

## SMALL UNMANNED AIRCRAFT SYSTEMS (sUAS) AND THE NATIONAL PARK SERVICE

### History:

In 2008, the US Geological Survey at the Rocky Mountain Geographic Science Center recognized the potential for sUAS use in scientific monitoring and study. Of particular note is a need to enter active volcanoes to collect information without risking humans in helicopters.

At the same time, the Department of Interior, Aviation Management Directorate had been coordinating the use of medium UAS to observe whale activity off the coasts of Alaska. In 2009 USGS was able to coordinate with the US Army, which was in the process of replacing the AeroVironment RQ-11A (Raven A) sUAS systems, with the Raven B and later block sUAS in Iraq and Afghanistan.

In October 2009 USGS opened the first formal DOI sUAS training session to USGS, NPS, BLM, AMD and USFS students. Two NPS Special Agents and a BLM Special Agent, all from California were among the first DOI employees certified by AMD under US Army training protocols on the Raven A system, by the Aerodyne Corporation contractor.

Due to their near co-location and identical missions with BLM and willingness to work with California based USGS and BLM personnel, NPS Agents were issued two Raven A systems, on loan from US Army to USGS, at the conclusion of the training.

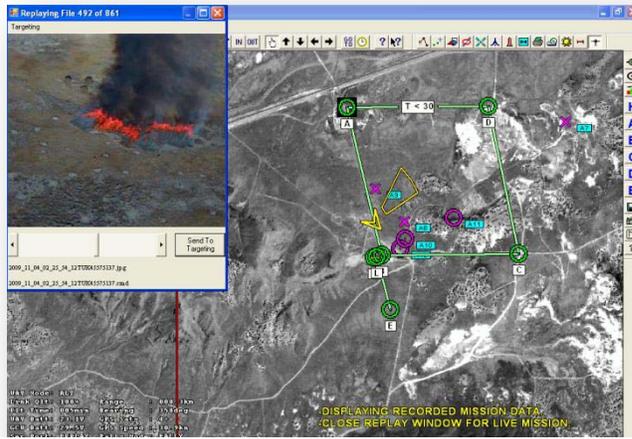


### Potential Utilization:

The Raven A was designed for wartime missions to provide a lightweight (4.5 pounds / 52" wingspan) hand launched, real time, ground linked video and infrared camera platform for small infantry units to identify and track nearby hostile forces and protect base perimeters. While the initial concept for use of the Raven by NPS was to observe Drug Traffic Organization marijuana cultivation sites before and during raids, the potential for public safety and resource monitoring missions is limited only by the imagination.



In the fall 2009 flight training at the Dugway Proving Ground, Utah, DOD firefighters lit a prescription burn in range land near the Raven flight training area. Student pilots were able to fly close observation with visual and infrared cameras to document hot spots, vehicles, people igniting fires and Wild Horses and Pronghorn in the area.



Raven A - Live Downlink of Rx Fire, Position and Status Data

The Raven was able to operate in smoke, rain, snow and nighttime limited visibility environments where operation of a manned helicopter or fixed wing aircraft would have involved significant risk. Pilots were able to maneuver into relatively close proximity of wildlife and persons on the ground to observe and record their actions without detection.

The Raven could conceptually be used to enter hostile or hazardous situations and provide real time aerial observation of active shooters, lost or

stranded persons, fire activity, flooding conditions, landslides and avalanches or other situations. It is possible to imagine a host of situations where rapid human deployment would be hindered by environmental conditions or simply deemed unreasonably hazardous, where use of real time sUAS imagery would prove invaluable to incident commanders.

### Challenges and Planned Actions:

1. FAA Regulations and DOI policy currently restrict use of government owned aircraft (including sUAS) either to military reservations or flight in civilian airspace only with FAA approval of a Certification of Waiver or Authorization (COA).
2. No comprehensive DOI or NPS policies exist relating to sUAS use over public lands or other areas where investigative or public safety activities might be enhanced through use of sUAS.
3. Without authorization to fly regularly, perishable skill sets for sUAS operators will deteriorate fairly rapidly, requiring significant retraining and certification.

NPS DLESES-ISB Agents plan to immediately begin to work with the Chief of the NPS Branch of Aviation to develop guidelines and authorization to test and evaluate sUAS for NPS.

NPS will coordinate closely with AMD to assist in DOI development of policy and guidelines (along the lines of Law Enforcement Short Haul policy) for implementation of as yet undetermined sUAS activities.

NPS ISB Agents will be developing mission needs and analyzing potential capabilities for potential missions for sUAS, in conjunction with BLM and USGS partners.