UAV Operations Policy
Department of FNR Properties

The primary use of UAVs on the properties is for natural resource teaching, extension, research and management but other student/faculty UAV projects can use with special permission from property managers.

The purpose of this document is to specify the rules for UAV operation and the procedures for obtaining permission to fly at one or more of the FNR properties.

The Document contains:

- Rules
- Flight operations procedure
- Restricted airspace on FNR properties
- Accident report form
- FAA 107 Rules

**Rules**

- Pilots must possess a FAA part107 remote pilots license or be supervised by a licensed 107 remote pilot.
- Aircraft must be registered with FAA.
  [https://drone-registration.net/faa-drone-registration/](https://drone-registration.net/faa-drone-registration/)
- Submit required UAV information to Purdue Risk Management.
  [https://www.purdue.edu/business/risk_mgmt/drone_UAS_procedure/](https://www.purdue.edu/business/risk_mgmt/drone_UAS_procedure/)
- Maximum Weight 55 lbs.
- Aircraft must remain within line of sight of the Pilot in Command (PIC) or Visual Observer (VO) at all times
- Visual observer (VO) are recommended but not required
- Maximum altitude: 400 ft. about ground level
- Do not fly over areas where people are present (not associated with the flight) unless special waiver is granted
- Daytime flights only unless special waiver from FAA is granted
- Ensure airspace does not require ATC approval
- No recreational flying, stunt flying, or racing.
- Emergency Procedures
  - Call 911 for police, fire, or rescue response
  - Contact the property manager
- In the event of a crash, the recovery protocols are:
  - Outside FNR property boundaries
    - Obtain owner’s permission before trespassing on their property
  - Within FNR property boundaries
    - Recover all the pieces and debris
    - In all cases, file an accident report with the property manager
- In the event of “loss of Link” for a manual controlled aircraft, the aircraft must go to “fail safe” mode and circle over FNR property until the link is recovered or power runs out.
- In the event of a “FLY AWAY” of a UAV under autopilot control:
  1. Take manual control through the radio control transmitter
  2. Take manual control through Ground Station Control
  3. Initiate loss of link strategy by circling over FNR property until the link is recovered or power runs out.
Flight Operations Procedure

1. Fill out property use request for research/teaching/extension project.  
   https://ag.purdue.edu/fnr/Pages/properties.aspx  
   - Indicate the UAV is being used  
   - This only needs to be filled once to get approval for the project.

2. Day before each flight.  
   - UAV Flight Operations Request need to be filled out for each flight.  
     https://ag.purdue.edu/fnr/Pages/properties.aspx (look for flight operations button)  
   - FAA 107 license # will be needed  
   - Pilot in command will check they are not in restricted airspace  
   - Property manager will contact you only if there is a conflict with flight plan.

3. Day of Flight  
   - Pilot in command will ensure the flight area is free of farm or research personnel  
   - Flights will then be performed following all FAA part 107 guidelines

Reasons for UAV Flight operations procedure:  
Our FNR properties close to campus are used heavily for teaching, extension, and research. Martell in particular has the greatest potential for airspace conflict or flying over class labs/researchers unknowingly due to forest matrix of the property. Martell also has a good number of houses adjacent to the property line so consideration of privacy is important. The procedures were created with minimal effort on pilot’s part in mind and to keep flights flowing to take advantage of fly windows but allow for some communication and planning to avoid an incident that could have significant impacts on protocols at a higher university level.
FNR Restricted Air Space

Lugar Farm is right in the flight approach of airport and is **0 foot** ceiling. No flying without COA.

McCormick Woods and Stewart woods are 200 foot or lower. Martell is maximum of 400’ ceiling.

The zero altitude block will require a Certificate of Authorization/Waiver (COA). The other blocks will require Airspace Authorizations up to those annotated altitudes. If they want to fly higher then these blocks will also require a COA.

Go to website for more information on restrictions.  [https://arcg.is/1fqr80](https://arcg.is/1fqr80)

There is also an Airmap application that can be downloaded that georeferenced your location and provides any restrictions.
FNR UAV Flight Operations Procedure

Before flying, complete form below and present to FNR property manager. Check to ensure that flying activity will not conflict with other UAV operations in the flight area.

DATE ______________________

Name: ______________________ FAA 107 license #: ______________________

Phone: ______________________ Email: ______________________

Purpose of this UAV flight operation: ______________________

____________________________________________________________________

____________________________________________________________________

Do you have permission to fly at the property (property name): ___________ YES/NO ______

Over what areas/compartments will you be flying: ______________________

____________________________________________________________________

What is your estimated start time: ___________ finish time: ___________

Pilot In Command: ______________________ Cell #: ______________________

Visual Observer: ______________________ Cell #: ______________________
Accident Report

UAV Operation

Pilot In Charge Name: ___________________ Phone: ___________ Email: ________________

Date: ___________ Time: ___________ Location: ________________________________

Weather conditions:

________________________________________________________________________

Equipment: __________________________________________________________________

Personnel on site, and duties during flight:

________________________________________________________________________

________________________________________________________________________

Description of accident:

________________________________________________________________________
Cause of accident:

Remedial actions to prevent future accident:

Date:__________ Signature:_____________________________
### Operational Limitations

- Unmanned aircraft must weigh less than 55 lbs. (25 kg).
- Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the remote pilot in command and the person manipulating the flight controls of the small UAS. Alternatively, the unmanned aircraft must remain within VLOS of the visual observer.
- At all times the small unmanned aircraft must remain close enough to the remote pilot in command and the person manipulating the flight controls of the small UAS for those people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses.
- Small unmanned aircraft may not operate over any persons not directly participating in the operation, not under a covered structure, and not inside a covered stationary vehicle.
- Daylight-only operations, or civil twilight (30 minutes before official sunrise to 30 minutes after official sunset, local time) with appropriate anti-collision lighting.
- Must yield right of way to other aircraft.
- May use visual observer (VO) but not required.
- First-person view camera cannot satisfy “see-and-avoid” requirement but can be used as long as requirement is satisfied in other ways.
- Maximum groundspeed of 100 mph (87 knots).
- Maximum altitude of 400 feet above ground level (AGL) or, if higher than 400 feet AGL, remain within 400 feet of a structure.
- Minimum weather visibility of 3 miles from control station.
- Operations in Class B, C, D and E airspace are allowed with the required ATC permission.
| • Operations in Class G airspace are allowed without ATC permission. |
| • No person may act as a remote pilot in command or VO for more than one unmanned aircraft operation at one time. |
| • No operations from a moving aircraft. |
| • No operations from a moving vehicle unless the operation is over a sparsely populated area. |
- No careless or reckless operations.
- No carriage of hazardous materials.
- Requires preflight inspection by the remote pilot in command.
- A person may not operate a small unmanned aircraft if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS.
- Foreign-registered small unmanned aircraft are allowed to operate under part 107 if they satisfy the requirements of part 375.
- External load operations are allowed if the object being carried by the unmanned aircraft is securely attached and does not adversely affect the flight characteristics or controllability of the aircraft.
- Transportation of property for compensation or hire allowed provided that:
  - The aircraft, including its attached systems, payload and cargo weigh less than 55 pounds total;
  - The flight is conducted within visual line of sight and not from a moving vehicle or aircraft; and
  - The flight occurs wholly within the bounds of a State and does not involve transport between (1) Hawaii and another place in Hawaii through airspace outside Hawaii; (2) the District of Columbia and another place in the District of Columbia; or (3) a territory or possession of the United States and another place in the same territory or possession.
- Most of the restrictions discussed above are waivable if the applicant demonstrates that his or her operation can safely be conducted under the terms of a certificate of waiver.

### Remote Pilot in Command Certification and Responsibilities

- Establishes a remote pilot in command position.
- A person operating a small UAS must either hold a remote pilot airman certificate with a small UAS rating or be under the direct supervision of a person who does hold a remote pilot certificate (remote pilot in command).
- To qualify for a remote pilot certificate, a person must:
  - Demonstrate aeronautical knowledge by either:
    - Passing an initial aeronautical knowledge test at an FAA-approved knowledge testing center; or
    - Hold a part 61 pilot certificate other than student pilot, complete a flight review within the previous 24 months, and complete a small UAS online training course provided by the FAA.
  - Be vetted by the Transportation Security Administration.
  - Be at least 16 years old.
- Part 61 pilot certificate holders may obtain a temporary remote pilot certificate immediately upon submission of their application for a permanent certificate. Other applicants will obtain a temporary remote pilot certificate upon successful completion of TSA security vetting. The FAA anticipates that it will be able to issue a temporary remote pilot certificate within 10 business days after receiving a completed remote pilot certificate application.
- Until international standards are developed, foreign-certificated UAS pilots will be required to obtain an FAA-issued remote pilot certificate with a small UAS rating.
A remote pilot in command must:

- Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the rule.
- Report to the FAA within 10 days of any operation that results in at least serious injury, loss of consciousness, or property damage of at least $500.
- Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is in a condition for safe operation.
- Ensure that the small unmanned aircraft complies with the existing registration requirements specified in § 91.203(a)(2).

A remote pilot in command may deviate from the requirements of this rule in response to an in-flight emergency.

| Aircraft Requirements | • AA airworthiness certification is not required. However, the remote pilot in command must conduct a preflight check of the small UAS to ensure that it is in a condition for safe operation. |
| Model Aircraft | • Part 107 does not apply to model aircraft that satisfy all of the criteria specified in section 336 of Public Law 112-95.  
• The rule codifies the FAA’s enforcement authority in part 101 by prohibiting model aircraft operators from endangering the safety of the NAS. |