



## **Introduction**

Unmanned Aircraft Systems (UAS), commonly known as drones, remains one of the fastest growing hobbies in the world. According to the [\*United States FAA Unmanned Aircraft Systems Report for 2019\*](#), the number of unmanned drones was expected to double from roughly 1.2 million aircraft to nearly 2.4 million aircraft. There are currently over 1.65 million drones registered in the United States with roughly 1.8 million of those registered for recreational use.

Over the last several years, UAS have been a topic of discussion within wildland fire management. In 2019, there were more than 21 documented instances of individuals flying drones over wildfires without authorization, threatening the safety of firefighters and aviation crews. Through regulation and education, however, the numbers do appear to be dropping from previous years, reporting 28 in 2018, 36 in 2017, and 40 incursions in 2016. Though no collisions occurred, several incursions forced air operations to land and cease suppression operations until the offending UAS could be located and removed. These incursions greatly endanger lives, cost taxpayers money and can increase fire size while aircraft cannot work to suppress the fire.

While the importance of avoiding UAS incursions is evident to firefighters and fire managers, it does not always occur to the general public. UAS owners may want to acquire wildfire footage, so they fly their UAS over or near wildfires, creating the aforementioned safety issues. In order to reach the millions of recreational UAS operators, the BLM must continue to conduct a broad, intensive education and outreach campaigns like *“If you fly, we can’t”*.

## **Communication Goals**

It is imperative that we reach a wide audience about the dangers of flying UAS around wildfires. Our goal is to educate the public about this issue to eliminate UAS wildfire incursions.

To be successful, we need to connect with our internal audiences as well, not only to relay the safety messages, but to stay informed on internal UAS projects. The BLM UAS program is growing and the number of projects conducted every year involving wildfires, prescribed fires, mapping, archeological surveys, wildlife habitat surveys, and more is steadily increasing. The BLM will collaborate with other agencies as they develop their own UAS programs

## **General Talking Points**

- Even those educated on appropriate locations to fly personal drones sometimes operate within airspace over or near wildfires. Though drone operators’ intentions may not be malicious; they appear to be unaware of the danger associated with flying a drone near a

wildfire.

- Firefighting aircraft, including leadplanes, helicopters, airtankers and smokejumper paracargo, fly as low as 150 feet above the ground, which is the same altitude that many drones fly.
- If a drone were to collide with firefighting aircraft, a serious, even fatal, accident can occur.
- If you fly a drone over a wildfire, air operations may be suspended until the risk of a mid-air collision is mitigated.
- When firefighting aircraft are grounded for any reason, fire crews lose access to a valuable resource that can adversely affect the safety and efficiency of the overall firefighting effort.
- When firefighting aircraft must be grounded, wildfires can grow in size, which greatly hampers firefighting efforts, threatens lives, homes, property and natural resources.
- Regardless of your motivation, flying a drone near a wildfire puts others' lives in danger.
- UAS incursions into airspace around active wildfires:
  - In 2014, 16 airspace conflicts were reported within the wildland fire community.
  - During the 2015 fire season, at least 25 drone incursions on wildfires were reported.
  - In 2016, at least 40 documented instances involving members of the public flying drones over wildfires without authorization were reported. This caused aerial firefighting to be temporarily suspended on more than 20 occasions, hampering the effectiveness of wildfire suppression operations.
  - During the summer of 2016 in Utah, drone incursions occurred so frequently that the federal government dispatched a fire prevention team to conduct educational outreach.
  - There were more than 36 documented incursions in 2017 – and those are just the instances that we know about.
  - In 2018, there were 28 reported fire related incursions, forcing suppression aircraft to shut down operations at least ten times.
  - In 2019, the number decreased from the previous two years to 21 incursions; however just one unauthorized use of UAS can pose a very dangerous situation for areal fire operations.

Incursions create serious safety issues. For example, on August 9, 2015, approximately three miles southwest of Calistoga, CA an airtanker narrowly avoided a drone that was flying over a wildfire. The pilot maneuvered the aircraft and missed the drone by only 50 feet. Had the pilot not been able to avoid the drone, the ensuing mid-air collision could have resulted in a serious accident. In 2017, a man was arrested for flying a drone over the Goodwin Fire located 14 miles south of Prescott, Arizona. He was accused of endangering 14 aircraft and ground personnel

with a “substantial risk of imminent death or physical injury” by flying a drone near or over the fire. All firefighting aircraft assigned to the fire had to be grounded for about an hour.

As of Dec. 21, 2015, the Federal Aviation Administration (FAA) requires all owners of small unmanned aircraft, or drones, weighing between 0.55 and 55 pounds to register online *before* taking to the skies. Failure to register an aircraft may result in regulatory and criminal sanctions. The FAA may assess civil penalties up to \$27,500. Criminal penalties include fines of up to \$250,000 and/or imprisonment for up to three years.

BLM law enforcement can take action against a private citizen or commercial business flying drones illegally over a wildfire:

- The federal regulation that applies to drones interfering with a fire is 43 CFR 9212.1(f). This section of the Code of Federal Regulations outlines acts that are prohibited related to starting a wildfire, or interfering with the efforts of firefighters to extinguish a fire.
- The fine for violating this regulation (in some states) is \$500 and/or a Mandatory Appearance. The fine will vary by state.
- If the officer determines the violation is egregious or there are other factors the officer thinks a judge should consider related to the violation, the officer has the authority to issue a violation notice with a “mandatory appearance.” This type of citation requires the violator to appear in court to settle the issue in front of a judge.

For more UAS material, refer to the BLM agency specific information found on the PIO Bulletin Board: [https://www.nifc.gov/PIO\\_bb/blm.html](https://www.nifc.gov/PIO_bb/blm.html).

## FAQs

What is recreational use of UAS?

The recreational use of UAS is the operation of an unmanned aircraft for personal interests and enjoyment. For example, using a UAS to take photographs for your own personal use would be considered recreational; using the same device to take photographs or videos for compensation or sale to another individual would be considered a commercial operation. On May 16, 2019, the FAA issued new rules for hobbyist drone pilots in an effort to keep the national airspace safe. Check with the FAA for further determination as to what constitutes commercial or other non-hobby, non-recreational UAS operations.

What is a TFR?

A Temporary Flight Restriction (TFR) is a type of Notices to Airmen (NOTAM). A TFR defines an area restricted to air travel due to a hazardous condition, a special event, or a general warning for the entire FAA airspace. TFRs do not just apply to wildfires. Stadium events ranging from concerts to NASCAR races to the Super Bowl generally restrict model aircraft flights and unmanned aircraft operations.

TFRs are often put in place with short notice, so before taking your model aircraft or UAS out for a flight, it is important to check with the FAA to ensure there are no TFRs in your area.

FAA TFR information is posted in the [FAA TFR Website](#)

Why are TFRs placed over wildfires?

It is very important that wildfire operations are allowed to proceed unimpeded. Violating the TFR may endanger the safety of the operation, and in some cases may ground search and rescue crews until the airspace is cleared, allowing the wildfire to spread.

Model aircraft and UAS operators should obtain up-to-date information about TFRs from the FAA or flight service. Timely alerts are also available on the web or on your cell phone at: [Twitter.com/amagov](https://twitter.com/amagov). The Academy of Model Aeronautics (AMA) Safety Handbook can be found at <https://www.modelaircraft.org/sites/default/files/100.pdf>.

For more information on UAS regulations, visit [www.knowbeforeyoufly.org](http://www.knowbeforeyoufly.org).

### **Using UAS for BLM Operations**

The BLM administers over 245 million surface acres of public land across the U.S. This includes vast expanses of remote landscapes with little or no road access. Unmanned aircraft systems (UAS) allows the BLM to obtain imagery and data with greater safety, significant cost savings and minimal disturbance to native species and visitors.

Safety is the BLM's foremost concern when flying UAS missions. Every mission is conducted within Federal, departmental, and interagency policy.

We are committed to building positive relationships with the communities adjacent to BLM lands, and part of that effort involves transparency. On occasion, we invite stakeholders and the news media to observe UAS data collection missions.

BLM Fire and Aviation is the lead organization for UAS operations in the BLM. The Office of Aviation Services (OAS) is the lead agency at the department level and manages the UAS fleet. The BLM's National Operations Center conducts project level work, including the science and technology aspects and managing collected data.

The BLM has decades of proven experience in the collection, use, control and retention of aurally collected data. The BLM employs the same storage and security policies for the data collected by unmanned aircraft flights as it does for manned aircraft supported missions.

The use of UAS allows the organization to utilize a cost-effective data acquisition platform that provides highly accurate and detailed data relevant to everyday business needs.

All data collected, with the exception of cultural site data or data otherwise sensitive in nature, are publicly available. The BLM is working with United States Geological Survey (USGS) to improve data management and distribution processes.

The BLM Fire and Aviation program has used UAS for fire suppression and prescribed fire missions. For wildland fire, UAS data is used for mapping, fireline situational awareness, strategic planning, tactical decision making and Plastic Sphere Dispenser (PSD) aerial ignition operations.

1. The BLM UAS program is currently operating under Secretary's Order 3379 which limits UAS activity to Emergency Operations and Emergency Readiness flights. BLM has cancelled all UAS flight training events and all non-emergency resource projects until additional direction is provided by the Department of Interior, Office of the Secretary. In the near-term, BLM is focusing on supporting wildland fire programs with UAS aerial ignition, mapping, and situational awareness missions with 66 Unmanned Aircraft Systems Pilots (UASP).
2. UAS data collection for fire suppression includes missions to monitor fire behavior in real-time, gather infrared imagery for fire perimeter mapping, and assess inaccessible areas ahead of fires. The use of UAS for aerial assessment of burned areas is also possible.
3. For aerial ignition, UAS is a supplement to manned aerial ignition missions, not a replacement. In some instances, the UAS provides a safer, more cost effective, and smaller scale option for PSD use in burning operations. A major advantage of aerial ignition with UAS is the use of a thermal camera to see through smoke to monitor burn intensity. UAS operators can see this imagery in real-time and share it with fire managers.
4. UAS operations on incidents are conducted in accordance with the *Interagency Standards for Fire UAS Operations* (PMS 515) in accordance with Secretary's Order 3379, FAA Small Unmanned Aircraft Rule (14 CFR, Part 107), and DOI OPM-11.
5. The BLM routinely collaborates with the US Geological Survey, the National Park Service, Fish and Wildlife Service, and the Office of Surface Mining.
6. A UAS Remote Pilot certificate pilot's license is required to operate any UAS for commercial use on public lands. Certification is completed through the FAA.
7. The BLM currently owns 172 UAS systems for use in wildland fire operations with 146 qualified BLM UAS remote pilots. The BLM only operates small UAS (defined as weighing less than 55 pounds).
8. A Call When Needed (CWN) contract awarded in 2018 allows the agency to obtain fully contractor-operated and maintained small UAS that are ready when needed to support wildland fire operations, search and rescue, emergency management and other resource missions in the Contiguous 48 States and Alaska.
9. As of Dec. 21, 2015, the Federal Aviation Administration requires all owners of small unmanned aircraft, or drones, weighing between 0.55 and 55 pounds to register online

before taking to the skies, FAA Small Unmanned Aircraft Rule (14 CFR, Part 107).

10. Like other federal agencies, the BLM is committed to ensuring the use of UAS remains consistent with Federal law, policies and other applicable regulations which protect the privacy, civil rights and civil liberties enjoyed by Americans. Further, the BLM is taking steps to improve current policies for safeguarding personally identifiable information from UAS-related compromise. These actions comply with a Presidential memorandum addressing the domestic use of UAS in light of privacy, civil rights and civil liberty concerns (dated February 15, 2015).
11. The BLM program aligns with the requirements stated in the S. 47 John D. Dingell Jr. Conservation, Management, and Recreation Act for wildfire technology modernization. Federal Law S. 47 Section 1114 purpose is to “promote the use of the best available technology to enhance the effective and cost-efficient response to wildfires” and specifically discusses expanding the use of unmanned aircraft systems on wildfires.
12. In October 2018, the National Wildfire Coordinating Group (NWCG) published a position task book to cover four UAS fire positions. Support elements include *The Standards for Fire UAS Operations* (PMS-515), UAS Incident Operations training (S-373), and UAS Incident Operations Refresher Training (RT-373).

## Partners

It is important for BLM to partner with other agencies and organizations who can reach UAS users, allowing for a broader based, nationwide audience.

- The Federal Aviation Administration (FAA) began its [Know Before You Fly](#) campaign in 2014 with a website and other materials. The site has been well-received, plus, FAA has partnered with private organizations to reach UAS audiences.
- The U.S. Forest Service (USFS) has been an active participant in UAS education. They have developed a webpage, poster, and PSA, all centered around their *If You Fly, We Can't* campaign.
- The Association for Unmanned Vehicle Systems International (AUVSI) is a large group that reaches thousands of UAS users. AUVSI holds the largest UAS conference in the country every year, where UAS users, manufacturers, distributors, and other UAS-related companies gather.
- The Academy of Model Aeronautics (AMA) is the largest model aviation association, representing a membership of more than 195,000. There are more than 2,500 AMA model airplane clubs across the country. AMA provides a liaison with the FAA, the Federal Communications Commission (FCC), and other government agencies. They works with local governments, zoning boards, and parks departments to promote the interests of their local chartered clubs.
- Da-Jiang Innovations (DJI) is a privately owned company leading the market in easy-to-fly drones and aerial photography systems. DJI quadcopters like the Phantom are the standard in consumer drone technology.



## Communication Tactics

Tactic	Responsible Party	Notes
Add wildfire tips and info. to the Know Before You Fly website	Gardetto	Complete
Work with the USFS to If You Fly, We Can't poster	Gardetto	Complete; posters printed
Distribute posters to each state	Gardetto	Complete; posters went to every EA group/Chief
Create PSA	Gardetto, Smith	Complete, update as needed
Create BLM UAS webpage	Gardetto, Smith	Was complete, new page under construction
Work with AMA to distribute posters to hobby stores	Gardetto	Completed 2016
Digital media campaign focused on UAS users	Gardetto	Complete, campaign ran 6/2015-11/2015
Create graphics	Ascherfeld	Complete, update as needed
Create web banners	Ascherfeld	Complete, update as needed
Work with AMA and DJI to insert avoiding wildfire tips in UAS packaging	Gardetto and Bilbao	On-going
Social media campaign, posts about UAS and wildfires	Gardetto, Smith, Bilbao	On-going
Work with FAA on incursion messaging	Gardetto, Bilbao	On-going

## Outreach and Education

- 1) Distribute PSA, posters, communications plan and talking points to Incident Management Team PIOs. PIOs would use the materials during incidents, particularly if they experience a UAS incursion on their assigned incident.
- 2) Work with FAA, Know Before You Fly, AMA, DJI, and other companies to develop tail rotor stickers or other sticker options with tips or a phrase about avoiding wildfires.
- 3) Explore options for the Know Before You Fly app currently being developed by the FAA.
- 4) Use social media platforms to update drone incursions to educate the public on misuse.

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