Confederated Tribes of the Umatilla Indian Reservation

Drone Feasibility Study

A collaborative effort among OIT & DNR

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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
DJI Matrice 100
Fisheries Applications

Long term monitoring and change detection
Zenmuse XT
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
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.