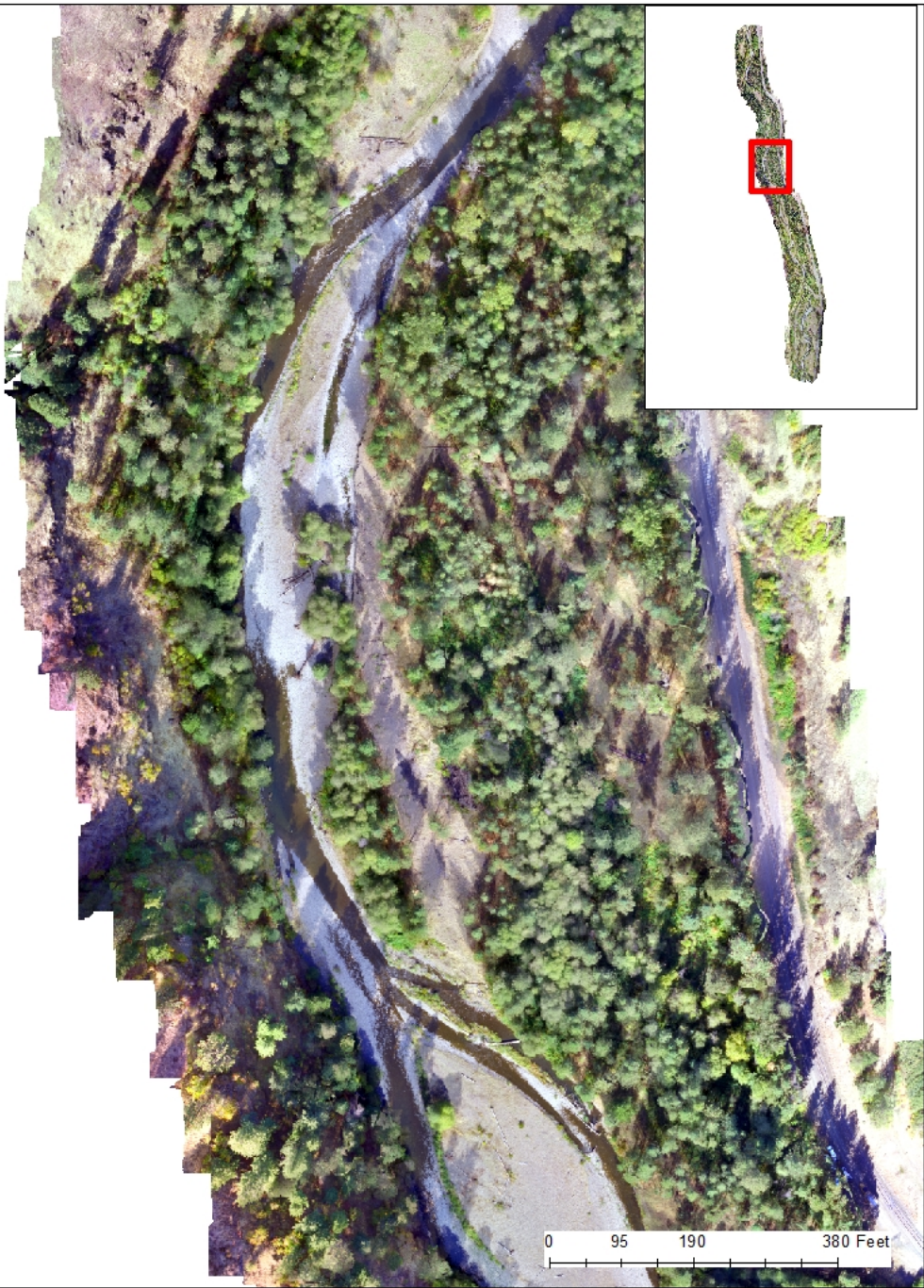


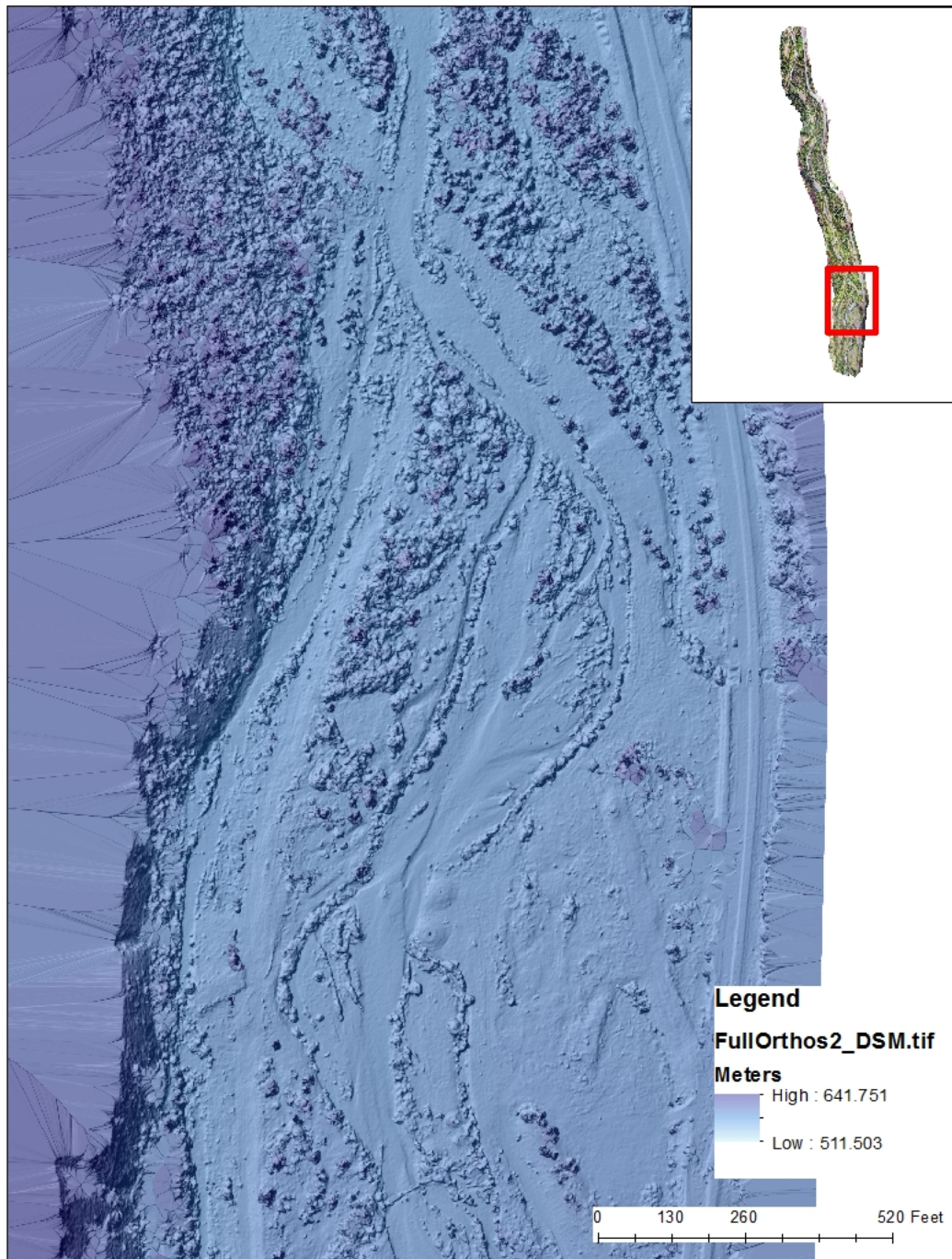






















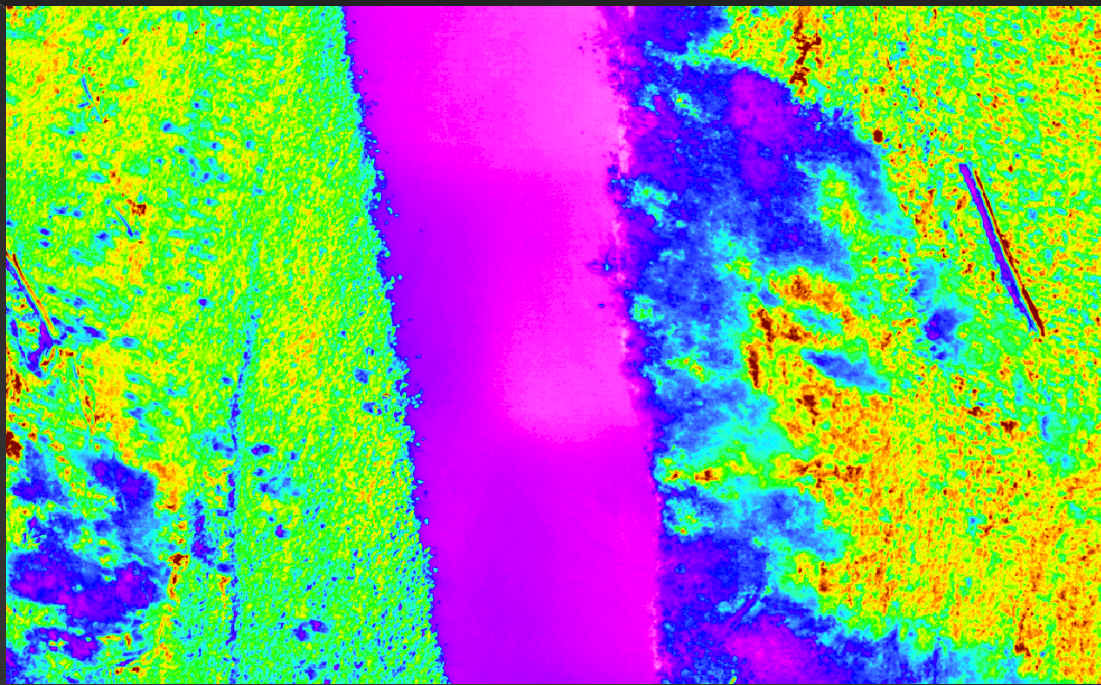
South Fork Walla Walla River

River Rd



# DJI Matrice 100





← Thermal Image

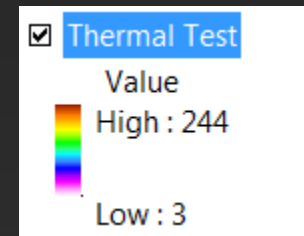


Photo Image →





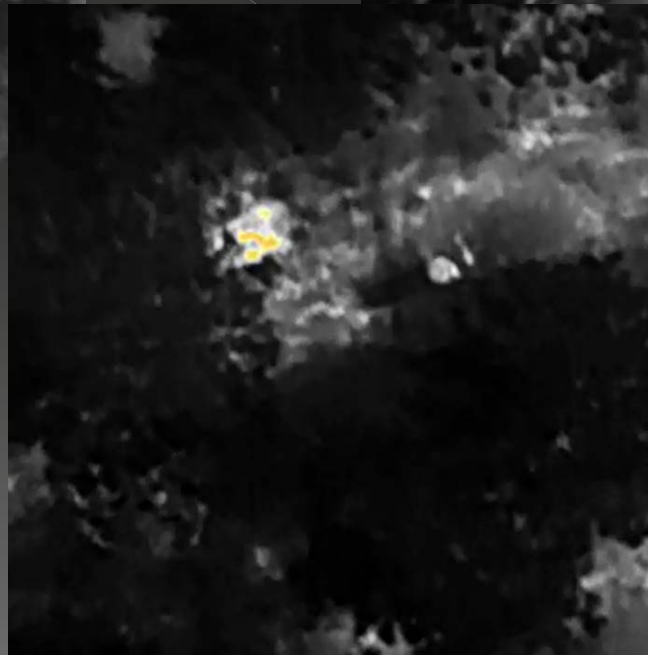
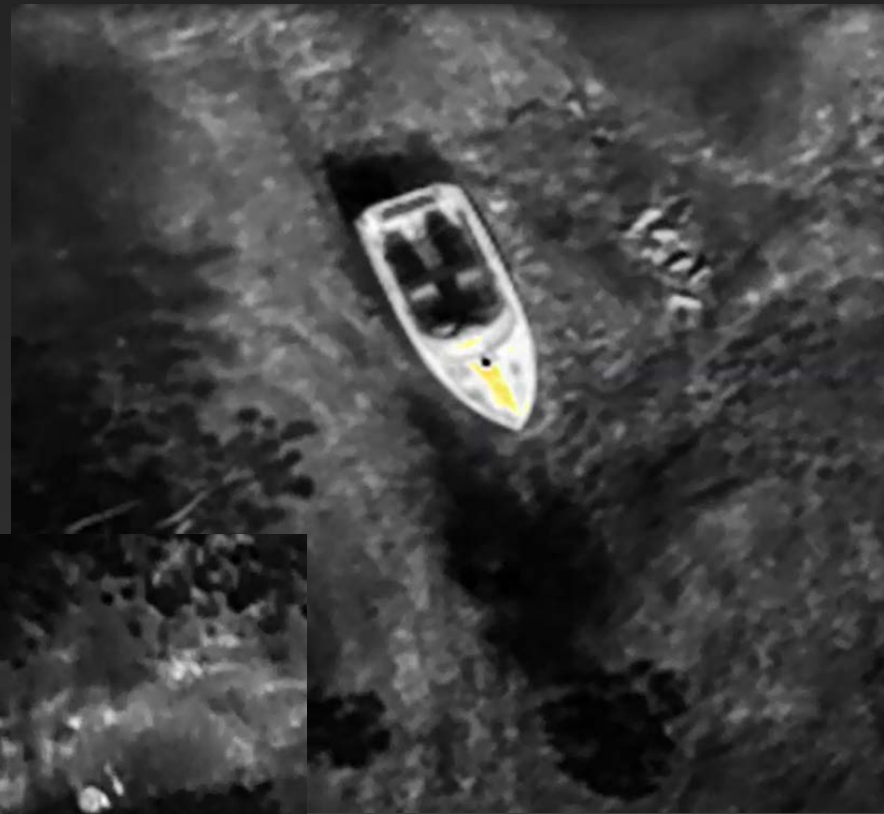
# Fisheries Applications

Long term  
monitoring  
and change  
detection





# Zenmuse XT





# Long Term Plan

- Follow the procedures and guidelines for drone use at CTUIR.
- Develop better data storage and distribution options.
- Likely a new position (1 FTE) will be required to cover all CTUIR requests (DNR, Public Safety, Public Works, Ag.)
  - Located in the GIS Program
- Track drone usage at CTUIR to inform long term strategic planning.



# Short Term Plan

- ◉ Maintain licensing and insurance
- ◉ Research/purchase better quality cameras
- ◉ Identify other projects (Fisheries Habitat projects, Public Works efforts, capital improvement projects and asset management)





# Direct and Indirect Costs

- ◉ Purchase, Register, Insure and Maintain Drone
- ◉ Software Licensing
- ◉ 24 Month Recurring FAA Testing
- ◉ Staff Time: Pre-Flight planning, Maintenance Procedures, Operational Procedures, Emergency Response, etc.
- ◉ Managing File Storage Space



# Rapid Technology Changes

- ⦿ This is an exciting and useful technology, but not yet a stable one.
- ⦿ The technology for UAVs is changing rapidly.
  - Many of the improvements that are described here were not available (for the price, or at all) one year ago.
  - Whatever path the CTUIR chooses, we will likely need to reevaluate the technology annually.
  - Keep current on FAA rules, Washington and Oregon laws.