Department of the Interior / USDA Forest Service
Fiscal Year 2022 Uncrewed Aircraft Systems
Interactive Program Report

Alta X, ready for Takeoff. Credit: Steven Stroud, OAS.

Report Introduction:
This report summarizes interagency flight use data collected in the OAS-2U flight use reporting system (2U) used by the Department of Interior (DOI) bureaus and some U.S. Department of Agriculture Forest Service (USFS) employees to record all Uncrewed Aircraft System (UAS) operations over the Fiscal Year (FY).

- **USFS Data Reporting:** USFS flight use data originally reported in Alaris Pro and Mission Maker were transformed to match DOI categories and are summarized exclusively on Page 3 of this report. Graphics labeled "Interagency" include USFS information reported in DOI's 2U system.

- **Data Filtering:** Categories including bureaus, flight use categories and aircraft with relatively low contribution to the overall graphics may be omitted for visual ease. Available filters are viewable from the toolbar along the right side of this report.

New for FY22:
- Refined Primary Flight Use Categories - Primary flight uses were refined to better represent the main purpose of each flight.
- Isolated Incident Info. - Incident specific information is isolated for better representation.
- USFS system-specific reporting.

Information is organized into four sections:
- Section 1: FY22 Flight Use Summary
- Section 2: Remote Pilots and UAS Training
- Section 3: UAS Fleet Aircraft
- Section 4: Fiscal Year comparisons

Bureau/Agency Acronyms and Definitions:
This report covers all DOI bureaus involved with the UAS program and the USFS.
Bureau acronyms are as follows:

AVSO - Appraisal and Valuation Services Office
BIA - Bureau of Indian Affairs
BLM - Bureau of Land Management
BOEM - Bureau of Ocean Energy Management
FWS - United States Fish and Wildlife Service
NPS - National Park Service
OSMRE - Office of Surface Mining Reclamation and Enforcement
USBR - United States Bureau of Reclamation
USFS - USDA Forest Service
USGS - United States Geological Survey
Other - Non-DOI / USDA Forest Service assets are reported to include other federal agencies, state cooperators, and contractors.

Who This Report is For:
This report is primarily composed for Bureau/Agency employees interested in the UAS program.

Report Access and Support:
Access to the report must be granted on an individual basis. To share this report with others, please contact Rich Thurau richard_thurau@ios.doi.gov (208) 912-2838.

Using Power BI Reports:
This online report is best viewed in "Full Screen" mode, selectable in the top right corner of the main report page.

All graphics and text in this Power BI report are interactive (not so in the PDF version). On any single page, all sources of information are linked. Use the control key to select multiple criteria and visuals for multi-layered statistics.

Bureau specific information can be extracted from this chart in three ways:
1. Hovering over a value in a visual will display specific numbers associated with that portion of the graphic.
2. By clicking on a value in the graphic or legend, ALL data visuals are filtered by the clicked value.
3. Filter options are available for most pages from the right-hand filter bar.

An Example:
By clicking on "Interagency Fire" Incident Type pie chart (Flight Use Summary next page), the primary flight use pie chart "shrinks" to show the proportion of Interagency Fire flights for each primary flight use category.

Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division. v232.2

Section 1: Fiscal Year 2022 OAS-2U Flight Use Summary

5,228 Flight Count

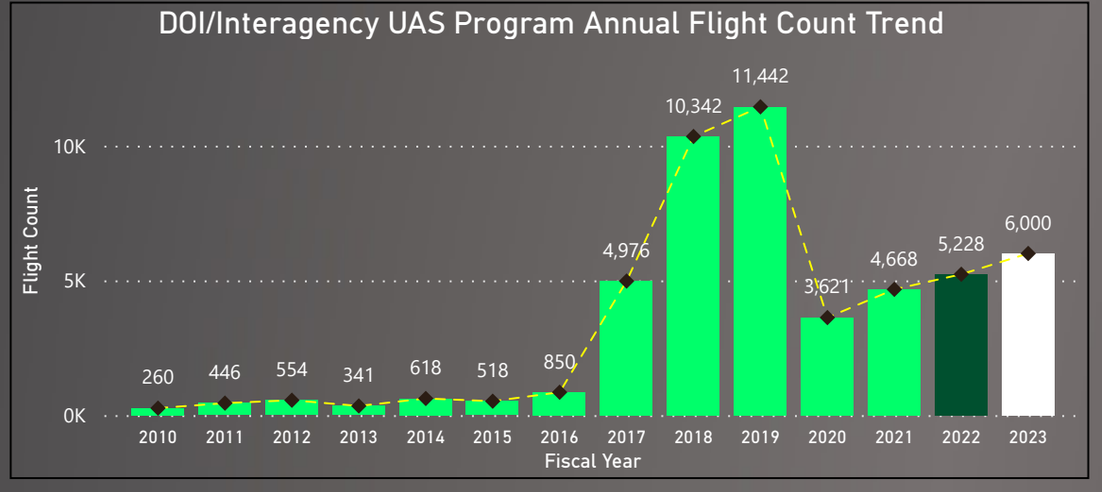
1,031 Flight Hours

Section 1: FY22 Flight Use Introduction
The total number of interagency flights in FY22 increased by about 500 flights to 5,228 flights recorded in the OAS-2U system (see bar chart below). Total flight counts are expected to continue to increase in FY23 (white bar).

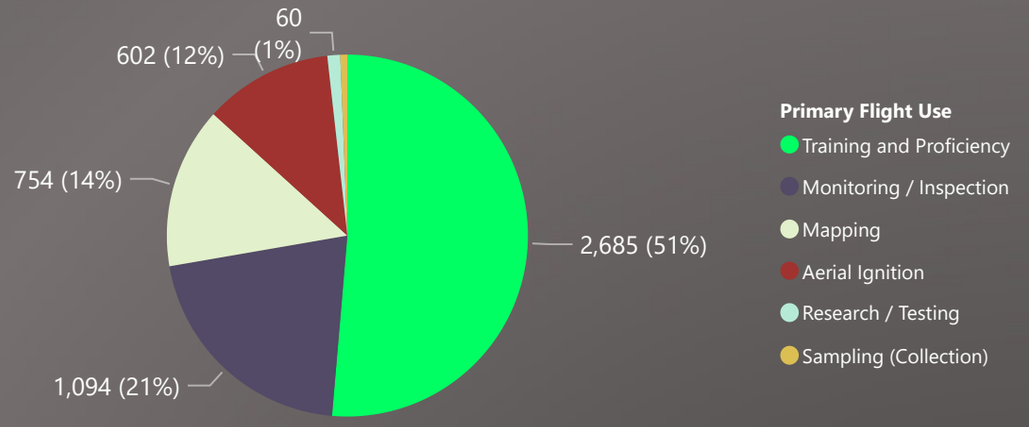
"Training and Proficiency" represented a majority (51%) of flights conducted in FY22 (pie chart top right) while "Monitoring and Inspection" (21%) was the greatest mission primary flight use category.

Incident support remains a focus among interagency UAS operations. Among flights categorized by remote pilots as *Incident Flights*, "Emergency Readiness" (45%) and "Interagency Fire Incident" (30%) represented the two top categories.

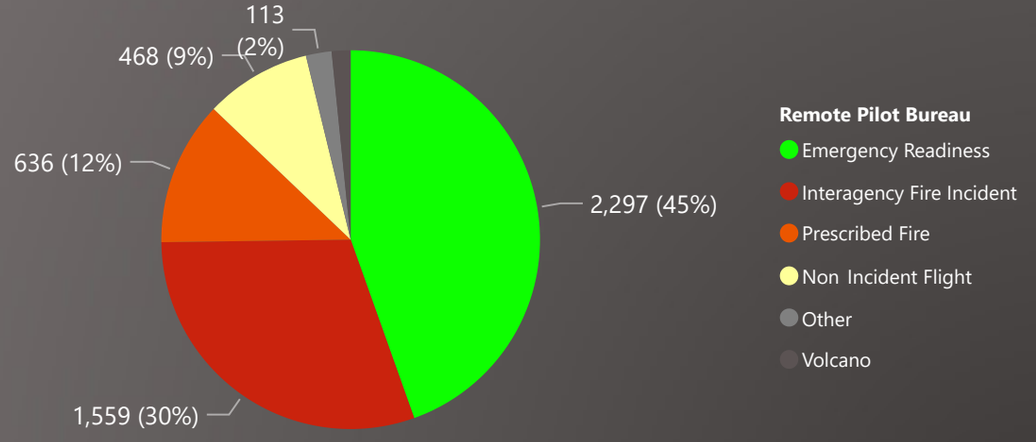
What's in this Section?
This section reports interagency UAS flights by Operational Controlling bureau/agency, location, flight use and incident type. USFS data are explicitly summarized on the next page.



FY22 Interagency Flights by Primary Flight Use Category



FY22 Interagency UAS Incident Flights by Incident Type



Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

Fiscal Year 2022 USFS Flight Use Summary (Reported in USFS Alaris Pro & Mission Maker)

4,967 Flight Count

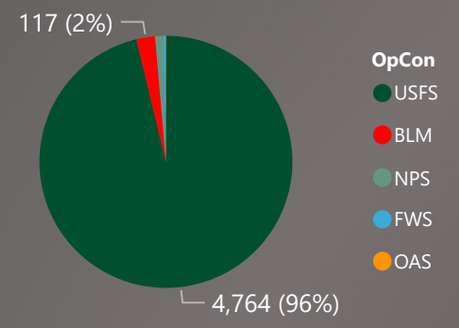
1,200 Flight Hours

FY22 USFS Flight Use Summary:
Information reported on this page is derived from the USFS Alaris Pro and Mission Maker systems and modified to coalesce with DOI categories. Values reported here are similar, but not exactly the same as those reported by the USFS's "Fire and Aviation Management UAS FY2022 Annual Report" (different summary methods and categories).

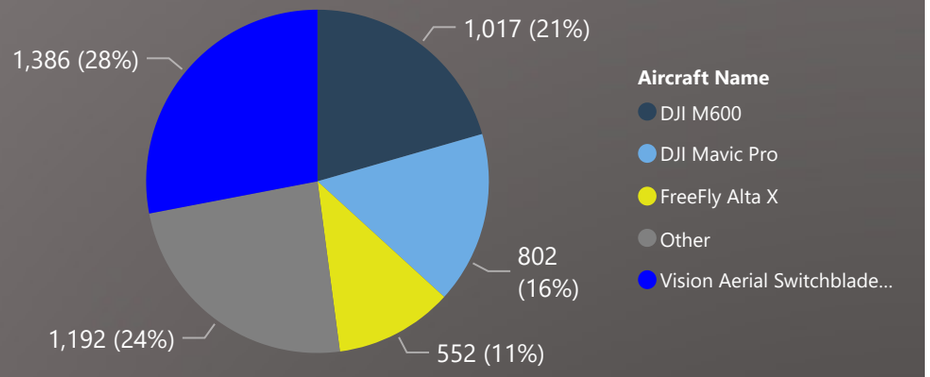
The "FY22 USFS Flights by OpCon" pie chart shows the breakdown of all flights recorded in the USFS flight use systems.

Primary flight use categories describe the primary objective of each flight. Reported flight use categories were fit to DOI's FY22 categories. Incident flights could include those conducted for fire, law enforcement, search and rescue, or in support of any emergency.

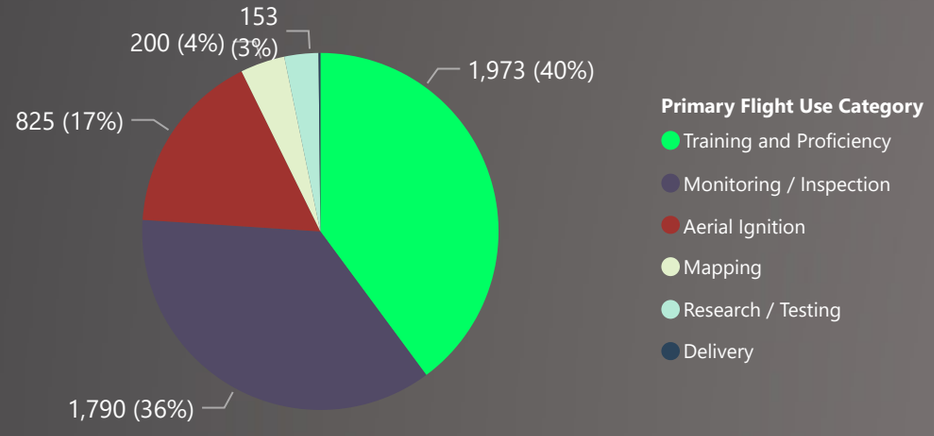
FY22 USFS Flights by OpCon



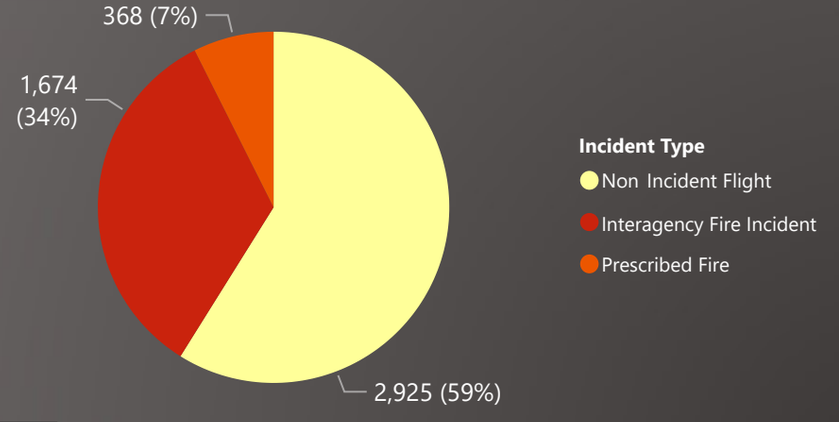
FY22 USFS Flights by Aircraft



FY22 USFS Flights by DOI Primary Flight Use Category



FY22 UAS Flights by Incident Type



Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

5,228
Flight Count

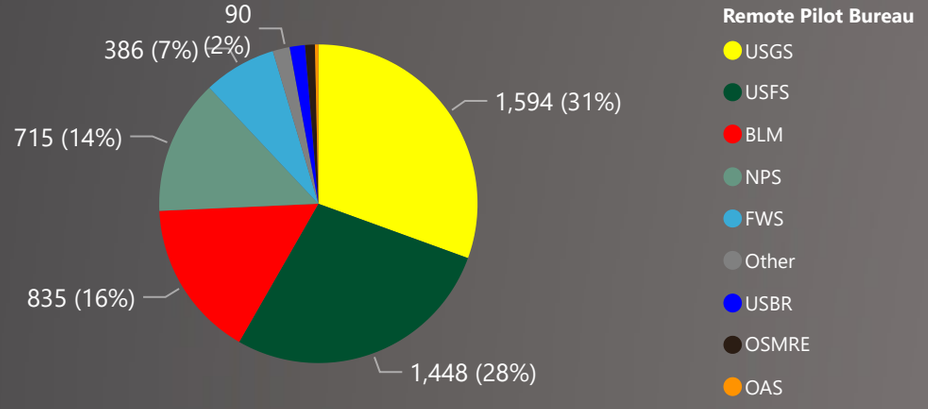
1,031
Flight Hours

Department of Interior influence stretches far beyond our domestic borders. Several members of USGS's National Uncrewed Systems Office (NUSO) visited with Australian scientists to share UAS knowledge and methods.

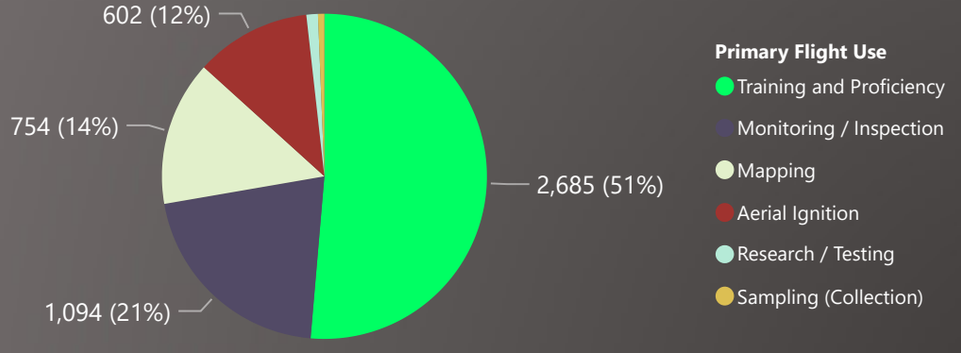
Photo Credit: Mark Bauer, USGS.

U.S. States and Territories With FY22 Interagency UAS Flights

FY22 Interagency Flights by Operational Control



FY22 Interagency Flights by Primary Flight Use Category

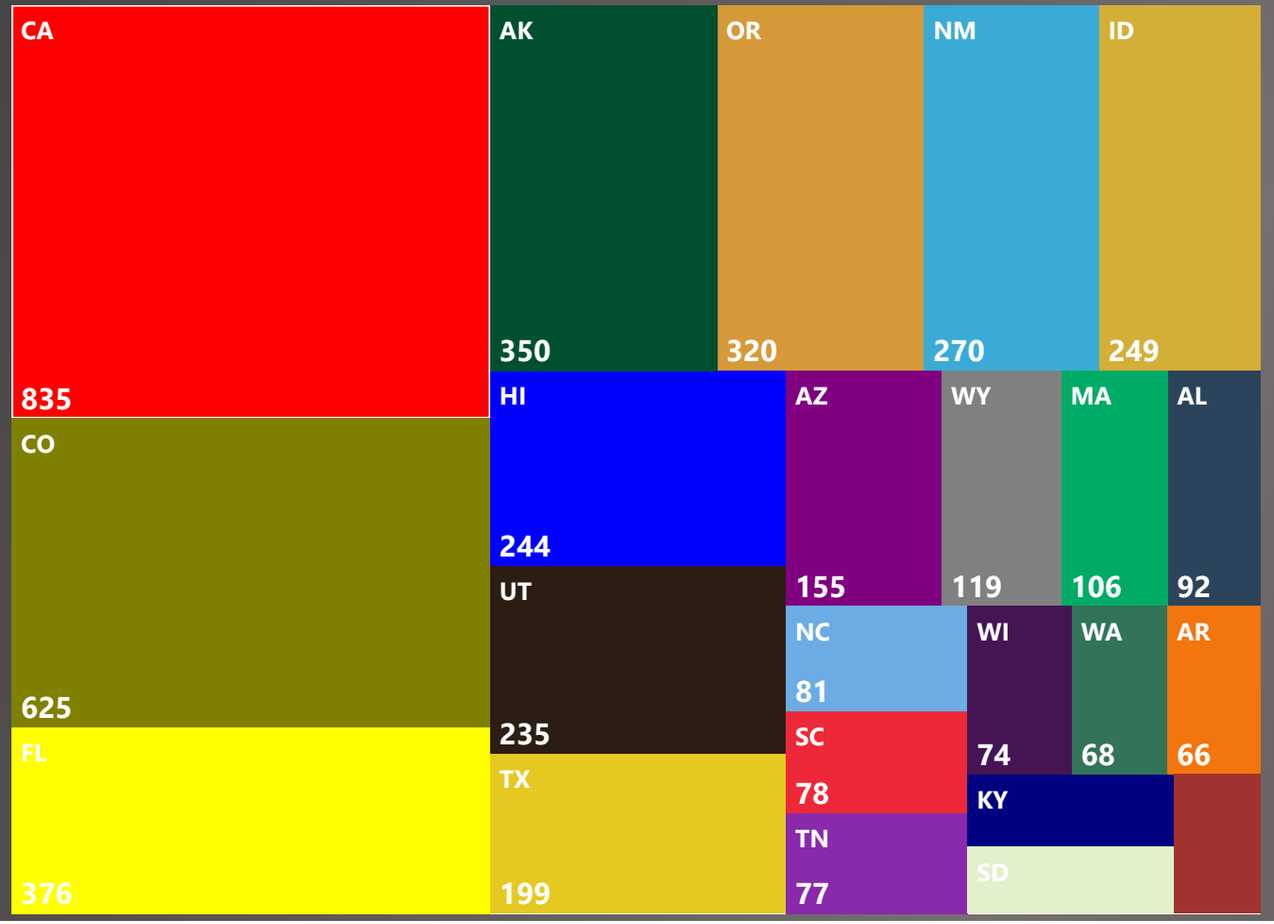


Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

5,228
Flight Count

1,031
Flight Hours

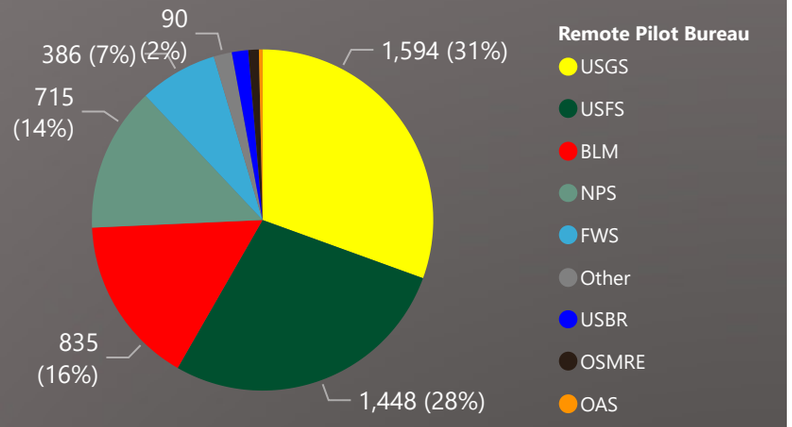
Interagency Flights By State*



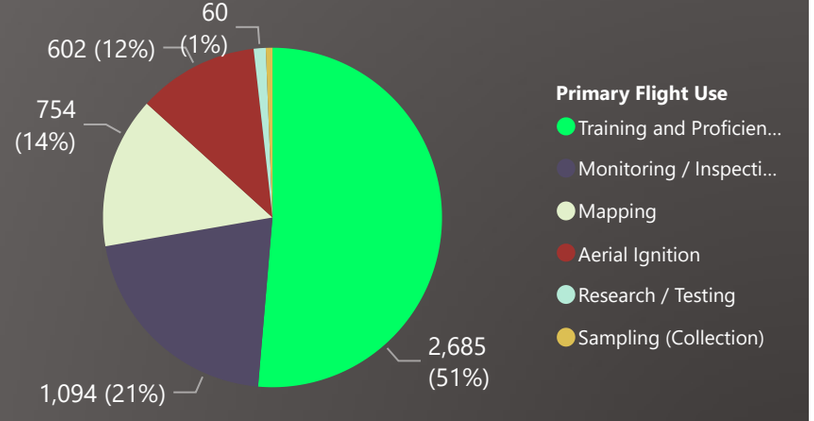
State	Flight Count
Mississippi	46
Virginia	45
West Virginia	36
New York	35
North Dakota	27
Oklahoma	26
Pennsylvania	26
Louisiana	23
Nevada	22
Ohio	21
Kansas	18
Illinois	17
Michigan	13
Minnesota	5
New Jersey	4

* States with 50 or more flights represented as an area box. States with at least one but less than 50 flights are listed in the table.

FY22 Interagency Flights by Operational Control



FY22 Interagency Flights by Primary Flight Use Category



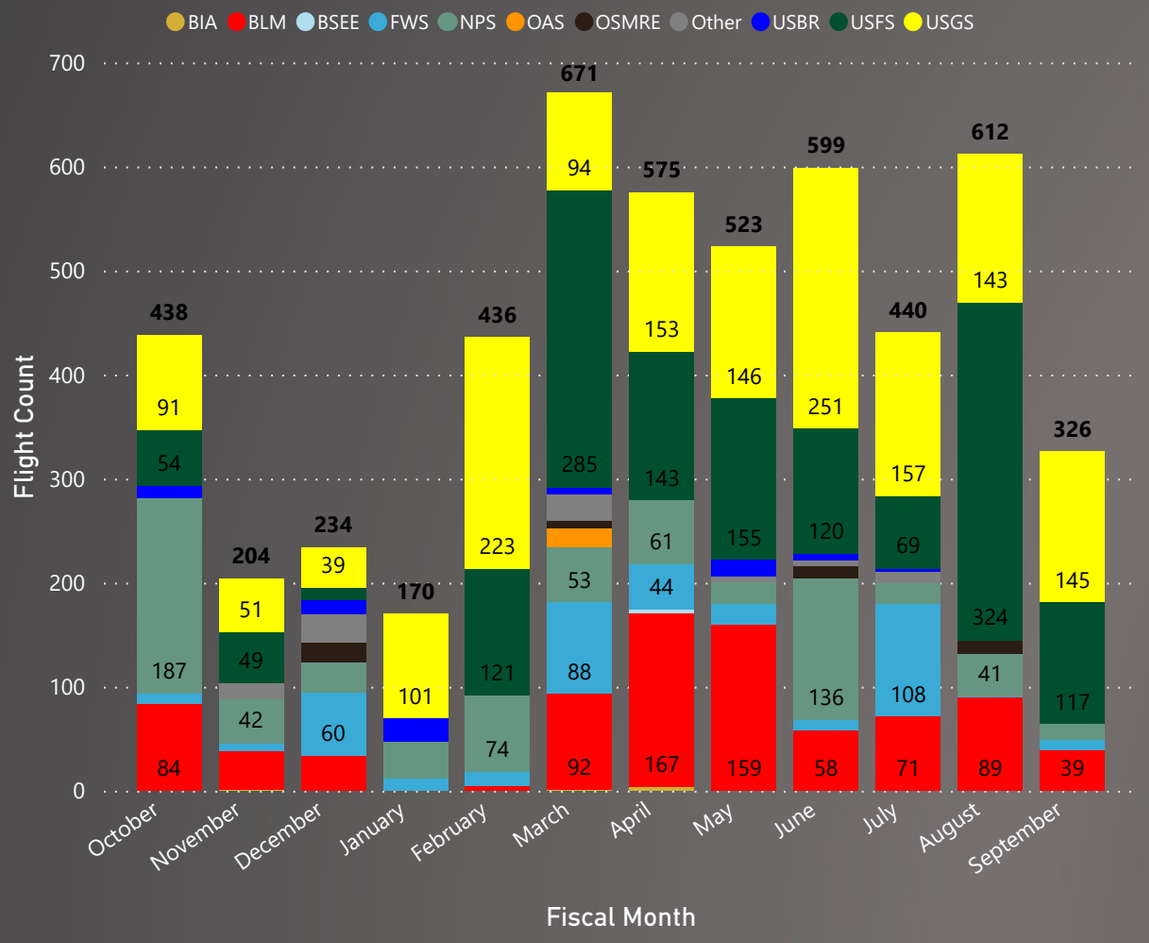
Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

FY22 Interagency Flights by Month and Bureau or Primary Flight Use

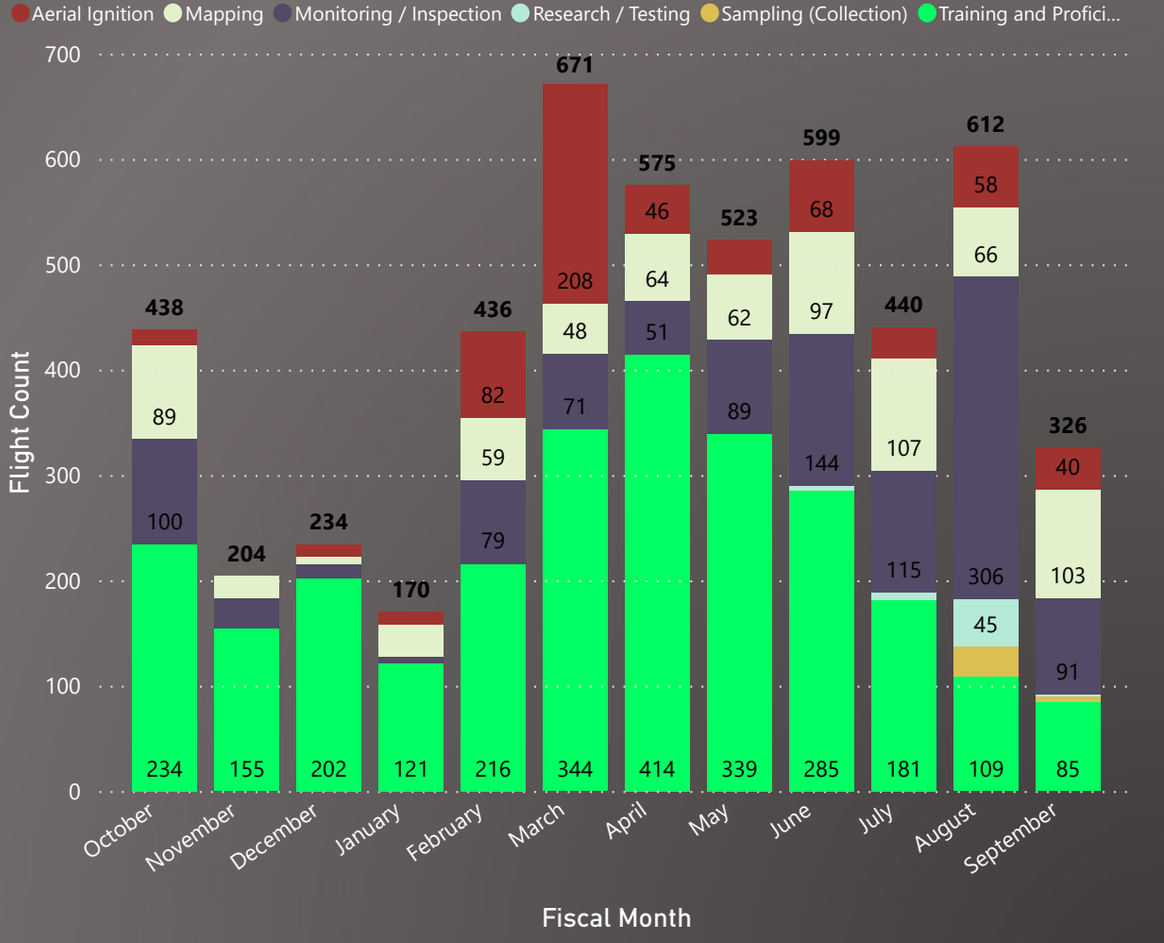
5,228 Flight Count

1,031 Flight Hours

FY22 Monthly Interagency Flight Count by Controlling Bureau



FY22 Monthly Interagency Flight Count by Primary Flight Use



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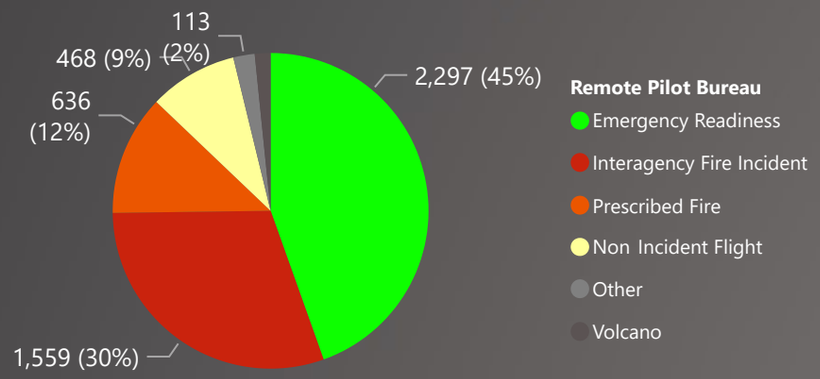
FY22 Interagency UAS Incident and Emergency Operations

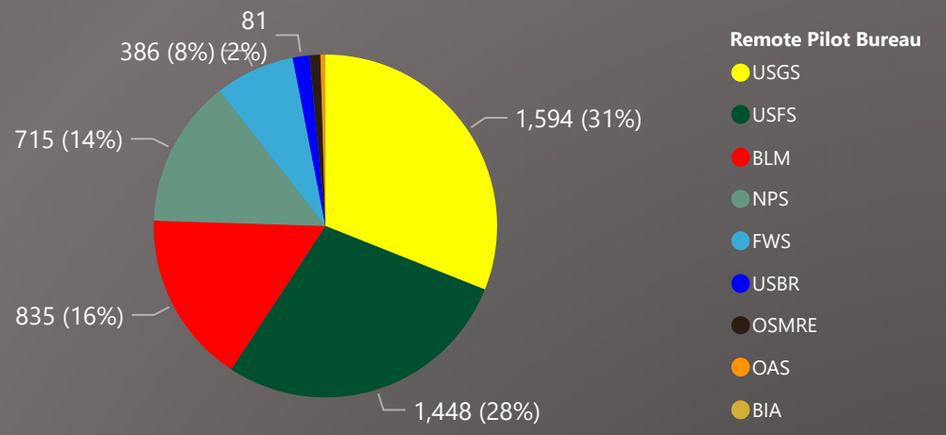
5,228
Flight Count

1,031
Flight Hours

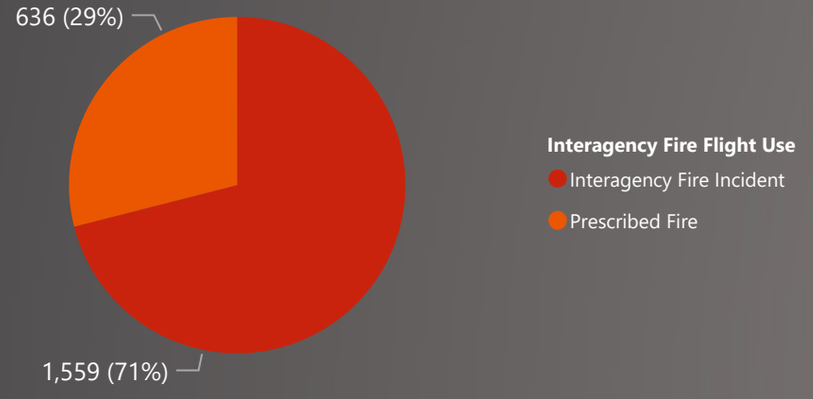
FY22 Interagency Incident Flights by Incident Type



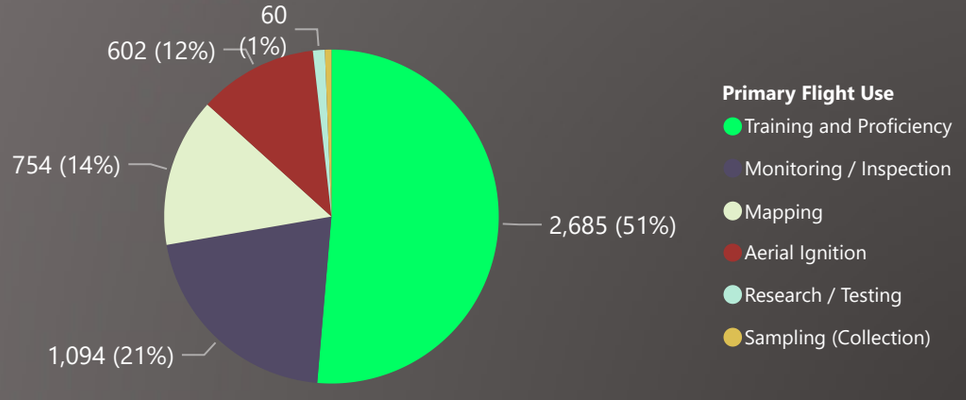
FY22 Interagency Flights by Operational Control



FY22 Interagency Fire Flights by Flight Use



FY22 Interagency Flights by Primary Flight Use Category



Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

Section 2: Interagency Remote Pilots and Training

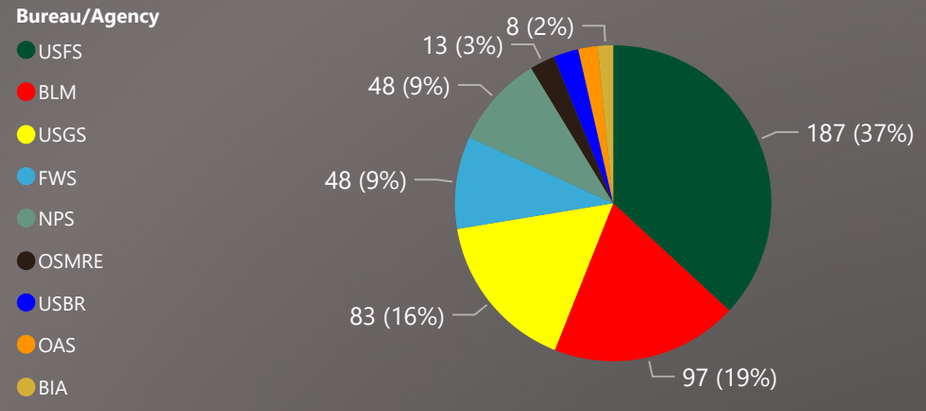
507
IAT Compliant Remote Pilots

Section 2: Interagency Remote Pilots
Interagency remote pilots must maintain training requirements to operate within policy. *IAT Active* remote pilots have passed A-450 (initial basic remote pilot training) and have an active IAT account (gold; but are not UAS policy compliant). *IAT Compliant* remote pilots are ready to operate UAS by IAT standards (green; they have an active IAT account *and* are currently in compliance with IAT training requirements for UAS operations). IAT compliance terms are exclusive of *Currency* and *Proficiency* standards defined in OPM-11.

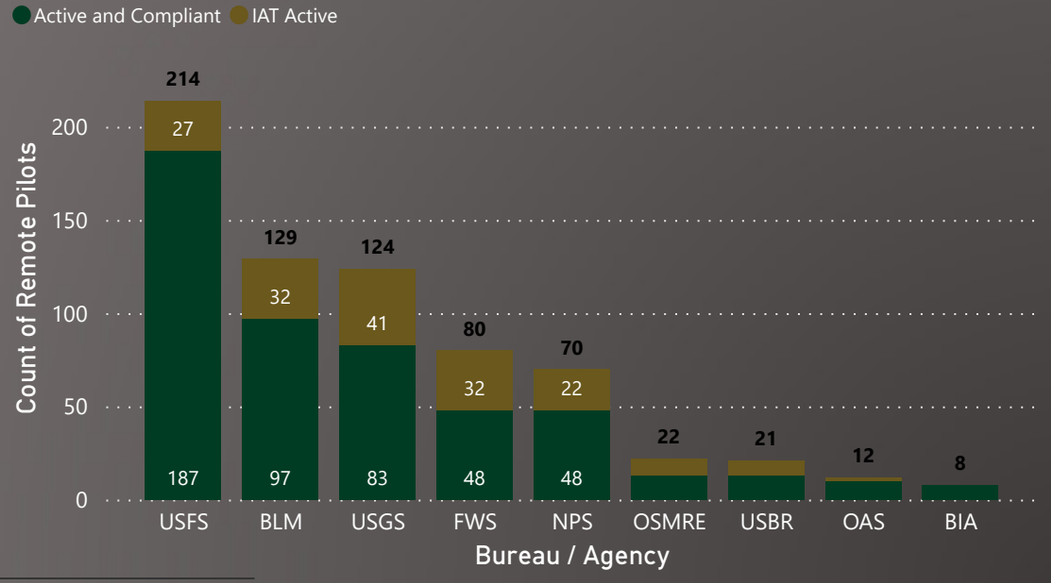
FY22 Training and Qualifications
Additional training in the classroom, online, and in the field, maintain and enhance remote pilot qualifications specific to aircraft, Extended and Beyond Visual Line of Site (EVLOS/BVLOS) operations, as well as fire and instructor qualifications.

What's in this Section?
This section breaks down the current qualifications and training as well as FY22 flights summarized by the remote pilot's home bureau/agency.

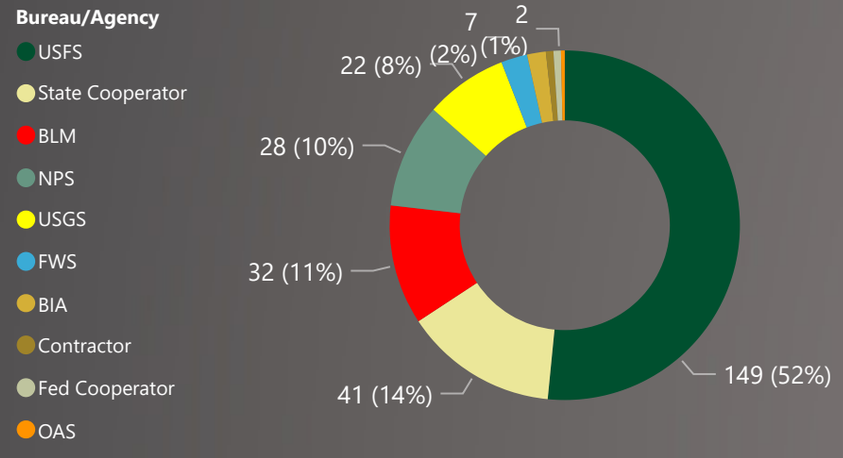
IAT Compliant Remote Pilots by Bureau/Agency



All Trained Remote Pilots by Bureau/Agency



All Remote Pilots Trained in A-450 in FY22



Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

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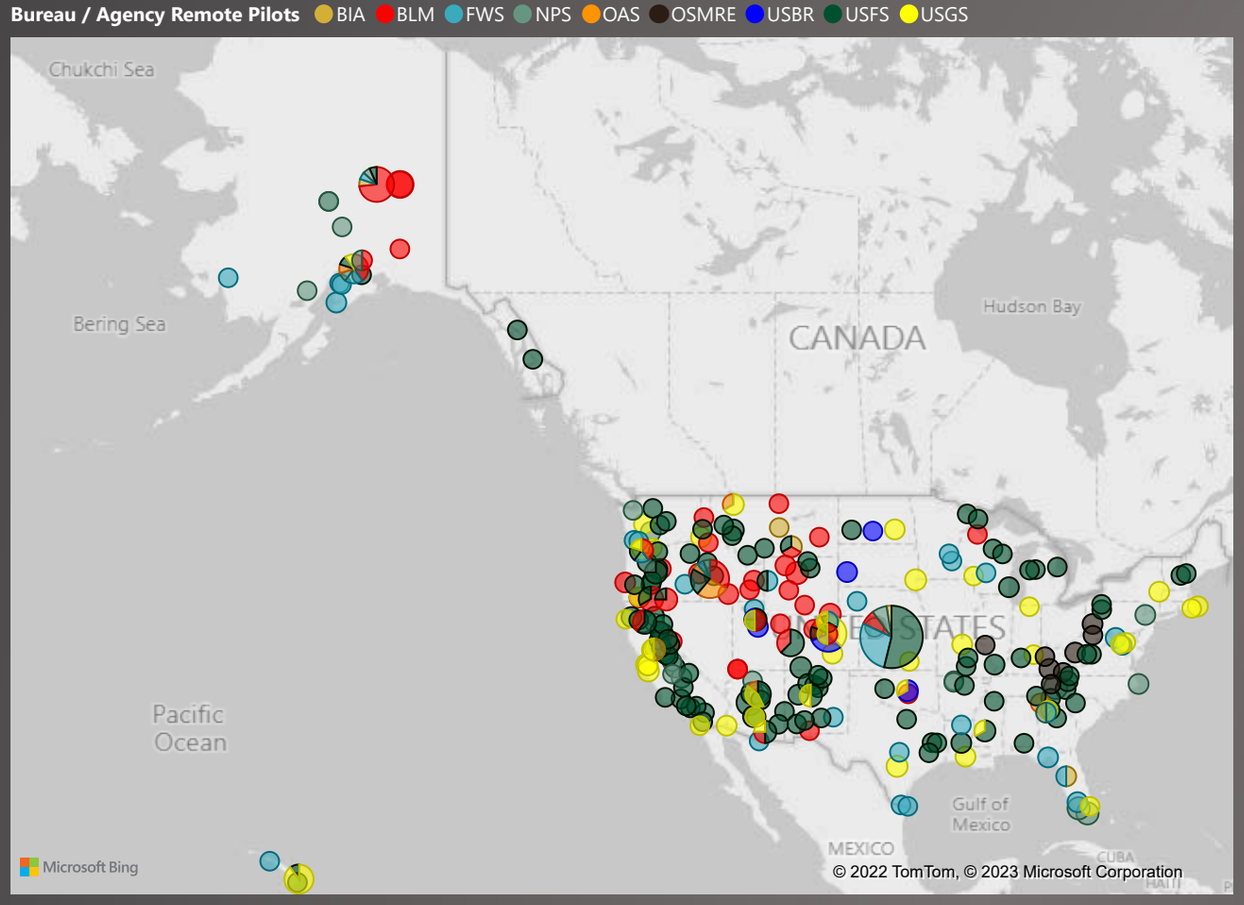
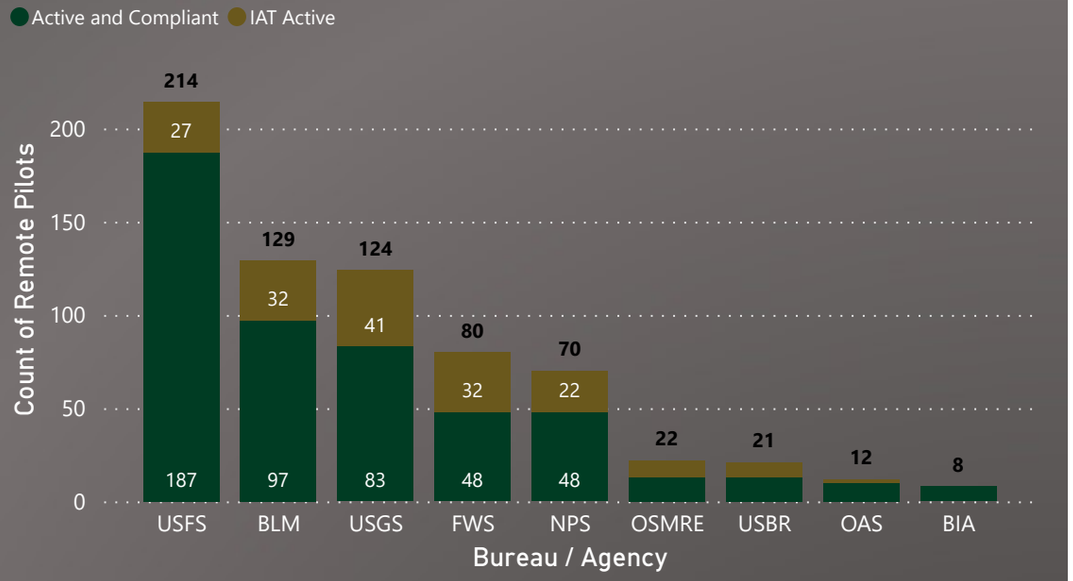
IAT Compliant Remote Pilots

All IAT Compliant Interagency Remote Pilot Locations



All Trained Interagency Remote Pilots by Bureau/Agency



NPS remote pilot Britta Schroeder, Denali National Park, AK. Photo credit: Taylor Bracher, NPS.

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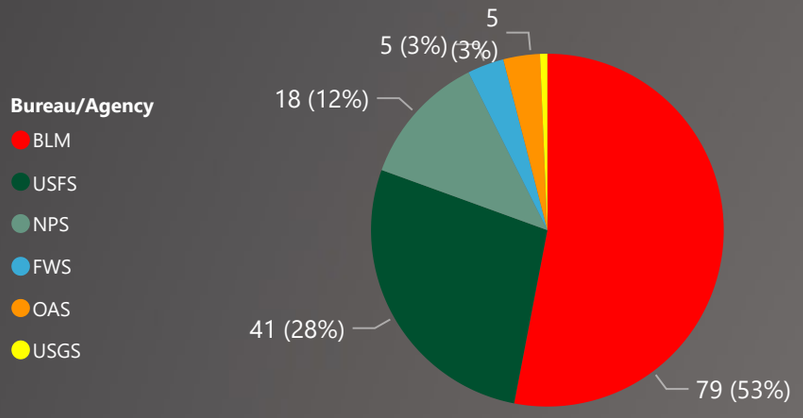
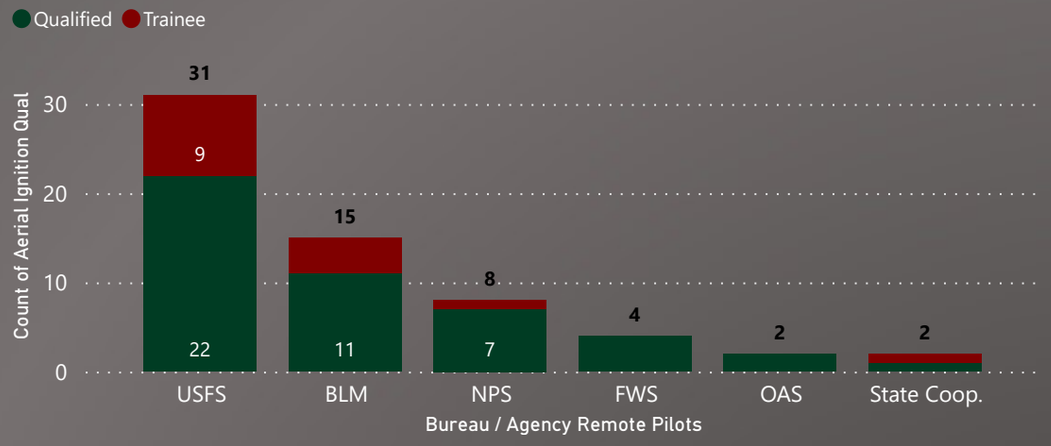
Current Interagency Remote Pilot Qualifications

507
IAT Compliant Remote Pilots

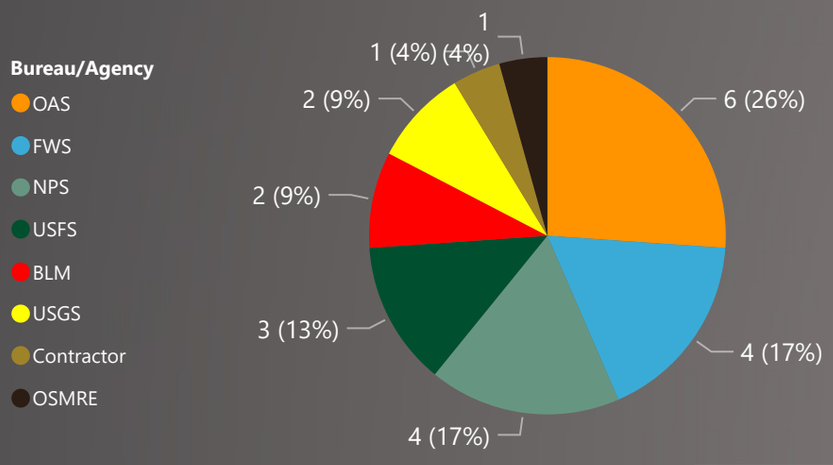
Active and Compliant Remote Pilots with S-373



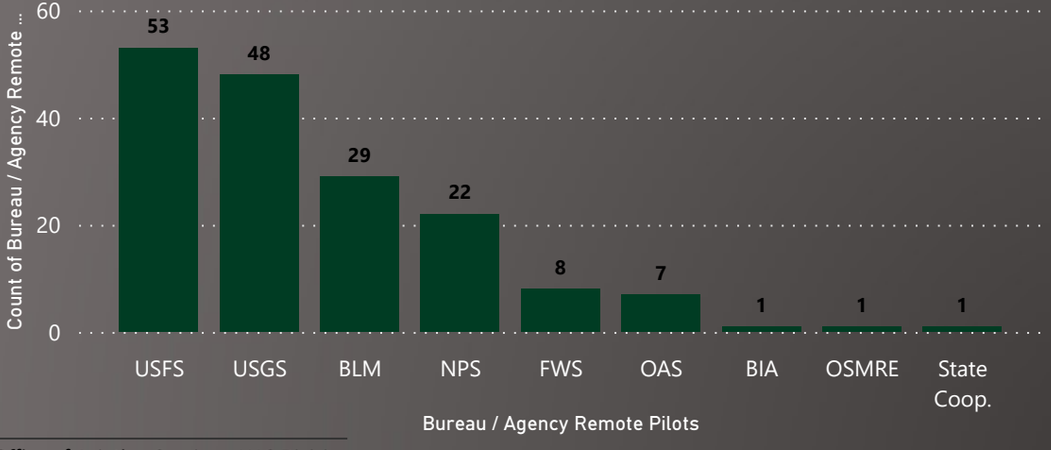
IAT Compliant Remote Pilots with Aerial Ignition Qualification



Fully Qualified Instructors



IAT Compliant Remote Pilots with Beyond Visual Line of Site Qualification



Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

FY22 Interagency Flights by Remote Pilot Bureau/Agency and Primary Flight Use

5,228 Flight Count

1,031 Flight Hours

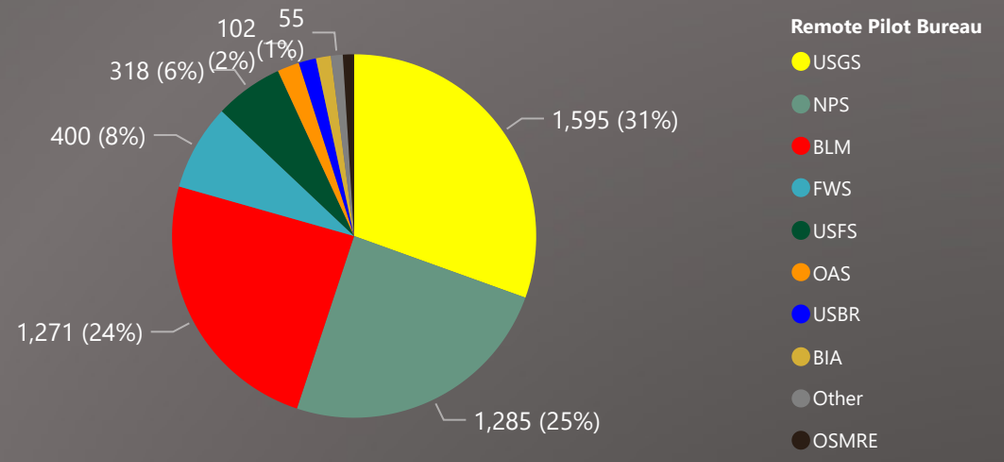
Bureau of Land Management Storymap of FY22 UAS Activities

Jay Murgoitio has provided this Storymap illustrating some of FY22's UAS operations with the BLM.

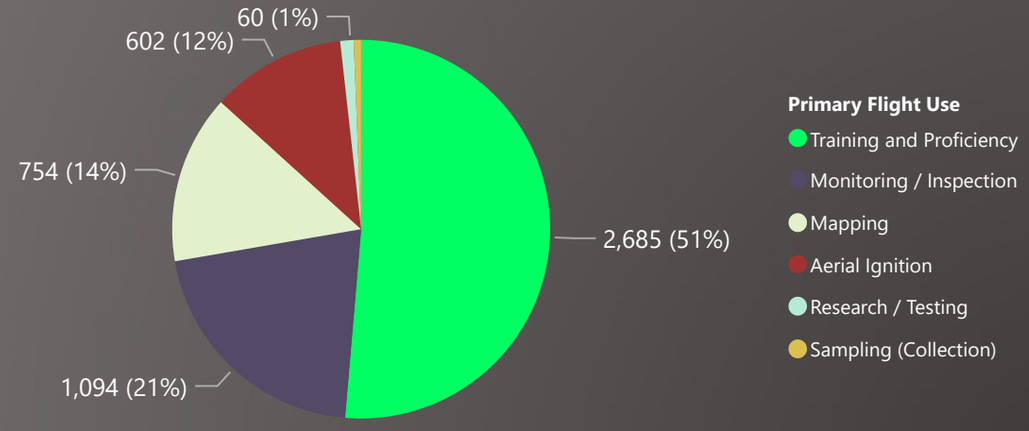
Matt Pfiefer BLM Unaweep Wildland Fire Module on the Hog Trough Fire, August 2022.

Photo credit: Jay Murgoitio, BLM.

FY22 Interagency Flights By Pilot Bureau



FY22 Interagency Flights by Primary Flight Use Category



Section 3: Interagency UAS Fleet (End of FY22) and FY22 Flights by Aircraft

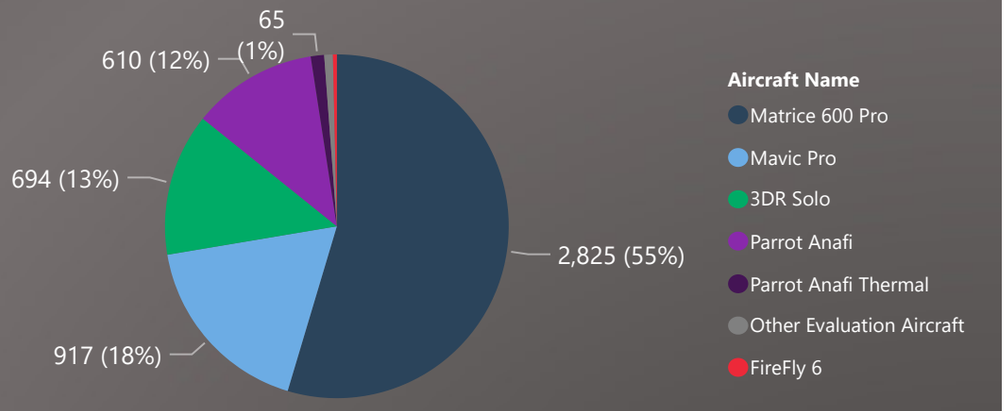
Section 3: Aircraft
The interagency UAS are the primary tools in the remote pilot toolbox. While options for DOI have been stymied by aircraft availability in recent years, USFS pursuits and recent policy updates point to an expanded fleet in FY2023.

Flights by aircraft on this page are reporting from both the DOI flight use reporting system (top right), and the USFS flight use reporting systems (bottom right).

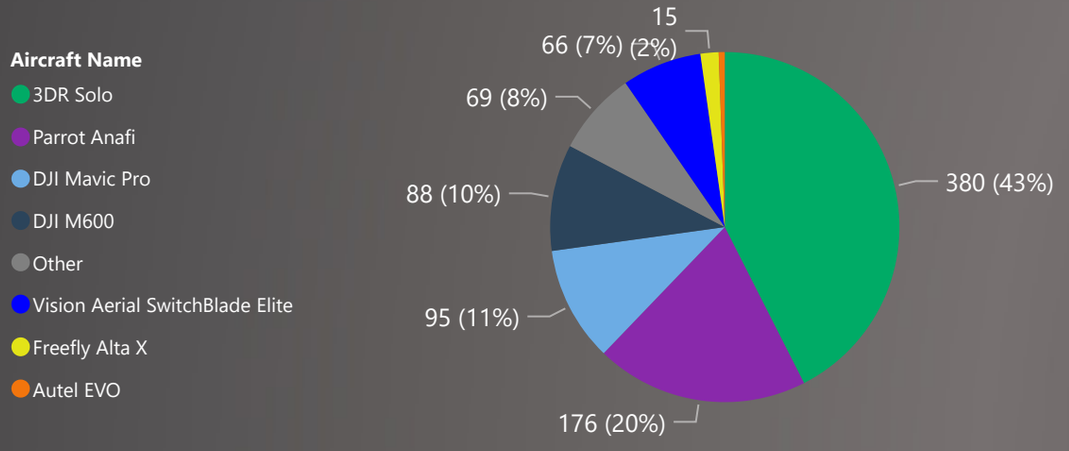
What's in this Section?
Interagency flight counts are reported by aircraft, bureau/agency, and primary flight use category.

Side by side, the Freefly Systems Alta X (right) and the DJI M600 (left).
Photo Credit: Steve Stroud, OAS.

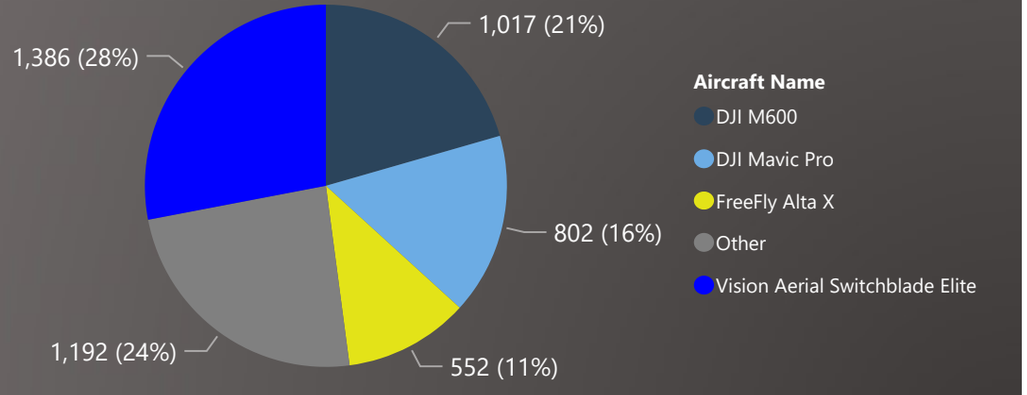
FY22 Interagency Flight Count by Aircraft (OAS-2U)



Current Interagency Fleet Aircraft



FY22 USFS Flight Count by Aircraft (USFS Flight Use)

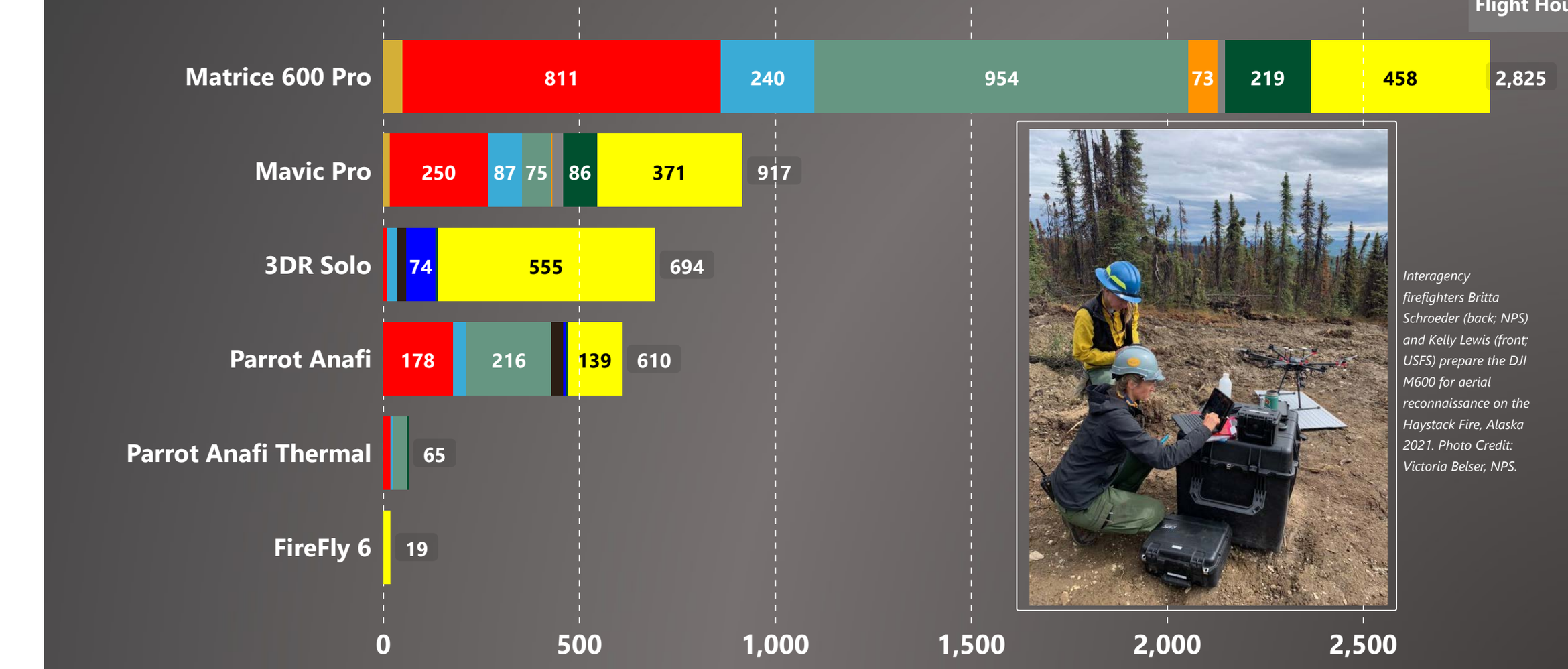


Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

FY22 Flight Count by Aircraft and Bureau/Agency

5,228
Flight Count

1,031
Flight Hours



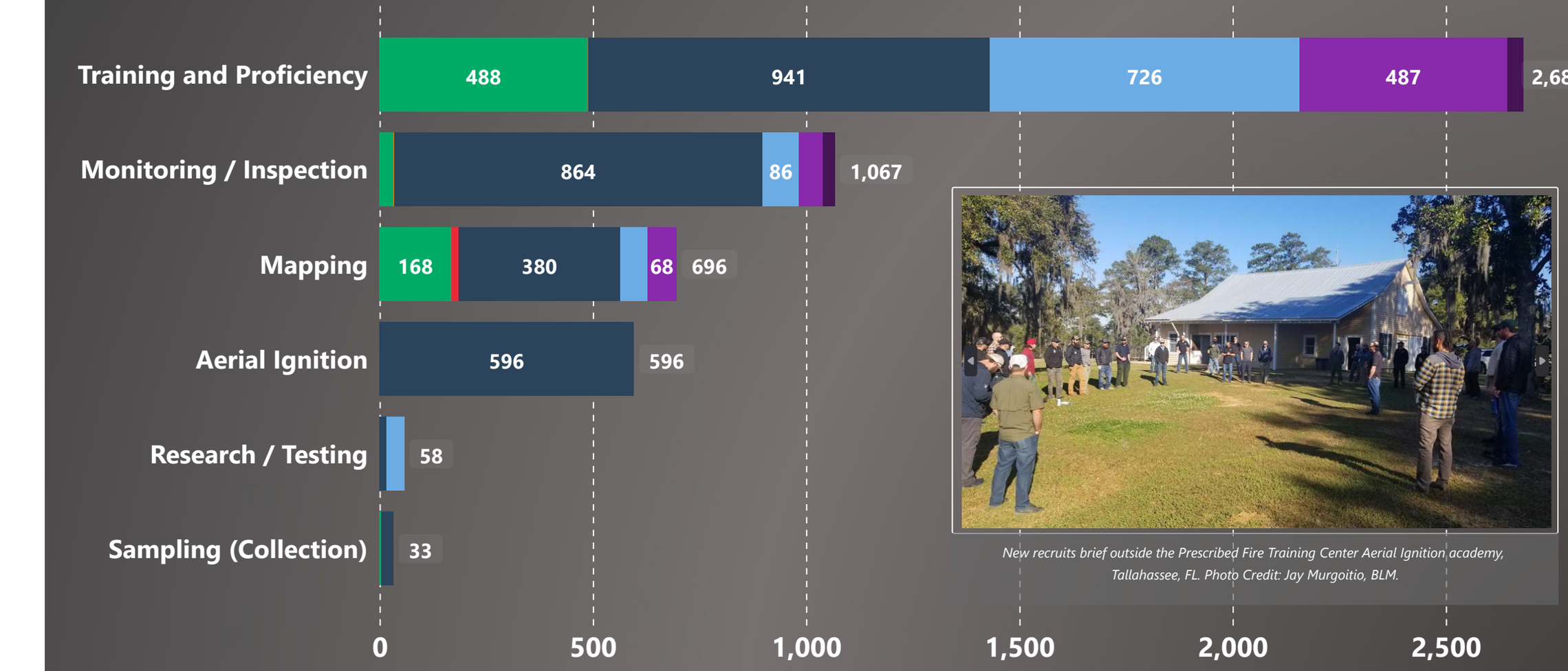
Interagency firefighters Britta Schroeder (back; NPS) and Kelly Lewis (front; USFS) prepare the DJI M600 for aerial reconnaissance on the Haystack Fire, Alaska 2021. Photo Credit: Victoria Belser, NPS.

Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

FY22 Flights by Flight Use and Aircraft

5,228
Flight Count

1,031
Flight Hours



New recruits brief outside the Prescribed Fire Training Center Aerial Ignition academy, Tallahassee, FL. Photo Credit: Jay Murgoitio, BLM.

Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

Quarterly and Annual Interagency Flights By Bureau/Agency Fiscal Years 2017-2022

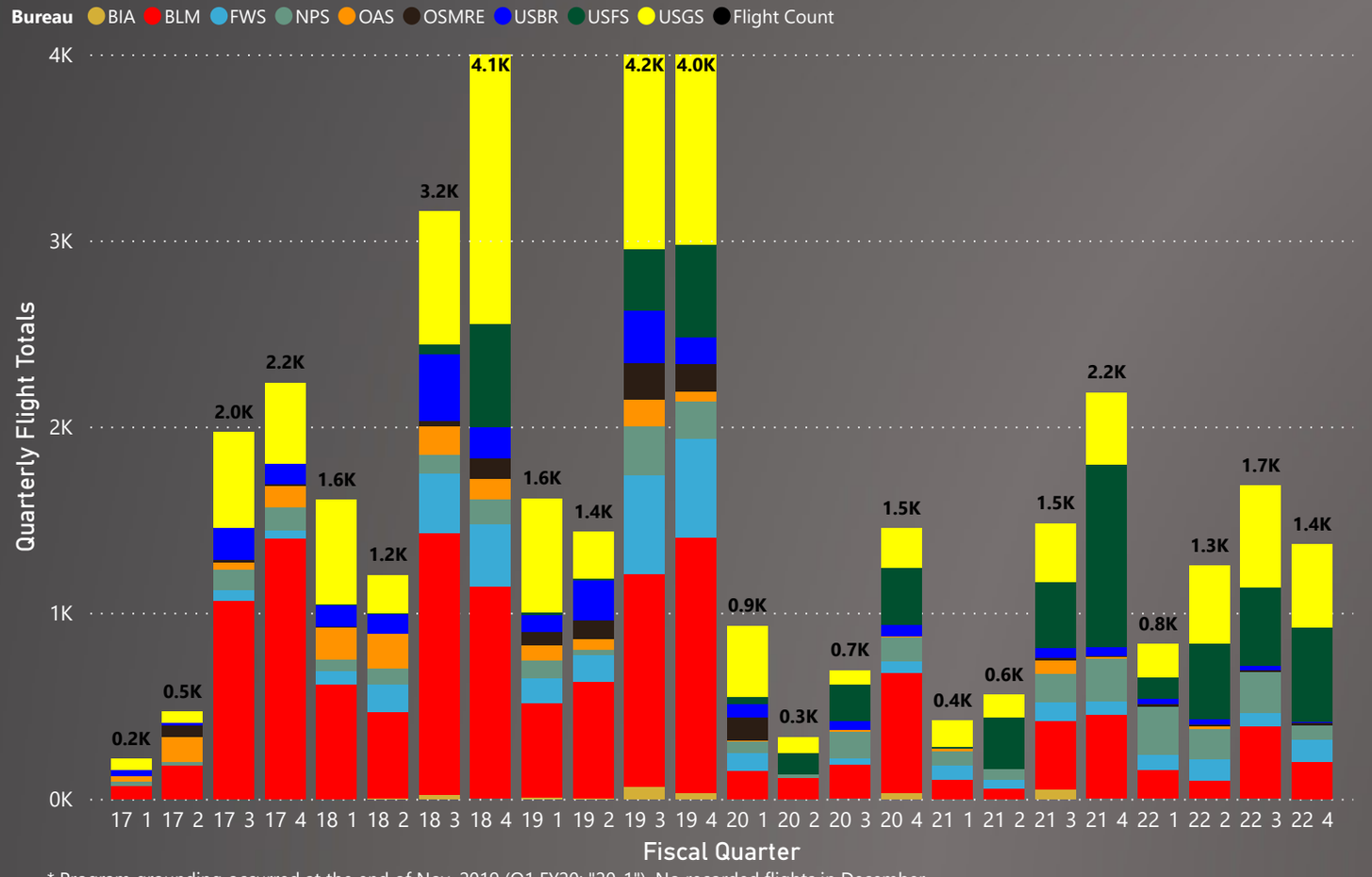
39,928 Flight Count

7,460 Flight Hours

Section 4: Temporal Trends
Trends in UAS program activity (flight count illustrated here) are driven by equipment availability, mission types, environmental conditions, policy changes and more. While overall activity has increased annually over the past three years, total flight count remains below the program's peak activity in FY2019. Focused policy changes and availability of new aircraft for FY2023 are likely to perpetuate the growing trend.

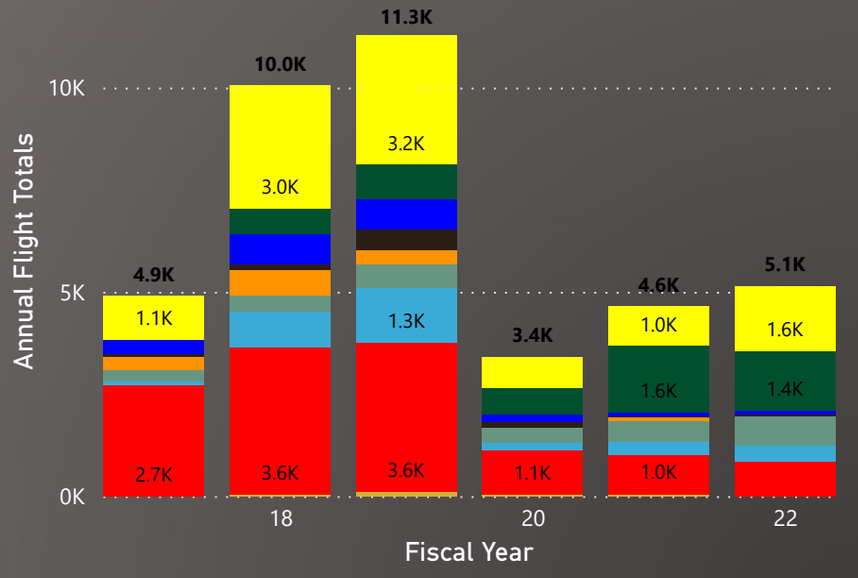
What's in this Section?
Historical flight use trends (FY2017-FY2022) are categorized annually, quarterly and monthly, by bureau, primary flight use, and aircraft.

Interagency Flight Count by Quarter and Bureau/Agency Operational Control



* Program grounding occurred at the end of Nov. 2019 (Q1 FY20; "20 1"). No recorded flights in December.

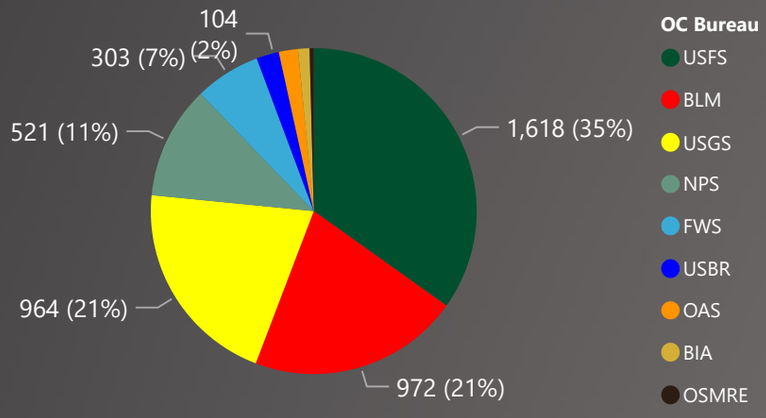
Interagency Flight Count by Fiscal Year and Bureau/Agency



Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

FY21 (left) vs. FY22 (right) Interagency Flights by Operation Control and Primary Flight Use

FY21 Interagency Flights by Operational Control



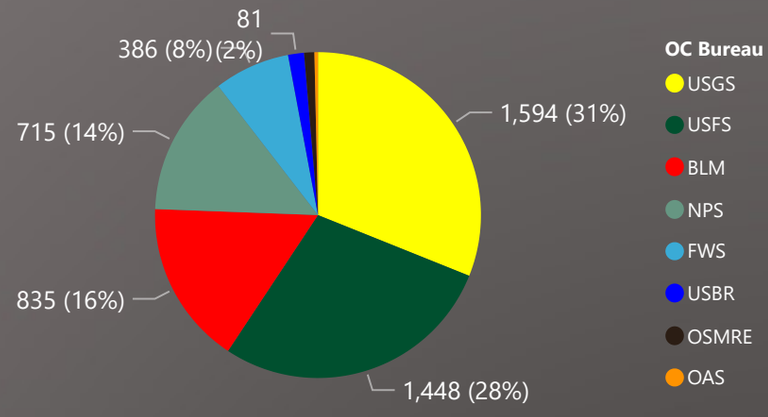
4,668
Flight Count

980
Flight Hours

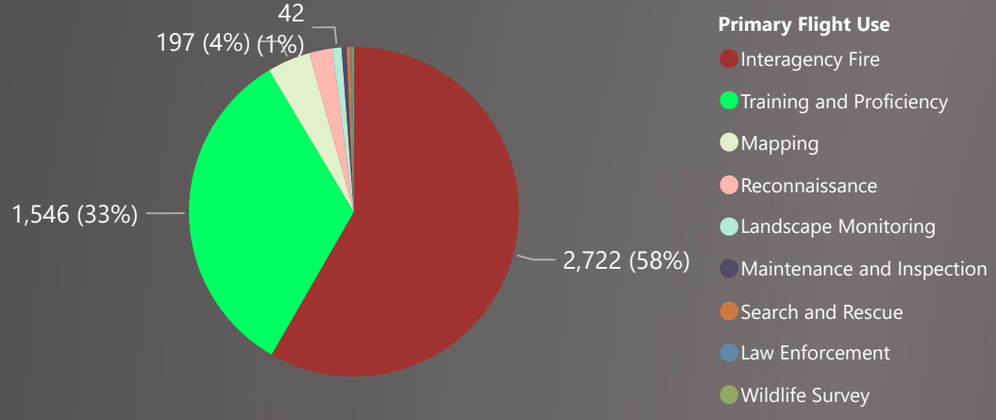
FY22 Interagency Flights by Operational Control

5,129
Flight Count

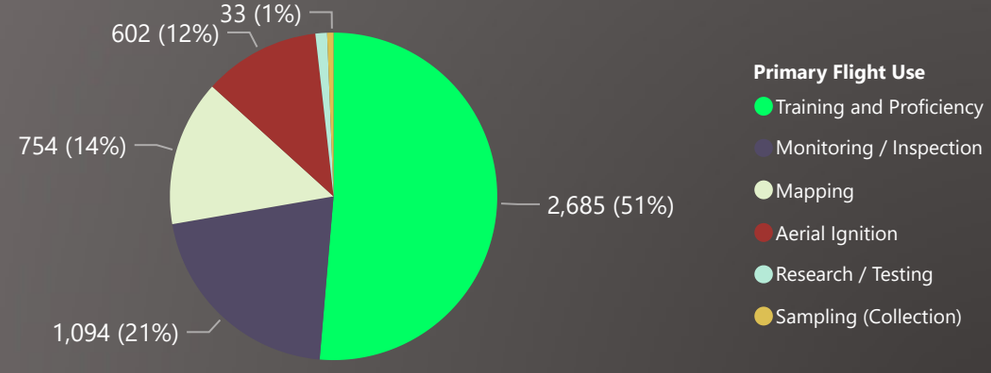
1,029
Flight Hours



FY21 Interagency Flights by Primary Flight Use Category



FY22 Interagency Flights by Primary Flight Use Category



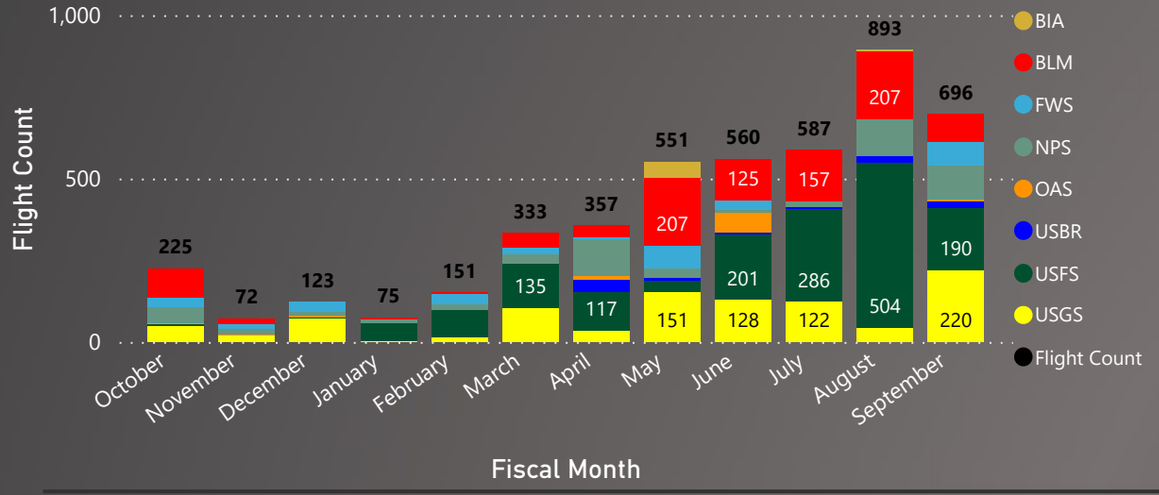
Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

FY21 (left) and FY22 (right) Monthly Interagency Flights by Bureau/Agency and Primary Flight Use

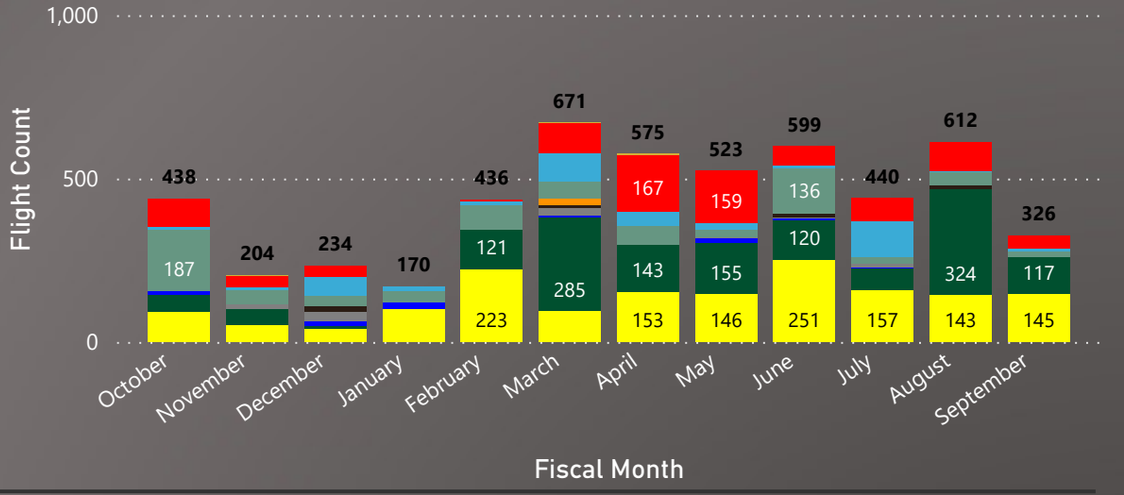
4,668 Flight Count | **980** Flight Hours

5,228 Flight Count | **1,048** Flight Hours

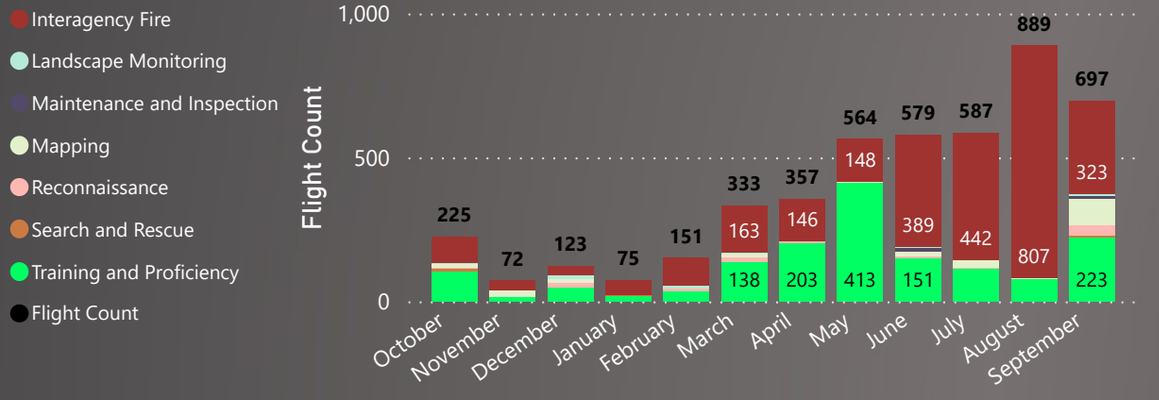
FY21 Monthly Interagency Flight Count by Controlling Bureau/Agency



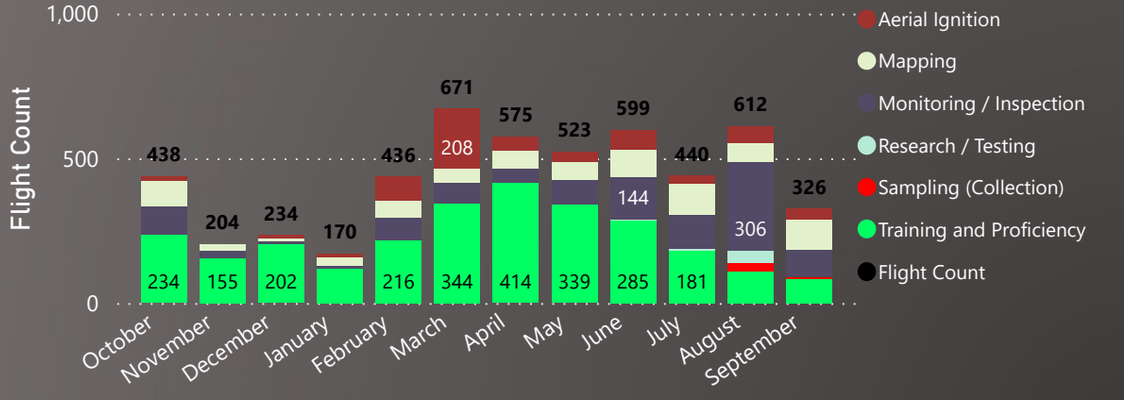
FY22 Monthly Interagency Flight Count by Controlling Bureau/Agency



FY21 Monthly Interagency Flight Count by Primary Flight Use



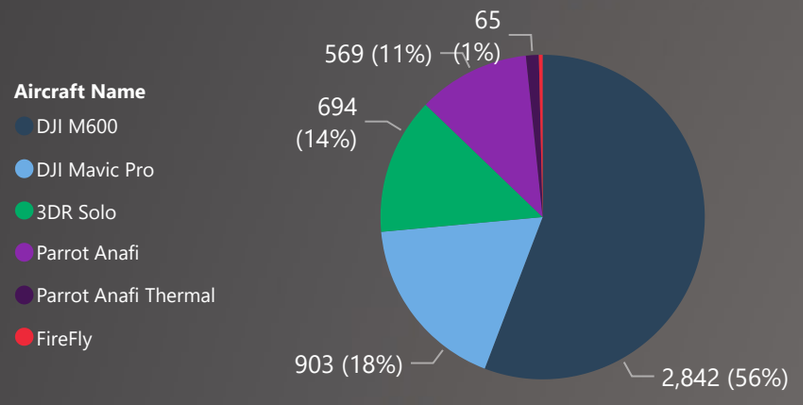
FY22 Monthly Interagency Flight Count by Primary Flight Use



Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

Annual Interagency Flights by Aircraft
Fiscal Years 2019-2022

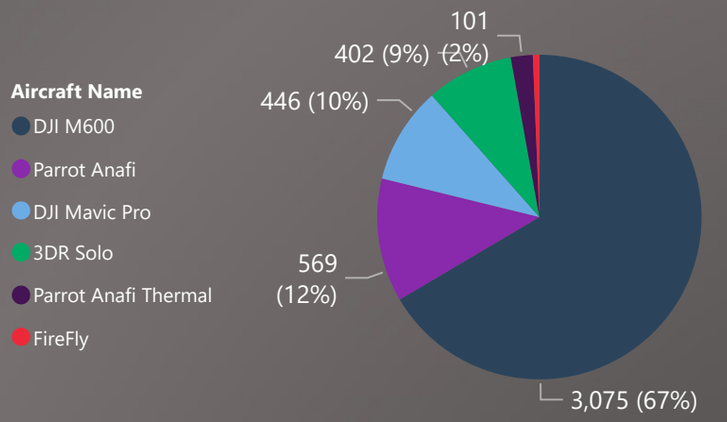
FY22 Interagency Flight Count by Aircraft



5,092
Flight Count

1,021
Flight Hours

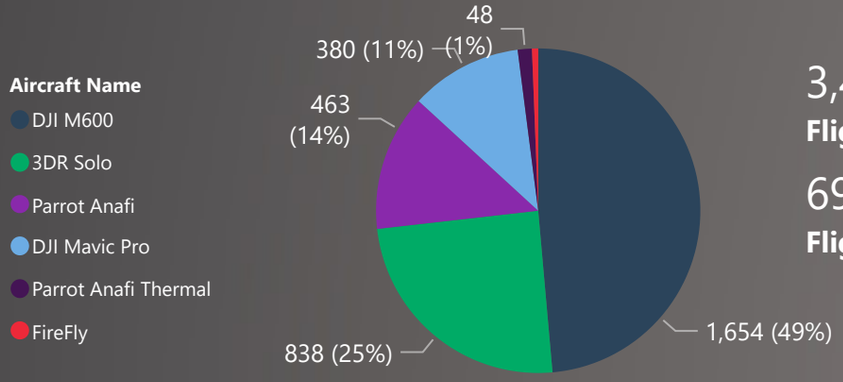
FY21 Interagency Flight Count by Aircraft



4,623
Flight Count

973
Flight Hours

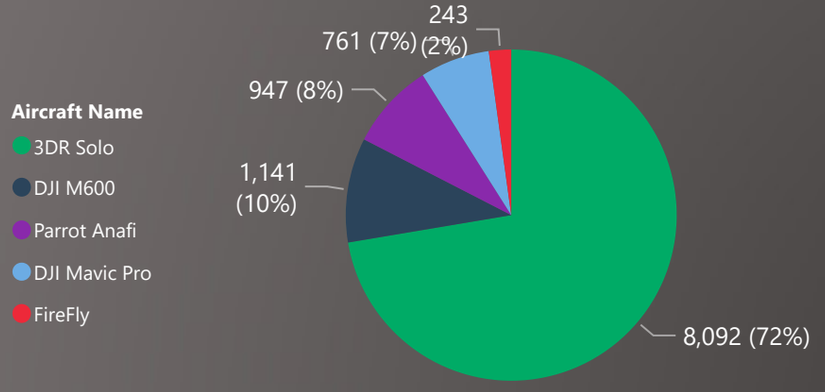
FY20 Interagency Flight Count by Aircraft



3,404
Flight Count

699
Flight Hours

FY19 Interagency Flight Count by Aircraft



11,184
Flight Count

2,006
Flight Hours

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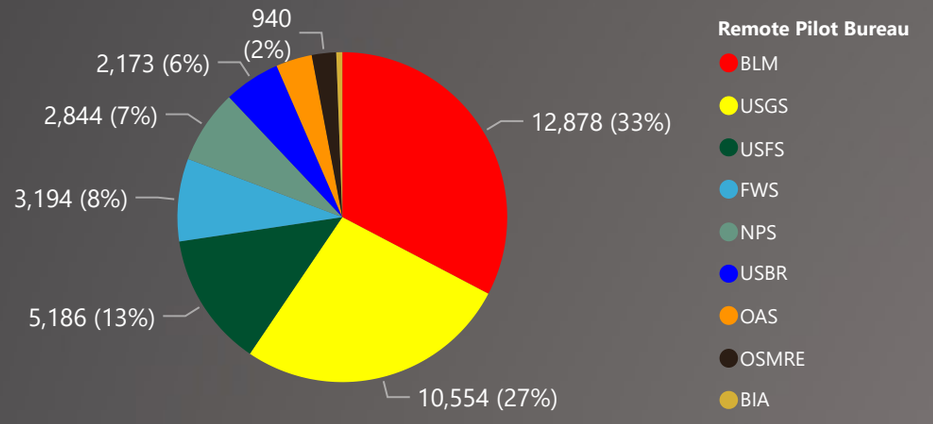
Sum of Total Interagency Flights Categorized Across all Fiscal Years 2017-2022

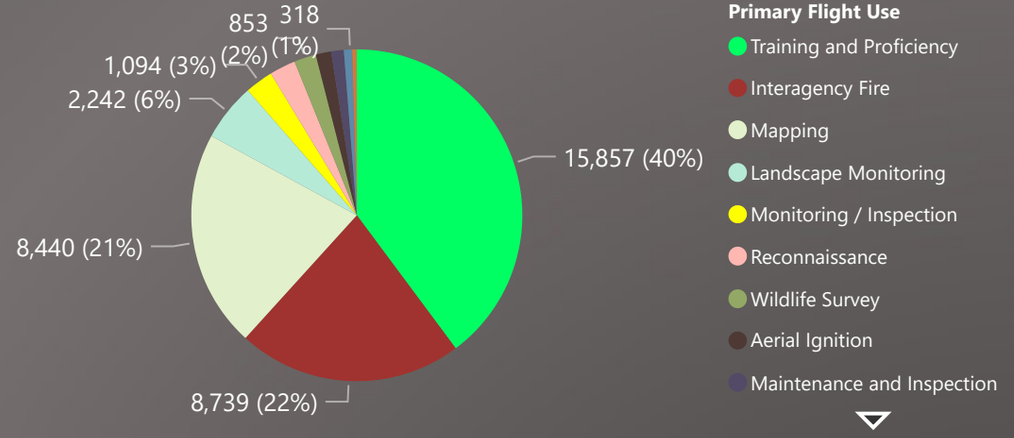
39,928 **Flight Count**

7,460 **Flight Hours**

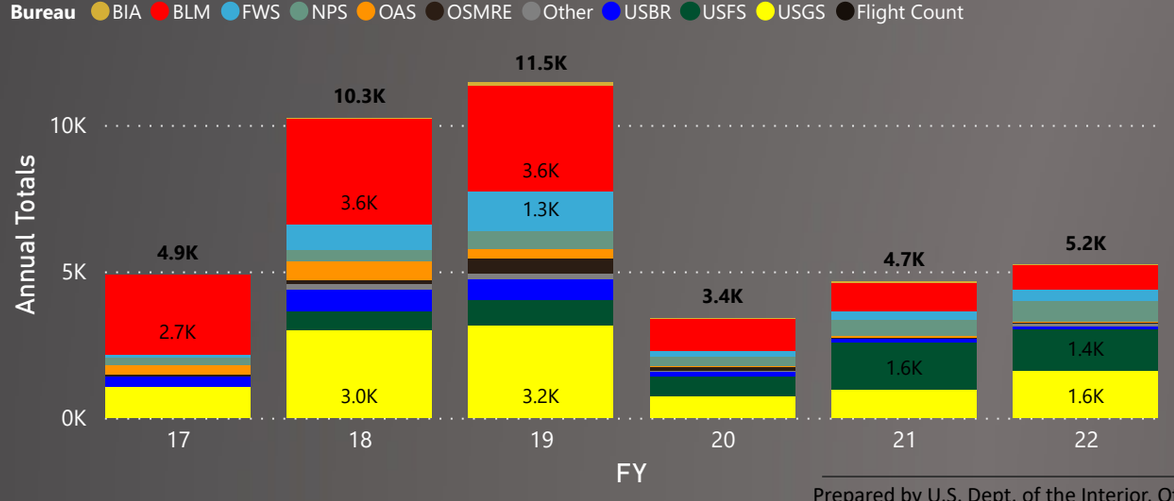
Interagency Flights by Operational Control



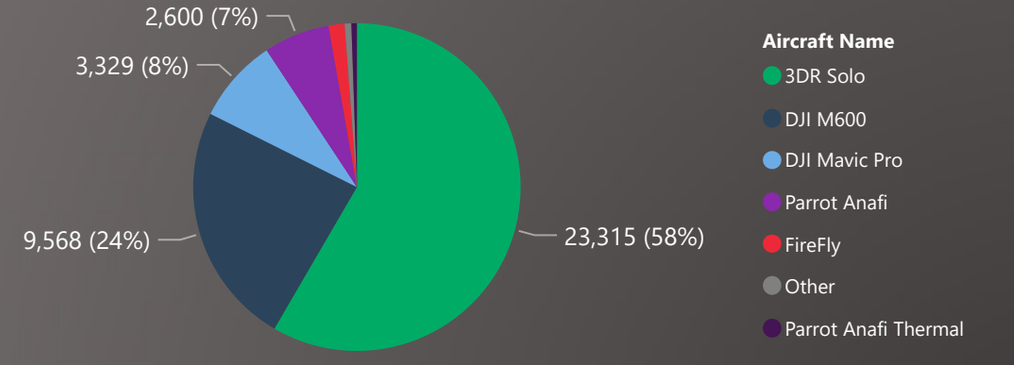
Interagency Flights by Primary Flight Use Category



Annual Interagency Flight Count by Bureau Operational Control



Interagency Flight Count by Aircraft



Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.

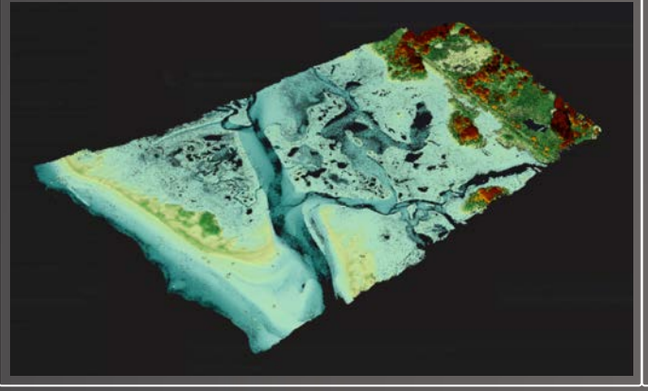
In Closing

Summary and 2023 Outlook

Interagency UAS activity continues to ramp up, driven by new fleet aircraft, updated policy and a rigorous remote pilot training schedule. USGS was most active among DOI bureaus in FY22 followed by BLM and NPS. Interagency fire remained at the top of planned mission flights and many of the 500 plus interagency remote pilots remained ready to operate through training and proficiency. The DJI Matrice 600 (M600) remained the dominant working platform while the USFS relied more heavily on the Alta X and Switchblade Elite.

There is great optimism for FY2023 as Deputy Assistant Secretary Lisa Branum's memo "Updated Uncrewed Aircraft Systems (UAS) operations and procurement policy" has provided a path for resuscitating DOI's aging UAS fleet and getting back to the business of protecting and monitoring the land, property and resources of the United States.

What's on the horizon for FY23? Interagency fire remained the top flight use category for UAS missions in FY22. The Freefly Systems Alta X with Droneamplified Aerial Ignition Payload (right). Photo credits: Steve Stroud, OAS.



Lidar elevation map of the Great Sippewissett Marsh, Cape Cod, MA (left) and DJI Matrice 600 Pro with Lidar Payload (right). The USGS UAS program reflects the bureau's expertise in science with sensor testing and integration. Data and image provided by the USGS National Uncrewed Systems Office. Photo provided by Mark Bauer, USGS.

Acknowledgements

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Prepared by U.S. Dept. of the Interior, Office of Aviation Services, UAS Division.