UAS in the Forest Service - Background

• Several UAS missions conducted in last several years
  – Operational, research and demonstration/evaluation

• Application areas
  – Fire management
  – Resource mapping/inventory
  – Law enforcement
  – Research

• Conducted before agency established UAS policy
Current Forest Service UAS Perspective

- Leadership recognizes potential of UAS
  - New and evolving technology so we need to proceed with caution

- Need to assess UAS implications on Forest Service manned aircraft program
  - Augment manned aircraft capabilities, not replace
  - Identify niche applications currently underserved
  - Leverage technology transfer benefits
Current Forest Service UAS Policy

• UAS are considered the same as manned aircraft (FSM 5713.7)
  - Acquisition
  - Carding of pilots/aircraft
  - Inspections
  - Maintenance
  - Avionics
  - Training
  - Operations

• Agency requirements to utilize UAS (FS NASMP 5.28)
  - Coordinate with Forest Service Washington Office and RAO
  - Completed and approved USFS and FAA documentation/procedures

• UAS considerations do not always reconcile with manned aircraft policies
  - Agency aviation policy and procedures review is needed
Forest Service UAS Advisory Group (UASAG)

- Charter developed and committee organized in early CY2012
  - Membership representation across USFS deputy and staff areas

- Charter signed in September 2012:
  - Fire and Aviation
  - Engineering
  - Forest Health and Protection
  - Forest Management Sciences
UASAG Objectives

- Determine if there is an agency need for UAS
  - Assess feasibility of implementation

- Agency aviation policy review/recommendations
  - Acquisition and use of UAS and associated technologies

- Develop agency protocols
  - UAS missions; External agency coordination

- Prepare agency UAS guidance documentation
  - Communication plan, strategic plan and risk assessments
UASAG Communications Plan

Forest Service (FS) Unmanned Aircraft Systems (UAS) Charter-Based Communication Plan

Summary
The purpose of this document is to help guide the FS UAS Advisory Group’s communication activities through the completion of the FS UAS Strategic Plan. This communication plan identifies and describes actions and tasks that must be performed or completed (outside of the project plan), the intended audience, and individuals responsible for performing or accomplishing each action or task. The three primary objectives of this plan are:

- Ensure FS UAS Advisory Group members and others that work on behalf of the advisory group are on the same page.
- Inform FS leadership of UAS Strategic Plan development and obtain feedback.
- Communicate consistently to target audiences throughout the development of the FS UAS Strategic Plan.

Audiences
The FS UAS Advisory Group, FS Leadership, FS UAS Advisory Group Charter Signatories, FS Aviation Management Personnel, and Other represent six target audiences used in this communication plan. A description of each audience is described below.

<table>
<thead>
<tr>
<th>Audience Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS UAS Advisory Group</td>
<td>The FS UAS Advisory Group members and anyone working on behalf of the Group.</td>
</tr>
<tr>
<td>FS Leadership</td>
<td>Regional foresters, station directors, area directors, and帅 director.</td>
</tr>
<tr>
<td>FS UAS Advisory Group Charter Signatories</td>
<td>All signatories on the FS UAS Advisory Group Charter (the Directors of Fire and Aviation Management, Engineering, Forest Health Protection, and Forest Management)</td>
</tr>
<tr>
<td>FS Aviation Management Personnel</td>
<td>All MAOs, RAGOs, and other aviation management personnel.</td>
</tr>
<tr>
<td>External Agency Partners</td>
<td>Relevant partners in external agencies including uscs, rfs, mfs, cew, and more.</td>
</tr>
</tbody>
</table>

- Keeps advisory group members “on the same page”
- Inform USFS leadership; internal/external audiences
UASAG Observation/Mission Requirements Survey

• Conduct survey among deputy/staff areas of agency
  – Identify current observation gaps and other technical needs
  • Considerations:
    – Platform requirements (HALE, MALE, LALE, LASE, etc.)
    – Sensor requirements (spatial resolution, spectral channels, etc.)
    – Observation frequency
    – Data latency
    – Etc.
  – Compile and summarize survey results by early CY2013
UASAG Observation/Mission Requirements Survey

- 4 part survey
- Completed once for each potential mission
- http://www.surveymonkey.com/s/UAS_INA
UASAG-External Agency Knowledge Transfer

• Learn from established UAS programs (NASA, USGS, NOAA, etc.)
  – Strategic planning
  – Mission requirements/protocols
  – Coordinate on common interests/goals

• Invite SMEs to participate on UAS Advisory Group
  – Interest and participation by government representatives is welcomed
UASAG-External Agency Collaboration

• Collaborate with UAS research agencies/organizations
  – NASA, universities, etc.

• Collaborate with operational UAS programs
  – DHS/CBP, USGS, DOI OWF, etc.

• Establish formal partnerships to meet mutual objectives
  – MOAs/MOUs

• Develop protocols and procedures for engagement
Collaboration Opportunities With CBP

• Leverage CBP Predator UAVs
  – Tactical fire monitoring support
  – Law enforcement activities
UASAG UAS Mission SOPs/Protocol Development

- Identify and recommend potential projects
  - Forest health
  - Fire

- Protocol development by going through the process and documenting

- Conduct UAS mission from top to bottom
  - Risk assessments by UAV type
  - COA requests
  - PASP development
Use of UAS on Rim Fire in California

- August 27, 2013 - NICC placed RFA to DoD
- DoD provided MQ-1 operated by CA Air National Guard
- MQ-1 flew 150+ hours, providing EO/IR Full Motion Video
- Missions included:
  - Reconnaissance and monitoring during burnouts
  - Verification of new hotspots
  - Verification of location and size of known spot fires
  - Daytime mapping of fire perimeter

MQ-1 Ground station at Rim Fire ICP where IMT members watched video of events as they were happening.
Recreational use of UAS on NFS land

- The FAA has regulatory authority over recreational use of airspace by model aircraft.
- **FAA Advisory Circular 91-57** “...outlines and encourages voluntary (italics added) compliance with safety standards for model aircraft operators.”
- USFS has no authority to establish additional regulations regarding where UAS can or can’t be flown.
  - However, recreational UAS must abide by TFRs.
  - Per the [FAA](https://www.faa.gov), federal laws prohibit certain types of flight activity and/or provide altitude restrictions over “designated Forest Service Areas.”
2014 Short term plans

• Develop SOP’s for cooperators
• Conduct operational mission
  – With cooperator aircraft
  – Contract for services
Short term mini groups

- Contract Solicitation for aviation asset
- Airworthiness
- Inspections: Develop standards
  - Aircraft
  - Pilots
- Policy
- Mission request form
- Communications Plan/PIO and media campaign
- Privacy
- PASP/DORA: More detailed risk assessment based on aircraft and mission
- Change management plan:
- Data management
- Public use over FS lands
Thanks

Comments/Questions?

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http://fsweb.wo.fs.fed.us/fire/fam/aviation/uas/