



DRONES IN SILVICULTURE

Jake's Drone Wish List



Realistic Reforestation Wish List

- ▶ Licensed
- ▶ Efficient Aircraft
- ▶ Planting
- ▶ Seedling Ferrying
- ▶ Spraying (Broadcast and Precision)
- ▶ Mapping



Navigating the Right Permits/Licenses

Waiver/Airspace Authorization

You must select at least one regulation subject to waiver or airspace authorization.

Regulation subject to airspace authorization

- 107.41 Operation in certain airspace

Regulations subject to waiver

- 107.25 Operations from a moving vehicle or aircraft
- 107.29 Daylight operation
- 107.31 Visual line of sight aircraft operation
- 107.33 Visual observer
- 107.35 Operation of multiple sUAS
- 107.37(a) Yielding the right of way
- 107.39 Operation over people
- 107.41 Operation in certain airspace
- 107.51(a) Operating limitations: ground speed
- 107.51(b) Operating limitations: altitude
- 107.51(c) Operating limitations: minimum visibility
- 107.51(d) Operating limitations: minimum distance from clouds

How do you plan on using your sUAS?

Just for fun, educational or recreational flying.



NO Remote Pilot Certificate Required



Operators must adhere to Public Law 112-95, Section 336 – Special Rule for Model Aircraft. FAA Interpretation of the Special Rule for Model Aircraft



Safety Guidelines:

- Fly at or below 400 feet
 - Keep your UAS within sight
 - Never fly near other aircraft, especially near airports
 - Never fly over groups of people
 - Never fly over stadiums or sports events
 - Never fly near emergency response efforts such as fires
 - Never fly under the influence
- Be aware of airspace requirements

Commercial use, flying for work.



Remote Pilot Certificate is Required.



Do you have a pilot's license issued under Part 61?



YES

NO



You are required to complete the FREE Part 107 sUAS online training course or pass a knowledge test.

You are required to pass an initial FAA sUAS aeronautical knowledge test.



Submit your training course completion certificate or knowledge test results along with form 8710-13 to the FAA administrator.



A temporary remote pilot certificate will be issued and is valid for up to 120 calendar days. A permanent certificate will be mailed to you.



Commercial use operators must adhere to rules and regulations outlined in Title 14 CFR Part 107. You can find these regulations in the ASA 2017 FAR/AIM

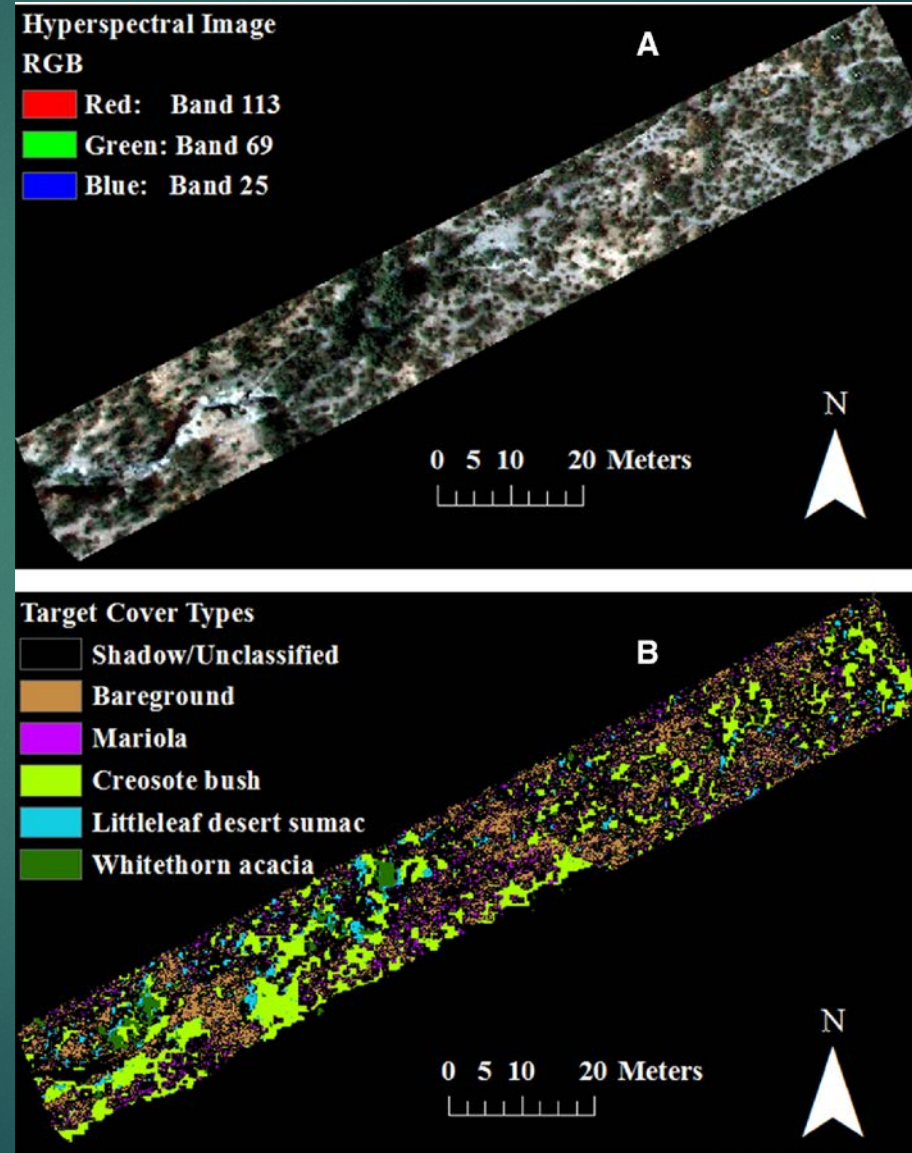
Efficient Aircraft

- ▶ Where to find it
 - ▶ Walmart's drone aisle will not have what you're looking for.
- ▶ Equipment is custom built
 - ▶ Confirm compliance with existing laws regarding desired use.
 - ▶ Work with regulatory entities vetting new techniques before you launch



Combining the Right Equipment

- ▶ Hyperspectral image mapping vegetation
- ▶ LiDAR used to map terrain
- ▶ Accurately mapped protected resources can reduce risk
- ▶ Mapping targets and omitting areas not needing treatment reduces cost



Planting Trees with Drones

- ▶ Wildfires are not planned, so you probably don't have the required seedlings at your nurseries.
 - ▶ Deploy the seed in your freezer.
- ▶ The race against competing vegetation is costly.
 - ▶ Replanting or additional herbicide
- ▶ Deploy seed as soon as the ground cools in the fall.
 - ▶ Pelleted seeds stratify over the winter and germinate in the spring
 - ▶ Mapping the sites reduces wasted seeds or hitting unplantable areas



Ferrying Seedlings to Planting Crews

- ▶ Reduces costs where dedicated tree packers are needed
 - ▶ Crew is planting instead of hiking
 - ▶ Reduces seedling stress exposure
- ▶ Improves productivity
 - ▶ Fly trees with pinpoint accuracy when they are needed
 - ▶ Fly food and water so planters don't have to pack them



Broadcast and Precision Herbicide Applications

- ▶ Drone Precision Spray Application
 - ▶ Areas unsafe for hand spray
 - ▶ Precision application of invasive species and Maple clumps
- ▶ Drone Broadcast Application
 - ▶ Closer to target area than helicopter
 - ▶ Reduced risk to workers than hand spraying
 - ▶ Pilot on the ground instead of in the air



Mapping situations before putting yourself at risk



