



# EYES *in the* SKY

New technologies present new challenges for law makers.

Story: Emma O'Sullivan



**H**e's lost in the bush out of luck, out of water and almost out of time.

Drifting in and out of consciousness he begins to hear a buzzing noise that grows louder by the minute. He opens his eyes just in time to catch a glimpse of a small flying object just a few metres wide, moving in a criss-cross pattern above the forest canopy.

Dumbstruck, he watches as it circles directly above him and releases an even smaller item attached to a parachute.

With a thud, a bottle of water lands in the dirt nearby. This hapless bushwalker has just been saved by an unmanned aerial vehicle, or UAV, remotely operated by a team of experts working furiously to rescue him.

## “The technology is now progressing at such a rate that regulators and legislators risk being buffeted in the slipstream”

This ‘rescue’ was part of the 2012 Outback UAV Challenge, a government and industry initiative aimed at developing and promoting the practical uses of this emerging technology.

Canberra UAV President Stephen Dade was part of the winning team that built, designed and operated the vehicle which successfully found the ‘lost walker’ in bushland near Kingaroy in Queensland.

“The whole point of the challenge is basically showing the ability to demonstrate search and rescue technology in civilian UAVs,” he says.

Stephen is part of a growing number of amateurs who enjoy building and flying UAVs, also known as drones, which are controlled remotely and are often used to capture vision or take photos.

While groups like Stephen's simply enjoy the challenge of pushing their skills to build a sophisticated piece of machinery, what they achieved in the outback challenge can potentially be applied to real-life situations.

But just as the opportunities for this new technology take off, so too do the questions for regulators and law makers as they attempt to get a grip on the ramifications – both good and bad – of these eyes in the sky.

The complex regulatory, safety and privacy issues were debated recently at several roundtable discussions held by the House of Representatives Social Policy and Legal Affairs Committee.

Committee chair George Christensen (Dawson, Qld) recognises that while the advantages are too big to ignore, so too are the potential threats to public safety and personal privacy.

“The economic benefits they bring to the Australian economy are compelling,” he says.

“Drones will play an important role in fields as varied as mining, scientific research, emergency management, policing, media and much more in coming years. However, Australia will have to come to grips with the regulatory problems that remotely piloted aircraft systems raise.”

Judging by the evidence presented to the committee, this challenge will have to be dealt with sooner rather than later.

Well-known ABC journalist Mark Corcoran has been watching the issue closely for several years both for work and as part of a research project he is leading for the Graduate School of Journalism at Sydney's University of Technology. As far as he's concerned a potential UAV user's limits are simply budget and imagination.

“I think that the problem is that the technology is now progressing at such a rate that regulators and legislators risk being buffeted in the slipstream in this stuff,” he says.

“I have been following this for only a couple of years, but I have trouble keeping up with the capabilities and every 18 months it seems the capability doubles and the price halves.”

There is an undeniable popularity among amateur devotees who are rushing to buy whatever they can get their hands on at the local hobby store or online.

Parrott ANZ Pty Ltd is a company which manufactures and sells a vehicle with four propellers which connects by wi-fi back to a smart phone or tablet from where it is controlled. The UAV also has a camera attached. A staggering 500,000 have been sold globally, with Australia its biggest market, according to managing director Chris Roberts.

“This category [of UAV] that we have created is a bit like a cult, it has a big following,” he says. “It is a toy ultimately.

“We created an academy for the product where people can share their flights and experiences. A lot happens on social media.



## “The lack of uniformity means that there is insufficient protection of people’s privacy”

Commercial opportunities are also gradually becoming apparent across a range of industries and for scientific endeavours.

Dale McDowall is business development director with Insitu Pacific, a company which builds, designs and manufactures unmanned aircraft systems. He says it has conducted a number of trials, including one in conjunction with WA’s Murdoch University, to monitor marine life near offshore oil and gas facilities.

“It is to try and understand how we may be able to monitor the population numbers and the species types of various marine mammals such as whales, dolphins, dugongs and turtles and once again over time help that operator understand the impact of their operations on the marine environment,” he says.

While the future of drone technology appears promising, these new advances are also throwing up regulatory difficulties. For example, while a drone might be perfectly capable of finding a lost bushwalker, it can also crash into him. This scenario is entirely possible, especially given a recent case that received much media attention in early April.

According to media reports, triathlete Raija Ogden claimed she was struck in the face by a UAV as she competed in a race, leaving her requiring three stitches to the head. This incident follows another high-profile case which saw a drone crash onto the train lines of the Sydney Harbour Bridge after its owner lost control.

The job of ensuring safety of aircraft, property and people falls to the Civil Aviation Safety Authority. It is responsible for all air safety regardless of the vehicles being used. Whereas those using UAVs commercially are required to be licensed, hobbyists are not.

CASA fined the owner of the Sydney Harbour Bridge incident \$850 and is still investigating Ms Ogden’s case.

There are several rules for anyone operating remotely piloted aircraft, including not flying closer than 30 metres to people and keeping the vehicle in line-of-sight in daylight.

CASA has just begun supplying leaflets of these rules to retailers such as Harvey Norman, to be handed out

“We have a large investment going forward in this category so we have a lot more coming.”

The work of hobbyists such as Stephen Dade are also contributing to this popularity, with the group he belongs to committed to the research and development of civilian UAVs for the greater good.

“I think we’re having a significant impact,” he says. “We’ve made that technology far more accessible for [others] in terms of the software and programs and design which we’ve all published on the internet free of charge.”

While Stephen’s group rescued a fictional bushwalker, authorities are looking at the possibilities in deploying UAVs in situations that are all too real.

Queensland Fire and Emergency Services have been exploring how UAVs can assist fire assessment in both rural and urban situations that are otherwise costly or dangerous.

Assistant Commissioner John Watson says difficulties experienced at a recent fire at a flour mill in the Brisbane suburb of Albion illustrate how UAVs could have greatly assisted.

“Our hydraulic platforms were not able to gain enough access to look inside the building, so it was not for some time that we could do a secondary search of that property to ensure that there were no people inside, whereas the use of a quadcopter or other UAV would give us access to those sorts of events,” he says.

Queensland Police have gone a step further, successfully using a UAV at a siege situation in Banyo, also in Brisbane, which involved two hostages late last year. Operations Coordinator Superintendent Brian Huxley says there is potential to use drones in several other operational contexts such as the forensic examination of major crime scenes.

“Especially outdoor crime scenes such as homicides,” he says.

nationally to consumers when they make a UAV purchase. It has done an initial print run of 100,000.

Deputy director of aviation safety Terry Farquharson says regulators around the world are working out how to ensure there are sufficient and effective safeguards in place.

“These are model aeroplanes but they do have the potential to cause harm and that’s something we are grappling with,” he says.

One of CASA’s main concerns is the fact that they are not built to a specific standard like other manned aircraft, as aviation director John McCormick explains.

“So their ability to maintain altitude, their ability to maintain heading, their ability to suffer equipment failure and then not crash have not been established,” he says.

For hobbyist Stephen Dade, safety is of the utmost priority and he believes education will be the key to ensuring the ever growing number of users behave responsibly and are aware of the rules.

“You have to focus on educating the pilots of those aircraft as to – this is how you fly safely, this is how you do things like pre-flight checks, this is how you monitor your aircraft during the flight and these are the actions you should take during the flight,” he says.

But as the committee heard, the challenge for regulators are not people like Stephen who are keen to set a good example, but those who are ignorant of the rules or unwilling to obey them.

Brad Mason is the secretary of the Australian Certified UAV Operators Association which has 23 commercial members, all certified by CASA.

“From our perspective, what we are seeing is that there is a lot of illegal and unauthorised use of UAVs. We understand the regulator is doing its best to try and combat that but, unfortunately, as the [CASA] director mentioned before, they are so easily available and cheap to buy.

“A lot of those people are coming from a non-aviation background too, so they do not have an aviation knowledge set. We would like to work closer with the regulator in how we can combat that.”

Since the committee held the roundtable discussions, CASA has released some proposed changes to current rules and regulations for public discussion. They include clarifications to current requirements for remote pilot training and certification and simplifications to the approval process. Drones weighing less than 2kg will not normally require certification or approval to operate.

CASA is looking at a preliminary date of mid this year to implement the changes.

While CASA continues to tackle the safety challenges, others are looking at privacy implications.

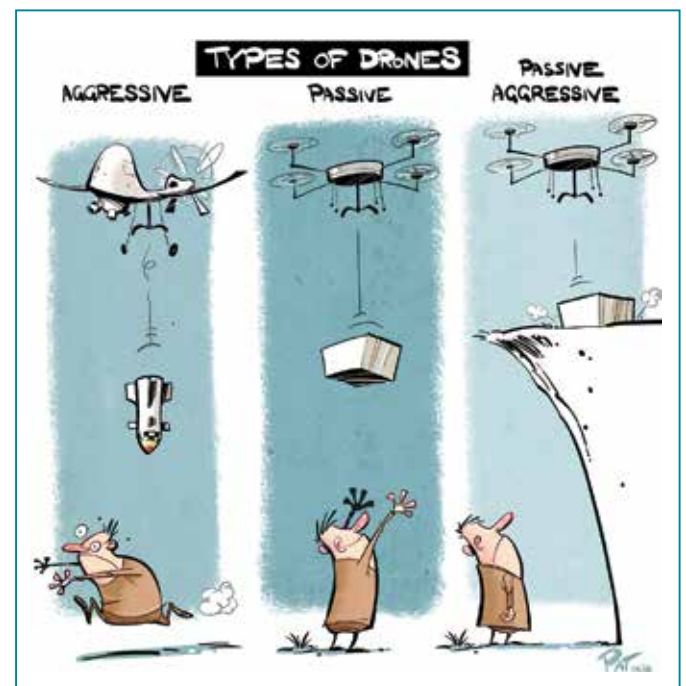
Across the country there are numerous laws at a state and federal level which cover privacy, trespass, harassment and surveillance issues. There are also rules surrounding the collection of personal data.

But for this new technology, Privacy Commissioner Timothy Pilgrim says he is concerned about the current state of play.

“What I do not think we do have – and I would be the first to admit this from my position – is a completely clear understanding of whether those laws as they currently exist are going to do the job, or whether because of the patchwork nature of some of those laws, there are going to be gaps which need to be filled when we take into account how these new technologies can be used within the community,” he says.

The Australian Law Reform Commission’s Professor Barbara McDonald agrees that the ‘patchwork’ of laws is an issue that must be addressed.

“At the moment the lack of uniformity means that there is insufficient protection of people’s privacy, because people do not know what is against the law and what is not. But it is also insufficient protection for organisations like those in the media,” she says.



The commission has since outlined a proposed remedy in a recent discussion paper on serious breaches of privacy in the digital era, which involves a new tort of privacy. If such a proposal was put into law, a person could sue for a serious invasion of privacy, if their ‘seclusion or private affairs’ were intruded upon, or if private information about them was misused or disclosed. A final report from the commission was due to be handed to the Attorney-General by mid-year.

As with many technological leaps in history, progress often brings unforeseen complications. With future implications arising from UAV use now a constant issue on the horizon, many eyes will be scanning it, hoping sensible hands will keep a steady hold of the controls to ensure a safe landing. ■

#### LINKS

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