

Policy and Procedure 1-5 Small Unmanned Aircraft Systems (sUAS)

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Codes/Mandates:	Code of Virginia §19.2-60.1 Use of unmanned aircraft systems by public bodies; search warrant required 14 Code of Federal Regulations §91.3 Responsibility and Authority of the Pilot in Command 14 Code of Federal Regulations §91.111 Operating Near Other Aircraft 14 Code of Federal Regulations §91.113 Right-of- Way Rules: Except Water Operations 14 Code of Federal Regulations §91.155 Basic VFR Weather Minimums 14 Code of Federal Regulations Part 107 Small Unmanned Aircraft Systems		
References:	Federal Aviation Administration Regulations		
Forms:	Form 1.2 Small Unmanned Aircraft Systems (sUAS) Training Log Form 1.3 Small Unmanned Aircraft Systems (sUAS) Pre-Flight Checklist Form 1.4 Small Unmanned Aircraft Systems (sUAS) Flight Log Form 1.5 Small Unmanned Aircraft Systems (sUAS) Maintenance Report Form 1.6 Small Unmanned Aircraft Systems (sUAS) Crash Report		

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PURPOSE

The following procedures are intended to promote safe, efficient, and lawful operation of Virginia Department of Forestry small unmanned aircraft systems (sUAS).

POLICY

It shall be the policy of DOF to use sUAS's to protect and enhance the forestry resources of Virginia.

DEFINITIONS

"Agency" and **"DOF"** means the Virginia Department of Forestry.

"CFR" means Code of Federal Regulations.

"Commonwealth" means the Commonwealth of Virginia.

"FAA" means Federal Aviation Administration.

"IGNIS" means system that uses **"dragon eggs"** or **"ping pong"** balls in a hopper which hangs below the supporting drone to cause fire ignitions.

"Operator" means a general term used for the purposes of this SOP that includes pilots and visual observers operating a UAS under agency policy and this SOP.

"Remote Pilot in Command (RPIC)" means person that is directly responsible for, and is the final authority as to, the operation of that aircraft as described by Federal Aviation regulation 14 CFR 91.3; may also be referred to as the operator.

"Small Unmanned Aircraft System (sUAS)" means a small unmanned aircraft (UA) and the associated elements (including communication links and control components) required for safe and efficient operation in the National Airspace System. An unmanned aircraft system including all payloads, fuel, etc. weighing less than 55lbs. See 14 CFR Part 107.

"Unmanned Aircraft (UA)" means an aircraft that can be flown without the possibility of direct human intervention from within or on the aircraft. See 14 CFR Part 107.

"Visual Observer (VO)" means responsible for the visual observation of the UAS, surrounding airspace, and other air and ground obstacles during flight operations.

"VLOS" means visual line of sight

PROCEDURES

Personnel Assignments, Responsibilities and Duties

UAS Program Manager

- ◆ Administers the flight-training program that all prospective sUAS pilots must successfully complete to become authorized sUAS operators.

- ◆ Ensures all authorized pilots have completed all required training in the operation, applicable laws, policies, and procedures regarding use of sUAS.
- ◆ Ensures all authorized pilots meet flight currency requirements to remain flight qualified.
- ◆ Develops standard operating procedures (SOP's) specific to sUAS operations.
- ◆ Develops protocol for deploying a sUAS, including urgent requests made during ongoing or emerging incidents.
- ◆ Develops protocol governing the deployment and operation of a sUAS including, but not limited to, safety oversight, use of visual observers, and establishment of lost link procedures.
- ◆ Ensures all training and operational missions are documented according to established protocol; establish and manage such protocol.
- ◆ Develops a sUAS inspection, maintenance and record-keeping protocol to ensure continuing airworthiness of a sUAS, up to and including its overhaul or life limits.
- ◆ Serves as the agency's point of contact with the Federal Aviation Administration (FAA). Disseminate revisions to FAA regulations as they change.

Remote Pilot in Command (RPIC)

- ◆ Responsible for the operation of the sUAS in accordance with the manufacturers' approved flight manual, FAA regulations, Commonwealth of Virginia laws and codes, and DOF Policy and Procedures 1-4 Small Unmanned Aircraft Systems.
- ◆ Serves as the final authority for safe operation of the UAS while accomplishing the goals of the mission.
- ◆ Has absolute authority to reject a flight based on safety concerns or violation of FAA regulations.
- ◆ Responds to information provided by the visual observer to safely accomplish the mission.
- ◆ Responsible for completion of pre-flight checklist, flight log, submission of incident report (if necessary), and other flight documentation as required.

Visual Observer (VO)

- ◆ Observes for any issues that may affect flight safety and communicates concerns to the RPIC and other crew members.
- ◆ Communicates clearly to the RPIC any turning instructions required to avoid any conflicting traffic and obstacles.
- ◆ Remains alert for suspicious persons or activities on the ground that may affect flight safety and coordinates response with the RPIC and other crew members.
- ◆ Assists the RPIC and other crew members in the main objective of safe operations of the UAS.
- ◆ Responds to questions from landowners or members of the public to prevent distraction of the RPIC.
- ◆ Assists with completion of pre-flight checklist, flight log, submission of incident report (if necessary), and other flight documentation as required.

Safety

Training

- ◆ All operators shall receive training in the following subjects prior to operating the UAS:
 - DOF sUAS policy
 - Emergency safety and accident procedures
- ◆ The Virginia Department of Forestry is committed to having a safe and healthy workplace, including:

- The ongoing pursuit of an accident free workplace, including no harm to people, no damage to equipment, the environment and property.
- A culture of open reporting of all safety hazards in which management will not initiate disciplinary action against any personnel who, in good faith, discloses a hazard or safety occurrence.
- Support for safety training and awareness programs.
- Conducting regular audits of safety policies, procedures and practices.
- Monitoring the UAS community to ensure best safety practices are incorporated into the organization.
- ◆ Safety is the responsibility of all operators. Operators will take immediate action to correct an unsafe condition as soon as it is identified. With regard to safety, all operators of the UAS flight crew are responsible for the following:
 - Ensuring all flight operations personnel understand applicable regulatory requirements, standards and organizational safety policies and procedures.
 - Observe and control safety systems by monitoring all operations.
 - Review standards and the practices of department personnel as they impact operational safety.
 - Communicate all reported safety related problems and the corrective action taken. If there were any in-flight problems (or learned experiences), the proper procedures for handling that problem should be discussed.
 - Copy and circulate pertinent safety information.
- ◆ Safety violations or unsafe operating practices by an operator will be reported immediately to the UAS Program Manager so that corrective action may be taken.
- ◆ Emergency procedures will be documented with an emergency checklist for crew to review.

Fire

- ◆ UAS will be flown away from people and property until a safe landing location can be found. A fire extinguisher and first aid kit are required at the mission site.

Loss of Link

- ◆ Onboard system will be programmed to execute lost link protocol by either landing immediately or returning to launch point and land, depending on conditions, operational and safety requirements.

Loss of Line of Sight

- ◆ In the event that a crewmember(s) loses sight of the aircraft, the pilot will initiate a 'Return to Home' on the remote control. The RTH protocol is identical to the Loss of Link protocol. Once visual contact with the aircraft is re-established the pilot will reestablish aircraft control.

Loss of Propulsion

- ◆ During propulsion failure, coordinated flight cannot be maintained effectively in the most common configurations. An announcement will be made to all personnel on scene advising them of the emergency. If the aircraft fails to successfully land at a predetermined location, a recovery operation will be initiated.

Injury

- ◆ In the unlikely event of an emergency involving the aircraft and person(s) on the ground, the flight crew (RPIC and Observer) will be prepared to coordinate emergency medical care via radio or phone.

Lost Communications

- ◆ If the observer and the RPIC are not co-located (where verbal communication is not possible), the following communication tools can be utilized:
 - Hand held radio.

- Voice actuated headsets.
 - Cellular phone.
 - Hand Signals (may be used solely or in conjunction with the communication equipment).
- ◆ If communication is lost and cannot be re-established, the UAS will immediately land.

Operational Hazard and Occurrence Report (OHOR) and Investigations

- ◆ The remote pilot in command of the small unmanned aircraft system (sUAS) is required to report an accident to the FAA within 10 days if it results in serious injury or loss of consciousness to any person, or if it causes damage to any property (other than the sUAS) in excess of \$500.
- ◆ Occurrences are unplanned safety related events, including accidents and incidents that could impact safety. A hazard is something that has the potential to cause harm. The systematic identification and control of all major hazards is foundational to safety.
- ◆ The OHOR concept provides a mechanism to report hazards and occurrences, real and perceived, to those responsible for UAS operations.
- ◆ Anyone observing or experiencing a safety hazard or occurrence as defined above should immediately report the incident to the UAS Program Manager. There is no specific format; however, the report should include as much detail as possible so the hazard or occurrence can be documented and understood. An OHOR may be submitted anonymously and to any agency leadership without fear of reprisal in order to ensure the matter gets the appropriate attention.
- ◆ Every hazard and/or occurrence is investigated, with the results and corrective action taken communicated to all members. The investigation will be conducted by the UAS Program Manager or other designated staff. The services of an independent subject matter expert may be necessary to assure a thorough and complete investigation.
- ◆ Hazards requiring immediate attention will be brought to the attention of the safety coordinator verbally without delay.
- ◆ All DOF employees are authorized to take action to correct a hazard if in that employee's opinion delay will result in accident or injury. The UAS Program Manager will be notified immediately in such situations.

Medical Factors

- ◆ A self-assessment of physical condition using "IMSAFE" shall be made by all operators during pre-flight activities as follows:
 - **Illness:** Do I have symptoms?
 - **Medication:** Have I been taking prescription or over the counter medications?
 - **Stress:** Am I under psychological pressure from the job or worried about financial matters, health problems, or family discord?
 - **Alcohol:** Have I consumed alcohol within 8-24 hours?
 - **Fatigue:** Am I tired and not adequately rested?
 - **Eating:** Am I adequately nourished?
- ◆ Pilot in Command, Operator and Observer(s) shall only deploy the UAS when rested and emotionally prepared for the tasks at hand.
- ◆ Physical illness, exhaustion, emotional problems, etc., seriously impair judgment, memory and alertness. The rule is not to act as an operator or observer when suffering from any of the above. Members will "stand down" when these problems could reasonably be expected to affect their ability to perform flight duties.
- ◆ Performance can be seriously hampered by prescription and over-the-counter drugs. The UAS Program Manager must be advised anytime such drugs are being taken. If it is determined that the medication being taken could hamper a Pilot in Command, operator or observer, that operator shall be prohibited from the deployment or exercise.

- ◆ No operator shall act as a Pilot in Command, operator or observer within eight hours after consumption of any alcoholic beverage or while under the influence of alcohol.

Training

- ◆ Continued safe sUAS operations requires the RPIC to maintain a professional level of competency.
- ◆ Training will be utilized to ensure proficiency is maintained throughout the duration of agency sUAS authorization. If training requirements are not met, the sUAS Program Manager can temporarily revoke agency sUAS authorization. sUAS authorization can be reinstated once the revoked RPIC demonstrates proficiency to a DOF authorized RPIC through a 30-minute hands-on in-flight evaluation.
- ◆ Training requirements and curriculum to certify as an agency operator are developed and maintained by the sUAS Program Manager or designee.
- ◆ All agency RPICs will have a training log [Form 1.2 Small Unmanned Aircraft Systems \(sUAS\) Training Log](#) on file.
- ◆ All missions are documented and counted toward operator training.
- ◆ The sUAS program manager and RPICs will ensure the training plan is complete.
- ◆ Initial training for operators includes completing FAA Part 107 certification. In conjunction with fulfilling all training requirements for operator and observer duties, the new operator must also become familiar with UAS operations, the aircraft, and its equipment.
- ◆ All personnel with sUAS responsibilities shall also be trained in local, state, and federal laws and regulations, as well as policies and procedures governing the deployment and use of sUAS.
- ◆ RPICs must understand the rules and responsibilities for [14 CFR §91.111](#) Operating near Other Aircraft, [14 CFR §91.113](#) Right-of-Way Rules: Except Water Operations, and [14 CFR §91.155](#) Basic VFR Weather Minimums.
- ◆ Review and understand air traffic and radio communications, including the use of approved ATC/pilot phraseology.
- ◆ Review and understand the appropriate sections of the Aeronautical Information Manual.
- ◆ RPICs must become familiar with UAS operations, the aircraft, and associated equipment.
- ◆ Before agency personnel can fly as an RPIC, they must complete 30 minutes of hands-on in-air flight training with a DOF authorized RPIC to show proficiency and knowledge of the sUAS.
- ◆ At a minimum, sUAS team members shall log a minimum of 3 take-offs and landings every month to maintain proficiency. This shall include flight operations exhausting at least 3 full battery cycles while conducting flying, still and video operations, and simulated in-flight emergencies.
- ◆ Additional training may be required at periodic intervals to ensure the continued effective use, operation, proper calibration, and performance of the equipment and to incorporate changes, updates, or other revisions in policy and equipment.
- ◆ Required recurrent training requires RPICs to log a minimum of 12 **mission hours** per calendar year.
 - Mission hours include: pre-flight checklist, calibration, flight time, post-flight checklist, and data processes.
 - Mission hours exclude: *offsite* battery charging, controller charging, firmware updates, and all other basic tasks associated with preparing for flight.
- ◆ Suggested supplemental training includes:
 - Research of current and updated laws and regulations;
 - Attending conferences;
 - Utilizing apps (such as “Remote Pilot”)
 - Participating in webinars/conference calls about UAS.

- ◆ All RPICs are expected to participate in as much suggested supplemental training as feasible under their current work schedules.

Operating Procedures

- ◆ Flight operations are governed by Federal Aviation Administration (FAA) regulations, and the Remote Pilot in Command (RPIC) is responsible for understanding and adhering to all FAA regulations. These regulations are extensive and include limitations based upon airspace classification, flight altitude, weather conditions, visibility and various other factors. The RPIC has the authority to decline any mission based upon these regulations and conditions. The RPIC maintains final authority on whether to continue or cease flight operations, and can call upon this authority at any point during a mission.
- ◆ The RPIC must maintain visual line of sight (VLOS) of the sUAS at all times during flight operations. A non-pilot visual observer (VO) may assist the RPIC with tracking the sUAS to maintain VLOS, but the RPIC must maintain VLOS at all times during flight operations. Some operations (restricted airspace, night operations) may require more than one VO.
- ◆ The sUAS will not be flown:
 - When visibility is less than three statute miles.
 - During any sort of precipitation event or when precipitation is anticipated at any moment.
 - When cloud ceilings are lower than 500 ft.
 - During extreme wind events. The RPIC will be responsible for determining if wind is excessive for flight operations.
 - Over interstates, moving vehicles, special events, or people unassociated with the flight operations.
- ◆ DOF has a waiver to allow sUAS flights at night for emergency operations. Night operations will only be conducted if the RPIC is able to first examine the area in daylight to check for hazards. The RPIC may decline night operations or request additional VO/RPIC resources if they are uncomfortable with the situation or site conditions.
- ◆ Missions will be prioritized as follows:
 - incident response
 - water quality investigation
 - forest management/mapping
 - forest health
- ◆ DOF pilots and UAV equipment will only be used in support of agency cooperator requests when no outstanding mission requests exist within the same DOF Region where the request is needed. No cooperator flights will be conducted by DOF resources when the agency's fire readiness in the Region of that request is at a Readiness level 3 or higher. Any UAV use or support of cooperator mission requests will be as a fee-based service at the established DOF agency rates.
- ◆ When necessary for safety of flight or in circumstances required by the FAA, the Operator may utilize one or more Visual Observers.
- ◆ Video or photographic records will not be shared, distributed, posted, copied, maintained for personal use, or provided to another party without first obtaining the express approval of the DOF's Director of Communications.
- ◆ Data may not be shared with law enforcement personnel or agencies resulting from the use of DOF UAS (this includes real-time or still imagery) unless explicitly allowed in accordance with Code of Virginia [§19.2-60.1](#). Any requests not authorized by Code must be referred to the IS Director or designee. Operators are authorized to share imagery when the following conditions exist and when sharing such data with law enforcement agencies will document the justification in their flight report:
 - When the operator determines the use of an unmanned aircraft system is necessary to alleviate an immediate danger to any person including law enforcement personnel.
 - When supporting training exercises related to authorized uses.

- Any requests by a law enforcement agency, or agency having regulatory enforcement responsibilities, outside situations authorized above will be forwarded to the DOF Director of Communications
- ◆ Operators will make reasonable effort to ensure operations protect the privacy of persons and business by minimizing the collection of unnecessary video or still imagery. Operators will determine when the collection of video or still imagery is required based on the request from the on-scene incident commander or requesting authority.
- ◆ Operators will ensure they always operate within applicable law and regulations.

Flight Boundaries

- ◆ At no time shall sUAS support be granted inside restricted airspace without first obtaining permission from an FAA authorized administrator and approval by local authorities.
- ◆ Maximum altitude shall not be set more than 400 feet above ground level or in accordance with FAA regulatory standards.
- ◆ The operator will ensure that only authorized persons will be allowed within the designated distance of the flight operation, and this area may be reduced depending on the safety determination.

Dispatch Procedures

Established procedures should be followed when/if requesting this resource outside of your regional boundaries.

Fire Incident

- ◆ An Incident Commander (IC) may request a sUAS and RPIC as needed on a wildfire incident. The sUAS may be beneficial for terrain/feature scouting, fire line monitoring, and hot spot location.
- ◆ The IC may request a sUAS by contacting regional dispatch.
- ◆ Due to limited resources, IC's are to determine if the resource is necessary. It is important to take into consideration response time for these resources, as they may be some distance away when requested.
 - To request a sUAS, contact the Regional dispatch with a brief mission description, approximate acreage to be flown, and a GPS point. The RPIC will respond and either confirm or decline the mission.
- ◆ If a RPIC is dispatched to a wildfire incident, the RPIC may elect to request an additional certified remote pilot on the incident. The additional certified remote pilot will be familiar with the specialized equipment and necessary record keeping and can assist with charging/changing batteries, serving as a VO, and keeping flight records.
- ◆ All time, including travel time, will be recorded as Fire Suppression in IFRIS and will be charged directly to the fire report at the rate for a full-time DOF employee.

IGNIS

- ◆ sUAS time, when used on an incident will be billed at the established rate.
- ◆ The IGNIS drone contains an aerial ignition device. The IGNIS II system uses "dragon eggs" or "ping pong" balls in a hopper which hangs below the supporting drone to cause fire ignitions. The "dragon eggs" or "ping pong" balls are injected with antifreeze which creates a chemical reaction in 20 to 40 seconds. One of the best uses of this tool is in support of prescribed burning operations, especially site prep burning.
- ◆ When DOF uses the IGNIS to support DOF-managed prescribed burning operations as a landowner service, the agency's existing rate structure for full-service prescribed burning will be used for the services billing. In this case, the agency is using the IGNIS for its own benefit to reduce the total man hours needed to complete a prescribed burn. The IGNIS will not be used to support cooperative prescribed burning services. Cooperative or reciprocal services to offset sUAS costs will not be allowed for UAV services.
- ◆ To request the use of this new tool for use on a prescribed burn please adhere to the following guidance. Contact the Regional lead personnel (see names below) and supply the following information:
 - brief mission description

- approximate acreage to be burned
- harvest or tract number
- GPS point
- ◆ The Regional lead will then check the airspace and their schedule. If the airspace is fine, but the Regional lead is not available for the mission, the Regional lead will contact the other remote pilots (RPIC) in the region for their availability. Once an available RPIC is confirmed, the Regional lead will respond to your request to either confirm or decline the mission, and will begin working with you to schedule a date that is appropriate for flight.
- ◆ A minimum of 2, or 3 preferred, staff will need to be assigned to the sUAS. The personnel will consist of at least one RPIC, and one visual observer. A third staff person may be needed to assist with communications or other miscellaneous needs.
- ◆ The Regional Lead contacts:
 - Eastern Region: Heather Tuck
 - Central Region: Chad Stover
 - Western Region: Russell Proctor, Jon Perry

Forest Health/Management/Mapping/Water Quality

- ◆ The sUAS may be used for mapping of large tracts that would otherwise be prohibitively time consuming. Due to the limited availability of this resource, requests for management assistance should be limited to only those that are necessary.
- ◆ Water quality inspections should continue with the primary inspector conducting inspections by walking/ATV. Due to the large number of inspections that DOF conducts each year, the sUAS will not be available to conduct standard inspections on a regular basis.
 - If the RPIC is already riding with the primary inspector and they request to look at a harvest with the sUAS, the RPIC may elect to do so as time allows.
- ◆ To request a sUAS for a water quality, mapping mission, forest health or other projects email the RPIC with a brief mission description, approximate acreage to be flown, a harvest or tract number (if applicable), and a GPS point. The RPIC will respond to your email to either confirm or decline the mission, and will begin working with you to schedule a date that is appropriate for flight.

Pre-Flight/Post-Flight Actions

Inspections

- ◆ Operators and observers are both responsible for a thorough preflight inspection of the sUAS. Before and after each operation (whether a mission or training). The operator and observer shall conduct a thorough inspection of the sUAS in accordance with the instructions contained in the manufacturer's user manual. Any issues found that will jeopardize the safe operation of the UAS shall be documented and resolved immediately prior to flight. It has been recognized that the use of a checklist is a significant method to combat UAS accidents. A pre-flight checklist is contained with each UAS and is utilized prior to each flight. Any issues that cannot be resolved on-site, and which have an impact on safety or the mission, will override the operation. These issues will be resolved before flight.

Weather

- ◆ Before each operation, the operators will obtain a weather report so they are familiar with the situation existing throughout the area of operation. The operator shall utilize FAA or other approved weather resources to obtain the latest and most current weather conditions. If available, an anemometer should be utilized in order to better estimate the wind speed and determine if it is within the capabilities of the airframe being flown. The weather conditions reported for the operation shall be recorded in the pre-flight checklist.

Documentation

- ◆ Operators will initiate prior to flight Inspection and weather will be documented prior to flight within the [Form 1.4 Flight Log](#).
- ◆ After each flight, the operator will finalize entries and complete a statement documenting the sUAS operations within the [Form 1.4 Flight Log](#).

Planning

- ◆ The operator and observer shall familiarize themselves with all available information concerning the operation including, but not limited to, the weather conditions, hazards, description of the incident, operation goals, etc. Operators will ensure that the location for take-off and emergency landing is adequate for a safe operation. The take-off/landing area should be clearly marked and identifiable and at least one emergency landing area identified. Operators will ensure that they are aware of their surroundings in the event that an emergency landing is necessary. This includes the ability to recover the UAS.

Checklists

- ◆ Operators shall utilize [Form 1.3 Pre-Flight Checklist](#) to ensure the highest level of safety for operations.

Maintenance

- ◆ Although there are few parts on the UAS that need servicing, it is important to follow the manufacturer's maintenance schedule and properly document any maintenance performed. Forward any issues not resolved by routine maintenance procedures to the manufacturer or approved dealer for further technical support using [Form 1.5 Small Unmanned Aircraft Systems \(sUAS\) Maintenance Report](#).
- ◆ Operators and Observers will ensure that there are no items attached to the sUAS prior to flight that are not required for safe.

Crash/Accident

- ◆ In the event of a sUAS crash or accident, the pilot in command (PIC) shall complete a [Form 1.6 Small Unmanned Aircraft Systems \(sUAS\) Crash Report](#) and forward it to the UAS Program Manager.

Data Retention

- ◆ Any collected images, video, and data will be protected, retained, and stored in accordance with agency records retention requirements.
- ◆ It is the responsibility of the RPIC to ensure proper use and distribution of all photography and video produced from a UAS mission.
 - Data will only be collected for use that is consistent and relevant to the mission
 - RPICs will make every attempt to limit coincidental collection of data outside the mission area
 - UAS data collection will be performed in a manner consistent with federal, state, and local laws
 - UAS data, for the purpose of law enforcement proceedings, are not addressed in this operational guide
- ◆ Written pre-approval from the DOF Public Information Officer is required for all requests from external customers for sUAS photography and/or video before delivery to the requesting party.
- ◆ All photography and video from each mission (that requires data retention) will be moved from the UAS and stored locally on the RPICs computer or external hard drive. For all flights, create a folder using the landowner name, property name, or fire name.

Media Requests

- ◆ Inquiries from the news media will be forwarded to the DOF Director of Communications. Operators and Observers shall follow currently established policy regarding interactions and inquiries from the media.

- ◆ Document and refer all complaints or inquiries regarding sUAS operations to the sUAS Program Manager or designee.

sUAS Systems and Use

Currently DOF owns nine different models of sUAS, with a total of thirty-eight drones. However, we are staggering sixteen of these drones out and replacing them with sixteen drones.

- ◆ DJI Phantom 4 Pro v.2.0 and DJI Mavic 2 Pro are good for all projects, especially mapping.
- ◆ DJI Mavic 2 Zoom is good for most projects, especially ones needing close-up view while flying.
- ◆ DJI Mavic 2 Enterprise Dual is good for all projects, especially fire related as this one has a FLIR thermal camera.
- ◆ DJI Mavic Air 2 is good for most projects, but not for traditional mapping.
- ◆ Autel EVO II 640 T is good for all projects, especially fire related as this one has a FLIR thermal camera.
- ◆ Autel EVO II PRO V3 is good for most projects, but not for traditional mapping.
- ◆ DJI Matrice 600 Pro with IGNIS is good for prescribed fire and wildfire in the Western Region.
 - Region contacts for this model are:
 - Russell Proctor and Jon Perry
- ◆ ALTA X with IGNIS is good for prescribed fire and wildfire in the Central and Eastern Regions.
 - Region contacts for this model are:
 - Central Region: Chad Stover; Eastern Region: Heather Tuck

FAA Certified sUAS Pilots

- ◆ DOF has twenty FAA certified sUAS Pilots. Please contact District Foresters for local sUAS Pilots. HQ program areas:
 - Forest Health Program
 - Lori Chamberlin – 434-220-9026
 - Katlin Dewitt – 434-220-9060
 - Urban and Community Forestry Program
 - Lara Johnson – 434-220-9185
 - GIS Program
 - Jim Pugh – 434-987-8088

AUTHORITY

This policy and procedure is issued by the Virginia state forester.

INTERPRETATION

The assistant director of planning, chief of fire and emergency response and deputy state forester are responsible for the interpretation of this policy and procedure.

APPROVAL

I certify that this policy and procedure is approved and ready for publication.

Jason Braunstein

Assistant Director of Planning Name (Print)

DocuSigned by:

Jason Braunstein

10/17/2023

Assistant Director of Planning Signature

John Miller

Chief of Fire and Emergency Response Name (Print)

DocuSigned by:



10/17/2023

Chief of Fire and Emergency Response Signature

Ed Zimmer

Deputy State Forester Name (Print)

DocuSigned by:



10/18/2023

Deputy State Forester Signature