

# Unmanned Aircraft Systems and their uses in environmental law

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# Topics To Be Discussed

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1. What are Unmanned Aircraft Systems (“UAS” or “Drones”)
2. How are UAS being used?
3. How can you utilize drones effectively for environmental purposes?
4. What are the regulations governing UAS operations?
5. What are the hot legal issues associated with using drones?
6. What can you do if a drone is used to surveil you?

# What are Unmanned Aircraft Systems?

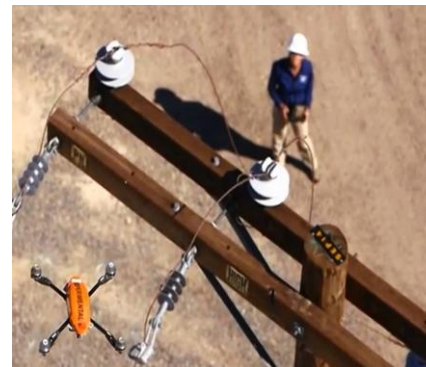
- UAS covers unmanned powered aerial vehicles including fixed wing and quadcopter
- Originally developed by the military in the 1950s
- Used since 2008 for search and rescue
- Civilian use has recently taken off





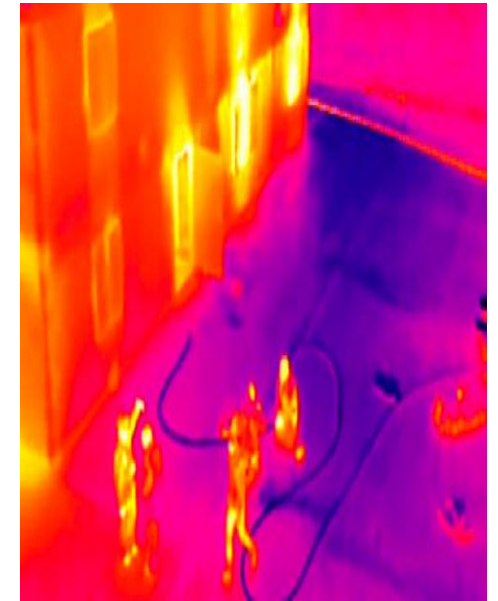
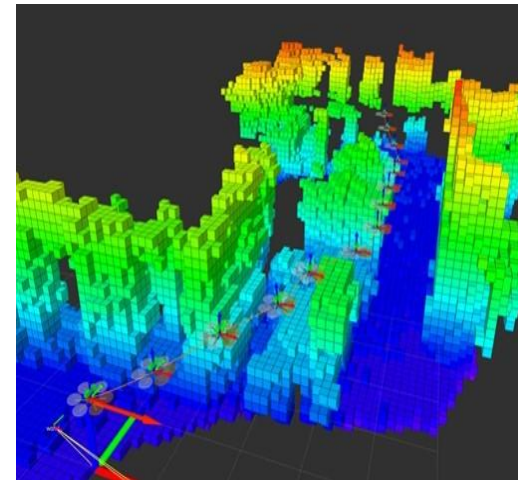
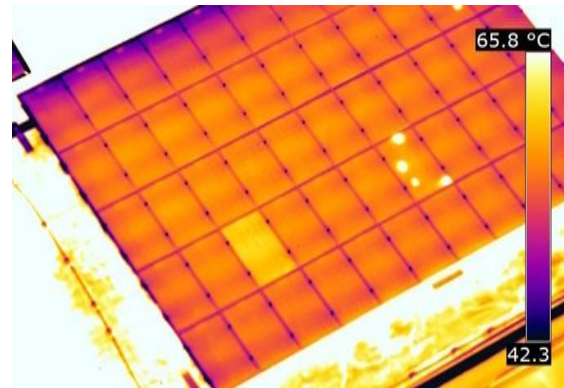
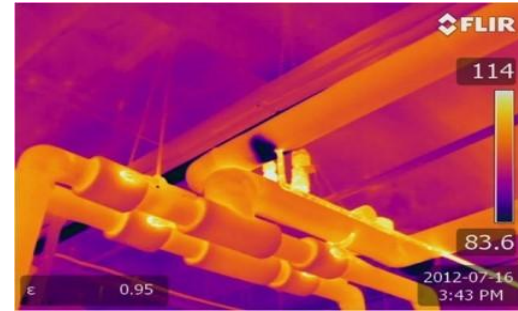
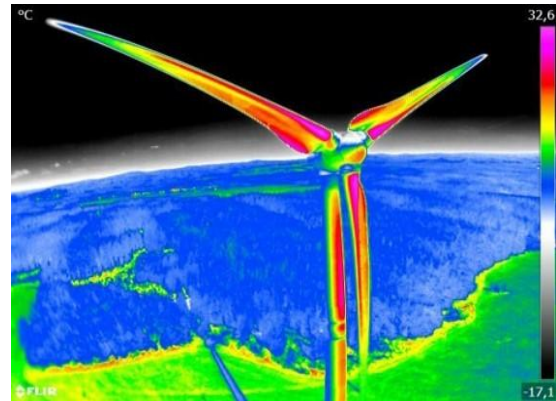
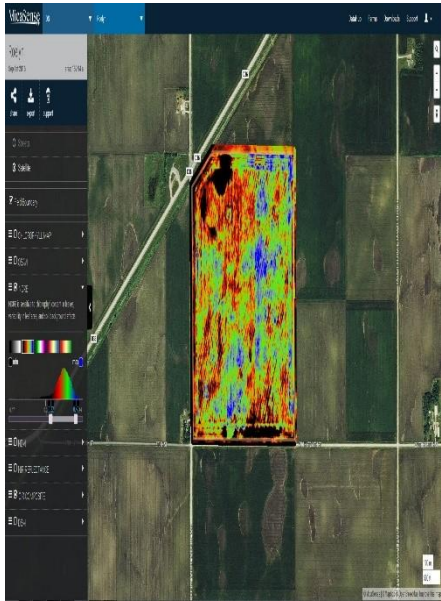
# How are Small Civil UAS being used?

- Real Estate/Construction
- Agriculture/Ranching
- News Gathering/Media
- Security
- Photography/Film & TV
- Utility Inspection & Maintenance
- Emergency Response
- Mining (Gold, Silver, Copper)
- Insurance Claims Assessment
- Sports



# Advanced Technologies

Lidar, Thermography, Photogrammetry, 3D and Orthomosaic Imagery





# UAS for Environmental Purposes

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## Inspections

- Inspections of dangerous or difficult-to-reach areas, such as pipeline or tank inspections
- Waste pile inspections
- Mapping

## Emergency responses

- Evaluating size and scope of releases in air and water
- Identify breaches

## Monitoring

- Sample collection (air, water)
- Visible emissions monitoring
- WOTUS delineations



# UAS Use in Agriculture Ind

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## Agriculture Management Decision-Making

- Collection of aerial imagery to assess plant health/growth
- Diagnose problems – insect damage, disease, weed infestation
- Precision application of seeds, fertilizers, chemicals, irrigation

## Planning and Routine Maintenance and Inspection of Irrigation System, Buildings/Infrastructure

Emergency Response to Storm Damage, Security, Vandalism, Assess damages and crop loss percentages



# Benefits of Using a UAS

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- Safer & potentially less expensive (than other aircraft/direct contact)
- Work generally performed more expeditiously
- Useful for work involving the “3-Ds” (dangerous, dull, or dirty)
- Available on short notice and at lower altitudes
- Provides more/closer angles of review, better imagery resolution
- Recorded data available immediately, storable and can be used by numerous departments (*i.e.*, material needs, planning, construction)
- Technology is constantly refined for unique industry needs



# Old Rules: Square Peg, Round Hole

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- The FAA initially treated UAS like any other aircraft and required compliance with all “manned” aircraft requirements
- **Problem:** UAS are inherently different from “manned” aircraft, existing regulations jeopardized US role as world leader in UAS technology. →  
**FAA Modernization and Reform Act of 2012**
- **Interim Solution:** In 2015, the FAA: 1) Issued Proposed Rulemaking for Small UAS; and 2) Developed a streamlined interim process for entities to obtain exemptions (Section 333 and Section 334) from certain existing FAA regulations.
- **Final Rule** – New Part 107 specifically for Small Unmanned Aircraft

# FAA UAS Rulemaking

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- **Proposed Rule:** *Operation and Certification of Small Unmanned Aircraft Systems*, Notice of Proposed Rulemaking, 80 F.R. 9544 (Feb. 23, 2015)
  - Issued - February 15, 2015
  - Received over 4,500 comments
- **Final Rule:** *Operation and Certification of Small Unmanned Aircraft Systems*, 81 Fed. Reg. 124 (June 28, 2016); codified at 14 C.F.R. §107
  - Issued - **June 21, 2016**
  - Effective - **August 29, 2016**

# Part 107 – Operator Requirements

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- Hold a Remote Pilot Airman Certificate with a small UAS rating and demonstrate aeronautical knowledge by either:
  - Passing an Aeronautical Knowledge Test (every 2 years) or
  - Having a Part 61 Pilot Certificate (with flight review within last 24 months) and completing a UAS online training course
- Vetted by TSA
- Be at least 16 years old
- Physical/mental health cannot adversely interfere with safe operations of UAS



# Part 107 - Operator Responsibilities

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- Must register UAS prior to flight & ensure aircraft markings
- Must conduct preflight inspections of UAS aircraft and station
- Must make UAS documents/records available to FAA upon request
- Must report accidents involving serious injury, loss of consciousness or damage to property (>\$500) to FAA within 10 days
- Check local privacy laws before gathering information
- No careless or reckless operations

# Part 107 - Operational Limitations

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**Less than 55 pounds with payload**

**Within unaided visual line of sight** of remote pilot in command or visual observer

**No flights over uninvolved persons** unless under covered structure or inside a stationary vehicle

**No operations from moving aircraft**

**No operations from moving vehicle** unless in sparsely populated area

**One pilot/visual observer per UAS**

**No carriage of hazardous material**

**Carrying load permissible** if secured and doesn't impact controllability

**Transporting property for hire permitted** but limited to intrastate operations (not permitted in DC or Hawaii)

# Part 107 - Operational Conditions

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- Daylight hours (or 30 min before or after sunrise/sunset with anti-collision lighting)
- Minimum visibility of 3 miles
- Below 400 feet above ground (or structure)
- Less than 100 MPH (87 knots)
- Yield to aircraft
- Permitted in Class B, C, D & E airspace with ATC permission only
- Permitted in Class G airspace without ATC permission



# What's Next? **Keeping the Forward Momentum**

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- **FAA to Issue More Rulemaking** – Micro UAS, Flights over People, BVLOS...
- **UAS Pathfinder Program** is continuing to provide tests and research in key areas (CNN, PrecisionHawk, and BNSF pushing beyond line of sight and operation over people, airport integration and counter UAS technology)
- **UAS Advisory Committee:** committee composed of top members of the industry to advise the FAA on issues of safety, traffic management and technology integration.

# Hot Legal Issues

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- Preemption – Who’s in charge:
  - FAA: Safety of all U.S. airspace
  - State: Police powers govern safety and general welfare of citizens
- Privacy
  - FAA didn’t include privacy rules in its regulations
  - Recent case seeking to require FAA position on privacy struck down
- Security and Counter-UAS Technology
  - Congress directed the FAA to establish a “critical infrastructure” designation to preclude flights over included facilities and/or add penalties for violations
  - Has not been developed yet
  - For practical purposes, difficult to police because of advancements in technology

# Hot Legal Issues: Misuses of Small UAS

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## **First Enforcement Action – Ralph Pirker (\$10,000)**

- Operating an unregistered aircraft
- Operating in careless or reckless manner in close proximity to people and structures, including the flight path of UVA Medical School helipad

**Result:** Settled for \$1,100

## **Largest Civil Penalty- SkyPan International (\$1.9 million)**

- FAA alleges 65 unauthorized flights/260 violations in NYC and Chicago
- Operating an unregistered aircraft in a careless or reckless manner
- Operating in airport space without: 1) clearance; 2) two-way radio; and 3) altitude reporting equipment

**Result:** Settled \$200,000 civil penalty (\$150,000 if it violates any FAA regulation in 2017 and \$15,000 more if fails to comply with settlement)



# Hot Legal Issues

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- Enforcement parameters include civil and criminal penalties and revocation of certificate:
  - Penalties of up to \$25,000 per violation - 49 U.S.C. § 46301
  - Prison sentence of up to 20 years - 18 U.S.C. § 32(a)(8)
- Privacy, Data Collection, Storage and Security Issues
- Preemption Issues
- Insurance Coverage Issues

# Being surveilled by a drone?

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## Evaluate

- Can the drone impact the safety or security of the facility or employees?
- Do you know who is operating it? Talk to them. Try to track them down.

## Report

- Report to Regional Office of FAA
- Report to local police department

## Do not –

- Shoot it down
- Taunt it



# Questions?

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THANK YOU!



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