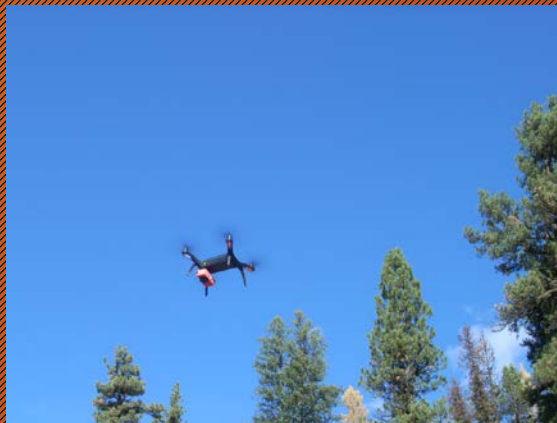




# UAS Integration



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# Objectives

- Discuss Forest Service governing updates
- Talk about acquisition of UAS
- Discuss educational campaigns
- Brief on agency UAS projects in 2016
- Discuss Interagency efforts of fire UAS integration

# Policy

- Chief's Letter
- UAS Desk Guide
- Policy updates



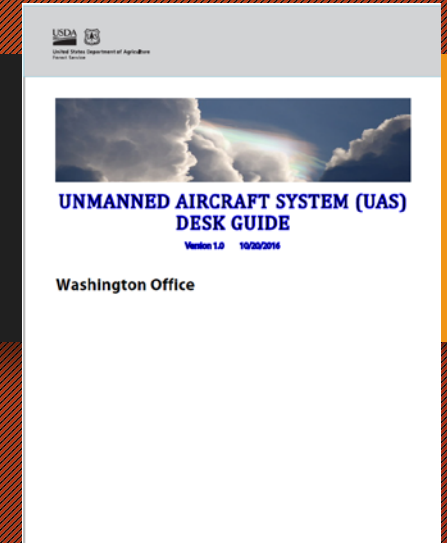
# Chief's Letter

- Signed and released in July
- Topics covered included:
  - Agency Vision
  - Privacy
  - Data Management
  - Acquisition
  - Group efforts
  - Campaigns



# UAS Desk Guide

- Marshall Wallace detailer.
- Draft released August 30<sup>th</sup> for review and comment
- 134 comments to address from typos/grammar to content
- Feedback from multiple functional areas within agency
- Meeting 508 standards and will be posted on the intranet
- Regional supplement area
- Living Document



# Policy Update

- Aviation policy re-write group
  - Airworthiness standards
  - Operational protocols
  - Employee pilot training and certifications



# Acquisition Efforts

- Flight Services Contract
- Aviation Business Case development



# FHP/FM contract

- Beta specifications
  - PIC flight hours
  - Airworthiness
- Amendments to clarify.
- ABS is set up for complex UAS contracts. Simple contracts will use different system already in place.





# Aviation Business Case

- Acquisition of Federal aircraft requires an ABC
- UAS Advisory Group tasked with staffing out ABC
- Information Needs Analysis survey
  - Captures use and mission data
  - Captures data management projections
  - Sent out through AG, ESC and Councils
  - Link posted on intranet. Closes Dec. 9<sup>th</sup>
- DOI analysis for uses and data needs



# Educational Campaigns

- Wildfire aviation safety
  - AKA "If you fly, we can't"
- Recreational Drone tips



# Wildfire

- NIFC tools include
  - Posters
  - News release template
  - Social Media template
  - PSA videos
  - FAQs sheet
  - Talking points



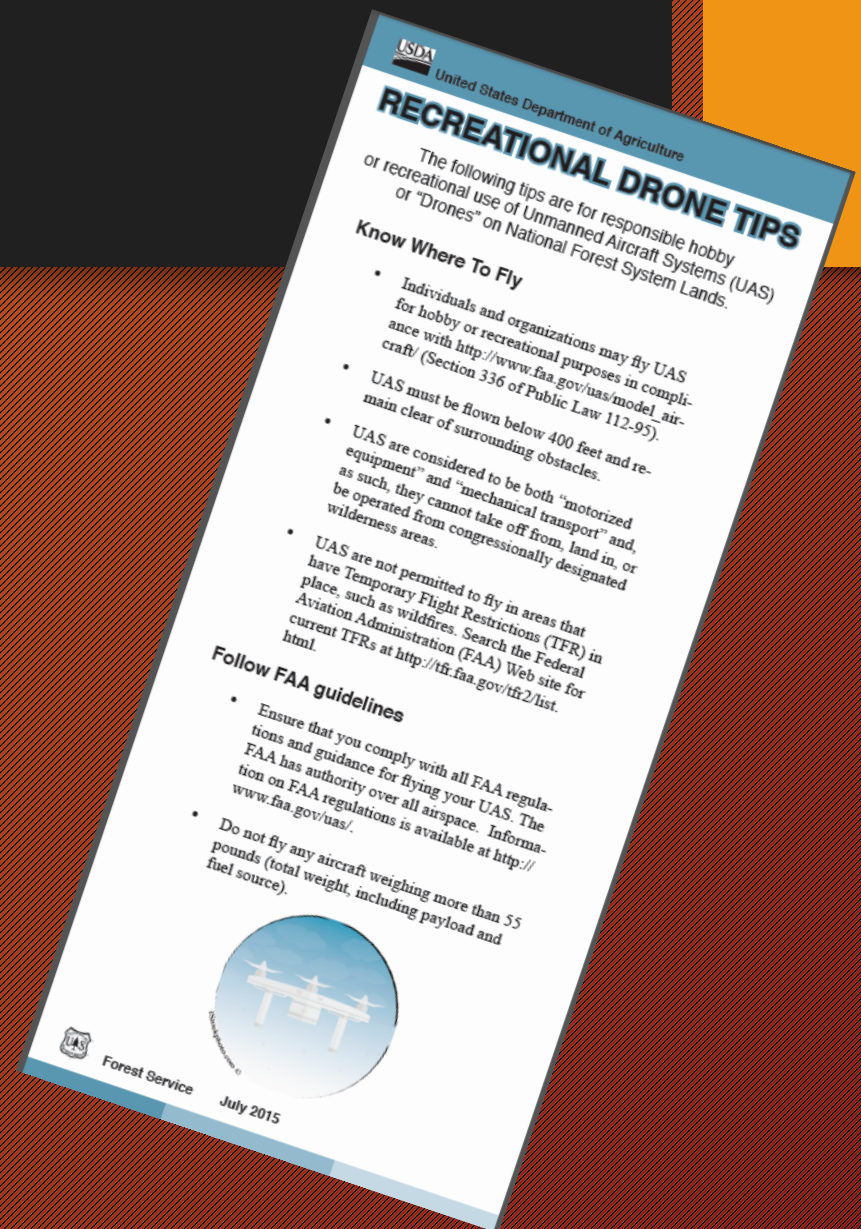
# UAS Incursion Statistics

- 38 Incursions. 20 affected fire aircraft
- Three Federal, four State and one County
  - USFS = 23
  - BLM = 4
  - BIA= 2
  - CALFIRE= 5
  - MN= 1
  - NV= 1
  - WA= 1
  - County= 1
- Reported in 11 states
  - AZ
  - CA
  - CO
  - ID
  - NM
  - NV
  - MN
  - MT
  - UT
  - WA
  - WY



# Recreational Users

- Printed material coordinated with Office of Communication
- Shared through the National Trails Board.
- Posted on intranet and internet UAS sites as well as Recreational sites.
- Featured on USDA blog and Forest Service main landing page.



# Resource Projects

- Forest Health/Forest Management Aerial Imagery
- Aquatic Milfoil mapping
- Surface Mine survey



# Forest Health Protection/Forest Management

- Apache-Sitgreaves National Forest.
- Contracted with Ryka UAS.
- Matrix Turbo Ace E quadcopter.
- 2.5 hours of flight time.



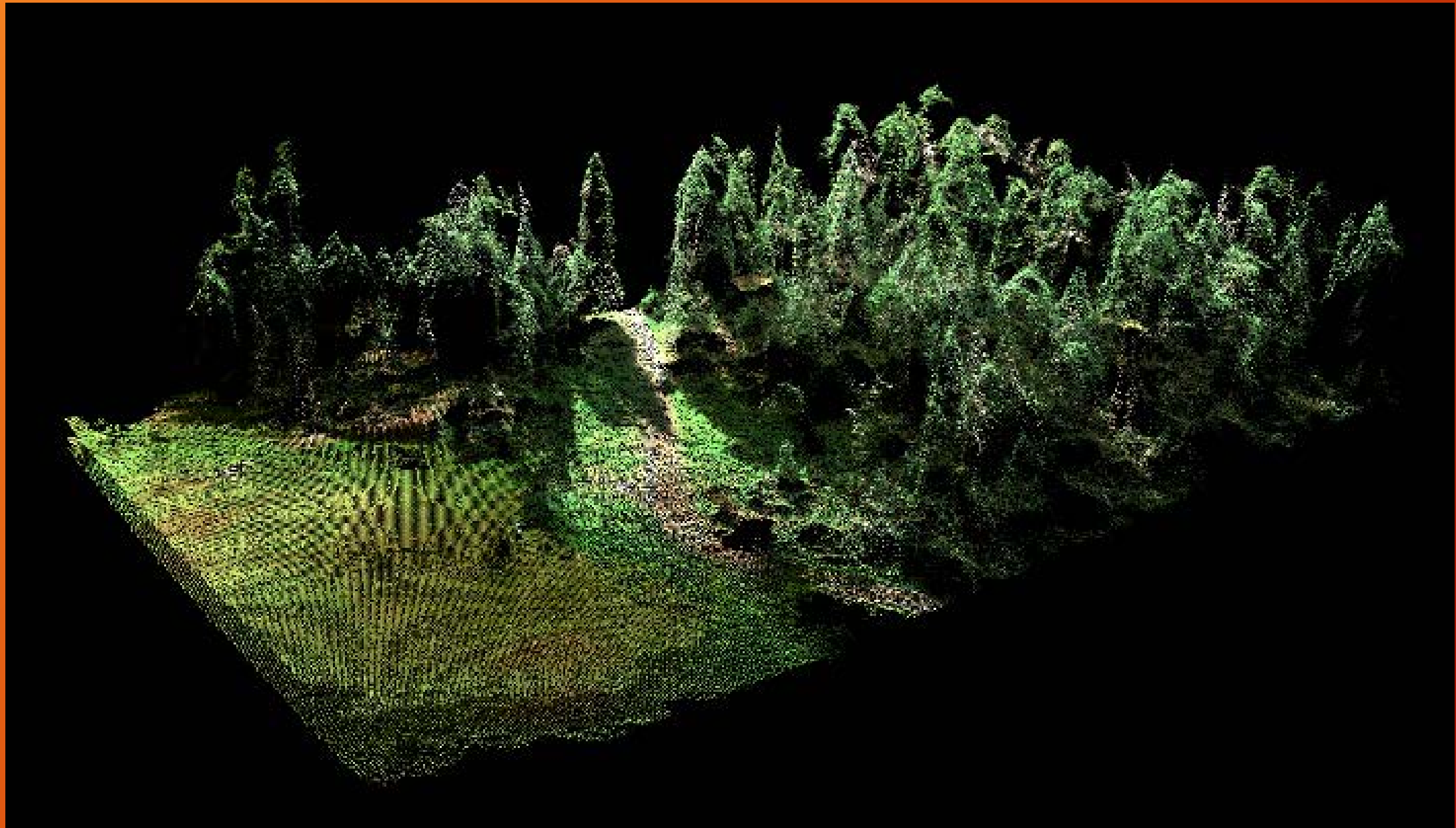
# Forest Health Protection/Forest Management

- Five complete flights. On sixth, aircraft controls were non-responsive and aircraft “fluttered and dropped”.
- 160 acres of 200 project acres covered.
- Issues- Weather delay, flight control incident.
- Successes- contracting process, high quality data.





# RGB encoded point cloud



CIR imagery



RGB imagery



# Aquatic Milfoil mapping

- Fish Lake National Forest in collaboration with Utah Department of Wildlife Resources and Utah State University.
- Sept. 15-16 and 27-28. Six successful flights. Entire flight line was flown 5 times.
- Issues- data capture, weather delays, shading.
- Successes- communication and spotting plans, launch & recovery.



# Surface Mine Survey



- Mine sites flown on the Umatilla, Umpqua and Wallowa-Whitman using DOI pilots and DOI fleet (3DR Solo) quadcopters.
- About 2 hours flown
- Issues- Weather delays, administrative issues.
- Successes- 90 acres captured from three sites.



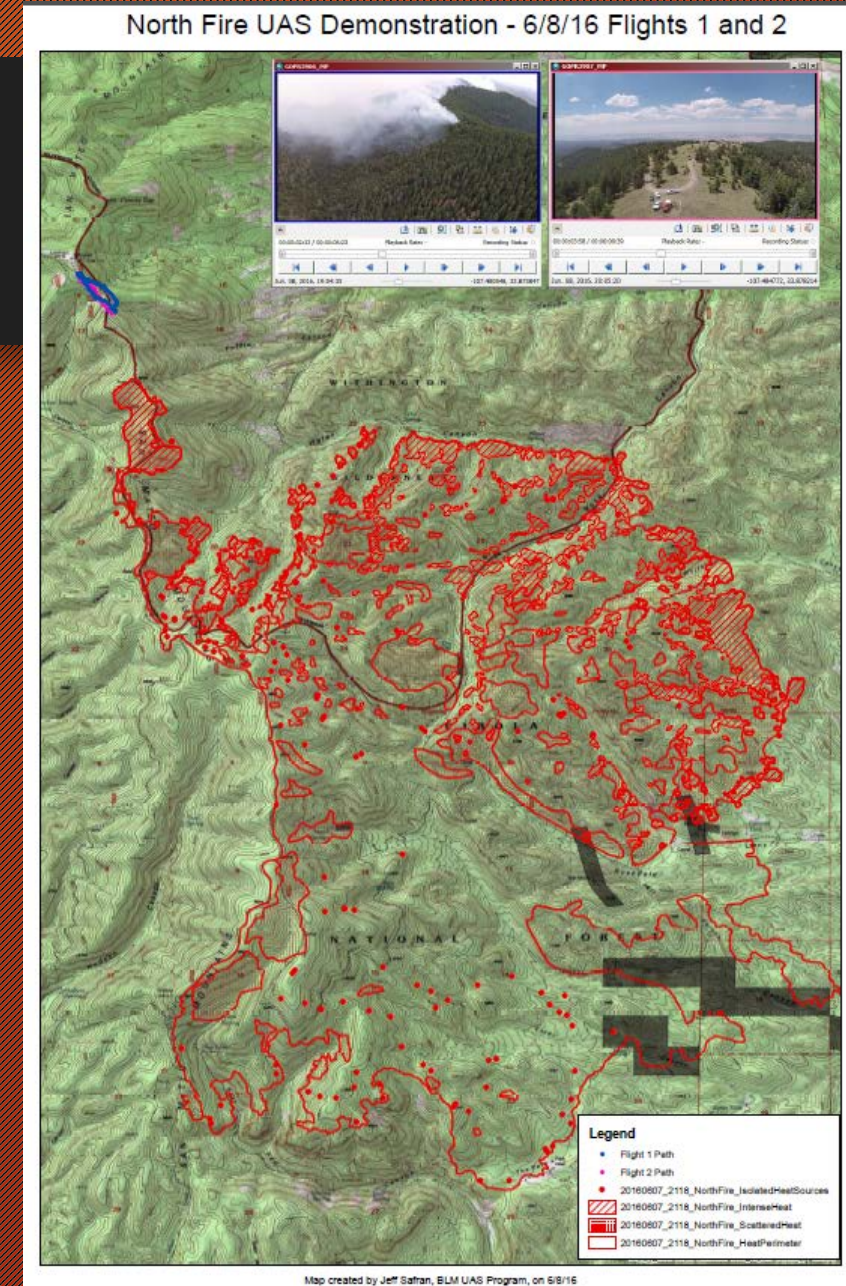
# Wildland Fire

- North Fire
- Interagency Partner's Efforts
- Fire Prevention Team
- IFUASS Efforts



# North Fire

- The Cibola hosted a T&E mission on the North Fire in June.
- The Falcon fixed wing flew 2 mission for 56 minutes to capture data for processing.
- The 3DR Solo quadcopter flew 23 missions for 5.75 hours providing ground crews with real time situational awareness imagery.





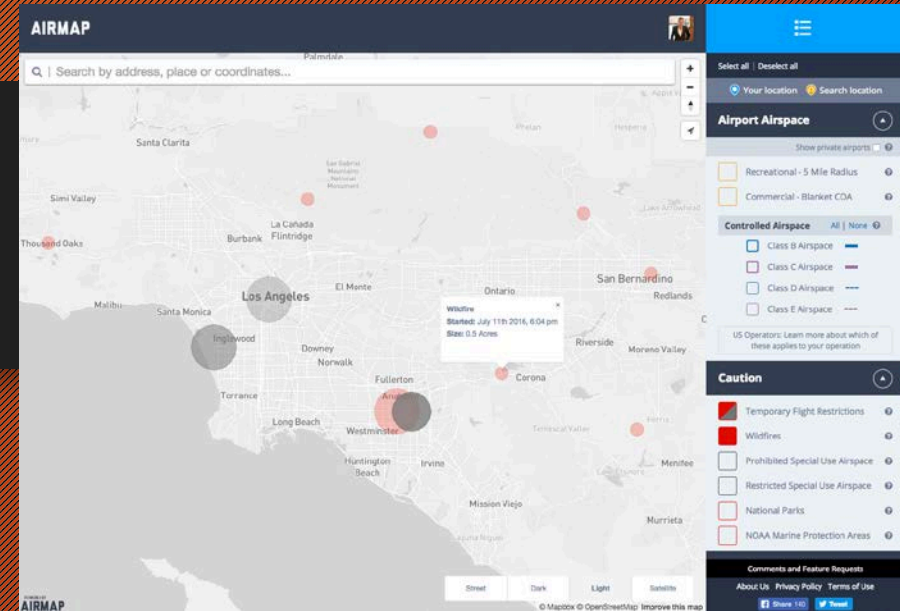
# North Fire

- Successes- real time data to the ground crews, interagency coordination.
- Challenges- lack of processes for qualifications and ordering along with no Operations Plan. Data processing was not timely for the fire mission.
- AAR Report available.



# Interagency Efforts

- DOI collaboration with AirMap
  - Provides data from IRWIN
  - Data updates in AirMap's pilot apps and DJI's geofencing portion of their flight control app.
- FAA outreach to registration database
- DJI tweet



# Fire Prevention team efforts

- June 23-July 6 in Southern Utah
- Joint effort by USFS, BLM and Utah DNR
  - UAS risks over wildland fires-safety and legal
  - High fire danger
  - Fireworks
- Leveraged hobby communities, partners, media, movie theaters, social media and billboards.
- Report available



# IFUASS Efforts

- Incursion definition and protocols
- Risk Assessment
- Fire Operations Guide
- UAS Operator training and qualifications



# Going Forward

- Continued T&E until interagency policy is in place
- Continue developing the Aviation Business case for acquisition
- Utilization of DOI partners
- Contract for UAS services
- Work towards ensuring we have adequate infrastructure for data management.



Questions?

