

The sky's the limit...

Using drones in the grazing
industry

Josh Keegan



The drones



The drones



The drones



The other “drones”



The other “drones”



The other “drones”



The anti-drone movement



The anti-drone movement



Drones and agriculture



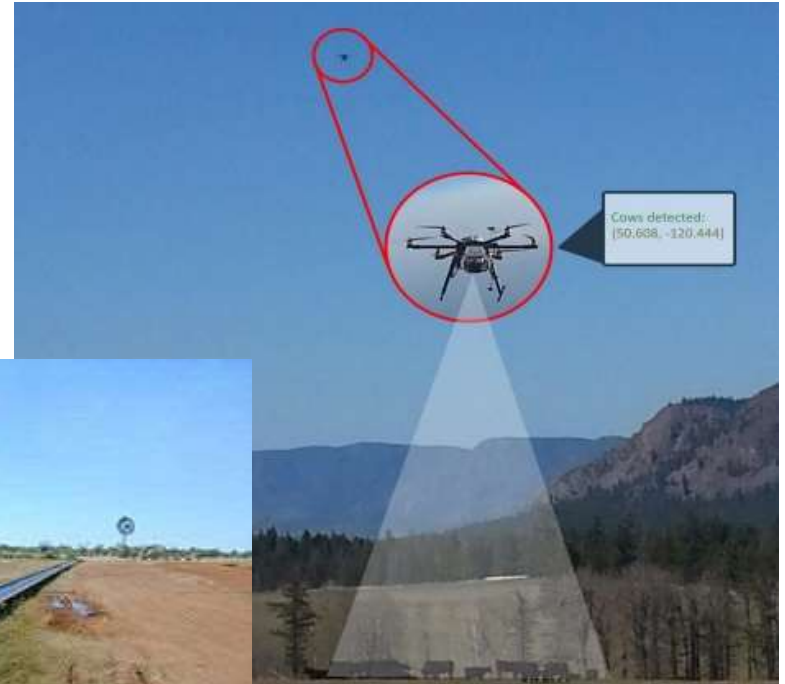
Drones and agriculture



Drones and agriculture



Drones and agriculture



The Legislation – Privacy Act

Privacy Act 1988 does not apply to persons acting in an individual capacity, and therefore does not regulate the use of surveillance drones by individuals, the use of drones is regulated in a number of other ways (Timothy Pilgrim: Australian Privacy Commissioner)

Office of the Information Commissioner Queensland

- Personal information collected or generated using a drone is subject to the obligations in the IP Act relating to the collection, storage, use and disclosure of personal information generally.
- There are also a number of other laws which could potentially apply to the use of drones

The Legislation - CASA

As part of the amendments to Part 101 that came into effect on 29 September 2016, CASA created an excluded category of remotely piloted aircraft, allowing private landowners to carry out some commercial-like operations on their own land with:

- Small RPA (2-25kg), without needing a RPA operator's certificate (ReOC) or a remote pilot licence (RePL)
- Medium RPA (25-150kg) provided they, or the remote pilot, hold an RePL.

This is provided they only operate over the landholder/leaseholder's land, follow the standard operating conditions and none of the parties involved receive remuneration for that work.

WHAT YOU NEED TO DO BEFORE FLYING A SMALL RPA (2-25KG)

1. Go to the CASA website and notify us **five business days before** flying.

- » To notify CASA, you will need an aviation reference number (ARN). If you do not already have an ARN, you will need to apply for one.
- » Your notification is only valid for 24 months, so you will need to re-notify CASA every two years.



You must **not fly over populous areas** where—if your drone was to fail—it could hit someone. This could include beaches, parks, or sport ovals where there is a game in progress.

2. Operate within the **standard operating conditions:**



You must only fly during the day and keep your RPA **within visual line-of-sight**. This means being able to see the aircraft with your own eyes (rather than through first-person-view [FPV]) at all times.

You must not fly your RPA **higher than 120 metres** (400ft) AGL.



You must keep your RPA at least **30 metres** away from other people.

You must keep your RPA at least **5.5km** away from controlled aerodromes.



You must not fly your RPA **over or near an area affecting public safety or where emergency operations are underway** (without prior approval).

This could include situations such as a car crash, police operations, a fire and associated firefighting efforts, and search and rescue.

You must only fly **one RPA at a time**.

Remember, you must not **operate your RPA in a way that creates a hazard** to another aircraft, person or property.



Respect personal privacy
Don't record or photograph people without their consent—this may breach state laws.



IMPORTANT SAFETY INFORMATION

You must only fly during the day and keep your RPA **within visual line-of-sight**.

This means being able to see the aircraft with your own eyes (rather than through first-person-view [FPV]) at all times.



If you are in controlled airspace, which covers most Australian cities, you must **not fly higher than 120 metres**.

You must keep your RPA at least **30 metres** away from other people.



You must **not fly over populous areas** where—if your drone was to fail—it could hit someone. This could include beaches, parks, or sport ovals where there is a game in progress.

You should **not fly within 5.5km** of an airfield



It is **illegal to fly for money or economic reward** unless you have an RPA operators certificate, or you are flying an excluded RPA in the sub-2kg or private landholder category.



Remember, you must not **operate your RPA in a way that creates a hazard** to another aircraft, person or property.

Respect personal privacy
Don't record or photograph people without their consent—this may breach state laws.



The Legislation - CASA



The Legislation - CASA



REMOVEDLY PILOTED AIRCRAFT SYSTEMS

What do you use your RPA for?



SPORT, RECREATION ⁱ
OR EDUCATION



BUSINESS, RESEARCH ⁱ
OR DEMONSTRATION

The content of this module relates to
CASR Part 101 - Unmanned aircraft and rocket operations

<https://www.casa.gov.au/aircraft/landing-page/flying-drones-australia>

Questions/Comments



Fixed Wing vs Rotary

Prices start at \$500

Generally, the higher the payload or the longer the distance, the higher the price



Fixed Wing vs Rotary

Fixed Wing

Advantages	Disadvantages
Longer flight time/larger areas can be covered	Launching/Landing
Simple mechanics making them easier to repair without significant knowledge	Unable to hover to provide closer examination of areas of interest
Heavier payloads using less power	
More operational time	
Not suited to inspection work	



Fixed Wing vs Rotary

Rotary

Advantages	Disadvantages
Ability to take-off and land vertically: no runway required	Lighter payloads requiring more power
Suited to inspection work due to ability to hover (auto-hover)	Less operational time
High manoeuvrability	Mechanically complex
	Increase in operational costs
	Increased safety risk from unprotected blades



The Limitations



Airborne menace that can hit 60mph

- The drone that injured Oscar was a Class 250 quadcopter (pictured)
- '250' refers to the length in millimetres of each of the machine's four rotors
- They can fly up to two-thirds of a mile from the transmitter/controller
- Built from lightweight materials such as carbon fibre or fibreglass, they reach top speeds of 60mph
- A basic drone, receiver and transmitter set up is around £300, double that if using top quality components
- Powered by a rechargeable lithium polymer battery with four rotors and four motors, they can fly for around six minutes at a time
- Can be bought ready-assembled or as individual self-build components
- Last year TV repair shop owner Robert



Knowles from Barrow-in-Furness became the first person convicted in the UK for 'dangerously' flying a drone. He was fined £900 with £3,500 costs

compete in a league organised by newly formed governing body the British FPV (First Person View) Racing Association

- More than 300 companies and public bodies including at least three police forces now have permission to operate unmanned aircraft



QBE

The Limitations



The Limitations



Australian Association of
Unmanned Systems

Other Considerations





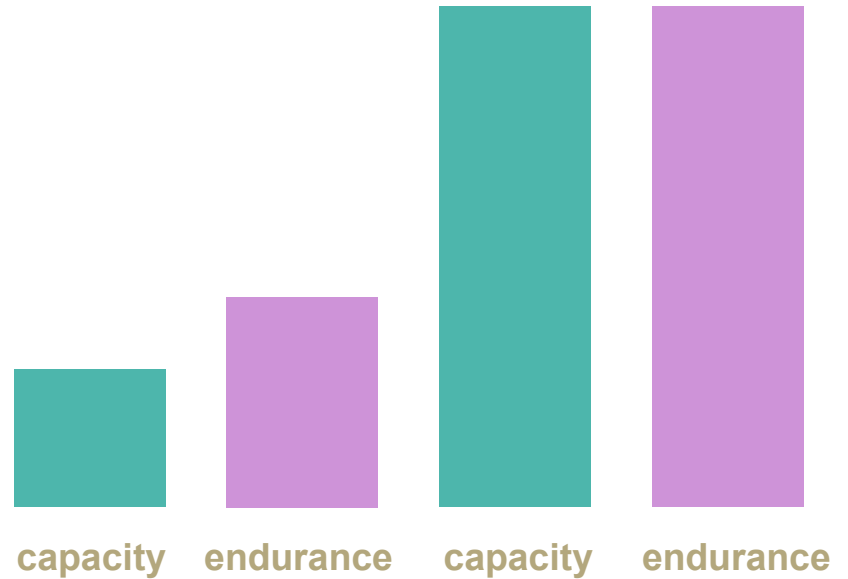
WORLD DRONE CHALLENGE



Drones lack capacity and endurance

For the world to truly benefit from Drones and their capability, an opportunity exists to increase their capacity to carry and overall endurance to deliver the next class of payload (50kg+).

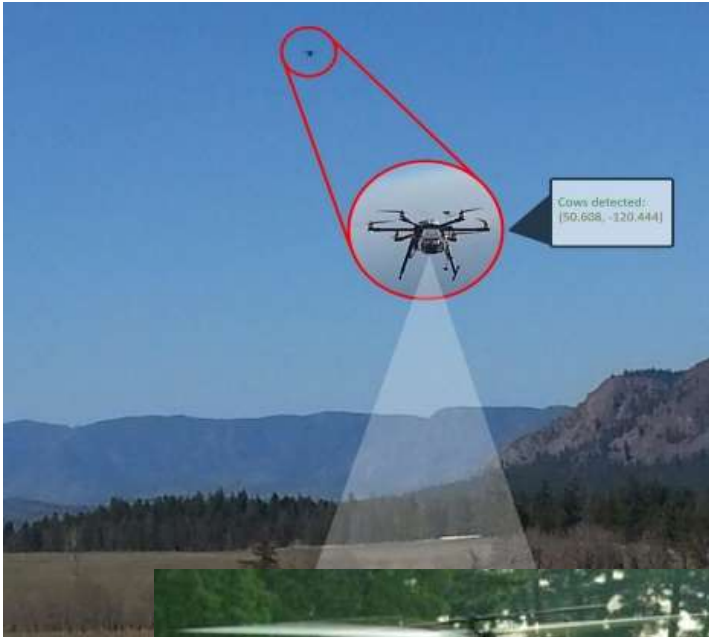
World Drone Challenge



World Drone Challenge



World Drone Challenge



Calling all sponsors!

The World Drone Challenge is looking to attract teams from around the globe to challenge and change existing technology. To do this we are aiming to provide class-leading prizes to attract and retain talent within Queensland.

Major prize - \$100,000 in cash or research grants

Amateur class - \$25,000

High school class - \$10,000

New Technology class - \$15,000

Friends of the Challenge



Further Information

Remote Piloted Aircraft Systems
(RPAS)

Aviation House

GPO Box 2005, Canberra ACT 2601

Ph: 131 757

<https://www.casa.gov.au/aircraft/landing-page/flying-drones-australia>



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WORLD DRONE CHALLENGE

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