An aerial, black and white photograph of a rugged, mountainous landscape, likely a battlefield. The terrain is characterized by sharp ridges, deep valleys, and rocky outcrops. A large, dark silhouette of a drone is superimposed over the center of the image, flying from the left towards the right. The lighting is dramatic, with bright highlights on the peaks and deep shadows in the valleys, creating a stark and somber atmosphere.

# **BACK FROM THE BATTLEFIELD**

**DOMESTIC DRONES IN THE UK**

# May 2014

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## Author

Chris Jones  
chris@statewatch.org

## Design and layout

Chris Browne  
chris.j.r.browne@gmail.com

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More information:

[www.statewatch.org](http://www.statewatch.org) | [office@statewatch.org](mailto:office@statewatch.org)  
0207 697 4266  
PO Box 1516, London, N16 0EW

## Drone Wars UK

Drone Wars UK is a small British NGO, founded in the spring of 2010, to undertake research, education and campaigning on the use of Unmanned Aerial Vehicles and the wider issue of remote warfare. Drone Wars UK has become recognised internationally as a credible and reliable source of information on the use of drones and unmanned technology. The research and information produced by Drone Wars UK is used by journalists, NGOs, lawyers, human rights organisations, campaigners and the general public. Drone Wars UK has been one of the key voices publicly expressing serious concerns about the expansion of this new way to wage war.

More information:

[www.dronewars.net](http://www.dronewars.net) | [info@dronewars.net](mailto:info@dronewars.net)  
01865 243688  
Peace House, 19 Paradise Street, Oxford, OX1 1LD

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# Preface

## Boomerang effect

The issue of drones has for some time been high on the public agenda, largely due to their controversial use by the UK and US in the war in Afghanistan and in the US programme of “targeted killings” in Pakistan, Somalia and Yemen.<sup>1</sup> The issue of the use of drones domestically has also been the topic of media reports, perhaps most notably around the time of the London Olympics. Although drones were initially largely developed for military use, companies producing the technology are increasingly looking towards the ‘domestic’ market, and private firms, public authorities and individuals are increasingly interested for purposes ranging from law enforcement to personal entertainment.

The uses suggested for drones by their proponents are seemingly endless. A study produced for the European Commission (which has its own ambitious plans to introduce European regulations allowing unfettered flight for drones weighing above 150kg by 2028)<sup>2</sup> suggested

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1. Drones are typically aircraft – although land and sea-based vehicles are in development – without a human pilot on board. They may be controlled remotely, or operate semi- or fully-autonomously. The formal terminology tends to refer to Remotely-Piloted Aerial Systems (RPAS) or Unmanned Aerial Systems (UAS) when referring to vehicles and ground control stations, and Remotely-Piloted Vehicles (RPV) or Unmanned Aerial Vehicles (UAV) when referring simply to vehicles. Senior UK military figures and numerous industry representatives have expressed annoyance at the use of the term drone, seeing it as pejorative and giving the impression of ‘out-of-control robots’. Here the term ‘drone’ is used for ease of reading and for convenient shorthand to encompass both vehicles and associated control systems, unless otherwise stated.

2. Ben Hayes, Chris Jones and Eric Töpfer, ‘Drones and the European Union: a lobbyist’s paradise’ in *Eurodrones Inc.*, February 2014, pp.10-23, <http://www.statewatch.org/eurodrones>



drones could be used for law enforcement, border control, forest fires, emergency rescue, oil and gas industry distribution, environmental monitoring, crop spraying, aerial photography and filming and network broadcasting, amongst other things.<sup>3</sup> These markets are estimated to be worth hundreds of billions of pounds in total, but are yet to be brought into existence: regulatory restrictions, in place largely because of a lack of reliable safety technology, currently prevent unrestricted drone flights. Meanwhile, some potential customers in the UK – for example the police – are currently largely unsatisfied with the quality of the products available.

This may change as military technology continues to flow into the civil sphere and becomes cheaper and more effective. US military drones, for example, have for some time been equipped with wide area surveillance systems, a technology that has also attracted the attention of Frontex, the EU’s border agency.<sup>4</sup> One US military system, Gorgon Stare, captures video footage from nine different cameras and provides “daylight and infrared video of a city sized area several miles across.” A similar system, ARGUS, is now being developed for potential ‘homeland security’ use in the US,<sup>5</sup> where – as abroad – it would allow

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3. Frost & Sullivan, ‘Study analysing the current activities in the field of UAV – Second element: Way forward’, 2008, p.7, [http://www.statewatch.org/observatories\\_files/drones/eu/com-2007-frost-sullivan-2.pdf](http://www.statewatch.org/observatories_files/drones/eu/com-2007-frost-sullivan-2.pdf)

4. Ben Hayes, Chris Jones and Eric Töpfer, ‘Patrolling the borders: Frontex and drones’ in *Eurodrones, Inc.*, February 2014, pp.65-73, <http://www.statewatch.org/eurodrones>

5. Frank Colucci, ‘Wide Area Aerial Surveillance Technologies Evolve for Homeland Security and Other Applications’, *DefenseMediaNetwork*, 4 December 2012, <http://www.defensemedianetwork.com/stories/wide-area-aerial-surveillance->

for pervasive surveillance of “every street, empty lot, garden, and field” and location tracking, through which “everything that is a moving object is... automatically tracked”. Jay Stanley of the American Civil Liberties Union has remarked that the surveillance made possible by such a system “is a concrete embodiment of the ‘nightmare scenario’ for drones”.<sup>6</sup>

However, drones can potentially be equipped with more than just cameras hooked up to automated tracking software. One enthusiast in the US has used a drone to host a device that allows the cracking of WiFi networks and interception of communications.<sup>7</sup> London’s Metropolitan Police have already made use of such technology in order to gather information on mobile phones, by using “a transceiver around the size of a suitcase” that “can be placed in a vehicle or at another static location”.<sup>8</sup> Drones armed with “non-lethal weapons designed to immobilise [targets of interest]” have reportedly been considered for use along the US-Mexico border,<sup>9</sup> and one police force in Texas has purchased a drone that the authorities have considered equipping with “a 12 gauge delivery system with lethal and less-lethal deliveries”.<sup>10</sup>

The deployment of similar technologies by law enforcement authorities in the UK should not be considered an impossibility. Authorisation was given to use, if necessary, rubber bullets at student protests in 2011.<sup>11</sup> The response to the 2011 riots

saw the training of army troops in public order tactics,<sup>12</sup> along with an ongoing increase in the number of Tasers issued to police officers,<sup>13</sup> and calls for the use of water cannons in future such situations were revived at the beginning of 2014.<sup>14</sup> The further militarisation of policing is clearly the preferred option for some in authority.

Authorisations to use rubber bullets and talk of water cannons appears to be symptomatic of a ‘boomerang effect’ from policing operations in Northern Ireland, where both types of weapon have been widely used, and where rubber bullets have caused numerous deaths. The Police Service of Northern Ireland is the only police force in the UK publicly known to have made significant use of drones in public order situations. They were purchased and used for the surveillance of protests against the G8 summit in Enniskillen in June 2013. Democratic Unionist Party policing board spokesman Robin Newton noted at the time of the purchase that: “The so-called drones will be of use in various fields, including the realm of public order.”<sup>15</sup>

There are ongoing moves to equip the police with increasing amounts of advanced technology – from enhanced databases,<sup>16</sup> handheld fingerprint

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technologies-evolve-for-homeland-security-and-other-applications/

6. Jay Stanley, ‘Drone ‘Nightmare Scenario’ Now Has A Name: ARGUS’, *American Civil Liberties Union*, 21 February 2013, <https://www.aclu.org/blog/technology-and-liberty-free-speech-national-security/drone-nightmare-scenario-now-has-physical>

7. Andy Greenberg, ‘Flying Drone Can Crack Wi-Fi Networks, Snoop On Cell Phones’, *Forbes*, 28 July 2011, <http://www.forbes.com/sites/andygreenberg/2011/07/28/flying-drone-can-crack-wifi-networks-snoop-on-cell-phones/>

8. Ryan Gallagher and Rajeev Syal, ‘Met police using surveillance system to monitor mobile phones’, *The Guardian*, 30 October 2011, <http://www.theguardian.com/uk/2011/oct/30/metropolitan-police-mobile-phone-surveillance>

9. ‘Non lethal weapons on UAS along the US borders?’, *i-HLS*, 8 July 2013, <http://i-hls.com/2013/07/non-lethal-weapons-on-uas-along-the-u-s-borders/>

10. David Geer, ‘Vanguard Shadowhawk’, *Special Weapons for Military and Police*, February 2012, <http://www.tactical-life.com/magazines/special-weapons/vanguard-shadowhawk/>

11. Press Association, ‘Student Protest: Organisers Attack Police Rubber Bullet Threat’, *Huffington Post*, 9 November 2011, [http://www.huffingtonpost.co.uk/2011/11/09/student-protest-rubber-bullets-threat\\_n\\_1083293.html](http://www.huffingtonpost.co.uk/2011/11/09/student-protest-rubber-bullets-threat_n_1083293.html)

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12. Sean Rayment, ‘UK riots: paratroopers are trained in riot control’, *The Telegraph*, 28 January 2012, <http://www.telegraph.co.uk/news/uknews/defence/9046668/UK-riots-paratroopers-are-trained-in-riot-control.html>

13. ‘Thousands more Tasers issued to police in London’, *Statewatch News Online*, 26 April 2013, <http://database.statewatch.org/article.asp?aid=32286>

14. ‘London police push for water cannon to control riots’, *Reuters*, 13 May 2013, <http://uk.reuters.com/article/2013/05/13/uk-britain-watercannon-idUKBRE94COHG20130513>; Justin Davenport, ‘Police to hear Londoners’ views on arming force with water cannons’, *Evening Standard*, 8 January 2014, <http://www.standard.co.uk/news/london/police-to-hear-londoners-views-on-arming-force-with-water-cannons-9046804.html>

15. ‘PSNI drone purchase gets green light’, *BBC News*, 11 April 2013, <http://www.bbc.co.uk/news/uk-northern-ireland-22106017>

16. The report of the Stevens Commission called for the police to obtain “intelligence fusion” through the merging of existing, separate databases. See: Independent Police Commission, ‘Policing for a Better Britain’, November 2013, p.176, <http://statewatch.org/news/2013/nov/uk-police-commission-report.pdf>

scanners,<sup>17</sup> mobile phone data extraction systems,<sup>18</sup> and “predictive policing” software<sup>19</sup> to more mundane office software and IT systems. It is not uncommon to hear the argument that deployment of new technologies will lead to the increased prevention of crime and prosecution of offenders.<sup>20</sup> Yet the ability of technology – and the police force as a whole – to facilitate this remains highly questionable. The academic Robert Reiner argues that:

“The political consensus that the police should be primarily engaged in crime fighting overstates the ability of the police to control crime, when the drivers for crime and disorder largely lie in deeper social causes. This creates unrealistic expectations and diverts attention from the police’s more fundamental peacekeeping role.”<sup>21</sup>

Similar objections could be raised to other proposed uses for drones. For example, a 2012 report by the Knowledge Transfer Network argues that “the increasing pressure on farmers to constantly increase yields whilst reducing costs are pressing growers to consider precision farming; the next step up being autonomous assistance.”<sup>22</sup> Drones may assist with meeting the

demands made on farmers, but it could equally be argued that the problem is the demands themselves and the widespread model of mass, mono-crop agriculture that has been developed to support them. Similarly, drones have been proposed as a potential solution for traffic congestion: with aerial monitoring, drivers can be directed to routes in which congestion is less likely to occur. Aside from the obvious safety implications of flying drones over crowded roads, this again seeks to address a symptom, rather than the cause of road congestion – too much traffic.

Meanwhile, the use of drones for border control – which already takes place in a variety of countries and is being considered by EU and UK officials – seems largely geared towards finding more effective ways to prevent people from entering a country. Such criticisms have been levelled at the forthcoming European Border Surveillance System, Eurosur, in which drones may well play a part.<sup>23</sup> Similarly, Richard Watson of the National Police Air Service told a March 2012 meeting of the Association of Chief Police Officers’ UAS Steering Group that in the UK, drones could potentially be used for “securing the borders from refugees”. This suggests enthusiasm for a further tightening of the UK’s already highly restrictive border control regime, despite the idea of “securing the borders from refugees” offending against the spirit of both the Universal Declaration of Human Rights and the 1951 Geneva Convention. Despite this, the introduction of aerial surveillance technology for border control is an approach increasingly gaining acceptance in states across the globe.

This is not to say that there are no legitimate uses for drones. They are already being used for surveying, mapping, aerial photography and filming, and for monitoring offshore installations. However, the potential for widespread proliferation and increasing ease of use (and misuse), combined with a permissive legal and regulatory framework, suggests that there is a need for a wide-ranging and meaningful public debate on domestic drones.

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17. ‘UK: Police get new mobile fingerprint scanners linked to immigration database’, *Statewatch News Online*, July 2013, <http://database.statewatch.org/article.asp?aid=32598>; ‘EU: Europe’s police and immigration “mobile identification” enthusiasts prepare to regroup during Irish Presidency of the EU’, *Statewatch News Online*, January 2013, <http://database.statewatch.org/article.asp?aid=32091>

18. Dave Lee, ‘Met Police to extract suspects’ mobile phone data’, *BBC News*, 17 May 2012, <http://www.bbc.co.uk/news/technology-18102793>

19. ‘UK: “Predictive policing” comes to the UK’, *Statewatch News Online*, 5 March 2013, <http://database.statewatch.org/article.asp?aid=32180>

20. Rosalie Marshall, ‘UK police forces must improve use of technology to win fight against crime’, *V3.co.uk*, 3 October 2012, <http://www.v3.co.uk/v3-uk/analysis/2214446/uk-police-force-behind-the-times-in-use-of-it>; ‘Low-Tech’ Police Force Losing Crime Fight’, *Sky News*, 30 August 2013, <http://news.sky.com/story/1134934/low-tech-police-force-losing-crime-fight>; Kieran Corcoran, ‘Fighting crime? There’s an app for that! Police splash out on thousands on iPads and other touch-screen gizmos for CSI and ARMED RESPONSE units’, *Daily Mail*, 1 February 2014, <http://www.dailymail.co.uk/news/article-2524148/Fighting-crime-Theres-app-Police-splash-thousands-iPads-touch-screen-gizmos-CSI-ARMED-RESPONSE-units.html>

21. Howard League for Penal Reform, ‘Police have marginal impact on crime rate’, 24 January 2012, <http://www.howardleague.org/police-have-marginal-impact-on-c/>

22. Aerospace, Aviation & Defence Knowledge Transfer Network, ‘Autonomous Systems: Opportunities and Challenges for the UK – Volume 3, Backing Research’, 30 June 2012, <http://www>

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[statewatch.org/observatories\\_files/drones/uk/ktn-2012-06-autonomous-systems-report.pdf](http://statewatch.org/observatories_files/drones/uk/ktn-2012-06-autonomous-systems-report.pdf)

23. Ben Hayes and Matthias Vermeulen, ‘Borderline: The EU’s New Border Surveillance Initiatives’, *Heinrich Böll Foundation*, June 2012, <http://www.statewatch.org/news/2012/jun/borderline.pdf>; ‘Eurodrones, Inc.’, *Statewatch/Transnational Institute*, February 2014, <http://www.statewatch.org/eurodrones>

The All-Party Parliamentary Group on Drones has already raised a number of issues related to domestic drones through briefing papers and meetings, and further similar initiatives should be encouraged.

Deputy Chief Constable Chris Weigh of Lancashire Police has stated that “the usage of UASs [will] certainly not become widespread until there [has] been a public consultation and all aspects of human rights [have] been addressed.”<sup>24</sup> The Ministry of Defence has also raised the need for public debate on both military and civil drones, in particular with regard to the development of autonomous technology:

“The pace of technological development is accelerating and the UK must establish quickly a clear policy on what will constitute acceptable machine behaviour in future... There is a danger that time is running out – is debate and development of policy even still possible, or is the technological genie already out of the ethical bottle, embarking us all on an incremental and involuntary journey towards a *Terminator*-like reality?”<sup>25</sup>

With regard to the development of military drones, the UK already appears to have chosen its position: following a UN debate on autonomous weapons, it was the only state present “to declare its opposition to the call for a moratorium or a ban on fully autonomous weapons”.<sup>26</sup> RAF Air-Vice Marshal Phil Osborn recently told the press during a “PR offensive” on drones<sup>27</sup> that:

“I can’t conceive a future where we won’t have unmanned systems – in the air, on the ground, and on and under the water, actually.

“Unmanned systems, we can see, bring such an advantage that we would not want to step

away from them, so, as we look forward, I think we’ll see a growth in unmanned systems.”<sup>28</sup>

This, along with so many other aspects of the UK’s military drone program, will no doubt remain a target for peace and anti-military campaigners in the years to come.

As for the increasing use of drones within the UK, the government has not had much to say. The question is, then, when and how exactly consultation and debate will take place, and whether all the issues will be addressed in a serious and meaningful way.

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24. ACPO UAS Steering Group, ‘Minutes’, 15 September 2010, [http://www.statewatch.org/observatories\\_files/drones/uk/police-acpo-2010-09-15-minutes.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-acpo-2010-09-15-minutes.pdf)

25. Ministry of Defence, ‘The UK Approach to Unmanned Systems’, 30 March 2011, p.58-9, [http://www.statewatch.org/observatories\\_files/drones/uk/uk-mod-2011-03-approach-to-uas.pdf](http://www.statewatch.org/observatories_files/drones/uk/uk-mod-2011-03-approach-to-uas.pdf)

26. Campaign to Stop Killer Robots, ‘Consensus killer robots must be addressed’, 28 May 2013, <http://www.stopkillerrobots.org/2013/05/nations-to-debate-killer-robots-at-un/>

27. Chris Cole, ‘MoD’s drones PR offensive continues as UK commits to a drone filled future’, *Drone Wars UK*, 17 January 2014, <http://dronewars.net/2014/01/17/mods-drones-pr-offensive-continues-as-uk-commits-to-a-drone-filled-future/>

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28. Press Association, ‘RAF commander rejects ‘drone’ term’, *MSN News*, 16 January 2014, <http://news.uk.msn.com/raf-commander-rejects-drone-term>

# Introduction

This report aims to contribute to the public debate on the use of drones within the UK. It examines their use by both public and private bodies, but the main body of the research examines the police and border control authorities. As well as examining the current situation, the report considers potential future developments and argues in this respect that public discussion and debate is needed before the use of drones – in particular for surveillance purposes – becomes widespread.

Due to a lack of safety guarantees and regulatory framework the use of drones in the UK remains limited, particularly amongst public authorities, although there are moves to introduce them more widely. Currently it is private companies dealing with surveying, mapping, photography, filming and safety inspection that use the vast majority of drones licensed for operation within UK airspace. However, as technology develops and becomes more widely available this is likely to change, and various attempts are being made to drive this development and capitalise on what is perceived as a significant market for ‘civil’ drones.

The first section of the report examines the regulations and law governing the use of drones. Strict safety requirements on the use of unmanned aircraft in domestic airspace are vital: in New York in 2013, a 19-year-old was killed after a drone he was flying in a park crashed and hit him. Drones have also crashed into crowds in Virginia, USA<sup>1</sup> and Trinidad and Tobago, where two men

1. Nick Dutton and Alix Bryan, ‘EXCLUSIVE VIDEO: Drone crashes into crowd at Great Bull Run’, *CBS6*, 24 August 2013, <http://wtvr.com/2013/08/24/watch-drone-crashes-into-crowd-at-great-bull-run/>



“sustained serious head injuries when a drone fell out of the sky and landed on them.”<sup>2</sup> Military drones crash frequently, although generally not over densely-populated areas.<sup>3</sup>

Safety issues, airworthiness and pilot training are dealt with in the UK by the Civil Aviation Authority, and broadly speaking it appears that current regulations address these issues – for example, propensity to crash – relatively well. However, there are concerns over the use of drones weighing less than 7kg that remain out of scope of CAA regulations, particularly with the growing construction, purchase and use of drones by individuals.

The law governing the use of drones for surveillance is subsequently examined. The government has argued that the Regulation of Investigatory Powers Act 2000 and a recently-adopted Surveillance Camera Code of Practice will need to be taken into account should public authorities wish to operate drones. However, both contain numerous shortcomings and neither applies to private bodies or individuals. Considering these inadequacies – and in the light of ongoing revelations about mass telecommunications surveillance by security agencies and the highly controversial use of undercover police officers in protest movements – there is arguably a need for a thorough revision of the UK’s legal and regulatory framework surrounding all forms of surveillance.

2. Cecily Asson, ‘Fete patrons injured by falling drone’, *Trinidad and Tobago Newsday*, 26 January 2014, <http://www.newsday.co.tt/news/0,189745.html>

3. Drone Wars UK, ‘Drone Crash Database’, <http://dronewars.net/drone-crash-database/>

Public funding for research into drone technology and development is subsequently examined. Over the last decade some £80 million of public money has gone towards research for and development of domestic drones or the technology required for their use, although given that research into military drones may be applicable in the civilian sphere, the total amount is likely to be significantly higher. While it is unknown exactly how much funding private firms have put into drone research and development over the same period, for those projects examined here funded jointly by public and private bodies, public funding has consistently been more generous. While this differs little from many established models of public investment in technologies not yet considered 'market-ready', it remains worth noting that it is ultimately private companies who will reap the financial benefits of the development of the supposedly multi-billion pound domestic drone market.

The UK's flagship research programme, ASTRAEA – which received public funding of £32 million and sought to develop the technology necessary to allow routine drone flights in domestic airspace – has had little to no regard for privacy, data protection or other civil liberties and human rights considerations, and appears to have been drawn up and implemented by large arms firms and state officials with no democratic input or oversight. Civilian drone use in the UK looks set to further benefit over the coming years following the September 2013 launch of the National Aeronautical Centre, a private site which will enable "the development, testing, evaluation, training and demonstration of UAS that can fly beyond visual line of sight". The launch of the Centre adds to pre-existing drone testing facilities in west Wales, until now primarily used for defence purposes.

The report then moves on to examine the use of drones by UK police forces. Responses to Freedom of Information requests issued to every UK police force show that eleven forces are known to have used drones, but that the technology is only currently used by two – Staffordshire and the Police Service of Northern Ireland. Drones have been used by police forces for a variety of purposes, including the monitoring of demonstrations, the surveillance of poachers, and

in attempts to deter anti-social behaviour and track criminals. This section also compiles evidence which suggests that the Serious Organised Crime Agency (now replaced by the National Crime Agency) acquired the use of drone technology in late 2012.

Over the years the police approach to unmanned technology has become increasingly centralised. An Unmanned Aerial Systems Steering Group run by the Association of Chief Police Officers (ACPO) and the National Police Air Service, established in October 2012, currently keeps chief constables from around the country up-to-date on developments, and a single technical requirement for police drones has been developed by the Home Office. While the National Police Air Service has remained tight-lipped over what information it holds on drones, referring questions back to ACPO, it does not seem that the widespread acquisition or deployment by police forces of drones is an immediate proposition – meaning that the time for a meaningful debate on the issue should be now.

Revelations in 2010 that Kent Police and the UK Border Agency were working in partnership with BAE Systems to develop drones for the monitoring of the UK's borders were met with concerns from civil liberties organisations, with other suggested uses including monitoring fly-tippers and cash machine thefts. That project – known as the South Coast Partnership – no longer exists. Kent Police have, however, taken on a role in a cross-border, European Union-funded project with French and Dutch authorities and institutions that has a similar objective: the use of drones for border control, along with critical infrastructure and environmental monitoring. This project urgently requires more public scrutiny.

The final section examines the use of drones by private firms and individuals. Drones are currently used most widely by private firms, and although their usage so far appears to raise little cause for concern with regard to privacy or data protection, there is significant risk that it could do so. It is not obligatory for private companies to pay heed to the government's much-trumpeted Surveillance Code of Practice. This leaves a significant gap in the regulatory framework.

Firms whose use of drones may raise even more significant concerns – such as private security

companies or private investigators – do not yet appear to have yet embraced the technology. There are many issues that are yet to be dealt with when it comes to the use of drones by both private companies and private individuals, something that is likely to be an increasing problem for safety and privacy as technology advances in years to come, and the option of using drones as more than simply ‘flying cameras’ becomes increasingly feasible.

Ultimately, the report argues that the fears raised in media reports in recent years – skies awash with high-powered state surveillance drones – have not yet come to pass. For this reason, it is urgent that a public debate on domestic drones takes place sooner rather than later, and that decisions on acceptable limits for their use are taken in an open and democratic manner.

# Law and regulation



There are a number of concerns over the growing use of domestic drones. Chief amongst these are safety and the possibility of unfettered surveillance. Both areas are covered by various laws and regulations, but questions have been raised in particular over whether UK law governing surveillance provides a level of protection high enough to prevent the widespread use of drones for pervasive, intensive surveillance.

## Safety regulations

The safety record of drones is not particularly impressive. Military drones crash regularly<sup>1</sup> and the technology required to ensure safe autonomous or semi-autonomous flight in domestic airspace – ‘sense and avoid’ systems – is not yet considered of a high enough quality for such flight to be permitted.<sup>2</sup> Even the use of drones operated manually and within the ‘line-of-sight’ of the operator is regulated fairly tightly, as these too are prone to system failures. Merseyside Police lost

1. ‘Drone crash database’, *Drone Wars UK*, <http://dronewars.net/drone-crash-database/>

2. One industry representative has said that usable sense-and-avoid technology, at least for the military, is “a generation away”: “A Predator [drone] equipped with sense-and-avoid equipment ‘can’t carry anything else,’ said Dave Bither, Mav6’s vice president for strategic development.” See: Dave Majumdar, ‘U.S. Military, Industry Seek Ways To Fly Unmanned Planes Amid Civil Air Traffic’, *DefenseNews*, 27 January 2012, <http://www.defensenews.com/article/20120127/C4ISR02/301270008/U-S-Military-Industry-Seek-Ways-Fly-Unmanned-Planes-Amid-Civil-Air-Traffic>

their drone in the river Mersey after it lost power and fell from the sky (see ‘Police drones’, below); in April 2013 a drone being used to film people waiting to audition for television programme *The X Factor* was flown deliberately into the river Thames by its operator after it began losing power;<sup>3</sup> and in New York in 2013 a 19-year-old was killed after a drone he was flying in a park crashed and hit him.<sup>4</sup>

The use of drones is therefore regulated by civil aviation authorities. In all European Union (EU) countries, the regulation in civil airspace of drones weighing less than 150kg is left to national bodies.<sup>5</sup> In the UK that is the Civil Aviation Authority (CAA), whose document ‘CAP 722 Unmanned Aircraft Systems Operations in UK Airspace’ provides advice and guidance to those wishing to make use of drones that weigh more than 7kg and less than 150kg. CAP 722 is updated frequently and the introduction notes that the CAA should “clearly recognise the way ahead in terms of policy and regulations and, more importantly, in safety standards”.<sup>6</sup>

3. Alistair Foster, ‘Scuba diver rescues footage of X Factor after airborne camera falls in Thames’, *Evening Standard*, 11 April 2013, <http://www.standard.co.uk/news/london/scuba-diver-rescues-footage-of-x-factor-after-airborne-camera-falls-in-thames-8568170.html>

4. ‘Move along there please’, *Police Aviation News*, October 2013, p.28, <http://www.policeaviationnews.com/Acrobat/210PANewsOctober2013.pdf>

5. Those weighing over 150kg are subject to Europe-wide regulations, an issue which has received much attention from a number of public and private bodies in recent years as enthusiasts seek to permit the routine flight of weightier drones in domestic airspace across the continent. For more information, see: Ben Hayes, Chris Jones and Eric Töpfer, ‘Eurodrones, Inc.’, *Statewatch/Transnational Institute*, February 2014, <http://www.statewatch.org/eurodrones>

6. Civil Aviation Authority, ‘Unmanned Aircraft System Operation in UK Airspace – Guidance’, CAP 722, 10 August

The main points of the applicable regulations are summarised by the academic Lachlan Urquhart as follows:

“[T]he CAA follows the UK Civil Aviation Authority Air Navigation Order 2009/3015 (ANO 2009/3015) which stipulates that drones cannot be flown outside the direct visual line of sight of the pilot (below 400ft and within a 500m range) in non-segregated airspace, unless an approved ‘detect and avoid system’ is fitted (to avoid collisions with other aircraft). Flight within 150m of built up areas or within 30m of people is prohibited and air traffic control permission is required to enter controlled airspace. Article 167 ANO 2009/3015 provides specific guidelines for operators of small drones used for data acquisition or surveillance. They must obtain permission from the CAA if they are going to fly within 50m of a person, or 150m of an ‘organised open-air assembly of more than 1,000 persons’ or a congested area.”<sup>7</sup>

Between July 2012 and July 2013, 119 organisations were granted permission to fly drones by the CAA, a minor increase on the number of permits granted between January 2009 and October 2011.<sup>8</sup> Perhaps due to public interest and concern over domestic drones, the CAA has recently begun publishing quarterly statistics.<sup>9</sup> The majority of machines currently in use are multicopter devices weighing less than 20kg. Those holding licences include surveying companies, photography and mapping firms, the Scottish Environment Protection Agency, Staffordshire Police and West Midlands and Hampshire fire services.<sup>10</sup>

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2012, <http://www.caa.co.uk/docs/33/CAP722.pdf>

7. Lachlan Urquhart, ‘The Aerial Gaze: Regulating Domestic Drones in the UK’, *SCL*, 17 March 2013, <http://www.scl.org/site.aspx?i=ed31354>; see also Civil Aviation Authority, ‘Unmanned Aircraft System Operation in UK Airspace – Guidance’, CAP 722, 10 August 2012, <http://www.caa.co.uk/docs/33/CAP722.pdf> and Civil Aviation Authority, ‘Air Navigation: The Order and the Regulations’, CAP 393, 11 January 2010, <http://www.caa.co.uk/docs/33/CAP393.pdf>

8. Ryan Gallagher, ‘Surveillance drone industry plans PR effort to counter negative image’, *The Guardian*, 2 February 2012, <http://www.theguardian.com/uk/2012/feb/02/surveillance-drone-industry-pr-effort>

9. CAA, ‘SUA Operators’, <http://www.caa.co.uk/default.aspx?catid=1995&pagetype=90&pageid=15484>

10. CAA, list of drone operators provided in response to FOI request, 30 July 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/caa-2013-07-spreadsheet.xlsx](http://www.statewatch.org/observatories_files/drones/uk/caa-2013-07-spreadsheet.xlsx)

## Surveillance law

Drones can ostensibly be used for a number of purposes – spraying crops is frequently suggested as a possible use, and it has been suggested that they be used to deliver post and even pizza<sup>11</sup> – but their most likely initial use is for video surveillance. Indeed, every single one of the 119 organisations granted CAA licences between July 2012 and July 2013 is listed as undertaking “aerial work (photography)” or “aerial work (photography/observation)”. Even if that is not the direct purpose of use, it is likely that a drone would need one or more cameras fitted in order for it to be operated, which may lead to the collection or retention of imagery. The question of which laws apply to the use of drones for surveillance, and what level of protection they offer, is therefore crucial. While the government has set out its position, it is not clear that existing rules are capable of taking into account the potential surveillance capabilities of unmanned drones.

In May 2013 the Conservative MP Nicholas Soames asked Home Secretary Theresa May “what plans she has to authorise the use of unmanned aerial vehicles for intelligence gathering by UK law enforcement agencies”. Policing minister Damian Green responded by saying:

“Use of unmanned aerial vehicles would need to comply with existing Civil Aviation Authority regulations. Covert use by a public authority likely to obtain private information, including by any law enforcement agency, would be subject to authorisation under the Regulation of Investigatory Powers Act [RIPA] 2000... Any overt use of a surveillance camera system in a public place in England or Wales will be subject to a new code of practice prepared under the Protection of Freedoms Act 2012, on which the Home Office is currently considering its response to statutory consultation.”<sup>12</sup>

The charity Big Brother Watch has asserted

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11. Jimmy Nsubuga, ‘Domino’s trials new drone delivery system for pizzas’, *Metro*, 5 June 2013, <http://metro.co.uk/2013/06/05/dominos-trials-new-drone-delivery-system-for-pizzas-3829035/>

12. Nicholas Soames, ‘Unmanned Air Vehicles’, *Hansard*, 16 May 2013, <http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm130516/text/130516w0001.htm#13051676000033>

that “it is far from clear that the existing guidelines on RIPA actually address [the] challenge of [surveillance drones]”.<sup>13</sup> Looking at the law more widely, the charity JUSTICE has argued that RIPA “fails to provide adequate safeguards against unnecessary and disproportionate surveillance” and is “inadequate to cope with such developments as aerial surveillance drones, Automatic Number Plate Recognition, deep packet interception, and, indeed the Internet itself.”<sup>14</sup> More recently, the House of Commons Home Affairs Committee has called for RIPA to be reformed in the wake of numerous revelations about the activities of undercover police officers used to infiltrate protest movements.<sup>15</sup>

Use by public authorities of intrusive surveillance – that which is covert and directed at activities in residential premises or private vehicles – requires authorisation under RIPA. However, according to the legislation, surveillance of residential premises or private vehicles that:

“[I]s carried out without that device being present on the premises or in the vehicle, is not intrusive unless the device is such that it consistently provides information of the same quality and detail as might be expected to be obtained from a device actually present on the premises of the vehicle.”<sup>16</sup>

Lachlan Urquhart has argued that:

“This subjective dependency on consistency, quality and detail of drone obtained images could introduce uncertainty into classifying the nature of surveillance, and therefore the application of RIPA.”<sup>17</sup>

Covert entry to premises or vehicles for the placing of surveillance devices by police forces<sup>18</sup> and security agencies is further regulated by the Police Act 1997 and Intelligence Services Act 1994, which requires the issuing of a warrant by the Secretary of State to authorise such entry.<sup>19</sup> However, the use of drones for intrusive surveillance would appear to sidestep the need for entry into premises or vehicles, thus bypassing the extra authorisation procedure currently in place for more traditional surveillance methods.

The Surveillance Camera Code of Practice was published in June 2013, in order to “address concerns over the potential for abuse of misuse of surveillance by the state in public places.”<sup>20</sup> It contains twelve “guiding principles”,<sup>21</sup> and

18. After police forces have gathered information through any means it is meant to be handled in accordance with the ‘Guidance on the Management of Police Information’, which was introduced in 2006 as part of an effort to establish “intelligence-led policing” practices. See: National Policing Improvement Agency, ‘Guidance on the Management of Police Information’, 2010, <http://www.acpo.police.uk/documents/information/2010/201004HNFMOPI01.pdf>

19. Article 5, Intelligence Services Act 1994

20. Home Office, ‘Surveillance Camera Code of Practice’, June 2013, <http://statewatch.org/news/2013/aug/uk-ho-surveillance%20camera-code-of-practice.pdf>

21. The principles are: 1. Use of a surveillance camera system must always be for a specified purpose which is in pursuit of a legitimate aim and necessary to meet an identified pressing need; 2. The use of a surveillance camera system must take into account its effect on individuals and their privacy, with regular reviews to ensure its use remains justified; 3. There must be as much transparency in the use of a surveillance camera system as possible, including a published contact point for access to information and complaints; 4. There must be clear responsibility and accountability for all surveillance camera system activities including images and information collected, held and used; 5. Clear rules, policies and procedures must be in place before a surveillance camera system is used, and these must be communicated to all who need to comply with them; 6. No more images and information should be stored than that which is strictly required for the stated purpose of a surveillance camera system, and such images and information should be deleted once their purposes have been discharged; 7. Access to retained images and information should be restricted and there must be clearly defined rules on who can gain access and for what purpose such access is granted; the disclosure of images and information should only take place when it is necessary for such a purpose or for law enforcement purposes; 8. Surveillance camera system operators should consider any approved operational, technical and competency standards relevant to a system and its purpose and work to meet and maintain those standards; 9. Surveillance camera system images and information should be subject to appropriate security measures to safeguard against unauthorised access and use; 10. There should be effective review and audit mechanisms to ensure legal requirements, policies and standards are complied with in practice, and regular reports should be published; 11. When the use of a surveillance camera system is in pursuit of a legitimate aim, and there is a pressing need for its use, it should then be used in the most effective way to support

13. Big Brother Watch, ‘Unmanned Aerial Vehicles and Unmanned Aerial Systems Briefing’, undated, p.2, <http://appgondrones.files.wordpress.com/2013/06/unmanned-aerial-vehicles-briefing-big-brother-watch.pdf>

14. JUSTICE, ‘Freedom from Suspicion: Surveillance Reform for a Digital Age’, October 2011, p.155, <http://www.justice.org.uk/data/files/resources/305/JUSTICE-Freedom-from-Suspicion-Surveillance-Reform-for-a-Digital-Age.pdf>

15. Home Affairs Select Committee, ‘MPs call for root-and-branch overhaul of RIPA’, 1 March 2013, <http://www.parliament.uk/business/committees/committees-a-z/commons-select/home-affairs-committee/news/130301-undercover-policing-rpt/>

16. Article 26(5), Regulation of Investigatory Powers Act 2000, <http://www.legislation.gov.uk/ukpga/2000/23/section/26>

17. Lachlan Urquhart, ‘The Aerial Gaze: Regulating Domestic Drones in the UK’, *SCL*, 17 March 2013, <http://www.scl.org/site.aspx?i=ed31354>

“introduces for the first time a philosophy of surveillance by consent” as an analogy to the idea of “policing by consent”.<sup>22</sup> However, these guiding principles are based on “golden rules” that first appeared in an Independent Police Complaints Commission review of Automatic Number Plate Recognition systems,<sup>23</sup> which were in turn based on the eight principles underlying the Data Protection Act 1998.

Aside from creating the new post of Surveillance Camera Commissioner – who “has no enforcement or inspection powers” and “no statutory role in relation to the investigation of complaints”<sup>24</sup> – there is little new in the Code, and little to suggest that it or the underlying legislation, the Data Protection Act 1998, would act as a serious restraint on the use of surveillance drones or even apply to them effectively. For example:

“CCTV consent and law relies on prominent signs [to notify people of the existence of cameras], which are clearly impossible for a flying camera, and so that aspect of the law will need fundamental reform.”<sup>25</sup>

It seems that the Code of Practice will instead act as a guide for facilitating the use of surveillance cameras through the encouragement of better technical standards and training for operators. Indeed, this appears to be the very point. A Home Office minister, Lord Taylor of Holbeath, remarked that “the whole focus of this code... is going to be on improving the effectiveness of surveillance”.<sup>26</sup>

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public safety and law enforcement with the aim of processing images and information of evidential value; 12. Any information used to support a surveillance camera system which compares against a reference database for matching purposes should be accurate and kept up to date.

22. Home Office, ‘Surveillance camera code of practice consultation’, 7 February 2013, <https://www.gov.uk/government/consultations/surveillance-camera-code-of-practice-consultation>

23. ‘The Manufacture of “Surveillance by Consent”’, *No CCTV*, 4 March 2013, [http://www.no-cctv.org.uk/blog/the\\_manufacture\\_of\\_surveillance\\_by\\_consent.htm](http://www.no-cctv.org.uk/blog/the_manufacture_of_surveillance_by_consent.htm)

24. Home Office, ‘Surveillance camera code of practice consultation’, 7 February 2013, <https://www.gov.uk/government/consultations/surveillance-camera-code-of-practice-consultation>

25. Sam Smith, ‘Briefing to the All-Party Parliamentary Group on Drones’, *Privacy International*, undated, <http://appgondrones.files.wordpress.com/2013/06/unmanned-aerial-vehicles-briefing-privacy-international.pdf>

26. Column GC291, ‘Protection of Freedoms Act 2012 (Code

Both RIPA and the Code of Practice apply only to state authorities, but currently the majority of drone operators authorised by the CAA are private companies. There is also a growing community of ‘DIY drone’ enthusiasts that may not be aware of the need to apply for CAA authorisation and who do not have to comply with the Data Protection Act, which applies to both public and private bodies but not private individuals.

The CAA provides guidance on this point:

“Aircraft operators and pilots should be aware that the collection of images of identifiable individuals (even inadvertently) when using surveillance cameras mounted on a Small Unmanned Surveillance Aircraft may be subject to the Data Protection Act. As this Act contains requirements concerning the collection, storage and use of such images, Small Unmanned Aircraft operators should ensure that they are complying with any such applicable requirements or exemptions.”<sup>27</sup>

The effectiveness of the Data Protection Act and its enforcement are open to question. As noted by an article in the magazine *Private Eye* on the “profit-driven orgy of spying and monitoring” led by the private surveillance industry:

“[I]t’s hard to know where privacy ends and unlawful surveillance and data collection begin. Though [private spy] firms say they obey the Data Protection Act 1998, this means little, as the legislation is way behind the latest technology and proving it has been violated hasn’t been easy. Small wonder prosecutions have declined (from 200 in 2011 to 96 in 2013) while activities increase. There were precisely zero cases heard in the UK for selling personal data in the past year, two in 2012, and none again in the three years going back to 2008. Supervision of the private surveillance industry is long overdue a rethink.”<sup>28</sup>

A report for the All-Party Parliamentary Group on Drones examined briefly the use of drones by

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of Practice for Surveillance Camera Systems and Specification of Relevant Authorities) Order 2013’, *Hansard*, 17 July 2013, <http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/130717-gc0001.htm>

27. Civil Aviation Authority, ‘Unmanned Aircraft and Aircraft Systems’, <http://www.caa.co.uk/default.aspx?CATID=1995>

28. ‘Target market’, *Private Eye*, No.1360, 21 February-6 March 2014, p.29

companies, in part to examine “policies regarding the collection and storage of data gathered via drones”. The report found that all policies strongly emphasised safety, but:

“[T]here was less emphasis within some of the policies on the need to protect data or respect privacy, primarily due to the nature of the work, in other policies, there was relatively good knowledge of the key legislation.”<sup>1</sup>

Notwithstanding any need for revision of the legislation, there seems to be a clear a need to ensure that the requirements of the Data Protection Act are adhered to by both public and private drone operators. The majority of companies questioned were using drones to undertake “offshore oil inspections, landfill surveys or to monitor coast erosion,” which could in passing collect personal data – for example, people on a beach or walking on coastal paths. In the future their use may also become attractive to more deliberately intrusive actors, such as private investigators and security firms. The Chief Surveillance Commissioner noted in his 2012 annual report that “there is no system of regulation of surveillance for covert investigative, commercial or entertainment purposes”.<sup>2</sup>

The Human Rights Act 1998 and the European Convention on Human Rights would also apply to the operation of surveillance drones, although it is legislation such as RIPA or authorisations from the CAA that will be used in practice. Given the patchy and inconsistent nature of regulation of surveillance in the UK, a revision of the legal and regulatory framework surrounding drones and other surveillance means is arguably long overdue. The House of Commons Home Affairs Committee have argued for “a fundamental review of the law governing undercover police operations, including [RIPA],”<sup>3</sup> and JUSTICE have argued that RIPA provides “a wholly inadequate legal framework for

surveillance”.<sup>4</sup> More specifically, Big Brother Watch have argued:

“The regulation of UAVs appears to be dangerously lax where they do not weigh enough to be covered by the main air rules, something which it appears many are keen to exploit. We need clear rules that establish what drones can be used and why... the impetus is on lawmakers now to ensure a framework is in place where the benefits of new technology can be realised, without the risks to liberty and privacy that left unchecked could undermine trust in the entire law enforcement system.”<sup>5</sup>

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1. All-Party Parliamentary Group on Drones, ‘Background note on the civil use of drones in the UK’, June 2013, p.4, <https://appgondrones.files.wordpress.com/2013/06/appg-background-note-civil-drone-use-in-the-uk.pdf>

2. Chief Surveillance Commissioner, ‘Annual Report 2012 of the Chief Surveillance Commissioner to the Prime Minister and to Scottish Ministers for 2011-2012’, July 2012, p.19, <http://www.official-documents.gov.uk/document/hc1213/hc04/0498/0498.pdf>

3. ‘MPs call for root-and branch overhaul of RIPA’, *Commons Select Committee*, 1 March 2013, <http://www.parliament.uk/business/committees/committees-a-z/commons-select/home-affairs-committee/news/130301-undercover-policing-rpt/>

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4. JUSTICE, ‘Freedom from Suspicion: Surveillance Reform for a Digital Age’, October 2011, p.16, <http://www.justice.org.uk/data/files/resources/305/JUSTICE-Freedom-from-Suspicion-Surveillance-Reform-for-a-Digital-Age.pdf>

5. Big Brother Watch, ‘Unmanned Aerial Vehicles and Unmanned Aerial Systems Briefing’, undated, p.4, <http://appgondrones.files.wordpress.com/2013/06/unmanned-aerial-vehicles-briefing-big-brother-watch.pdf>

# Public funding, private gain?



Considerable amounts of both public and private money have been invested in research aimed at developing drones. Research for this report suggests that around £80 million of money from public bodies has gone into research or development in the UK aimed directly or indirectly at developing the technology necessary to make the use of domestic drones routine. Given that technology developed for military applications could well be used for ‘civil’ drones, the actual figure is probably far higher.

For many projects, major arms firms have been amongst the chief beneficiaries due to their dominance in aerospace technology development. Given the significant profits made by these companies (which themselves come frequently through public contracts) it is unclear why they require further subsidies to support research from which they will benefit financially. In this respect, however, the approach taken by the state in the UK is little different from that followed elsewhere – the EU, for example, has ploughed millions of euros into drone-related research across the continent, including in the UK (see below).

Research into many emerging technologies is frequently heavily subsidised by the state before private companies consider it worth investment. If such subsidies are what the public wish to see they can hardly be criticised, but in none of the cases examined here is it clear what – if any – democratic processes are controlling the allocation of public money. It also remains far from clear exactly what benefits many of these projects have to offer ordinary people.

## ASTRAEA

ASTRAEA (Autonomous Systems Technology Related Airborne Evaluation & Assessment) was a public-private project led by seven companies (six of which are major arms firms)<sup>6</sup> that operated two lines of research – “separate assurance and control” and “autonomy and decision-making” – in order to try and establish “the technologies, systems, facilities and procedures that will allow autonomous vehicles to operate safely and routinely in civil airspace over the United Kingdom.”<sup>7</sup> It received £62 million in funding, of which half came from the companies and half from public bodies, and ran over two phases – from 2006 to 2008 and 2009 to 2013.

The phase running from 2006 until 2008 involved discussions with regulators, the development of technology, the production of a “demonstration of the art of the possible” and the creation of “an internationally recognised position

6. The full list of participants provided on the ASTRAEA website is as follows: public sector bodies: the Technology Strategy Board, Welsh Assembly Government, Scottish Enterprise, the Civil Aviation Authority, the Ministry of Defence; universities: Bristol, Cranfield, Loughborough, Sheffield, Strathclyde; main private sector bodies: Unmanned Aerial Vehicle Systems Association (“the world’s longest established trade association devoted exclusively to the UAS community”), AOS (a firm specialising in autonomous decision-making software), BAE Systems, Cassidian, Cobham, Qinetiq, Rolls-Royce and Thales UK; subcontractors and small and medium-sized enterprises (SMEs): Aerosynergy, Conekt, Cranfield Aerospace Ltd, DM Aviation Ltd, Ebeni, The Great Circle, Iphestos Systems, Netherlands Research Laboratories, PHM Technology, Protographics, Roke Manor Research Ltd.

7. ‘Programme’, *ASTRAEA*, <http://astraea.aero/the-programme/>

for the UK". The second phase ran from 2008 until 2013 and involved working with the CAA to reach agreement on safety issues, establishing "more detailed and specific user requirements", "progressing solutions through five light trials" and "progress towards virtual certification".<sup>8</sup>

The project concluded after "a Jetstream aircraft completed a 500-mile flight through UK airspace while under the command of a ground-based pilot and control of NATS [originally known as National Air Traffic Control Services] air traffic controllers." The return leg of this journey saw the aircraft travel from Preston to Inverness using "advanced sensors and on-board robotic systems to control the aircraft once in the air."

ASTRAEA also established a number of other technology demonstrations, including:

"[A] pilot simultaneously coordinating two small, unmanned aircraft in a simulated search and rescue (SAR) mission; a team of specially equipped vehicles [adapted Mini cars] replicating the demands of a secure and robust communications network whilst driving through remote and mountainous Welsh countryside; work to develop an automatic in-flight refuelling system that could allow unmanned aircraft to operate for extended periods of time for example while undertaking SAR operations far out to sea; and the conversion of an engine test bed into an intelligent and integrated power systems rig, successfully demonstrating the complete autonomous operation of an unmanned aircraft's propulsion and electrical system from start up to shut down, including 'self-healing' to ensure the safety of the aircraft."<sup>9</sup>

A January 2013 article by Tim Robinson for the *Royal Aeronautical Society* argued that although the initiation of the ASTRAEA project led to a "false dawn" of enthusiasm for the domestic use of drones that could not be met due to airspace separation regulations and the fallibility of "sense and avoid" technology, "routine operation... in civil airspace, has already been achieved" with regard to

drones weighing under 150 kilograms.<sup>10</sup>

Robinson noted that:

"[A]'s phase 2 of ASTRAEA concludes, there is much to be excited about, despite the challenges still outstanding. Essential research in 'detect and avoid', robust communications networks and human factors, to give just three examples, along with the whole 'virtual certification' means that many more [of] the issues are now being understood. But, more importantly perhaps, is that the word is being spread – civil UAS use is now firmly on the public's radar and wider interest is growing."

Richard Watson of the National Police Air Service – who represented the police within the ASTRAEA project – noted at the March 2012 meeting of the Association of Chief Police Officers' Unmanned Aerial Systems Steering Group (see 'Police drones', below) that:

"ASTRAEA is an example of where industry is working with the CAA to produce a suitable product. All the big aviation players have a common goal to get this system working. This is UK industries [sic] attempt to get ahead of its competition as they attempt to develop the sense and avoid technology."<sup>11</sup>

While it may have made great strides in advancing drone technology, ASTRAEA did little to advance arguments in relation to drones and privacy. In his summary of the project, Tim Robinson of the Royal Aeronautical Society argued that:

"The changing professional terminology from UAV, to RPAV to UAS has also allowed the use of 'drone', with its unthinking, cyborg connotations, to take firm hold in the media and public. Allied to this, recent news stories about technology and privacy (e.g. phone-hacking) means that any legal and ethical issues need to be addressed up front."

There was not a single element of the

8. 'Programme', *ASTRAEA*, <http://astraea.aero/the-programme/>

9. ASTRAEA, 'Pioneering first remotely piloted flight under NATS control', 3 May 2013, [http://www.astraea.aero/downloads/ASTRAEA\\_end%20\\_FINAL.pdf](http://www.astraea.aero/downloads/ASTRAEA_end%20_FINAL.pdf)

10. Tim Robinson, 'Unlocking the skies', Royal Aeronautical Society Aerospace Insight Blog, 4 January 2013, <http://media.aerosociety.com/aerospace-insight/2013/01/04/unlocking-the-skies/7633/>

11. ACPO UAS Steering Group, 'Minutes', 16 March 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/police-acpo-2012-03-16-minutes.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-acpo-2012-03-16-minutes.pdf)

programme devoted to these issues. This was, of course, not the point. Speaking at the 2012 ASTRAEA conference, Dr Chris Elliot remarked that privacy “is about making sure our privacy laws work. And that’s not about UAVs... We should be sorting out the privacy law, not the UAV law.”<sup>12</sup>

To some extent, he has a point – as argued above, the UK’s legal and regulatory framework surrounding surveillance is inadequate – although this argument fails to take into account the unique opportunities offered by drones for covert, pervasive aerial surveillance and data-gathering.

It is worth highlighting a point made by the European Aviation Safety Agency (EASA) when asked to consider the procedures necessary for allowing routine civilian drone flight across the EU. While it was happy to work on regulatory issues, EASA went on to “insist that operational use of UAV is a political decision”.<sup>13</sup> EASA’s point – which has barely been touched upon by publicly-elected officials – is the fact that the introduction of, for example, policing drones, could massively increase the powers of the state over the individual. It is not just technical discussion, debate and decision-making that is required. Research on and development of new means of potentially highly intrusive surveillance and monitoring should go hand-in-hand with political considerations over the relevant legal and regulatory framework.

## EPSRC funding

The Engineering and Physical Sciences Research Council (EPSRC) “is the main UK government agency for funding research and training in engineering and the physical sciences,” and invests “more than £800 million a year” in subjects ranging “from mathematics to materials science,

12. Dr Chris Elliot, audio recording of keynote presentation given at ASTRAEA 2012 conference, available at: <http://astra.aero/presentations/presentations-from-astraea-2.html>

13. EASA, ‘Advance Notice of Proposed Amendment (NPA) No 16/2005 – Policy for Unmanned Aerial Vehicle (UAV) Certification’, 2005, p.15, [http://www.statewatch.org/observatories\\_files/drones/eu/easa-2005-proposed-amendment-uav-policy.pdf](http://www.statewatch.org/observatories_files/drones/eu/easa-2005-proposed-amendment-uav-policy.pdf)

and from information technology to structural engineering.”<sup>14</sup>

Research either aimed at directly producing, or which had the end result of producing benefits for the further development of drones or components required for drones, has received at least £22.7 million in funding from the EPSRC in the last ten years. The research has examined robotics, software, flight technology, as well as the application of drones for purposes such as environmental monitoring. A table containing information on the projects funded is available in Annex 1 (available online).<sup>15</sup>

Out of the £22.7 million, over £12.1 million of that funding has gone towards unmanned aerial vehicles, £322,000 to unmanned ground vehicles, just over £1 million to unmanned water vehicles, and nearly £9.2 million to projects that do not specify what form of unmanned technology at which the research is aimed.<sup>16</sup> Much of the money has gone to universities, but arms firms have also frequently been recipients of EPSRC funds, in particular BAE Systems and QinetiQ, as well as Rolls-Royce, Thales, and Boeing.<sup>17</sup>

The projects have had a wide variety of aims. One project, ‘Advances in robust control methods and applications to flying discs’, received a grant of over £364,000 and argued that:

“[F]lying discs are attractive because they can in the future lead to reliable and effective Miniature Unmanned Aerial Vehicles (UAVs) which are important in a vast number of applications, including surveillance, reconnaissance and increased border security.”<sup>18</sup>

Another received a grant of nearly £1.2 million and sought to “understand how and why insect wing shapes have such variation despite intense selective pressure for aerodynamic performance”, with the result that the researcher ended up

14. ‘About us’, *EPSRC*, <http://www.epsrc.ac.uk/about/Pages/aboutus.aspx>

15. <http://www.statewatch.org/backfromthebattlefield>

16. Figures obtained from the EPSRC ‘Grants on the Web’ database, <http://gow.epsrc.ac.uk/NGBODefault.aspx>

17. There are also of course many close links between arms firms and UK university departments. See: Campaign Against Arms Trade Universities Network, <http://universities.caat.org.uk>

18. ‘Advances in robust control methods and application to flying discs’, *EPSRC*, 16 April 2008, <http://gow.epsrc.ac.uk/NGBOViewGrant.aspx?GrantRef=EP/F06022X/1>

sitting on a NATO panel on Advanced Vehicle Technologies, taking part in “knowledge transfer with commonwealth government departments (DTSO [Defence Science and Technology Organisation] Australia)” and was awarded a studentship as part of the PhD Programme for Unmanned Aerial Systems at the UK government’s Defence Science and Technology Laboratory.<sup>19</sup>

One project highlights the concerns held by many drone enthusiasts over public perceptions of the technology. ‘The Truth About Unmanned Aerial Vehicles’, run by the University of Nottingham from April 2007 until April 2008, was awarded nearly £70,000 in order to “to dispel some of the myths about what UAVs can and can’t currently do, and present information about historical developments, current technology and applications and details of where academia and industry plan to go in terms of research and development.” Partners in the project were the RAF Museum, Newark Air Museum, and the arms firm QinetiQ.

In May 2012 the EPSRC announced a “£16 million boost for UK robotics” aimed at projects that would help “develop smart machines that think” – that is, autonomous systems. £4 million of the money will come from companies that are taking part in the funding programme and the research will include:

“[S]afe ways of monitoring in dangerous environments such as deep sea installations and nuclear power plants, ‘nursebots’ that assist patients in hospitals, and aerial vehicles that can monitor national borders or detect pollution.”<sup>20</sup>

Projects that started in 2012 and 2013 and which involved institutes that were partners in the “smart machines that think” projects were worth just over £3 million. This leaves £9 million pounds of public money for these projects unlisted in the EPSRC database, which would suggest that the total amount of EPSRC funding awarded to unmanned robotics projects is around £31 million.

19. ‘Insect wing design: evolution and biomechanics’, *EPSRC*, 10 June 2009, <http://gow.epsrc.ac.uk/NGBOViewGrant.aspx?GrantRef=EP/H004025/1>

20. ‘£16 million boost for UK robotics’, *EPSRC*, 10 May 2012, <http://www.epsrc.ac.uk/newsevents/news/2012/Pages/robotics.aspx>

The total may be even higher than this – a £6.2 million pound project called FLAVIIR (FLapless Air Vehicle Integrated Industrial Research), also unlisted in the EPSRC database, was jointly funded by the EPSRC and BAE Systems, although it is not clear how much money was contributed by each party.<sup>21</sup> This led to a test flight in 2009 of “an 80kg jet powered unmanned aerial vehicle (UAV), by BAE Systems,” called ‘Demon’. Matt Pearson from BAE Systems explained that “the test flights will be used to determine which technologies developed by the researchers work best in action.”<sup>22</sup>

EPSRC funding, combined with the £31 million awarded to the ASTRAEA project, means at least £62 million has been awarded in UK public funding to research into unmanned technology in the last decade. While this pales in comparison to the nearly £2 billion that has gone into defence-related research since 2007,<sup>23</sup> it is a significant amount of money, much of which is geared directly at highly contentious activities such as border control. It must also be recognised that technology developed through expenditure on military research may well be used for civilian applications as well.

## EU-funded drone research projects in the UK

Generous EU security research funding has also benefited projects undertaken by UK firms and institutions aimed at developing or using drones.<sup>24</sup> The Seventh Framework Programme

21. ‘We’re flying without wing flaps and a pilot’, *EPSRC*, 21 March 2006, <http://www.epsrc.ac.uk/newsevents/news/2006/Pages/flyingwithoutwingflaps.aspx>; FLAVIIR website, <http://www.flaviir.com/>

22. ‘Demon of the skies gets ready for its maiden flight’, *EPSRC*, 18 September 2009, <http://www.epsrc.ac.uk/newsevents/news/2009/Pages/maidenflight.aspx>

23. ‘Shelling Out: UK Government Spending on Unmanned Drones’, *Drone Wars UK*, September 2012, <http://dronewarsuk.files.wordpress.com/2012/09/shelling-out-uk-spending-on-drones.pdf>

24. Values in this section will be given in pounds and euros where they are sum totals, e.g. for research fund budgets or the total

for Research and Technological Development (FP7) was, from 2007 to 2013, “the EU’s main instrument for funding research in Europe”. It had a total budget of over £42 billion (€50 billion).<sup>25</sup> £1.2 billion (€1.4 billion) of this was earmarked for the European Security Research Programme (ESRP), which had “the twin objectives of enhancing public safety through the development of security technologies and fostering the growth of a globally competitive European ‘Homeland Security’ market.”<sup>26</sup> The 2009 report *NeoConOpticon* argued that the entire European Security Research Programme was “shaped by prominent transnational defence and security corporations and other vested interests”.<sup>27</sup> FP7’s successor, Horizon 2020, will run from 2014 until 2020 and with a budget £60.4 billion (€73.4 billion) is the world’s largest research fund. £3.1 billion (€3.8 billion) of this is earmarked for security research.

10 projects based either partly or wholly in the UK and aimed at developing or making use of drone technology have received a total of over £17 million (€21.2 million) from FP7 funds. €40,000 was also awarded under FP7 predecessor the Sixth Framework Programme to a project aimed at promoting the use of “embedded vision systems and neural architectures to develop intelligent control systems that are typical of robotic applications”.<sup>28</sup> A full list of projects and funding is contained in the table in Annex 2 (available online).<sup>29</sup>

FP7 projects have had a variety of aims, ranging the University of Bristol-run

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value of funding given to a set of projects. For ease of reading, euros alone will be used when referring to funding awards for individual EU-funded projects, as this was the currency in which funding awards were made. Their value in pounds can be found in the table in Annex 2 (available online, <http://www.statewatch.org/backfromthebattlefield>). All comparative values in pounds are given according to exchange rates given on 28 February 2014 by XE Currency Converter: <http://www.xe.com/ucc>

25. European Commission, ‘What is FP7? The basics’, [http://ec.europa.eu/research/fp7/understanding/fp7inbrief/what-is\\_en.html](http://ec.europa.eu/research/fp7/understanding/fp7inbrief/what-is_en.html)

26. Statewatch, ‘Observatory on the European Security Research Programme (ESRP)’, <http://www.statewatch.org/Targeted-issues/ESRP/security-research.html>

27. Ben Hayes, ‘Neoconopticon’, *Statewatch/Transnational Institute*, 2009, <http://statewatch.org/analyses/neoconopticon-report.pdf>

28. CORDIS, ‘DESIRE - The use of Digital Embedded Systems in Robotics Engineering’, [http://cordis.europa.eu/projects/rcn/82068\\_en.html](http://cordis.europa.eu/projects/rcn/82068_en.html)

29. <http://www.statewatch.org/backfromthebattlefield>

CHIROCOPTER (awarded €231,283), which aimed to develop a drone to mimic the behaviour of bats in order to “develop a bio-inspired algorithm for echo based navigation to explain the navigation capabilities of bats,”<sup>30</sup> to OPARUS, awarded €1,188,312 and which, run by French firm Sagem and with the involvement of BAE Systems and a number of other military and security corporations, aimed at developing:

“[A]n open architecture for the operation of unmanned air-to-ground wide area land and sea border surveillance platforms in Europe... based on analysis of concepts and scenarios for UAV-based aerial surveillance of European borders. It takes into account the emerging legislation for insertion of UAS into controlled civil airspace.”<sup>31</sup>

Numerous other FP7-funded projects that have not involved UK organisations have also investigated the use of drones for purposes such as border control and policing.<sup>32</sup>

## Testing grounds

The development of both military and civilian drones has benefited over the last decade from the use of significant tracts of land in west Wales for test flights. In 2001, businessman Ray Mann bought a former military airfield, rechristened it West Wales Airport and established “the only facility in the country where military and civilian drones can be tested.” Currently 500 square miles of segregated airspace over land and 2,000 square miles over sea are available for test flights.<sup>33</sup> The impetus for Mann’s initiative came following the 11 September 2001 terrorist attacks in the US: “without 9/11 there would have been no war on

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30. CORDIS, ‘CHIROCOPTER – A remote controlled helicopter for investigating the echoes experienced by bat during navigation’, [http://cordis.europa.eu/projects/rcn/107981\\_en.html](http://cordis.europa.eu/projects/rcn/107981_en.html)

31. CORDIS, ‘OPARUS - Open architecture for UAV-based surveillance system’, [http://cordis.europa.eu/projects/rcn/95504\\_en.html](http://cordis.europa.eu/projects/rcn/95504_en.html)

32. Ben Hayes, Chris Jones and Eric Töpfer, ‘EU-funded drone research’, *Eurodrones, Inc*, February 2014, pp.26-38, <http://www.statewatch.org/eurodrones>

33. ‘World’s first civilian centre for operating unmanned aircraft systems launched’, 9 September 2013, [http://www.nationalaeronauticalcentre.co.uk/latest\\_news/20130905%20UAS%20LAUNCH%20RELEASE.pdf](http://www.nationalaeronauticalcentre.co.uk/latest_news/20130905%20UAS%20LAUNCH%20RELEASE.pdf)

terror, and no rapid need to develop UAVs,” he told *Wired* magazine in November 2012.<sup>34</sup>

In July 2012 the site was rebranded as the National Aeronautical Centre (NAC) and in November 2012 a partnership with Oklahoma State University was announced in order “to advance the operation and regulatory development of Unmanned Aerial Systems.”<sup>35</sup> In December of the same year the NAC expanded further through a partnership with Newquay Cornwall Airport. The NAC also has a partnership with QinetiQ, whose West Wales UAV Centre provides “UAV support services for both civil and military customers”.<sup>36</sup> In September 2013 QinetiQ signed a contract with the government that would allow it to use a former RAF base at Llanbedr, in Snowdonia, as a drone testing site, further expanding the space afforded to drone tests in Wales.<sup>37</sup> QinetiQ noted that use of the site will enable “UAS development in support of both civil and defence related opportunities”.<sup>38</sup>

The NAC also incorporates the publicly-funded ParcAberporth business park, which opened in 2005 and houses facilities run by Thales, Selex ES and the Ministry of Defence.<sup>39</sup> According to *BBC News*, in 2005, the aim was to “create 230 jobs [at the business park] in the first three years, but could eventually create up to 1,000.” A document posted on the website of the UK industry lobby group, the Unmanned Aerial Vehicle Systems

Association, states that the ParcAberporth development was “borne out of the imperative to develop and maintain sustainable economic growth in West Wales.”<sup>40</sup>

The promised jobs are yet to materialise. A February 2011 response to a Freedom of Information request submitted to the Welsh government said that there were 37 people employed at the site, “an additional 75 people involved in training activities are accommodated from time to time” in relation to the Ministry of Defence’s Watchkeeper drone project, and that a total of £17,482,148 in public funding had gone to the development.<sup>41</sup> A February 2013 article in the *Daily Mail* claimed a total cost to the public purse of £21 million, with one local resident referring to the site as “a scandalous waste of money”.<sup>42</sup>

While the facilities in west Wales are aimed at both military and civilian development, it is far from certain that the civilian market will ever reach the heights promised by its enthusiastic proponents. Military spending, meanwhile, has been found by a number of research studies to “create the fewest jobs. If the money were spent on either education or public transportation, more than twice the number of jobs would be created than with military spending.”<sup>43</sup>

The NAC site has played host to the testing of numerous military systems, and reportedly over 1,000 drones in total.<sup>44</sup> Most prominent of these is the long-delayed Watchkeeper surveillance system being developed by U-TaCs, a joint venture between Israel’s Elbit Systems and Thales UK on behalf of the UK Ministry of Defence.<sup>45</sup>

34. Mark Piesing, ‘Former WW2 airfield in Wales transformed into drone testing ground’, *Wired*, 5 November 2012, <http://www.wired.co.uk/news/archive/2012-11/05/drones-wales>; a timeline on the West Wales Airport website lists “a number of important firsts” achieved at the site. See: West Wales Airport, ‘News’, [http://www.flyuav.co.uk/www\\_news/index.html](http://www.flyuav.co.uk/www_news/index.html)

35. National Aeronautical Centre, ‘Unmanned civilian flights draw nearer’, 14 November 2012, [http://www.nationalaeronauticalcentre.co.uk/latest\\_news/NAC%20announces%20US%20partner.pdf](http://www.nationalaeronauticalcentre.co.uk/latest_news/NAC%20announces%20US%20partner.pdf)

36. QinetiQ, ‘MOD awards QinetiQ contract to deliver part of the major Watchkeeper UAV programme at ParcAberporth, West Wales’, undated, <http://www.qinetiq.com/news/pressreleases/Pages/mod-awards-qinetiq-5m-watchkeeper-contract.aspx>; West Wales UAV Centre, <http://www.wwuavc.com/>

37. ‘Drone tests at Llanbedr airfield ‘will bring jobs’ to area’, *BBC News*, 24 September 2013, <http://www.bbc.co.uk/news/uk-wales-north-west-wales-24226287>

38. ‘QinetiQ Invests in ParcAberporth UAS Test Range Expansion’, *UASVision*, 12 September 2013, <http://www.uasvision.com/2013/09/12/qinetiq-invests-in-parcaberporth-uas-test-range-expansion/>

39. ‘Excellence aircraft centre opens’, *BBC News*, 7 September 2005, <http://news.bbc.co.uk/1/hi/wales/mid/4221114.stm>; National Aeronautical Centre, <http://www.nationalaeronauticalcentre.co.uk/>

40. ‘Wales Unmanned Air Vehicle (UAV) Environment – Understanding the Potential Requirements; a précis paper’, undated, <http://www.uavs.org/document.php?id=61&ext=pdf>

41. ‘Bus86 ParcAberporth costs’, 22 February 2011, <http://wales.gov.uk/about/foi/responses/dr2011/business/5873403/?lang=en>

42. Ian Drury, ‘The drone zone: Seaside town’s peace is shattered by the testing of unmanned aircraft used to tackle the Taliban’, *Daily Mail*, 16 February 2013, <http://www.dailymail.co.uk/news/article-2279491/The-drone-zone-Seaside-towns-peace-shattered-testing-unmanned-aircraft-used-tackle-Taliban.html>

43. Frank Slijper, ‘Guns, Debt and Corruption: Military spending and the EU crisis’, April 2013, p.9, [http://www.tni.org/sites/www.tni.org/files/download/eu\\_milspending\\_crisis.pdf](http://www.tni.org/sites/www.tni.org/files/download/eu_milspending_crisis.pdf)

44. Nick Hopkins, ‘Welsh airfield at the centre of Britain’s drone revolution’, *The Guardian*, 6 May 2013, <http://www.theguardian.com/world/2013/may/06/welsh-airfield-drones>

45. Chris Cole, ‘Waiting for the Watchkeeper?’, *Drone Wars UK*, 3 March 2011, <http://dronewars.net/2011/03/03/waiting-for-the-watchkeeper/>; Chris Cole, ‘MoD’s drones PR offensive continues

Originally intended to be used in Afghanistan by the Army (as opposed to the Royal Air Force, which operates the UK's armed Reaper drones), the project is nearly three years overdue and it seems unlikely that the drones will be used before British troops are due to leave Afghanistan in December 2014.

At the end of February this year, Watchkeepers were given permission to fly over Wiltshire as part of a final testing phase. The drones will take off from Boscombe Down airfield in unsegregated airspace – the first time military drones have been allowed to do so in Britain – before being flown to segregated military airspace over Salisbury Plain.<sup>1</sup>

Elbit's Hermes (on which the Watchkeeper is based) and Selex's Falco have also been tested at the NAC. Numerous peace and anti-militarist groups have staged protests at the site, most recently in September 2013 to coincide with the Defence Security and Equipment International arms fair and a "one-stop shop" drones conference held beforehand.<sup>2</sup> Protesters will have their work cut out for them – September 2013 was the same month that West Wales Airport was officially rebranded as the NAC, and the company is clearly thinking in the long term:

"The centre is open to civilian and military contractors and operators and has the capacity to deliver the necessary services and accommodation for all sizes of UAS envisaged for production and development over the next 20 years."<sup>3</sup>

## Summary

At least £80 million of public funding from both UK and EU institutions has gone towards the development of drones or the technology and facilities seen as a prerequisite for their use. Far more will likely be spent in the future – a consortium led by BAE Systems has just received an undisclosed amount to investigate "unmanned aviation in the civil market" as part of a £60 million push to "keep Britain at the forefront of the global aerospace market".<sup>4</sup> In many cases this research is largely benign – for example, that aimed at environmental or biological research. Yet many projects are geared towards technologies that seem most useful for law enforcement and border control purposes. While the development of technology is being backed by numerous public and private interests, there appears to have been relatively little – if any – thought given to the political issues raised by the potential widespread introduction of domestic drones. This further points to the need for a wide-ranging public debate on the current and future possibilities for drone use, surveillance, and the combination of the two. At the same time, given that many of the jobs promised by the ParcAberporth development have clearly not materialised – despite over £20 million of public investment – the subsidising of high-tech defence and security technology industries as a means to employment and economic development should also be called into question.

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as UK commits to a drone filled future', *Drone Wars UK*, 17 January 2014, <http://dronewars.net/2014/01/17/mods-drones-pr-offensive-continues-as-uk-commits-to-a-drone-filled-future/>  
1. 'Army's new Watchkeeper drone to patrol Wiltshire skies', *BBC News*, 24 February 2014, <http://www.bbc.co.uk/news/uk-26320927>; Chris Cole, 'Watch out! Watchkeepers over Wiltshire', *Drone Wars UK*, 22 February 2014, <http://dronewars.net/2014/02/22/watch-out-watchkeepers-over-wiltshire/>  
2. 'UAV protest outside drone testing base in Aberporth', *BBC News*, 9 September 2013, <http://www.bbc.co.uk/news/uk-wales-24018746>; 'Boom time for drone deals at DSEI', *Stop the Arms Fair*, 27 August 2013, <http://www.stopthearmsfair.org.uk/boom-time-for-drone-deals-at-dsei/>  
3. 'World's first civilian centre for operating unmanned aircraft systems launched', 9 September 2013, [http://www.nationalaeronauticalcentre.co.uk/latest\\_news/20130905%20UAS%20LAUNCH%20RELEASE.pdf](http://www.nationalaeronauticalcentre.co.uk/latest_news/20130905%20UAS%20LAUNCH%20RELEASE.pdf)

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4. Department for Business, Innovation and Skills, '£60 million aerospace projects cleared for take off', gov.uk, 25 February 2014, <https://www.gov.uk/government/news/60-million-aerospace-projects-cleared-for-take-off>

# Police drones



The use of drones by police forces across the UK has caught the attention of the press a number of times in the last few years. In May 2007 *The Daily Telegraph* reported the first police use of a drone in the UK, by Merseyside constabulary. The paper noted that “if the experiment works, other forces will follow suit – furthering Britain’s reputation as a ‘Big Brother society’.”<sup>5</sup> In February 2009 *The Telegraph* was again reporting on the issue, claiming that “police could soon use unmanned spyplanes like those used to track enemy troops in Iraq and Afghanistan for surveillance operations on British homes.”<sup>6</sup> *The Guardian* revealed in early 2010 a project between Kent Police and BAE Systems called the South Coast Partnership, which would see drones deployed for border control as well as “for the ‘routine’ monitoring of antisocial motorists, protesters, agricultural thieves and fly-tippers, in a significant expansion of covert state surveillance.”<sup>7</sup> In November 2011 *The Independent* reported on what would become a common theme in the run-up to the London Olympics: that drones would be “flown across the skies of London” during the event.<sup>8</sup>

5. Philip Johnston, ‘Police spy in the sky fuels ‘Big Brother’ fears’, *The Telegraph*, 22 May 2007, <http://www.telegraph.co.uk/news/uknews/1552253/Police-spy-in-the-sky-fuels-Big-Brother-fears.html>

6. Murray Wardrop, ‘Remote-controlled planes could spy on British homes’, *The Telegraph*, 24 February 2009, <http://www.telegraph.co.uk/news/newstopics/howaboutthat/4790389/Remote-controlled-planes-could-spy-on-British-homes.html>

7. Paul Lewis, ‘CCTV in the sky: police plan to use military-style spy drones’, *The Guardian*, 23 January 2010, <http://www.theguardian.com/uk/2010/jan/23/cctv-sky-police-plan-drones>

8. Jerome Taylor, ‘Drones to patrol the skies above Olympics Stadium’, *The Independent*, 25 November 2011, <http://www.independent.co.uk/news/uk/crime/drones-to-patrol-the-skies-above-olympic-stadium-6267107.html>

The papers’ predictions did not quite work out, which is perhaps indicative of the way in which headline-grabbing stories can serve to obscure a debate.<sup>9</sup> In 2010 Merseyside Police were forced to ground their drone by the Civil Aviation Authority (CAA) as they had not obtained a licence for it.<sup>10</sup> The South Coast Partnership “dissolved in 2010 when BAE Systems ceased development in the civilian use of unmanned aerial systems in the south coast area,” according to Kent Police.<sup>11</sup> During the Olympics civil liberties were curtailed amidst a vast show of force, and there were sombre warnings from the military that “[u]narmed drones carrying deadly poison could be used to carry out terror attacks,”<sup>12</sup> but there is no evidence that there were any drones in the skies above London, whether operated by the police or anyone else.<sup>13</sup> The police’s

9. It is perhaps due to the nature of many media stories that Detective Chief Constable Chris Weigh told the ACPO UAS Steering Group in March 2012 that “[t]here is clearly a belief from the public that UASs are far more widespread than they are reality. [sic]” [http://www.statewatch.org/observatories\\_files/drones/uk/police-acpo-2012-03-16-minutes.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-acpo-2012-03-16-minutes.pdf)

10. ‘Unlicensed Merseyside Police drone grounded’, *BBC News*, 16 February 2010, <http://news.bbc.co.uk/1/hi/england/merseyside/8517726.stm>

11. Kent Police, response to FOI request, 16 August 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-kent-2013-08-16-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-kent-2013-08-16-response.pdf)

12. ANI, ‘Unarmed poison drones are latest new threat for London Olympics: expert’, *Yahoo! News India*, 6 May 2012, <http://in.news.yahoo.com/unmanned-poison-drones-threat-london-olympics-expert-080636170--spt.html>

13. Numerous media reports claimed that police were preparing to deploy drones to help ‘secure’ the Olympics. However, at a March meeting of ACPO’s UAS Steering Group, Gerry Corbett from the CAA asked “whether any Police service intend to use a UAS during the Olympics. RW [Richard Watson of the National Police Air Service] answered no to this question.” If drones were deployed, the police were very tight-lipped on the matter. In any case, talk of “poison drones” and newspaper stories about “eyes in the sky” at least served the purpose, whether intentionally or not,

efforts with drones to date have, more often than not, been unsuccessful.

This does not mean that there is no cause for concern. While the current position of the Association of Chief Police Officers (ACPO) is that “there are no plans anytime soon to universally introduce UASs into daily police business,” ACPO’s Unmanned Aerial Systems Steering Group has taken on a coordination role by bringing together different police forces and other agencies, liaising with the Civil Aviation Authority on regulation, and by remaining “sighted” on developments elsewhere in the world, with regard to both civil and military drones. The launch of the National Police Air Service (NPAS) in October 2012 means that there is now a single agency responsible for “the operation of aircraft by and on behalf of police forces” as well as “the provision of staff, aircraft, equipment, air bases, ground control facilities, maintenance facilities and other resources necessary for such air operations.”<sup>14</sup> The Home Office’s Centre for Applied Science and Technology has also produced a standard set of technical requirements for police drones in an effort to push industry towards making more ‘police-ready’ products. At the same time, EU institutions and other organisations are working on Europe-wide domestic drone regulation for machines weighing over 150kg.<sup>15</sup>

Drones have been used by a number of police forces – frequently in trial form, with the technology subsequently dropped – but they are employed by at least two forces. There is also some evidence to suggest that the Serious Organised Crime Agency (SOCA, which recently became part of the National Crime Agency (NCA)) may have acquired a drone towards the end of 2012. The varied use of drones by police forces across the country to date makes clear many of the problems raised by the technology, and many of the obstacles that still need to be overcome to allow for regular flight.

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of distracting from the facts of over-the-top and discriminatory policing on the ground and attempts by community organisations such as the Newham Monitoring Project to ensure respect for basic civil liberties. See: ‘Monitoring Olympics policing during the 2012 ‘Security Games’’, December 2013, <https://netpol.files.wordpress.com/2013/12/monitoring-the-security-games-final-report.pdf>

14. The Police (Collaboration: Specified Function) Order 2012, [legislation.gov.uk](http://www.legislation.gov.uk/ukxi/2012/1690/contents/made), <http://www.legislation.gov.uk/ukxi/2012/1690/contents/made>

15. Ben Hayes, Chris Jones and Eric Töpfer, *Eurodrones, Inc.*, February 2014, <http://www.statewatch.org/eurodrones>

It remains a significant possibility that the use of drones by the police could become widespread and normalised. Just as there is an ongoing outcry about Britain’s use of and participation in drone warfare operations abroad, the frequent publication of news articles around the theme of ‘big brother’ and ‘eye in the sky’ drones demonstrates a deep public unease about their potential introduction within the UK. Many people are well aware of the potential dangers of pervasive, intrusive surveillance and the further militarisation of domestic law enforcement. In the US, a number of states have already sought to tightly regulate the use of drones by law enforcement authorities.<sup>16</sup> The American Civil Liberties Union has made a number of recommendations on the government use of drones in the US that could serve as inspiration for regulation in the UK. These are reproduced in Annex 4 (available online).<sup>17</sup>

## Police use to date

As part of the research for this report a total of 50 Freedom of Information requests were issued to UK constabularies as well as ACPO, the British Transport Police, the Civil Nuclear Constabulary, the NPAS and the Port of Dover Police. The requests asked whether, between 1 July 2009 and 30 June 2013:

- the force had used or considered using drones;
- the force had undertaken any trials, and if so, details of those trials;
- the force had produced any plans or timetables in relations to drones;
- any meetings between force representatives and industry had taken place, and if so, details of those meetings; and
- the force had received any advice or

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16. “[A]lmost all of the bills” proposed or passed in the US so far “require law enforcement to get a probable cause warrant before using a drone in an investigation.” See: Allie Bohm, ‘Status of Domestic Drone Legislation in the States’, *American Civil Liberties Union*, 15 February 2013, <https://www.aclu.org/blog/technology-and-liberty/status-domestic-drone-legislation-states>

17. <http://www.statewatch.org/backfromthebattlefield>

information on the use of drones from local or central government.<sup>18</sup>

Out of 50 responses received,<sup>19</sup> 34 forces (68%) said they had not used or not considered using drones in the last three years, or that they held no information relevant to the request. Nine (Avon & Somerset, the British Transport Police, Derbyshire, Dyfed Powys, Essex, Merseyside, Staffordshire, Strathclyde (now amalgamated into Police Scotland), and West Midlands) confirmed that they have owned and/or used drones. This number rises to 11 when forces who refused to provide information but are known to have used drones (the Metropolitan Police and the Police Service of Northern Ireland) are included. Wiltshire Police have also made use of a drone, although their sole deployment (during the summer solstice celebrations at Stonehenge in June 2009) fell just before the period covered by the FOI requests. Twelve forces in total are therefore known to have used drones, but the extent to which they have done so differs widely.

Four forces (Dorset, Norfolk, Suffolk and the Civil Nuclear Constabulary) have apparently considered the use of drones but have taken no further steps to deploy them. Three other forces (Hampshire, Sussex and West Yorkshire) did not provide any information. ACPO is not in a position to own or operate drones, but is coordinating work across England and Wales through its Unmanned Aerial Systems Steering Group (UASSG), while the NPAS referred requests for information to ACPO.

Of the refusals, Hampshire, Sussex and the Police Service of Northern Ireland (PSNI) declined to answer requests on the grounds of cost. The Metropolitan Police and West Yorkshire issued refusals on the grounds of security: they refused to confirm or deny whether they held any of the information asked for, claiming that it could prejudice law enforcement, national security, and/or the activities of the security services (Articles 24(2), 23(5) and 31(3) of the Freedom of Information Act 2000, respectively). The use of “neither confirm nor deny” notices under Article 23(5) was a common theme and is discussed below.

18. The request to ACPO asked for the minutes of meetings of the UASSG between 1 July 2009 and 30 June 2013.

19. A breakdown of the responses is available in Annex 3, available online: <http://www.statewatch.org/backfromthebattlefield>

## Owned, loaned, operated

Of the 12 forces identified as having owned or operated drones,<sup>20</sup> it seems that only two – Staffordshire and the PSNI – are still using them, or have used them recently. Those that no longer use them, or have merely undertaken trials, no longer make use of the devices for a number of reasons.

Although the PSNI turned down an FOI request issued for this report on grounds of cost, it is known that the force owns and operates drones. This development first came to light in the run-up to the June 2013 G8 summit in County Fermanagh. It was confirmed in April 2013 that the Northern Ireland Policing Board had approved the purchase of “three small drones at a combined cost of around £1m”. While their initial deployment was in the context of public order policing at the demonstration against the G8 – a vast operation involving 8,000 officers from Northern Ireland and a further 3,600 from mainland UK – they are also intended to be used “in searches for suspects and missing persons”. Policing Board spokesman Robin Newton told *BBC News* that “the use of unmanned aerial systems will also be useful in helping to cut back on the costs that arise from the deployment of helicopters.”<sup>21</sup>

*The Journal* reported that Assistant Chief Constable Matt Finlay said at a press conference that he preferred not to use the term “drones” as “it has a particular resonance with some of the other methods of delivering armaments and we’ve seen that in Middle Eastern conflicts.” In September what appeared to be a drone was seen flying over Belfast, although the PSNI said at the time that they are “not yet operating UASs over public areas.”<sup>22</sup> According

20. An article by Anna Minton from February 2010 claims that AirRobot UK “has already supplied 12 UK constabularies with drones, with seven more placing orders with the company in the last six weeks.” These numbers do not tally with what research for this report has uncovered, but it may be that a greater number of forces than we have identified have used drones prior to the time period covered by our FOI requests. See: ‘Expect the drones to swarm on Britain in time for 2012’, *The Guardian*, 22 February 2010, <http://www.theguardian.com/commentisfree/2010/feb/22/doesnt-work-didnt-ask-why-cameras>

21. ‘PSNI drone purchase gets green light’, *BBC News*, 11 April 2013, <http://www.bbc.co.uk/news/uk-northern-ireland-22106017>

22. Rebecca Black, ‘Mystery over strange object seen flying

to reports, the first use following the G8 was in November 2013 in Belfast as part of an operation to defuse a bomb.<sup>23</sup>

The Metropolitan Police refused to provide information in response to an FOI request issued for this report, taking the same stance they have done previously: claiming that it could harm national security and law enforcement if they were to confirm or deny that they held any relevant information. This position was publicly criticised in November 2012 when they made use of it despite two drone manufacturers telling the BBC they had been in talks with the force.<sup>24</sup> The AirRobot website, for example, hosts photos taken from one of the firm's drones during the 2008 Olympic Handover Ceremony on The Mall in central London, an area under the jurisdiction of the Met, as well as a photo with the caption "AirRobot works with London Met Police CBRN Team".<sup>25</sup> However, despite it being widely suggested in the media that drones under the control of the Met would be deployed over London for the 2012 Olympics, there is no conclusive evidence that this happened.

Merseyside Police are probably the most famous of the UK's police forces for their foray into the use of drones. In May 2007 they began a three-month trial using a drone produced by the firm MW Power.<sup>26</sup> At some point in 2009 the force acquired an AirRobot drone equipped with a thermal imaging camera, which was deployed 57 times between July 2009 and February 2010.<sup>27</sup> Prior to its launch

claims were made that it could be used for "anything from hostage situations to monitoring large public events".<sup>28</sup>

Following what was presumably its 57<sup>th</sup> deployment in February 2010, a "car thief in thick undergrowth" was located and subsequently arrested. Five days later the force received a ticking off from the CAA and had to "ground the drone over concerns it was being used illegally without a licence."<sup>29</sup> It is unclear what happened to the arrestee when it emerged that the surveillance that was instrumental in his capture was illegal. The force said in response to FOI requests issued for this report that it had "not operated drone [sic] since February 2010". The last known usage was during a training exercise, when it crashed into the river Mersey after losing power.<sup>30</sup>

Staffordshire Police own a drone which until April 2013 was the only one "currently in use within the police service in the UK," according to ACPO's lead officer for the NPAS, Hampshire Chief Constable Alex Marshall. He has said it is used as part of "searches for missing persons in hazardous environments or to support planned operations,"<sup>31</sup> which includes regular use at the V Festival,<sup>32</sup> hunting for poachers,<sup>33</sup> road collisions, crime scenes and "rooftops which are inaccessible without using a working at heights team".<sup>34</sup> The force has also had "requests around anti-social behaviour and burglaries overnight." It has been deployed 70 times over the last three years,<sup>35</sup> "is not intrusive and

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above Belfast ... but police deny it's one of their drones', *Belfast Telegraph*, 17 January 2014, <http://www.belfasttelegraph.co.uk/news/local-national/northern-ireland/mystery-over-strange-object-seen-flying-above-belfast-but-police-deny-its-one-of-their-drones-29578208.html>

23. 'Bomb found as PSNI use drone for security alert search', *BBC News*, 4 November 2013, <http://www.bbc.co.uk/news/uk-northern-ireland-24812412>

24. 'Metropolitan Police should 'clarify drone position'', *BBC News*, 11 November 2012, <http://www.bbc.co.uk/news/uk-england-london-20287073>. The BBC report doesn't mention the companies by name, but one shot shows a man wearing a hi-vis jacket with 'Sky-Futures' written on the back. Sky-Futures "provide safe, cost effective and experienced Unmanned Aerial Vehicle (UAV) industrial inspection services." See: <http://www.sky-futures.com/>

25. 'Images', *AirRobot UK*, <http://www.airrobot-uk.com/air-robot-images.htm>

26. James Orr and agencies, 'Police send 'spy drone' into the skies', *The Guardian*, 21 May 2007, <http://www.theguardian.com/uk/2007/may/21/ukcrime>

27. Merseyside Police, response to FOI request, September 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-merseyside-2013-09-response-additional-docs.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-merseyside-2013-09-response-additional-docs.pdf) and response to FOI request, 2012, <http://www.statewatch.org/>

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observatories\_files/drones/uk/police-merseyside-2012c-foi-response.pdf

28. 'Police drone crashes into River Mersey', *BBC News*, 31 October 2011, <http://www.bbc.co.uk/news/uk-england-merseyside-15520279>

29. 'Unlicensed Merseyside Police drone grounded', *BBC News*, 16 February 2010, <http://news.bbc.co.uk/1/hi/8517726.stm>

30. 'Police drone crashes into River Mersey', *BBC News*

31. Alex Marshall, 'Drones', 9 October 2012, <http://www.acpo.police.uk/ThePoliceChiefsBlog/201210AlexMarshallblog.aspx>

32. James Randerson, 'Eye in the sky: police use drone to spy on V festival', *The Guardian*, 21 August 2007, <http://www.theguardian.com/uk/2007/aug/21/ukcrime.musicnews>

33. 'Hi-tech drone device to catch poachers on Cannock Chase', *Express & Star*, 17 January 2014, <http://www.expressandstar.com/news/crime/2013/06/27/hi-tech-drone-device-to-catch-poachers-on-cannock-chase/drone11/>

34. ACPO UAS Steering Group, 'Minutes', 15 September 2010, [http://www.statewatch.org/observatories\\_files/drones/uk/police-acpo-2010-09-15-minutes.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-acpo-2010-09-15-minutes.pdf)

35. All Party Parliamentary Group on Drones, 'Background note on civil use of drones in the UK', June 2013, <http://appgondrones.files.wordpress.com/2013/06/appg-background-note-civil-drone-use-in-the-uk.pdf>

is silent”.<sup>36</sup> Restrictions have been placed on the use of the drone by the CAA, but the force would not provide further details: “divulging the details of those restrictions may compromise the tactical options and use of the UAV”. The force also stated that they “have been approached by other police forces in respect of the use of UAV as a policing function,” although “these were informal approaches and as such details and minutes are not held”.<sup>37</sup>

The minutes of the ACPO UASSG, however, state that enquiries have been received from Avon & Somerset Police, the Australian Federal Police, and “a gentleman in Paris looking at UAS usage”.<sup>38</sup>

In March 2011, a meeting of the Avon & Somerset Police Chief Office Group was informed of “an opportunity for a short term trial of Unmanned Airborne Vehicles”.<sup>39</sup> In response to a FOI request, the force said that “the opportunity to trial UAVs came from industry” and that “some research and a demonstration of the equipment were carried out.” The force does not apparently own or operate any drones, but did make use of FOI exemptions relating to “information supplied by, or concerning, certain security bodies,” national security and law enforcement. Lengthy arguments were made in favour of applying the exemptions, including that:

“Confirming or denying that any other information is held in relation to UAV’s would limit operational capabilities as criminals/terrorists would gain a greater understanding of the police’s methods and techniques, enabling them to take steps to counter them. It may also suggest the limitations of police capabilities in this area, which may further encourage criminal/terrorist activity by exposing potential vulnerabilities. This detrimental effect is increased if the request is made to several different law enforcement bodies. In addition to the local criminal fraternity now being better informed, those intent on organised crime throughout the UK will be able to ‘map’

36. ACPO UAS Steering Group, ‘Minutes’, 15 September 2010

37. Staffordshire Police, response to FOI request, 18 September 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-staffs-2013-09-18-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-staffs-2013-09-18-response.pdf)

38. ACPO UAS Steering Group, ‘Minutes’, 12 October 2011, [http://www.statewatch.org/observatories\\_files/drones/uk/police-acpo-2011-10-12-minutes.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-acpo-2011-10-12-minutes.pdf)

39. Avon & Somerset Police, ‘Chief Office Group Minutes’, 25 March 2011, [http://www.statewatch.org/observatories\\_files/drones/uk/police-avon-somerset-2011-03-uav-trial-opportunity.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-avon-somerset-2011-03-uav-trial-opportunity.pdf)

where the use of certain tactics are or are not deployed. This can be useful information to those committing crimes. This would have the likelihood of identifying location-specific operations which would ultimately compromise police tactics, operations and future prosecutions as criminals could counteract the measures used against them.”<sup>40</sup>

Essex Police, despite purchasing an AirRobot drone in 2008 for almost £20,000, have never used it. Seemingly seeking to dispel fears that they may be in possession of more advanced technology, the force said in its response to an FOI request that “it can best be described as a simple hovering platform upon which camera technology could be mounted.”

The response went on to say that:

“[T]he device has not been operational or indeed functional for some years, as considerable alterations; updates and repairs would be required to make it so. It is now no longer considered viable and is to be removed from the Force assets register. As a consequence, Essex Police no longer consider that we currently own such a device, and there are no plans to explore any opportunities in respect of this technology at this time.”

Other police drones have been used for operational work. Derbyshire Police used an AirRobot AR100b to monitor the far-right Red, White and Blue Festival in Codnor in August 2009, “in order to ‘test’ the concept”. According to a report posted on *Indymedia*, the drone was brought to and operated at the event by a representative of AirRobot, and was also used to undertake surveillance of an anti-fascist protest.<sup>41</sup> However, Derbyshire Police were apparently unsatisfied: “due to technical issues on the day and the fact that it was a large scale operation the use of the Constabulary’s helicopter was more effective.”<sup>42</sup>

During 2009 and 2010 Welsh constabulary Dyfed Powys carried out “a scoping exercise

40. Avon & Somerset Police, response to FOI request, 7 November 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-avon-somerset-2013-11-07-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-avon-somerset-2013-11-07-response.pdf)

41. Tash, ‘AirRobots Drone deployed at Demo against the BNP Event in Derbyshire’, *Indymedia UK*, 21 August 2009, <http://indymedia.org.uk/en/2009/08/436590.html>

42. Derbyshire Police, response to FOI request, 5 September 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-derbyshire-2013-09-05-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-derbyshire-2013-09-05-response.pdf)

to establish the benefits of acquiring a UAV to support operational policing,” which included a meeting with AirRobot, but “no trial took place”. However, for three days in early October 2012 “a UAV was borrowed/loaned from a company and deployed in the early stages of Operation Tempest (search for April Jones)”, in order “to conduct aerial photography of a search area”.<sup>43</sup>

For similar reasons, Strathclyde Police (which is now part of Police Scotland, the body to which a FOI request was directed) have also made use of drone technology:

“[B]etween 2007 and 2008 Strathclyde Police undertook a trial of an Unmanned Airborne Vehicle (UAV) for approximately 12 months in the more remote and inaccessible Argyll area. The UAV was used for Search and Rescue purposes and for this purpose only [emphasis in original] and on the termination of the trial the piece of equipment was returned to the manufacturer.”<sup>44</sup>

The British Transport Police also took part in a trial, “approximately 3–4 years ago”. However, they could provide no further information: “The Officer who dealt with this trial has now left British Transport Police and there is no paperwork held in relation to it.”<sup>45</sup> Similarly, West Midlands were also unable to rely on official records for their response, which stated that:

“From memory, one officer is aware that a blimp was used at the Warwickshire Cricket ground in 2007. The UAV in question was used by the cricket ground and we had access to the live images in their control room.

“We also believe that we may have utilised a blimp for the Birmingham (Handsworth) Carnival about five years ago, possibly the 2009 Carnival. However we do not have any documentation to support this and the officer who would have been in charge at the time has since retired.”<sup>46</sup>

43. Dyfed Powys Police, response to FOI request, 14 August 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-dyfed-powys-2013-08-14-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-dyfed-powys-2013-08-14-response.pdf)

44. Police Scotland, response to FOI request, September 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-scotland-2013-09-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-scotland-2013-09-response.pdf)

45. British Transport Police, response to FOI request, August 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-btp-2013-08-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-btp-2013-08-response.pdf)

46. West Midlands Police, response to FOI request

The Civil Nuclear Constabulary, responsible for “providing protection for civil nuclear licensed sites and safe-guarding nuclear materials, nuclear site operators, policing and nuclear regulators,”<sup>47</sup> were provided with a demonstration by AirRobot UK in August 2011, but have apparently never purchased or used drones.<sup>48</sup> Norfolk and Suffolk constabularies stated in their FOI responses that they had considered using them, but their relationship with the technology does not appear to have gone any further.<sup>49</sup>

The case of Dorset police, who stated in a response to a FOI request that they had considered using, but had not used, drones, is more interesting. According to the minutes of a March 2009 meeting of the Executive Board of the force, under the heading ‘Covert Equipment for Tactical Support Unit’, the Board was informed by the Assistant Chief Constable that “the Force had received a grant for a drone”.<sup>50</sup> The response to a Freedom of Information requested submitted as part of the research for this report shed some further light on the issue: “a grant of £10,000 was received from the Home Office, but subsequently returned to them unused.”<sup>51</sup>

Beyond this, no more is known, but it raises a number of questions: has the Home Office supplied grants to other forces wishing to purchase drones? How did the Home Office evaluate the suitability of Dorset Police to receive such a grant, given that the force returned the money? Was it earmarked specifically for the purchase of a drone? What policies in relation to drones has the Home Office adopted – beyond the technical requirements noted below – in relation to the use of drones by the police?

47. Civil Nuclear Constabulary, ‘Structure’, <http://www.cnc.police.uk/about-the-cnc/who-are-the-cnc/structure>

48. Civil Nuclear Constabulary, response to FOI request

49. Norfolk Police, response to FOI request, August 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-norfolk-2013-08-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-norfolk-2013-08-response.pdf); Suffolk Police, response to FOI request, August 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-suffolk-2013-08-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-suffolk-2013-08-response.pdf)

50. Dorset Police, ‘Minutes of the Force Executive Board Meeting’, 11 March 2009, [http://www.statewatch.org/observatories\\_files/drones/uk/police-dorset-2009-03-executive-board-meeting.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-dorset-2009-03-executive-board-meeting.pdf)

51. Dorset Police, response to FOI request, 24 September 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-dorset-2013-09-24-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-dorset-2013-09-24-response.pdf)

# The view from the centre

In October 2012, at the launch of the NPAS, statements by officials hinted at elements of a national policy on drones. Policing minister Damian Green said that they “should be treated like any other piece of police kit or activity,” and be used only “if it is both appropriate and proportionate”. Hampshire Chief Constable Alex Marshall, representing ACPO, said: “the service [NPAS] should start looking towards drones that can stay in the air longer and would be cheaper than running manned aircraft.”<sup>52</sup>

The NPAS has claimed it holds none of the information asked for in an FOI request (although it did make use of the Section 23(5) exemption),<sup>53</sup> but other sources suggest that the police’s ambitions for the uses of drones for the moment remain somewhat limited. Detective Chief Constable (DCC) Chris Weigh of Lancashire Constabulary has said that “the current ACPO position is that there are no plans anytime soon to universally introduce UASs into daily police business,” and a presentation by Alan Brooke, Technical Lead on UAS for the Home Office Centre for Applied Science and Technology (CAST, formerly known as the Home Office Scientific Development Branch) notes that “basically what [the police] are after is a camera on a stick,

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52. pa.press.net, ‘Minister warns on police drone use’, *MSN News*, 1 October 2012, <http://news.uk.msn.com/minister-warns-on-police-drones-use>. It is worth noting with regard to flight times that the only device advertised on the website of Air Robot UK – which seems to be the most popular supplier of drones to UK police forces – is the AR100b, which has a flight duration of less than 30 minutes.

53. The NPAS took some three-and-a-half months to respond to the FOI request issued for this report, in July 2013. In November 2013 they said: “West Yorkshire Police [the “lead force” for the NPAS] hold no information in relation to your request,” and also invoked the Section 23(5) exemption. However, it would seem the NPAS do hold some information. An email in October stated that “your request is being actively progressed. Additional information is currently awaited and you will be provided with a response as soon as possible.” In November the request was “with Senior Management awaiting approval,” when the decision was presumably made not to release any information. The West Yorkshire Police FOI department subsequently suggested contacting Lancashire Police as: “Our NPAS team has informed us that the DCC [Detective Chief Constable] at Lancashire chairs the Unmanned Aerial Systems Steering Group therefore such documents are held by Lancashire Force.”

without the stick. That’s not a very complex system.”<sup>54</sup>

A presentation by Brooke also notes that police drones are “not for pervasive surveillance” because it is “not police policy – no ‘fishing expeditions’” and there is “not enough time to look at the information!”<sup>55</sup> It is of course an open question as to whether the police could be trusted to stick to such a policy. Moreover, as technology progresses – for example with the development of cheaper drones capable of longer periods of flight and software systems more easily capable of automated tracking and analysis – it may be the case that pervasive surveillance capabilities will become more tempting to the authorities.

It seems that there is some way to go before drones can be regularly incorporated into police work. Richard Watson of the NPAS said in March 2012 that “the technology is in its infancy” and in October 2012 that the police “should be open to the usage of UASs but he felt this was years away,” as current technology does not “do what is required in terms of routine police work. The requirement is for a product that does something similar to helicopters.” Jeremy Howitt of the arms firm Qinetiq, which is looking to cash in on the development of civil drones and is involved in the ASTRAEA partnership, is more optimistic about this timeframe. He has said that “many in the industry believe that it will only take ten years or less to evolve and develop the appropriate regulatory landscape for civil UAVs”.<sup>56</sup>

ACPO is playing a role in coordinating and centralising work related to police use of drones through its UAS Steering Group. This has been running since at least 2009 and according to the minutes of a March 2012 meeting has a number of purposes:

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54. Stuart Nathan, ‘Roundtable: development of civilian UAVs’, *Process Engineering*, 17 October 2012, <http://processengineering.theengineer.co.uk/sectors/aerospace/in-depth/roundtable-development-of-civilian-uavs/1014293.article>

55. Alan Brooke, ‘Emergency Services Applications’, 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/ho-2012-brooke-emergency-services-uas.pdf](http://www.statewatch.org/observatories_files/drones/uk/ho-2012-brooke-emergency-services-uas.pdf)

56. Stuart Nathan, ‘Roundtable: development of civilian UAVs’, *Process Engineering*, 17 October 2012, <http://processengineering.theengineer.co.uk/sectors/aerospace/in-depth/roundtable-development-of-civilian-uavs/1014293.article>

- To co-ordinate and assist forces;
- Remain sighted on industry;
- Remain sighted on the military;
- Exchange information e.g. CAA, regulations, Home Office, military;
- To be sighted on political issues;
- To be sighted on public issues;
- To be sighted on the media and human rights;
- To scan international developments both civil and military;
- Develop an understanding of how the above applies to the Police Service; and
- Exchange good practice – with users.<sup>57</sup>

Attendees at meetings of the UASSG have included representatives of numerous police forces: Kent, Essex, Strathclyde, Merseyside, Staffordshire, West Midlands, Avon and Somerset, the PSNI, the Metropolitan Police, Northamptonshire, Northumbria, Dorset, and Wiltshire. Also present have been representatives from the CAA, CAST, the MoD's Air Warfare Centre Unmanned Air Systems, and the Department of Transport's Air Accidents Investigation Branch. The UASSG meets approximately every six months.

The Home Office also appears to be playing a part in setting the scene for the domestic use of drones. A document entitled 'ACPO Operational Requirement for UAS'<sup>58</sup> has been produced by Alan Brooke and was presented to a Royal Aeronautical Society conference on drones in October 2011.<sup>59</sup> Brooke has said that his work is "representing what the police want from UAVs – there are several applications which could be useful." These include:

- Remote sensor deployment for dirty/dangerous environments;

- Carry a sensor (for example for Chemical, Biological, Radiological or Nuclear (CBRN) materials or drugs – a 'Cannasniffer', as noted in another presentation by Brooke<sup>60</sup>);
- Be a swab;
- Perch and stare;
- Loudhailer for delivering messages;
- Incident/crime scene recording;
- Automated change detection (which would appear to indicate the possibly of persistent surveillance and tracking);
- 'Rural' crimes, metal or plant theft, poaching, wildlife crime.

The 'ACPO Operational Requirement for UAS' sets out in great detail the technical standards a police drone would have to meet, and notes two possible operating scenarios for drones as used by law enforcement authorities in the UK. The first is that which was sought by the South Coast Partnership for border control and maritime surveillance: "persistent reconnaissance in shared airspace, high autonomy of image gathering and interpretation." The second is "operational support": "usually close range, usually short duration, low altitude".

Brooke's presentation notes that police trials have had "overly optimistic expectations", there have been "no specific goals for the trials" and there has been "limited effectiveness". Furthermore, "ambition has been limited by the low capability of systems" and drones have largely been used "as a camera on a stick (without the stick)". Finally, the imagery produced has not been adequate given the limits placed on drone use by the CAA which requires the device to be more than 50 metres away from its target. The conclusion reached is that "police UAS need to augment existing manned fleet, not compete with it", and that "long range and endurance may not be critical factors," but "quality of imagery is important".

Brooke was present at the March 2012 meeting of the UASSG and "commented on the perceptions of industry that the police market is an emerging business area." Richard Watson of the NPAS noted

57. ACPO UAS Steering Group, 'Minutes', 16 March 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/police-acpo-2012-03-16-minutes.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-acpo-2012-03-16-minutes.pdf)

58. Alan Brooke, 'ACPO Operational Requirements for UAS', 2011, [http://www.statewatch.org/observatories\\_files/drones/uk/police-acpo-2011-brooke-uas-op-req.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-acpo-2011-brooke-uas-op-req.pdf)

59. Royal Aeronautical Society, 'Unmanned Aircraft Systems Operational & Technology Readiness', 25-26 October 2011, [http://www.eurousc.com/documents/UAS\\_Conference\\_Programme.pdf](http://www.eurousc.com/documents/UAS_Conference_Programme.pdf)

60. Alan Brooke, 'Emergency Services Applications'

that:

“[T]he capability and requirement is here, it is now up to industry to develop a product suitable and capable of serving the requirements... The challenge for industry is to come up with the correct product that will do what is required for police use, and with CAA approval.”<sup>61</sup>

It is for these reasons that projects such as ASTRAEA are seen as crucial by both industry and the authorities. For the time being, while drones may have some limited uses for a small number of the UK’s constabularies, the possibility of pervasive surveillance missions seems beyond their reach. Other agencies, however, may have acquired more powerful technology.

## Secret surveillance?

In September 2010 *The Guardian* reported on a notice published by the Serious Organised Crime Agency (SOCA, now superseded by the National Crime Agency, NCA) entitled “intelligence, surveillance, target acquisition and reconnaissance” – more commonly known in military terminology as ISTAR. According to the paper:

“The tender seeks information on ‘a fully serviced, airborne, surveillance-ready platform for covert observation’. Drones, or planes, should be available for deployment within two hours of orders for ‘urgent taskings’. Missions lasting up to five hours and night-flying are anticipated. ‘Low noise signature and unobtrusive profile’ as well as a ‘discreet while accessible operating base’ are said to be desirable features of any future aerial security system.

“Pictures from onboard cameras and thermal-imaging equipment should be capable of being beamed down to ‘command and control rooms’ as live, Soca’s tender specifies. The agency adds that it ‘welcomes information from potential suppliers with regard to any UAV technology options’.”<sup>62</sup>

In fact, the notice on which *The Guardian* report focused was solely a call for further information: a “prior information notice” in the official terminology.<sup>63</sup> But in July 2011, a year after the publication of the information notice, SOCA did publish a formal tender subtly titled “security, fire-fighting, police and defence equipment” that sought “managed air support services” for 84 months, with a price tag of £10.5 million. Beyond this the notice contained no detail of the project itself, stating that “SOCA’s requirements will be set out in the main invitation to tender.” Accessing this required registration on a separate online system and the completion of a “pre-qualification questionnaire”.

In subsequent months a SOCA official – “in dark glasses” – was seen recording on a mobile phone test flights of 3D-printed drones designed by academics and students at Southampton University.<sup>64</sup> SOCA was reportedly “in discussions” with the team from the university,<sup>65</sup> but they didn’t win the agency’s £10 million contract. That was awarded in December 2012 to Selex Galileo, a subsidiary of Italian arms giant Finmeccanica and renamed Selex ES in 2013, at a cost of £9,088,968 for 60 months’ (five years’) work<sup>66</sup> – two years less than was initially sought by SOCA.

What means of aerial surveillance did SOCA

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be used in police surveillance’, *The Guardian*, 24 September 2010, <http://www.theguardian.com/uk/2010/sep/24/police-unmanned-surveillance-drones>

63. ‘UK-London: intelligence, surveillance, target acquisition and reconnaissance’, 20 July 2010, [http://www.statewatch.org/observatories\\_files/drones/uk/police-soca-2010-07-uav-information-tender.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-soca-2010-07-uav-information-tender.pdf). Tom Watson MP asked the Home Secretary in October 2013 which firm was awarded this tender. The response was that “no firm was awarded the July 2010 tender for information with regard to covert aerial surveillance by the Serious Organised Crime Agency” – a clever piece of verbal chicanery, given that would not be possible for any one firm to be “awarded” a tender through a prior information notice. See: ‘Serious Organised Crime Agency’, *Hansard*, 8 October 2013, <http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm131008/text/131008w0001.htm#1310095000449>

64. Owen Bowcott, ‘The sky is the limit for print-our-own drones’, *The Guardian*, 21 September 2011, [www.theguardian.com/world/2011/sep/21/printed-drones-southampton-university](http://www.theguardian.com/world/2011/sep/21/printed-drones-southampton-university);

65. ‘UK University Provides UAV Design Courses’, *Unmanned Vehicles*, 22 September 2011, <http://www.unmannedvehicles.co.uk/uav-news/uk-university-provides-uav-design-courses/>

66. ‘UK-London: Security, fire-fighting, police and defence equipment’, 18 December 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/police-soca-2012-12-uk-soca-air-support-contract-award.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-soca-2012-12-uk-soca-air-support-contract-award.pdf)

61. ACPO UAS Steering Group, ‘Minutes’, 16 March 2012

62. Owen Bowcott and Paul Lewis, ‘Unmanned drones may

purchase? Selex ES does not produce planes, but it does deal in a wide variety of technology for planes – such as radar, sensors, and imaging equipment – and argues that:

“Outsmarting the enemy increasingly depends on unmanned ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance) systems that meet operational commanders’ requirements for persistent battlespace awareness at the tactical level.”<sup>67</sup>

The firm also manufactures and sells “advanced Unmanned Aerial Systems (UAS) to customers worldwide to enhance their situational awareness capability.” The company boasts that:

“We are the only European player who can offer a complete and independent understanding and development capability of UAS systems: from the platform, to the mission system and sensors, to the ground control station. The company’s portfolio includes mini/micro and tactical and medium altitude/endurance UAS, all of which come fully equipped with sensors and networked capability, delivering a high degree of situational awareness and contributing to force protection within modern ISTAR solutions.”<sup>68</sup>

Selex Galileo has been licensed by the CAA to operate a multicopter drone weighing less than 20 kilograms, although only within daylight hours.<sup>69</sup> If SOCA has purchased a drone from the company, nearly £10 million appears an extortionate price to pay for technology subject to these limitations and it would suggest that it has something more advanced at its disposal.

The secrecy surrounding both the tendering process and SOCA itself – which was exempt from the Freedom of Information Act, as is its successor the NCA<sup>70</sup> – makes it impossible to prove definitely that the agency owns or has access to drones. However the available information certainly suggests that this is the case. Furthermore, a

67. ‘Air’, *Selex ES*, <http://www.selex-es.com/domains/air>

68. ‘UAS’, *Selex ES*, <http://www.selex-es.com/domains/air/uas>

69. CAA, list of drone operators provided in response to FOI request, 30 July 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/caa-2013-07-spreadsheet.xlsx](http://www.statewatch.org/observatories_files/drones/uk/caa-2013-07-spreadsheet.xlsx)

70. Simon Israel, ‘National Crime Agency: ‘No-one will be beyond the reach’, *Channel 4 News*, 7 October 2013, <http://www.channel4.com/news/national-crime-agency-no-one-will-be-beyond-the-reach>

coincidence in timing between SOCA’s increased interest in covert aerial surveillance, and the increased use by police forces of secrecy clauses in Freedom of Information legislation, seems to point in the same direction.

## Section 23(5)

While police forces have released some information on drones under the Freedom of Information Act, 36 of the 50 forces to which FOI requests were issued for this report made use of the exemption contained in Section 23(5) of the Act. A typical response making use of this exemption reads:

“[The constabulary] can neither confirm nor deny that they hold any other information relevant to the whole of your request by virtue of the following exemption:

**“Section 23(5) Information supplied by, or concerning, certain security bodies**

“The duty to confirm or deny does not arise if, or to the extent that, compliance with Section 1(1)(a) [entitlement to know whether requested information is held by the authority] would involve the disclosure of any information (whether or not already recorded) which was directly or indirectly supplied to the public authority by, or relates to, any of the bodies specified in the subsection (3).

“Section 23 is an absolute class-based exemption and therefore there is no requirement to conduct a harm or public interest test.”

There is a lengthy list of bodies<sup>71</sup> specified in subsection (3):

- the Security Service (MI5);
- the Secret Intelligence Service (MI6);
- the Government Communications Headquarters (GCHQ);

71. The National Criminal Intelligence Service, its Service Authority, and the Serious Organised Crime Agency no longer exist. However, it is still possible that police forces could hold information produced by or relating to these that could permit the invocation of Section 23(5).

- the special forces;
- tribunals established under the Regulation of Investigatory Powers Act 2000, the Interception of Communications Act 1985, the Security Service Act 1989, and the Intelligence Services Act 1994;
- the Security Vetting Appeals Panel;
- the Security Commission;
- the National Criminal Intelligence Service;
- the Service Authority for the National Criminal Intelligence Service;
- the Serious Organised Crime Agency;
- the Intelligence and Security Committee of Parliament.

It is also sometimes noted in FOI responses that the use of Section 23(5) “is not an inference that such information is, or is not held.” However, an examination of police FOI disclosure logs makes it difficult not to make such an inference.

Responses to previous FOI requests on drones are available from a wide number of police forces, 13 of which have published responses from before 2011 and some from as far back as 2008. The content of these responses shows that the use of Section 23(5) exemptions in relation to requests for information on drones began at some point in late 2011 and became near-standard by 2013, when 36 of 50 forces questioned made use of the exemption. Notification of SOCA’s contract with Selex Galileo was made public in mid-December 2012. Of the 13 forces whose disclosure logs contain responses to FOI requests on drones from the years 2008 to 2011, not a single one makes use of the 23(5) exemption.

The Information Commissioner’s guidance on Section 23(5) notes that the “NCND [neither confirm nor deny] provisions can... be used to avoid risks caused by providing inconsistent responses to a series of similar requests.” An example considers annual requests to the Home Office relating to investigations by MI5 of an organisation allegedly linked to terrorism. By year four, MI5 has initiated an investigation into the organisation, and “is no longer able to respond by saying no information is held.”

A problem arises:

“[I]f it suddenly changes its response and refuses to confirm or deny that the requested information is held this shift in position would clearly signal that the body has been investigated since the previous request.”

The Information Commissioner suggests that the way for a public body to avoid the problem of inconsistency is “consistently refusing to confirm or deny that any information [is] held from the first request” – although this would require a significant degree of foresight.

With regard to police use of drones, the fact that there has been a shift in position as referred to by the Information Commissioner gives rise to the suspicion that the situation regarding police possession of material relating to drones produced or supplied by one of the bodies listed above has changed over the years, most significantly in 2012 and 2013 – around the time that SOCA developed an interest in covert aerial surveillance and signed its near-£10 million contract with Selex ES. Nevertheless, it has been impossible to prove definitively that SOCA, now the NCA, owns or operates drones.

## Summary

The information outlined above regarding police use of drones touches upon many of the themes that come up frequently in debates on ‘domestic’ drone use. Searches for missing persons, as undertaken by Dyfed Powys and Strathclyde police, are often touted as being one area of work in which drones could prove enormously beneficial – although it is far from clear that a drone being used for search and rescue duties could do anything to assist a person in need of immediate help. It is also far from clear that drones – in particular the lightweight drones currently deployed by police – can be utilised effectively in adverse weather conditions,<sup>72</sup> although this was “central to the case put forward by the PSNI” to justify its acquisition

72. See, for example, Lee Nelson, ‘More than Just a Weather Forecast – The Critical Role of Accurate Weather Data in UAV Missions’, *Defense Update*, June 2009, [http://defense-update.com/features/2009/june/weather\\_and\\_uav\\_operations.html](http://defense-update.com/features/2009/june/weather_and_uav_operations.html)

of the technology.<sup>1</sup>

Derbyshire Police's use of a drone to try and carry out surveillance of political events (a far-right meeting and an accompanying anti-fascist protest) highlights the potential use of drones for even more extensive monitoring, recording and controlling of demonstrations than already takes place.<sup>2</sup> The same point could be raised regarding the PSNI's use of drones as part of the vast security operation surrounding the G8 summit. Meanwhile, the suggestion by PSNI Assistant Chief Constable Matt Finlay that they not be referred to as drones due to the association with "Middle Eastern conflicts" makes clear the ongoing public image problem that drones have as a military technology being imported back into the domestic sphere.<sup>3</sup>

The Metropolitan Police's use of an AirRobot device to monitor the Olympic Handover Ceremony in 2008, and Wiltshire Police's use of a drone to monitor summer solstice celebrations, shows their potential use in monitoring more benign large-scale events. The watery end met by Merseyside Police's drone at the bottom of the River Mersey demonstrates the problem of safety and the potential risks to the public. Finally, some forces' steadfast refusal to release information to the public under FOI laws, as well as SOCA's contract with Selex ES and the widespread use of Section 23(5) exemptions, highlights the secrecy that appears to go hand-in-hand with drone use (and much other police work). As the All-Party Parliamentary Group on Drones has highlighted, the frequent use of this exemption "undermines the public's ability to engage in informed debate

1. All Party Parliamentary Group on Drones, 'Oversight, accountability and drones: the case of Northern Ireland', 24 April 2013, <https://appgondrones.wordpress.com/2013/04/24/oversight-accountability-and-drones-the-case-of-northern-ireland/>

2. Val Swain, 'Disruption policing: surveillance and the right to protest', *OpenDemocracy*, 8 August 2013, <http://www.opendemocracy.net/opensecurity/val-swain/disruption-policing-surveillance-and-right-to-protest>

3. There is more to this than simply an image problem. A number of authors have argued that the transfer of military technologies into the civil realm is frequently accompanied – or preceded – by the adoption of military thinking and tactics by civil authorities. See, for example: Stephen Graham, *Cities Under Siege: The New Military Urbanism*, London: Verso, 2010; Tyler Wall, 'Unmanning the police manhunt: vertical security as pacification', *Socialist Studies*, Vol 9(2), Winter 2013, pp.32-56; and Kevin Macnish, 'Bring The Drones Back Home: The Ethics of Drone Use at Home and Abroad', unpublished.

on this issue and devalues the principle of policing with consent."<sup>4</sup>

The issue of discriminatory police surveillance has not so far been raised by the police's use of drones, but needs to be considered in any situation where the police may acquire new surveillance technologies. That surveillance and investigative measures frequently are discriminatory is well-demonstrated by the deployment of over 200 ANPR and CCTV cameras in a predominantly Muslim area in Birmingham as part of a counter-terrorism project that was presented as being designed to "tackle antisocial behaviour, drug dealing and vehicle crime";<sup>5</sup> the overwhelming use of Schedule 7 powers at ports against Asian people;<sup>6</sup> and the ongoing discriminatory use of stop and search measures against black people.<sup>7</sup>

Perhaps due to the police's relatively limited use of drones to date, none of the issues identified here have yet become significant topics of public debate. As noted above (see 'Law and regulation'), the use of drones raises "risks to liberty and privacy that left unchecked could undermine trust in the entire law enforcement system,"<sup>8</sup> trust which – at least with regard to the police – is currently far from widespread.<sup>9</sup> Continued acquisition and deployment of surveillance drones without meaningful public debate and democratic decision-making is hardly likely to improve the situation.

4. All-Party Parliamentary Group on Drones, 'Background note on civil use of drones in the UK', June 2013, <https://appgondrones.files.wordpress.com/2013/06/appg-background-note-civil-drone-use-in-the-uk.pdf>

5. Paul Lewis, 'Birmingham stops camera surveillance in Muslim areas', *The Guardian*, 17 June 2010, [www.theguardian.com/uk/2010/jun/17/birmingham-stops-spy-cameras-project](http://www.theguardian.com/uk/2010/jun/17/birmingham-stops-spy-cameras-project)

6. Vikram Dodd, 'Asian people 42 times more likely to be held under terror law', *The Guardian*, 23 May 2011 <http://www.theguardian.com/uk/2011/may/23/counter-terror-stop-search-minorities>

7. Vikram Dodd, 'Police up to 28 times more likely to stop and search black people – study', *The Guardian*, 12 June 2012, <http://www.theguardian.com/uk/2012/jun/12/police-stop-and-search-black-people>

8. Big Brother Watch, 'Unmanned Aerial Vehicles and Unmanned Aerial Systems Briefing', undated, p.4, <http://appgondrones.files.wordpress.com/2013/06/unmanned-aerial-vehicles-briefing-big-brother-watch.pdf>

9. 'Only half of Britons trust the police, survey reveals', *Evening Standard*, 16 January 2014, <http://www.standard.co.uk/news/crime/only-half-of-britons-trust-the-police-survey-reveals-9065547.html>; "Plebgate" poll suggests dip in police trust', *BBC News*, 22 October 2013, <http://www.bbc.co.uk/news/uk-24627319>

# Border control drones



**D**rones are increasingly playing a part in border control across the world. Predators, produced by General Atomics and used by the US military in Afghanistan, Yemen and Somalia (amongst other places) are flown across sections of the US-Mexico border. The US Customs and Border Protection Agency has reportedly “considered adding weapons to its Predator drones that currently serve as the agency’s eyes in the sky on the lookout for undocumented migrants and drug trafficking coming across the border.”<sup>10</sup> In March 2013 the Iranian government launched a pilot project that will use drones “to counter narcotics, human trafficking, and gasoline smugglers on the Iran-Afghan border in southeastern Iran.”<sup>11</sup> The UK Foreign & Commonwealth Office sought in early 2012 to supply the Kenyan government with a drone “in order to enhance the security of the border region” following the Kenyan military intervention in Somalia,<sup>12</sup> although the contract was later cancelled.<sup>13</sup> In July 2013 it was reported that the Australian government is “still interested in buying drones to help replace the fleet of border patrol aircraft,” with some officials claiming that they could “revolutionise the way Australia’s borders are patrolled.”<sup>14</sup>

10. ‘Non lethal weapons on UAS along the U.S borders?’, *i-HLS*, 8 July 2013, <http://i-hls.com/2013/07/non-lethal-weapons-on-uas-along-the-u-s-borders/>

11. ‘Iran tests border patrol drones’, *Press TV*, 17 March 2013, <http://presstv.com/detail/2013/03/17/294080/iran-tests-border-patrol-drones/>

12. ‘UK-Milton Keynes: intelligence, surveillance, target acquisition and reconnaissance’, 17 January 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/uk-fco-2012-01-17-kenya-drone-tender.pdf](http://www.statewatch.org/observatories_files/drones/uk/uk-fco-2012-01-17-kenya-drone-tender.pdf)

13. ‘UK-London: Intelligence, surveillance, target acquisition and reconnaissance’, 17 January 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/uk-fco-2013-01-17-kenya-drone-cancel.pdf](http://www.statewatch.org/observatories_files/drones/uk/uk-fco-2013-01-17-kenya-drone-cancel.pdf)

14. David Chen, ‘Australian Defence Force looks at drones to

The EU and its member states are also moving towards an increasingly high-tech model of border security, with drones being tested in the seas around Spain<sup>15</sup> and the EU border agency Frontex seeking planes and optionally-piloted vehicles for use at the Greek-Turkish border.<sup>16</sup> Catherine Ashton, EU foreign policy chief and head of the European Defence Agency, has said that:

“Unmanned Aerial Vehicles can monitor movement on the ground in deployed military operations or civilian missions abroad. The same UAVs, equipped with the same sensors, can be used to spot illegal immigrants at Europe’s external borders.”<sup>17</sup>

A vast border surveillance system, Eurosur, which was approved by the European Parliament in early October 2013, is likely to feed imagery and information acquired by drones into an EU-wide computer system.<sup>18</sup>

replace border patrol aircraft’, *ABC News*, 29 July 2013, <http://www.abc.net.au/news/2013-07-26/defence-looks-at-drones-to-replace-border-patrol-aircraft/4845796>

15. ‘EU: Field testing: CLOSEYE project puts drones over the Mediterranean’, *Statewatch News Online*, 10 May 2013, <http://database.statewatch.org/article.asp?aid=32328>

16. Nikolaj Nielsen, ‘EU looks to ‘hybrid drones’ for legal shortcut on migration’, *EUobserver*, 14 October 2013, <http://euobserver.com/priv-immigration/121735>; ‘EU: Frontex: “optionally-piloted” aircraft tests, but no drones... yet’, *Statewatch News Online*, 29 May 2013, <http://database.statewatch.org/article.asp?aid=32371>

17. Catherine Ashton, transcript of keynote speech at the European Defence Agency conference ‘Bridging efforts, Connection Civilian Security and Military Capability Development’, 9 February 2010, [http://www.statewatch.org/observatories\\_files/drones/eu/eda-2010-bridging-efforts-bulletin.pdf](http://www.statewatch.org/observatories_files/drones/eu/eda-2010-bridging-efforts-bulletin.pdf)

18. ‘European Parliament approves Eurosur border surveillance’, *Deutsche Welle*, 10 October 2013, <http://www.dw.de/european-parliament-approves-eurosur-border-surveillance/a-17149625>

These developments have not been missed by UK officials keen on drones, and attendees at UASSG meeting have frequently been updated on European developments. In March 2012 Richard Watson of the NPAS told the group that within the EU drones “are seen as the ideal solution for securing external borders”. In the UK they would be useful in particular for “securing the borders from refugees and drug importation”, say minutes from the meeting.<sup>19</sup> The Home Office said in response to a Freedom of Information request that:

“We have carried out a thorough search and we have established that the Home Office does not hold the information which you have requested because the former UKBA [UK Border Agency] did not own or lease any Unmanned Aerial Systems.”<sup>20</sup>

A parliamentary question by Tom Watson MP in November 2013 confirmed this.<sup>21</sup> However, interest in the use of drones for border control has come from elsewhere.

## The South Coast Partnership

From 2007 until 2010 Kent, Essex and Merseyside Police were part of the South Coast Partnership along with the then-Borders and Immigration Agency, the Serious Organised Crime Agency, HM Revenue & Customs, the Marine & Fisheries Agency, and BAE Systems. While the aim of the partnership was ostensibly to monitor the short strip of sea between England and France,

19. ACPO UAS Steering Group, ‘Minutes’, 16 March 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/police-acpo-2012-03-16-minutes.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-acpo-2012-03-16-minutes.pdf)

20. Home Office, response to FOI request, 27 August 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/border-control-ukba-2013-08-27-foi-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/border-control-ukba-2013-08-27-foi-response.pdf)

21. Watson was told by Immigration Minister Mark Harper that: “UK Visas and Immigration, Immigration Enforcement and Border Force have not used remotely piloted or unmanned aircraft systems, colloquially referred to as drones, for any purpose or on any occasion in the last five years.” See: ‘Unmanned Air Vehicles’, *They Work For You*, <http://www.theyworkforyou.com/wrans/?id=2013-11-08a.169709.h>

documents obtained by *The Guardian* showed that work was also underway to have drones used for “the ‘routine’ monitoring of antisocial motorists, protesters, agricultural thieves and fly-tippers, in a significant expansion of covert state surveillance”. The paper reported:

“Behind closed doors, the scope for UAVs has expanded significantly. Working with various policing organisations as well as the Serious and Organised Crime Agency, the Maritime and Fisheries Agency, HM Revenue and Customs and the UK Border Agency, BAE and Kent police have drawn up wider lists of potential uses.

“One document lists ‘[detecting] theft from cash machines, preventing theft of tractors and monitoring antisocial driving’ as future tasks for police drones, while another states the aircraft could be used for road and railway monitoring, search and rescue, event security and covert urban surveillance.

“Under a section entitled ‘Other routine tasks (Local Councils) – surveillance’, another document states the drones could be used to combat ‘fly-posting, fly-tipping, abandoned vehicles, abnormal loads, waste management’.”<sup>22</sup>

Clearly those involved in the project had significant ambitions for what could be achieved with drones, and documents released following FOI requests show a timeline in which “full operational use” would be achieved by 2012, with the use of drones made routine to the point that police officers would “only ‘task’ the vehicle and wait for the intelligence output gathered by the system to be delivered to the existing operational control environment.”<sup>23</sup>

However, the project – which Kent Police have stated was “never a structured arrangement” – floundered at some point in 2010 “when BAE Systems ceased development in the civilian use of unmanned aerial vehicles in the south coast area.” It seems the company unceremoniously dumped

22. Paul Lewis, ‘CCTV in the sky: police plan to use military-style spy drones’, *The Guardian*, 23 January 2010, <http://www.theguardian.com/uk/2010/jan/23/cctv-sky-police-plan-drones>  
23. Kent Police, ‘Freedom of Information disclosure – South Coast Partnership’, 2010, [http://www.statewatch.org/observatories\\_files/drones/uk/border-control-scp-2010-foi-doc.pdf](http://www.statewatch.org/observatories_files/drones/uk/border-control-scp-2010-foi-doc.pdf)

the police: the news “was communicated by telephone” and there is no documentation held by the force in relation to it.<sup>24</sup>

Following the article in *The Guardian*, then-Chief Constable of Kent Police, Michael Fuller, wrote to the paper to say that “I wish to make it absolutely clear that we have never committed money to this.” An article in *The Kernel* argues that “this is not to say [Fuller] didn’t try: applications for 40 per cent of BAE’s capital costs were submitted to the Home Office.”<sup>25</sup> Fuller’s letter went on to say that “we are not involved in [the procurement of drones], nor do we have any plans to use them in the future.”<sup>26</sup> Kent Police reiterated this statement in August in its response to an FOI request issued for this report: “the position of the Chief Constable [now Ian Learmouth] is that unmanned aerial vehicles will not be deployed over land falling within his jurisdiction.”<sup>27</sup>

## The 3i project

Despite this position, Kent Police are clearly keen on the technology. Former Assistant Chief Constable Allyn Thomas has taken part in EU-organised discussions on domestic drone use,<sup>28</sup> and the force is one of 16 participants in a collaborative EU-funded project involving research institutions and governmental authorities from England, France and the Netherlands that aims to “combine research efforts to stimulate the use and public acceptability of unmanned aerial vehicles for maritime security and safety operations.”

The project, tortuously titled ‘Integrated

24. Kent Police, response to FOI request, 16 August 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/police-kent-2013-08-16-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-kent-2013-08-16-response.pdf)

25. Willard Foxton, ‘How the London Olympics escaped a Zeppelin army’, *The Kernel*, 27 July 2012, <http://www.kernelmag.com/features/report/2902/oh-the-humanity/>

26. Letter from Michael Fuller to *The Guardian*, 5 March 2010, <http://www.theguardian.com/theguardian/2010/mar/05/the-dismal-game>

27. Kent Police, response to FOI request, 16 August 2013

28. Ben Hayes, Chris Jones and Eric Töpfer, *Eurodrones Inc.*, February 2014, p.19, [http://www.statewatch.org/eurodrones\\_3i\\_](http://www.statewatch.org/eurodrones_3i_) ‘Kick-off event programme’, June 2012, p.4, [http://www.statewatch.org/observatories\\_files/drones/uk/border-control-3i-2012-06-kickoff-program.pdf](http://www.statewatch.org/observatories_files/drones/uk/border-control-3i-2012-06-kickoff-program.pdf)

Coastal Zone Awareness via Increased Situational Awareness through Innovations on Unmanned Aircraft Systems’ (3i for short), has estimated costs of €3,709,145 and in May 2012 received 50% of this (€1,854,571) from the European Commission’s Directorate-General for Regional Policy (DG REGIO). Kent Police, whose total costs for the project are €106,482, received €53,421 from the Commission.<sup>29</sup> An August 2012 BBC report on the project summed it up by saying that “unmanned spy drones could be used by Kent Police to patrol Britain’s shores in the fight against illegal immigration and smugglers.”<sup>30</sup>

Kent and Rotterdam Police are the two law enforcement agencies involved in the project. They are working alongside fourteen other bodies including research institutes (Delft University of Technology, based in the Netherlands; French engineering institutes ENSTA Bretagne and Telecom Bretagne, the University of Southampton) and local authorities such as the Port of Rotterdam, the Municipality of Woensdrecht, and REWIN West-Brabant, a Dutch regional development authority.<sup>31</sup>

The ACPO UAS Steering Group has been kept informed of the project. In October 2011 Allyn Thomas (at the time still Kent Police’s Assistant Chief Constable) informed the group of the bid for EU funding, and in October 2012 the group was told that “Detective Superintendent Andrew Lyttle from Kent Police is working on a cross channel project called Interreg” (the 3i project is part of a larger, more general cooperation programme called Interreg 2 Seas).

The overall aim of 3i is to “deliver a prototype of an unmanned aerial vehicle and contribute to the knowledge base on [UAVs] and their application for maritime security.” The results of the research and development will then be made “freely available in order to support development

29. European Commission, ‘LIST OF THE BENEFICIARIES OF ALL CALLS FOR PROPOSALS cofinanced by the European Regional Development Fund (ERDF) through the INTERREG IV A 2 Seas crossborder cooperation Programme’, 10 May 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/border-control-3i-2012-05-eu-beneficiaries.pdf](http://www.statewatch.org/observatories_files/drones/uk/border-control-3i-2012-05-eu-beneficiaries.pdf)

30. NV REWIN West Brabant, ‘BBC reportage 3i project’, *YouTube*, 23 August 2012, <https://www.youtube.com/watch?v=zfxEDKishFI>

31. For a full list see ‘Partners’, 3i, [http://www.2seas-uav.com/index.php?option=com\\_content&task=view&id=273&Itemid=129](http://www.2seas-uav.com/index.php?option=com_content&task=view&id=273&Itemid=129)

of [UAVs] and to deliver a competitive advantage to European technical organisations.” The use of drones over the Channel and the North Sea is deemed necessary because:

“Organizations such as Police, harbourmasters, and environmental agencies have shown an interest in monitoring of movements and activities of ships in the Channel and southern North Sea. Currently (manned) aircraft, radar, and automatic buoys are deployed for this purpose, but unmanned systems offer a cost effective alternative for these systems.”<sup>32</sup>

The project is divided into three phases, the first of which was “the research and development back-bone phase” and which involved seven joint research programmes covering search and rescue, border and smuggling control, environmental control, flight control, data communication, man-machine interface and regulation.

The results of the first phase served as the basis for the second, which the project seems to have reached in summer 2013: the “Build & Test phase”, in which “the project partners will deliver knowledge and supply materials in order to design and assemble the joint prototype UAV.”<sup>33</sup> In June 2013 the first successful test flight of the prototype drone produced for the 3i project took place. “The aircraft has a length of 2.21 metres and a wingspan of up to 3.74 metres,” reported the 3i website in September, and “the parts of the aircraft are manufactured by using 3D printing technology,”<sup>34</sup> seemingly as part of the same University of Southampton project (DECODE, Decision Environments for Complex Designs) which interested SOCA (see ‘Secret surveillance?’, above).

In the third and final phase:

“[T]he joint prototype-UAV system will perform various demonstrations in the 2Seas area (e.g. Harbour & Coast of Rotterdam, Coast of Kent, Port of Dover, Brittany Coast). The public sector project partners will host the demonstrations in their area, whereas the

scientific & specialist partners will set up a joint test team to technically prepare and perform the demonstrations.”<sup>35</sup>

Another document produced by the 3i consortium gives further detail on some of the “operational scenarios,” for which the prototype will be used.<sup>36</sup> There are three categories: incident response, preventive patrolling places of interest, and critical infrastructure.

Examples of “incident response” are “a collision at sea or in a harbour; a fire, explosion or chemical spillage at sea or on the coast; or a sinking vessel, person lost at sea or some other incident where life is at risk.” “Preventive patrolling places of interest” includes:

“[S]upervision of the shipping in their anchorages offshore; dangerous navigation and anti-social behaviour in coastal waters; pollution through the use of inappropriate fuel or discharging waste at sea; the supervision of protected fisheries, the sites of wrecks or other historic sites at sea or on the coast.”

Finally, critical infrastructure “concerns oversight of areas where there aren’t regular problems but where trespass or other incidents would constitute a serious criminal offence or significant threat.” This includes:

“[L]ost containers or unexpected people trespassing on sites of Critical National Infrastructure at sea (wind farms) or on the coast (power stations, oil refineries or storage facilities) or the unexpected movements of small craft across frontiers (to smuggle commodities or people).”

There is a lengthy list of data protection and privacy considerations. The document says that: “in general the 3i UAV will not collect images indiscriminately during the demo flights.” There is also “no aim towards privacy sensitive images such as facial recognition” and “the image quality of the 3i UAV is not comparable to the high quality images of the expensive and large military UAVs.” However, this does not necessarily mean that it is not of sufficient quality to capture

32. ‘About 3i’, 3i, [http://www.2seas-uav.com/index.php?option=com\\_content&task=view&id=208&Itemid=86](http://www.2seas-uav.com/index.php?option=com_content&task=view&id=208&Itemid=86)

33. 3i, ‘Kick-off event programme’, p.2

34. ‘Test flight passed’, 3i, [http://www.2seas-uav.com/index.php?option=com\\_content&task=view&id=305&Itemid=112](http://www.2seas-uav.com/index.php?option=com_content&task=view&id=305&Itemid=112)

35. 3i, ‘Kick-off event programme’, p.3

36. 3i, ‘Summary 3i’, 11 September 2012, p.1, [http://www.statewatch.org/observatories\\_files/drones/uk/border-control-3i-2012-09-summary-principles.pdf](http://www.statewatch.org/observatories_files/drones/uk/border-control-3i-2012-09-summary-principles.pdf)

imagery detailed enough to allow recognition of individuals. Moreover, the same inadequate legal and regulatory framework recounted above (see ‘Law and regulation’) would presumably apply to data-gathering conducted by the British authorities.

The project will also include studies on “artificial vision technology”, which includes:

“[A]utomated triggers and filters in the vision software that can filter images before they are recorded. So that any privacy sensitive images that are not of interest to the mission can be filtered out. The triggers can also be used to start recording only when an anomaly has been detected, e.g. a fire or an oil spill on the surface of the water.”

And:

“[O]n board processing of collected images to extract the useful features from an observed scene and send these over the limited bandwidth available for video transmission. An example would be to transmit only the number of vessels, their colour, size and registration numbers, instead of transmitting an actual video.”

Demonstration flights will also take place in restricted airspace “that is closed to all other traffic”.

The safeguards proposed for the 3i demonstration flights suggest that there could be ways for law enforcement and other authorities to use drones that would be more privacy-friendly than the ways in which many people fear they would be used – to record vast quantities of imagery and information both covertly and persistently. However, whether the “artificial vision technology” that will be studied for the 3i project is considered worthy of further investment by the institutions and companies developing drone technology remains to be seen. Furthermore, the argument that drones could be used for “securing the borders from refugees” remains extremely disturbing, particularly given the vast security and technology infrastructure already deployed at the behest of British authorities on both sides of the Channel that has led to a permanent population of migrants and refugees living destitute in Calais and other towns on the French and Belgian coast.

# Private drones



The overwhelming majority of drones being used in the UK that have been licensed by the CAA are owned and are being operated by private companies. A response from the CAA to a FOI request issued for this report said that between 1 July 2012 and 30 June 2013, 119 successful applications for permission to use unmanned aerial vehicles were made.<sup>1</sup> Big Brother Watch have stated that from 2006 to 2013, 128 authorisations were provided to 124 companies, and that in total there have been 136 authorisations given by the CAA for the use of drones.<sup>2</sup>

116 of the 119 authorisations given from July 2012 to June 2013 were for “aerial work (photography)”, and were for the most part awarded to firms dealing with a variety of trades: aerial photography, filming, engineering, and surveying. One was awarded to the Scottish Environment Protection Agency and another to the PSNI. The remaining three authorisations were for “aerial work (photography/observation)” and were given to Hampshire and West Midlands fire services and Staffordshire Police.

It might be assumed that the private security industry would be eager to make use of drones – for example, for the monitoring of remote sites or covert surveillance. Japanese firm Secom has produced what is being marketed specifically as a “private security drone”:

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1. CAA, response to FOI request, 31 July 2013, [http://www.statewatch.org/observatories\\_files/drones/uk/caa-2013-07-30-response.pdf](http://www.statewatch.org/observatories_files/drones/uk/caa-2013-07-30-response.pdf)

2. Big Brother Watch, ‘Unmanned Aerial Vehicles and Unmanned Aerial Systems Briefing’, undated, p.1, <http://appgondrones.files.wordpress.com/2013/06/unmanned-aerial-vehicles-briefing-big-brother-watch.pdf>

“[The] customised Ascending Technologies quadrotor can take to the air if there’s a break in and record what’s happening even in areas that would normally represent blind spots. The automaton can also track moving subjects with a laser sensor and knows enough to keep its distance.”<sup>3</sup>

There does not seem to be any such enthusiasm for drones amongst UK security firms – when asked for this report whether any of its members used or planned to use drones, a British Security Industry Association spokesperson said: “This is not something I’ve ever heard mentioned by any of our members, so I’m not convinced that it’s something they are very interested in, or that’s very relevant to them.”<sup>20</sup> BSIA member companies were subsequently contacted to make further inquiries as to whether they used or had any interest in using drones, but none responded.

Journalism is another field in which drones may come to be widely used and some reporters and news organisations have already deployed the technology. A 2013 report published by the Reuters Institute for the Study of Journalism noted that drones raise a wide range of:

“[T]echnical, policy, and journalistic issues that need to be comprehended before they are used for news gathering... organisations will need to make decisions whether it is feasible and desirable to employ them, how they might be effectively used, the ethics of their use in

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3. Jon Fingas, ‘Secom offers a private security drone, serves as our eyes when we’re away’, *Engadget*, 27 December 2012, <http://www.engadget.com/2012/12/27/secom-offers-a-private-security-drone/>

news reporting, and how their use might affect journalistic credibility amongst the public.”<sup>1</sup>

In the UK, where high-profile court cases related to the phone-hacking scandal are ongoing, the issues of privacy and ethics in journalism appear particularly acute. Matthew Waite, founder of the US-based Drone Journalism Lab, has argued that alongside effective legal and regulatory frameworks, existing journalistic ethical codes “would easily apply to drones without much creativity.” He draws a firm distinction between paparazzi photographers and “serious journalists”:

“Put drones in the hands of the paparazzi and I agree with most people’s discomfort. But put a drone in the hands of a serious journalist and I’ll argue that you have an ideal early adopter of the technology, one that can help guide society into a post-drone world, where flying robots large and small become vastly more commonplace.”<sup>2</sup>

Journalism aside, it seems that for the time being the use of drones will largely remain the preserve of trades whose work is not intended to directly intrude upon privacy – for example, filming or coastal and environmental monitoring. Nevertheless, it may be the use of drones by firms does involve capturing footage or images of individuals, for example during surveying work, in which case there is a need not only to ensure that they comply with the relevant legislation, but that these apparently more mundane uses are also considered in any public debate on the issue of the wider introduction of domestic drones.

An investigation by the All-Party Parliamentary Group on Drones found that “there was relatively good knowledge of the key legislation,” particularly with regard to safety, although some companies put “less emphasis within some of the policies on the need to protect data or respect privacy, primarily due to the nature of the work.”<sup>3</sup>

1. David Goldberg, Mark Corcoran, and Robert G. Picard, ‘Remotely Piloted Aircraft Systems & Journalism’, *Reuters Institute for the Study of Journalism*, June 2013, [https://reutersinstitute.politics.ox.ac.uk/fileadmin/documents/Publications/Working\\_Papers/Remotely\\_Piloted\\_Aircraft\\_and\\_Journalism.pdf](https://reutersinstitute.politics.ox.ac.uk/fileadmin/documents/Publications/Working_Papers/Remotely_Piloted_Aircraft_and_Journalism.pdf)

2. Matthew Waite, ‘Journalists: good early drone adopters’, *Al Jazeera*, 11 December 2013, <http://www.aljazeera.com/indepth/opinion/2013/11/journalists-good-early-drone-adopters-20131123125221676178.html>

3. All-Party Parliamentary Group on Drones, ‘Background note on the civil use of drones in the UK’, June 2013, p.4, <https://>

This is concerning, particularly given that the government’s Surveillance Camera Code of Practice applies only to public authorities (see ‘Law and regulation’, above). And while little consideration appears to have been given to how the use by companies of drones equipped with cameras could or should be regulated, there appears to have been no thought at all put towards payloads other than cameras.

There is also the fact that the ‘early adopters’ of drone technology may be more likely than average to have a personal – rather than simply commercial – interest in it, and thus pay more attention to the relevant rules and regulation. As time goes on and commercial interest becomes more prominent, this may not continue to be the case.

It is also unclear how the operation of drones by private individuals, rather than private companies (what could be termed the ‘personal market’) can be effectively regulated. As technology advances the price of drones themselves, along with the multitude of payloads that can be attached to them – “any type of instrument as can be physically lifted”<sup>4</sup> – will continue to drop, with the technology becoming more readily available.<sup>5</sup> Alongside increasing numbers of public authorities and private companies, this will make them attractive to more and more individuals, whether as toys or as tools. One father, for example, built a mini-drone that he used to follow his son as he walked 400 metres to the bus stop.<sup>6</sup>

While the imaginations of military and security forces appear to have run wild with regard to the possible use of drones by terrorists – for example, with the suggestion that “poison drones” could be used during the Olympics – growing acquisition of the technology by individuals will heighten the

[appgondrones.files.wordpress.com/2013/06/appg-background-note-civil-drone-use-in-the-uk.pdf](http://appgondrones.files.wordpress.com/2013/06/appg-background-note-civil-drone-use-in-the-uk.pdf)

4. Sam Smith, ‘Briefing to the All-Party Parliamentary Group on Drones’, *Privacy International*, undated, <http://appgondrones.files.wordpress.com/2013/06/unmanned-aerial-vehicles-briefing-privacy-international.pdf>

5. ‘Build Your Own Drone’, for example, “strive to be best stocked UAV & Drone site in Europe, building a comprehensive product line of DIY Drones related hardware.” See: <http://www.buildyourowndrone.co.uk>

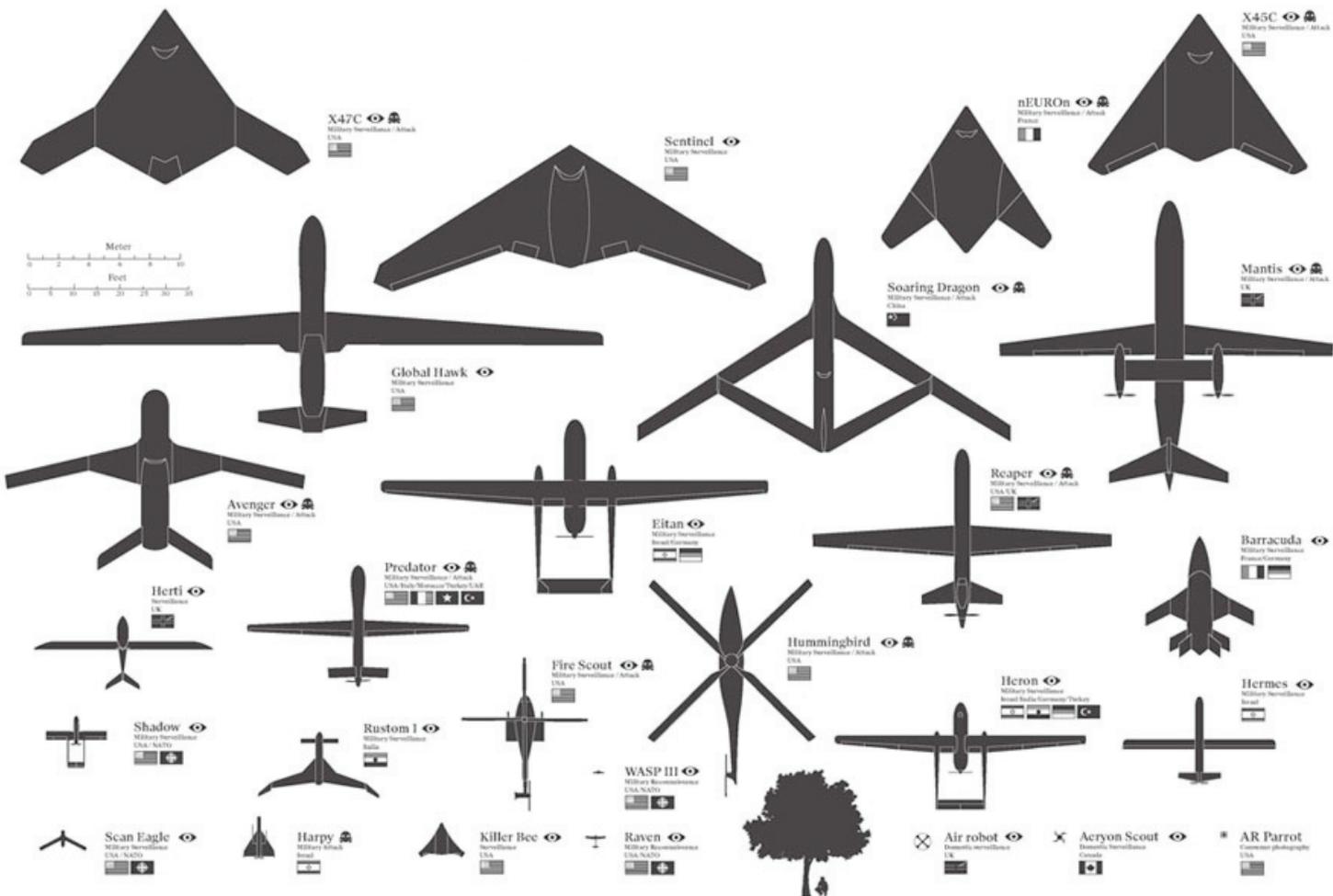
6. ‘Father builds flying drone camera to follow his son on his way to school’, *Daily Mail*, 30 November 2012, <http://www.dailymail.co.uk/news/article-2240860/Father-builds-flying-drone-camera-follow-children-school-bus-stop.html>

risks of crashes, privacy invasions, and numerous other scenarios not yet widely considered feasible at the 'personal' scale – for example the hacking of information networks.<sup>7</sup> Just as with the use of drones by state agencies, their commercial and personal use also raises issues that should be the subject of wider scrutiny and discussion.

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7. Two American researchers recently demonstrated a drone equipped with software that imitates Wi-Fi networks to which an individual's smartphone has previously been connected. When the smartphone connects to the imitation network, the drone operator can collect all the information transferred through the connection. See: Erica Fink, 'This drone can steal what's on your phone', *CNN Money*, 20 March 2014, <http://money.cnn.com/2014/03/20/technology/security/drone-phone/>

# Conclusion



This report has taken a broad look at the current and possible future uses of drones within the UK. There are a number of key points to be made. The first of these is that while the regulatory framework governing the safe use of domestic drones is arguably fairly robust, the legislation and regulation that addresses surveillance and data-gathering by both public and private bodies and individuals is in dire need of reform. This need is compounded by the ongoing scandals surrounding undercover policing<sup>8</sup> and the mass state surveillance of communications and other digital data.<sup>9</sup>

Secondly, vast amounts of public funding from both UK and EU institutions – an estimated minimum of £80 million – have gone towards advancing civil drone technology and regulation. Public-private partnerships used to pump-prime technologies not yet considered ‘market-ready’ are nothing unusual, but it remains worth noting that it is private companies – amongst them many extremely wealthy multinational military and security firms – that ultimately stand to benefit financially from these programmes. The benefits offered to ordinary people by much of the technology being developed remain unclear, as does the wisdom of the vast state subsidies – over £20 million – put into Parc Aberporth with the promise of jobs that seem unlikely to ever materialise.

8. Campaign Opposing Police Surveillance, <http://campaignopposingpolicesurveillance.wordpress.com/>

9. Statewatch Observatory: Data surveillance, <http://www.statewatch.org/eu-usa-data-surveillance.htm>

Thirdly, the ongoing interest of the UK's police forces in drones should be subject to greater scrutiny. The academic Kevin Macnish has argued that, for the police:

“[D]rones could provide an improvement on existing abilities. Nonetheless, the risks of imposing increased surveillance on an unwilling population are such that deployment of drones in these cases should be done with caution and for limited time periods with a clear purpose. The alternative scenario of establishing a state that risks becoming one of persistent total surveillance is not justified.”<sup>10</sup>

The evidence presented in this report demonstrates that current use by the police remains limited, and that the technology available to the authorities is not yet approaching a level in which “persistent total surveillance” would be possible. However, the bureaucratic and institutional infrastructure needed to advance the acquisition and use of drones by the police seems, with ACPO's UAS Steering Group and the National Police Air Service, to be firmly in place. The capabilities of the National Crime Agency – if it has acquired drones of its own, as the evidence suggests – of course remain unknown. The secrecy surrounding this, and the secrecy clauses invoked in the majority of the responses from police forces to FOI requests, merely serve to hinder debate on the issue.

The time for meaningful debate and open, democratic decision-making on the use of drones by police forces should be now – while their use remains limited – rather than at a time when their use has already become widespread and debate is meaningless. The same applies to the use of drones by private companies and individuals.

Public consultation has been promised – DCC Chris Weigh of Lancashire Police told a meeting of ACPO's UASSG that: “the usage of UASs [will] certainly not become widespread until there [has] been a public consultation and all aspects of human rights [have] been addressed.”<sup>11</sup> Whether any such consultation

allows for meaningful public input will almost certainly depend on how much public pressure is brought to bear on the issue.

The fourth key finding of this report is that while the plans for widespread use of drones for border control (and other purposes) set out by the South Coast Partnership never came to pass, one of that project's key partners – Kent Police – continues to be involved in work with similar aims. The 3i project, which is using the English Channel to test a prototype drone for critical infrastructure, environmental and border monitoring, seems to have escaped wider public notice altogether. While it appears to be taking privacy considerations seriously, there is no guarantee that these will be incorporated into any future systems developed on the back of the project.

The use of drones for border control purposes would also do nothing to alleviate the dire situation caused by the joint UK-French border control policies at Channel ports. Furthermore, as with the use of drones for policing purposes, it would represent a further militarisation of domestic law enforcement. There is no need for authorities in the UK to mimic the unsavoury developments taking place across Europe and elsewhere in the world.

Any public debate and consultation needs to consider that although drones are currently used mostly to undertake video surveillance of one form or another, the potential uses of the technology are far more extensive – “[a]nything, within a reasonable weight range, could be fitted to a drone.”<sup>12</sup> Their use for carrying equipment for cracking WiFi networks and intercepting telecommunications information has been demonstrated. Domestic authorities in the US have expressed interest in attaching ‘less-lethal’ weapons to drones. There are no doubt numerous other inventive, but potentially nefarious, uses that will emerge in the future as technology develops.

Steps have already been taken to foster public debate and discussion on the domestic use of

10. Kevin Macnish, ‘Bring the Drones Back Home: The Ethics of Drone Use at Home and Abroad’, 2013, unpublished.

11. ACPO UAS Steering Group, ‘Minutes’, 10 September 2012, [http://www.statewatch.org/observatories\\_files/drones/uk/police-acpo-2012-10-09-minutes.pdf](http://www.statewatch.org/observatories_files/drones/uk/police-acpo-2012-10-09-minutes.pdf)

12. All Party Parliamentary Group on Drones, ‘Challenging Privacy? The civil use of drones in the UK, 12 June 2013’, <https://appgondrones.wordpress.com/appg-meetings/challenging-privacy-the-civil-use-of-drones-in-the-uk/>

drones. The All-Party Parliamentary Group on Drones<sup>13</sup> has conducted research and hosted debates, and it would provide a useful forum for future discussion. The UK is home to numerous privacy, data protection and civil liberties groups and campaigners whom have in the past had numerous successes in halting intrusive state schemes and proposals (for example, ID cards and the ‘Snoopers’ Charter’). There are also long-established networks of peace and anti-militarist organisations that have followed and opposed the rise of military drones and are familiar with many of the companies and technologies that are involved with and key to domestic drone production and use.

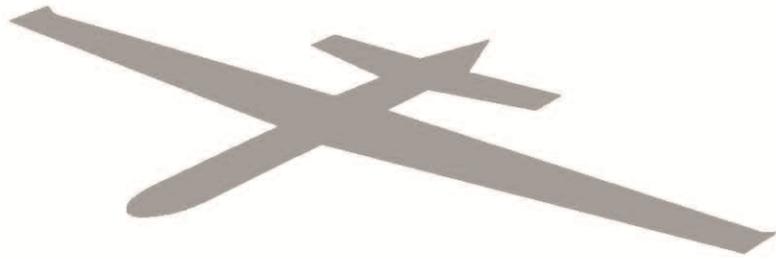
Despite suggestions that the technology in question is – or soon will be – beyond human control, it is arguably the case that the “technological genie” is not yet out of the “ethical bottle”.<sup>14</sup> All technologies ultimately have human social, political and economic systems underlying them and it is entirely feasible – and increasingly desirable – for new technologies to be subjected to interrogation, regulation and control that ensures respect for human rights and civil liberties. The question in the case of domestic drones is whether such forms of regulation can be put in place before the technology becomes more widespread and entrenched within society.

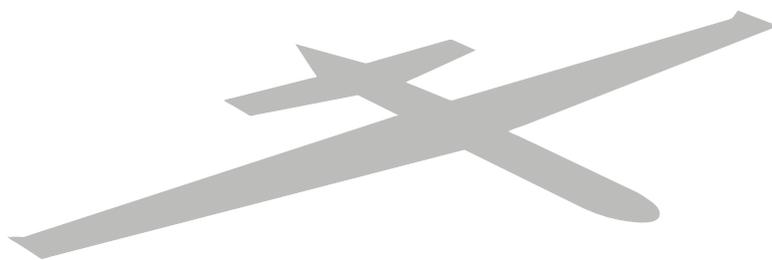
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13. <http://appgondrones.wordpress.com/>

14. Ministry of Defence, ‘The UK Approach to Unmanned Systems’, 30 March 2011, p.58-9, [http://www.statewatch.org/observatories\\_files/drones/uk/uk-mod-2011-03-approach-to-uas.pdf](http://www.statewatch.org/observatories_files/drones/uk/uk-mod-2011-03-approach-to-uas.pdf)







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