



**MONASH** University

*The 'drone ecology' and the United States' practice of targeted killing in the global war on terror.*

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## **Abstract**

This thesis will investigate the technologies and processes that underpin one of the United States' most controversial counterterrorism practices, drone-based targeted killing. The thesis develops the concept of a 'drone ecology' to outline the complex networked system of armed Unmanned Aerial Vehicles (UAVs), pilots, intelligence databases, analysts and high speed satellite-based communications networks, which the U.S. uses to track and target suspected terrorists in many remote areas of the globe. Understanding this integrated system is essential to critically investigate its relationship with the development of the practice of targeted killing. The study will do this via an analysis of the network structure, the connections and interactions that occur during drone-based targeted killing operations, based on empirical data made available via a series of leaked U.S. military documents through the lens of the theory of media ecologies. The analysis will be focused on the case studies of Yemen and Somalia to examine how the networked nature of the drone ecology has allowed the U.S. to develop new forms of state power in the international realm in the context of its counterterrorism operations, and how its modular nature has allowed the U.S. to expand its use to new regions in the context of the continuing global war on terror.

## Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signature:

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## Acknowledgements

In accordance with Chapter 7.1.4 of the research degrees handbook, I declare that I have not engaged the services of professional editors for the completion of this Masters thesis.

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## LIST OF ABBREVIATIONS AND GLOSSARY

Af-Pak	The border region shared by Afghanistan and Pakistan
APG	Aerial Precision Geolocation
AQ	Al Qaeda
AQAP	Al Qaeda in the Arabian Peninsula
CIA	Central Intelligence Agency
COMINT	Communications Intelligence
F3EA	Find, Fix, Finish, Exploit and Analyse
FFF	Find, Fix, Finish
FMV	Full Motion Video
GCS	Ground Control Station
IMINT	Image Intelligence
ISR	Intelligence, Surveillance and Reconnaissance
IR	International Relations
ISIS	Islamic State in Iraq and Syria
JSOC	Joint Special Operations Command
NSA	National Security Agency

RMA Revolution in Military Affairs

SIGINT Signals Intelligence

UAV Unmanned Aerial Vehicle

# CHAPTER 1: INTRODUCTION AND RESEARCH QUESTION

## 1.1 INTRODUCTION

*“This strategy of taking out terrorists who threaten us, while supporting partners’ forces on the ground is one that we have successfully pursued in Yemen and Somalia for years”*

(Former U.S. President Barack Obama, September 11, 2014)<sup>1</sup>

*“Time and space are telescoped, so that as one officer put it, ‘we’re mostly online with each other as we go’.”*

(Derek Gregory, *From a View to a Kill: Drones and Late Modern War*, 2011)<sup>2</sup>

This thesis will investigate the technologies and processes that underpin one of the United States’ most controversial counterterrorism practices, that of drone-based targeted killing. The practice of targeted killing hinges on the complex networked system of armed Unmanned Aerial Vehicles (UAVs) or drones, pilots, intelligence databases, analysts and high speed satellite-based communications networks, which the U.S. uses to track and target suspected terrorists in many

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<sup>1</sup> Obama, Barack, “Transcript: President Obama’s Speech on Combating ISIS - CNNPolitics.Com.” CNN, September 11, 2014. <http://www.cnn.com/2014/09/10/politics/transcript-obama-syria-isis-speech/index.html>.

<sup>2</sup> Gregory, Derek. “From a View to a Kill Drones and Late Modern War.” *Theory, Culture & Society* 28, no. 7–8 (December 1, 2011): 188–215.

remote areas of the globe. The study will label this complex, networked system the United States' 'drone ecology'. Understanding this integrated system, a new phenomenon in the international realm, is essential to critically investigate its relationship with the development of the practice of targeted killing, a new form of state power developed by the U.S. in the context of the global war on terror. The study will do this via an analysis of the network structure, the connections and interactions that occur during drone-based targeted killing operations, based on empirical data made available via a series of leaked U.S. military documents through the lens of the theory of media ecologies. A critical analysis of this global, networked system is important for a thorough understanding of the implications of the U.S. practice of targeted killing, refined under the administration of former U.S. President Barack Obama and now reportedly seeing a rapid expansion under the administration of U.S. President Donald Trump.

The United States' practice of targeted killing is embedded in the context of the global war on terror, developed in the wake of the September 11, 2001 terror attacks and the ensuing U.S.-led occupations of Afghanistan and Iraq. Targeted killing is a counterterrorism tactic, used primarily in remote areas of Pakistan, Yemen and Somalia – and more recently in states including Libya and Syria – areas often referred to in U.S. national security circles as ungoverned spaces<sup>3</sup>. Drone-based targeted killing operations, commonly referred to as drone strikes, take place through the complex high-speed communication networks that are characteristic of a globalised world, and the United States' armed drones have recently become an icon of the country's counterterrorism policy in the global war on terror.

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<sup>3</sup> Clunan, Anne, and Harold Trinkunas, Eds. *Ungoverned Spaces: Alternatives to State Authority in an Era of Softened Sovereignty*. First Edition. Stanford, Calif: Stanford Security Studies, 2010.

As yet, the networked technologies of the drone ecology, and their influence on U.S. counterterrorism tactics, have not yet been analysed using theoretical tools developed to understand complex, networked media systems. Through a series of case studies, this thesis will argue that concepts currently employed in scholarly research to understand how the networked systems that support U.S. counterterrorism operations function do not go far enough to describe the intertwined nature of this assemblage of human and technical actors, objects and processes. Coining the term 'drone ecology', this study will analyse the technical system of linked communications technologies and human actors that allow near-instantaneous transmission of large amounts of data and the interaction between scores of human actors, large intelligence databases and the drone aircraft themselves with their arrays of cameras and other sensors – a complex, networked media ecology.

It is precisely this gap in scholarly knowledge that will be addressed in this thesis, a gap that exists in the knowledge of U.S. counterterrorism practices and the level to which such counterterrorism practices are dependent upon networked communication systems typified by the drone ecology. The study will address this gap using a combination of IR concepts and post-structuralist media theory, namely the theory of media ecologies. This theoretical base will underpin a case-study based definition, indexation and analysis of the complex system developed by the United States – the drone ecology – used to perform targeted killings in the context of the global war on terror.

## 1.2 RESEARCH QUESTIONS

This thesis will critically investigate the relationship between the United States drone ecology – the networked system that enables the U.S. to undertake drone operations – and the development of its practice of targeted killing. It will investigate this via an analysis of the network structure, connections and interactions that occur during drone-based targeted killing operations, through the lens of theory of media ecologies. The analysis will be focused on two case studies, situated in the so-called non-battlefield settings of U.S. counterterrorism operations in Yemen and Somalia respectively, and examine how the modular nature of the drone ecology has allowed the U.S. to expand use of the system to new regions. The study will address these problems through one main research questions and two secondary questions:

1. *How has the 'drone ecology' influenced the development of United States counterterrorism practices in non-battlefield settings?*
  - a. *How does the 'drone ecology', and its constituent networked parts, function in relation to the practice of targeted killing specifically in non-battlefield settings?*
  - b. *Has the 'drone ecology' become a model for future expansion of the U.S. program of targeted killing in the global war on terror, and if so, how?*

## CHAPTER 2: LITERATURE REVIEW

This literature review addresses the current scholarly debate on the development of the United States' practice of drone-based targeted killing. This literature review will review major concepts and trends that underpin the development of the U.S. drone ecology, including processes of globalization, evolving modes of contemporary conflict, the development of networked media, and changes in U.S. counterterrorism practice after September 11, 2001. Research on developments in networked warfare during the Iraq war and the effects of U.S. drone-based targeted killing campaigns in the non-battlefield settings of Pakistan's North-West Frontier Provinces and Yemen will also be reviewed. The existing scholarly research on U.S. drone-based counterterrorism practices has revealed the many negative effects on social and political cohesion on communities in the regions where these practices have been developed, particularly in Pakistan. Further, influential counterinsurgency scholars have argued drone-based targeted killing campaigns in these regions have in turn reverberated with highly detrimental impacts on global U.S. counterinsurgency efforts. In this review of the current literature on the U.S. practice of drone-based targeted killing and the policies that surround it, this chapter will demonstrate a clear gap in the knowledge that exists in this subject area, namely that the networked technologies of the U.S. drone ecology, and their influence on U.S. counterterrorism practices, have not yet been analysed using theoretical tools developed to understand complex, networked media systems and that an analysis through this frame is essential to understanding their development and influence on the changing nature of warfare and forms of state power in the international realm.

## 2.1 GLOBALISATION AND WAR

Tarak Barkawi has closely tracked the ways in which conflict has changed in relation to the conditions of contemporary globalization following 9/11, outlining the war on terror as a conflict that is “global in character” that pressures and shapes “different spaces and populations in similar ways”<sup>4</sup>. Led by the U.S. in its hunt for violent non-state actors that are not defined by the borders of nation states, such as Al Qaeda, Barkawi argues this new form of conflict has been shaped by globalisation’s characteristic effects on the international realm, a phenomenon that reduces the significance of borders and increases global fluidity. Indeed, Zygmunt Bauman has argued that the most significant implication of the 9/11 attacks was “that of a symbolic end to the era of space”<sup>5</sup>, and the ushering in of a new era where the major powers such as the U.S. would increasingly ignore borders in favour of national-security related objectives. Building on Manuel Castells’ seminal 1996 work *The Rise of the Network Society*<sup>6</sup>, Bauman describes a globalised “space of flow”<sup>7</sup>, typified by new modes of high-speed physical transportation and communications infrastructure. Calling these networked spaces the global “frontierland”<sup>8</sup>, Bauman argued that adversaries of the United States would be constantly on the move, fighting the overwhelming military and political power of the U.S. through new forms of globalized guerrilla warfare. The work of these two scholars outline a post-9/11 global environment in which conflict would not be defined by traditional understandings of clashes between states, but where smaller, more mobile

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<sup>4</sup> Barkawi, Tarak. *Globalization and War*. Lanham: Rowman & Littlefield Publishers, 2005, p 148.

<sup>5</sup> Bauman, Z. “Reconnaissance Wars of the Planetary Frontierland.” *Theory, Culture & Society* 19, no. 4 (August 1, 2002): 81–90. p 81.

<sup>6</sup> Castells, Manuel. *The Rise of the Network Society*, Cambridge, MA: Blackwell Publishers, 1996.

<sup>7</sup> Bauman 2002, p.82

<sup>8</sup> Bauman 2002, p.82

actors would attack weak areas in the international security and political infrastructure of major powers such as the United States.

Derek Gregory's research on the use of remotely controlled, network-connected UAVs by the United States is critical foundation work for this study. Gregory argues that the "global borderlands" where the U.S. armed forces "now conduct their military operations"<sup>9</sup> are also the location of the crucial practical and theoretical front lines in the study of contemporary counterterrorism practices and the broader development of modern conflict. Gregory defines what he calls a "contrapuntal geography", where violence could potentially "erupt anywhere"<sup>10</sup>: inside a declared war zone in Iraq or Afghanistan, in a remote Yemeni town or on the streets of a major Western capital city, perhaps in the form of a knife attack or erratically driven vehicle in central London or Paris.

Despite the primacy of attention paid to declared wars such as in Iraq and Afghanistan in the years after 9/11, Gregory points to the replacement of the concept of the battlefield in U.S. military doctrine, by the concept of a "multi-scalar battlespace"<sup>11</sup>. This new paradigm of conflict, says Gregory, has the potential to envelope the entire globe in a constant hunt for potentially emergent, imminent threat, as new regions become safe havens for groups resisting global superpowers and these spaces then become targets for counterterrorism action by the U.S. or other powers.

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<sup>9</sup> Gregory 2011b, p. 239

<sup>10</sup> Gregory 2011b, p. 239

<sup>11</sup> Gregory 2011b p. 239 and p. 247.

Further to this, Gregory's influential article "From a View to a Kill: Drones and Late Modern Warfare" contributed to the foundations of this study outlining the concept of a drone ecology. In his 2011 work, Gregory dissects and analyses the systems and workflows that contribute to the "the drone wars being waged by the USA in the global borderlands"<sup>12</sup>. Gregory highlights important criticism of these systems and practices by influential counterinsurgency scholars and experts as being potentially highly counterproductive, causing more problems than they solve, and deftly parries the concept that drone warfare due to its remote-controlled nature is somehow 'virtuous'<sup>13</sup>. On top of the deft criticism and analysis of these concepts, "From a View to a Kill" importantly proposed the use of Metz' concept of the "scopic regime"<sup>14</sup> to understand the remote, camera-driven nature of drone warfare and how the actions of pilots and crews in the system, pursuing their mission to "put warheads on foreheads"<sup>15</sup> in the U.S. military's colloquial parlance, are affected by the system's scopic nature. For Gregory, the global system that enables this regime – the system that this thesis will engage with and analyse as the broader drone ecology – produces "a special kind of intimacy that consistently privileges the view of the hunter-killer, and whose implications are far more deadly"<sup>16</sup>. New forms of state power and new forms of warfare, directly resultant from the U.S. military's development and use of radical new network-based technologies.

This thesis will use the concepts outlined by Barkawi, Bauman and in particular, Gregory, as a foundation to understand how new forms of conflict are being developed in these global

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<sup>12</sup> Gregory, Derek. "From a View to a Kill Drones and Late Modern War." *Theory, Culture & Society* 28, no. 7–8 (December 1, 2011): 188–215. <https://doi.org/10.1177/0263276411423027> p. 189.

<sup>13</sup> Gregory, 2011b, p. 190

<sup>14</sup> Metz 1982 cited in Gregory 2011b p. 190

<sup>15</sup> Mulrine 2008 cited in Gregory 2011b, p. 190

<sup>16</sup> Gregory 2011b, p. 193

frontierlands. As will be further demonstrated, the conditions of globalisation and shifts toward new forms of decentralised warfare have been key forces driving the development of the drone ecology and the use of targeted killing as a counterterrorism practice on the part of the United States.

## 2.2 DEVELOPMENT OF TARGETED KILLING AND THE KILL CHAIN

A great deal of scholarly work has paid attention to the response of U.S. President George W. Bush's administration to the September 11, 2001 terrorist attacks. Very quickly after the attacks, the Bush Administration pointed the finger at the Al Qaeda (AQ) militant network along with the Taliban who had sheltered AQ leadership in Afghanistan, as bearing responsibility for the destruction. Paul D. Williams writes that the events of 9/11 reinforced the fortunes of political realists within the U.S. national security community and in the Bush administration. The administration saw the attacks as justification to engage in "active responses" to tackle the threats exemplified by the "globalised network" of AQ<sup>17</sup>. Then- U.S. Secretary of Defence, Donald Rumsfeld, used the opportunity to embrace the revolution in military affairs (RMA) principles of the 1980's, attempting to reform the structure of the U.S. military from that of a traditional, standing army to a more technologically advanced, lighter force that would be able to engage what the Bush administration viewed as the more fleeting threats of the post-9/11 world<sup>18</sup>. The U.S. Defence Department's 2006 Quadrennial Defence Review articulated the institutionalisation

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<sup>17</sup> Paul D. Williams, "Security Studies, 9/11 and the Long War", in Bellamy, Alex J., Roland Bleiker, Sara E. Davies, and Richard Devetak, eds. *Security and the War on Terror*. Routledge, 2007. p 11

<sup>18</sup> P. Williams, 2007, p 13.

of the transition, identifying the war on terror as a long war that would be fought in “so-called failed states”<sup>19</sup>, which the Pentagon saw as creating “safe havens for a new type of enemy”<sup>20</sup>. In this new way of conceptualising conflict, tactics of capturing and killing individuals and small groups in the shadows would quickly take centre stage.

Prior to its adoption by the U.S., targeted killing as a counterterrorism tactic had been developed and deployed by the Israeli military in the occupied Palestinian territories during the second Intifada of the early 2000s<sup>21</sup>. Scholars have argued long-standing political and military linkages between Israel and the United States laid the foundations for such transfer of tactics and policy, a process Barkawi labels the “Israelisation of America”<sup>22</sup> as counterterrorism policies and tactics were adopted in Washington in the “shared geography”<sup>23</sup> of the war on terror. While Israel’s targeted killings significantly deteriorated Palestinian terrorist groups’ ability to launch suicide bombings and other operations<sup>24</sup>, they also fuelled great domestic and international debate over their negative effects specifically in instances of civilian casualties, including at times from the United States. However, according to Daniel Byman, by the early-2000s, the U.S. had begun to adopt the practice and develop it in line with their own significant technological capacities<sup>25</sup>,

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<sup>19</sup> P. Williams, 2007, p. 15.

<sup>20</sup> Ibid

<sup>21</sup> Byman, Daniel. “Do Targeted Killings Work?” *Foreign Affairs*, March 2006. <https://www.foreignaffairs.com/articles/israel/2006-03-01/do-targeted-killings-work>, accessed 14/4/2015.

<sup>22</sup> Barkawi, Tarak. *Globalization and War*. Lanham: Rowman & Littlefield Publishers, 2005. p.157.

<sup>23</sup> Barkawi, 2005, p.164

<sup>24</sup> Byman, 2006.

<sup>25</sup> Byman, 2006.

particularly related to the use of drone aircraft as remote platforms for surveillance and missile attacks in remote corners of the planet.

Soon after the U.S.-led invasion of Afghanistan in October 2001, senior Taliban and AQ fighters fled to safer territory across the border in Pakistan. And according to Bryan Williams, the CIA quickly followed them into Pakistan's border region with Afghanistan using armed UAVs<sup>26</sup>. Indeed, Williams argues that by 2004 that the CIA had launched an "an all-out airborne war" against Taliban and AQ militants in the border regions of Afghanistan and Pakistan<sup>27</sup>. Williams reveals the willingness of the Bush Administration to flout traditional rules of sovereignty after 9/11, citing then-National Security Advisor Condoleezza Rice stating the U.S. would be fighting a new war on "different battlefields"<sup>28</sup> in the world's so-called ungoverned spaces.

Fred Kaplan, Ian Shaw and Steve Niva have all made significant contributions to the debate over the development of targeted killing and networked warfare. Soon after the U.S.-led invasion of Iraq in 2003, the conflict in that country shifted from what the Bush administration had sold as a fast and light invasion and regime-change operation into a protracted guerrilla war pitching America's conventional military forces against dispersed networks of insurgent fighters. In these conditions, the U.S. military quickly found increasing use for what Niva refers to as "network-

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<sup>26</sup> Williams 2013, p 30.

<sup>27</sup> Williams, Brian Glyn. *Predators: The CIA's Drone War on Al Qaeda*. Washington, D.C: Potomac Books, 2013, p 1

<sup>28</sup> Rice, Condoleezza cited in Williams 2013, p 28

centric warfare”<sup>29</sup>: the use of mass data-crunching to try and understand insurgent networks including high-resolution surveillance systems, high-speed digital communications methods and network modes of organisation to combat an enemy largely hidden among the dense Iraqi population<sup>30</sup>.

Drone technology along with the use of vast amounts of networked computing power met many of these needs and was able to provide live surveillance video and feed information on the relationships between fighters in the insurgent networks to units in the field, allowing them to track down suspected militant cells distributed throughout Iraq’s crowded urban spaces. When Robert Gates replaced Rumsfeld as U.S. Defence Secretary in 2006, the so-called “dronification”<sup>31</sup> of the U.S. armed forces accelerated,<sup>32</sup> and nascent tactics for “hunting and killing jihadists”<sup>33</sup> with high tech tools moved to the fore. In order to target individuals and small groups identified as threats, the U.S. military encouraged a massive proliferation of network connections between assault units in the field, UAVs hovering above battlefields, and intelligence analysts away from the front with access to large databases of intelligence information. Thus, in the guerrilla dynamic of the war in Iraq, the U.S. developed a complex, networked media system that dramatically grew the country’s capacity in counterterrorism operations.

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<sup>29</sup> Niva, Steve. “Disappearing Violence: JSOC and the Pentagon’s New Cartography of Networked Warfare.” *Security Dialogue* 44, no. 3 (June 1, 2013), and Kaplan, Fred. “The World as Free-Fire Zone.” *Technology Review* 116, no. 4 (August 7, 2013) p. 189

<sup>30</sup> Niva, 2013

<sup>31</sup> Kaplan, 2013 p. 38

<sup>32</sup> Niva 2013, and Shaw, Ian G. R. “Predator Empire: The Geopolitics of US Drone Warfare.” *Geopolitics* 18, no. 3 (July 1, 2013)

<sup>33</sup> Kaplan, 2013 p. 38

During this period, targeted killing operations in Iraq and the expansion of network tactics in the U.S. military more broadly were spearheaded by the United States' Joint Special Operations Command (JSOC), led from late 2003 by General Stanley McChrystal. As Niva outlines, McChrystal transformed the U.S. military's special operations units in Iraq into a networked system that drew together "interconnected sets of decentralized and largely autonomous components"<sup>34</sup>. In other words, creating small, interconnected units of elite soldiers who had previously operated in a much more isolated fashion, to hunt terrorist suspects and militant leaders of dispersed militant networks hidden in Iraq's dense physical and social geography.

*"We had to become a network ourselves -- to be connected across all parts of the battlefield, so that every time something occurred and we gathered intelligence or experience from it, information flowed very, very quickly"*<sup>35</sup>.

As Niva usefully points out, a key part of this transformation involved McChrystal's decision to spend his general's discretionary fund on satellite network bandwidth, computing power and other digital infrastructure, allowing units to share data, crunch intelligence and then receive information from various parts of the U.S. military network while in the field<sup>36</sup>. For example, in the process of a house raid in Baghdad or Fallujah, U.S. military units would capture cell phones, computers and other devices, uploading the suspects' communications records to intelligence

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<sup>34</sup> Niva, 2013 p. 191.

<sup>35</sup> Rose, Gideon. "Generation Kill: A Conversation with Stanley McChrystal." *Foreign Affairs*. Accessed September 11, 2015. <https://www.foreignaffairs.com/interviews/2013-02-11/generation-kill>

<sup>36</sup> Niva 2013, p 192.

analysts who would in turn inform the field unit of relationships across the militant network revealed by contacts, messages, call records and emails on the cell phone or computer. These connections would then provide intelligence for new sets of raids as JSOC Special Forces units used the relationships revealed through data crunching to hunt their way through networks of related insurgents in Iraq. “JSOC effectively became a networked experiment in intelligence crowd-sourcing as it expanded,” argues Niva<sup>37</sup>. In these networked operations systems, UAVs played a central role in providing surveillance video and linking the various elements together<sup>38</sup> into the type of dynamic, heterogeneous, information-driven networked assemblage that media theorist Matthew Fuller conceptualises as a media ecology<sup>39</sup>.

Niva and Gregory argue that these developments in Iraq also led to the maturation of the United States’ networked kill chain, “a dispersed and distributed apparatus”<sup>40</sup>, comprising UAVs and their operators, military units on the ground with various communication technologies, and intelligence analysts joining the dots to track relationships and identify potential targets. In the wake of these developments during the war in Iraq, these networked practices have become further embedded in U.S. military practice, and indeed, recent work by Gregory shows that some 185 individuals take part in a single mission flown by a Reaper drone, one of the United States’ most commonly

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<sup>37</sup> Niva 2013, p 192-193.

<sup>38</sup> Denes N (2010) “From tanks to wheelchairs: Unmanned aerial vehicles, Zionist battlefield experiments, and the transparency of the civilian”. In Zureik E, Lyon D and Abu-Laban Y (eds) *Surveillance and Control in Israel/Palestine: Population, Territory and Power*. New York: Routledge, 171–195.

<sup>39</sup> Fuller, Matthew. *Media Ecologies: Materialist Energies in Art and Technoculture*. MIT Press, 2005.

<sup>40</sup> Gregory, Derek. “From a View to a Kill Drones and Late Modern War.” *Theory, Culture & Society* 28, no. 7–8 (December 1, 2011): p. 196.

deployed armed UAV models<sup>41</sup>. Further, press reporting has helped to sketch out a view of these global networks that drive the U.S. drone program. In one example, journalist Nancy Youssef described the dimly lit rooms that make up parts of the United States' global counterterrorism network in action at one intelligence facility near Washington D.C. during operations against ISIS in 2014:

*“There are dozens of them, men and women, each wearing camouflage, looking for suspected Iraqi and Syrian jihadists scurrying across the screen. If something changes on the screen – a group of dark figures crossing a street, a string of vehicles racing down a road – they pass the information to another pilot, who might decide to open fire.”<sup>42</sup>*

These actors all form part of the “kill chain”<sup>43</sup>, what Gregory and Gregoire Chamayou have described as the bureaucracy of violence formed to support U.S. targeted killing practices. The kill chain as described in their research performs a number of functions, gathering and processing information on so-called high value individuals and groups considered a threat, tracking their locations and movements, then feeding this information to the operators of drone missions. This “congeries of actors”<sup>44</sup> is reliant on advanced network infrastructure and communications

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<sup>41</sup> Gregory, 2011.

<sup>42</sup> Youssef, Nancy A. “Use of Drones against Islamic State Changes the Meaning of Warfare | National Security & Defense | McClatchy DC.”, 14/11/2014. Accessed June 14, 2015.  
<http://www.mcclatchydc.com/2014/11/19/247443/use-of-drones-against-islamic.html>

<sup>43</sup> Gregory 2011b p.196 and Chamayou, Grégoire. A Theory of the Drone. New York: The New Press, 2015.

<sup>44</sup> Gregory 2011b, p. 196.

technology for the drones' live video feeds and signals intelligence data to be transmitted, for actors in the kill chain to communicate in real time regarding possible targets and orders, and for information from other large intelligence databases in the U.S. national security structure to be fed into the targeting process. Chamayou's crucial 2015 work *Theory of the Drone* – a seminal work of the emerging interdisciplinary field of drone studies – explores this networked bureaucratic structure. Among other things, Chamayou critically dissects the implications for such an encompassing bureaucratic machine for modern democracies and for the execution of state power in new modes of drone-based warfare. Chamayou argues “what the dronisation of the fighter pilot sets out to accomplish technically is the suppression or displacement of this most imperfect link between the state apparatus and its war machines”<sup>45</sup>. In Chamayou's view of the new modes of manhunt warfare modes enabled by remotely controlled systems such as Predator and Reaper drones, power is completely skewed toward the actor who has access to drone technology – as he argues, “people will still die, but only on one side”<sup>46</sup>. A radical new ecological formulation of military power, and a radical development associated with the use of the drone ecology, with what Chamayou points out are potentially drastic consequences and outcomes for state power and democracy in the age of drone warfare.

Another important addition to the emerging field of drone studies is the compilation work *Life in the Age of Drone Warfare*, edited by Caren Kaplan and Lisa Parks<sup>47</sup>. This collection offers a new critical language with which to understand drone warfare, including not least the ways in which

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<sup>45</sup> Chamayou 2015, p. 214.

<sup>46</sup> Chamayou 2015, p. 24

<sup>47</sup> Parks, Lisa, and Caren Kaplan, eds. *Life in the Age of Drone Warfare*. Duke University Press Books, 2017.

these technologies affect understandings of surveillance, data gathering and specifically on how drone warfare enables the exercise of state power in new and challenging ways. Critically, Caplan and Parks outline how, despite the depth of coverage of everything drone related across the mainstream media – or “drone-a-rama”<sup>48</sup> as they dub the phenomenon – “what is so often missing from the reportage is an understanding of the material ecologies through which drones are operationalized”<sup>49</sup>. Caplan and Parks and the numerous other scholars including Gregory, Ricardo Dominguez and Lisa Parks whose work is carried in their 2017 volume, endeavour to explore and explain these ecologies. This very thesis and its definition of the concept of a drone ecology seek to contribute to answering many of the same questions, and address a specific gap in the knowledge of the emergent field of drone studies that surround how the rapid development of networked communications structures has contributed to rapid changes in U.S. counterterrorism practice post-9/11, with the drone program as the key instance and example.

All of these scholars have contributed to what is becoming a field of drone studies, which Gregory, Chamayou and others have all defined through their crucial conceptual and analytical works. Ian Shaw has also contributed to this school of thinking, particularly through his 2016 publication *Predator Empire*, in which among other things Shaw explores the U.S. military’s efforts to develop “full spectrum dominance”<sup>50</sup> and its relationship to the desire for security, where “machines

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<sup>48</sup> Caplan and Parks “Introduction”, in Caplan and Parks (eds.) 2017, (Kindle edition).

<sup>49</sup> Caplan and Parks “Introduction”, in Caplan and Parks (eds.) 2017, (Kindle edition).

<sup>50</sup> Shaw, Ian G. R. *Predator Empire: Drone Warfare and Full Spectrum Dominance*. University of Minnesota Press, 2016. p. 9

perform the atmospheric enclosure of the earth”<sup>51</sup> and perform the task of “regulating the geopolitical climate of our everyday existence”<sup>52</sup>. Drones, argues Shaw, are a key component of this desire for full spectrum dominance, and in the pursuit of this “they are transforming the geographies and infrastructures of state violence”<sup>53</sup> and “challenging the meaning of sovereignty, territory, and even domestic law enforcement”<sup>54</sup>. Crucially, Shaw also touches on the broader networked connections and non-linear relationships that are explored partly through the concept of drone ecology as developed in this study, with Shaw arguing that the drone program needs to be understood in light of developments in the U.S. national security state, “the conglomeration of military institutions, intelligence agencies, and police organisations designed to protect the U.S. homeland”<sup>55</sup>.

This thesis, through its discussion and development of the concept of a drone ecology that hopes to in part explain how some of these interconnections can be understood, also endeavours to make a contribution to this fast-developing field of drone studies. Along with the already existing research, recently leaked U.S. military documents<sup>56</sup> and press reporting on U.S. counterterrorism

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<sup>51</sup> Shaw, 2016, p. 10

<sup>52</sup> Ibid

<sup>53</sup> Ibid

<sup>54</sup> Shaw, 2016, p.11

<sup>55</sup> Shaw, 2016, p. 12

<sup>56</sup> Scahill, Jeremy, Joshua Begley, Cora Currier, Ryan Deveruax, Peter Mass, Ryan Gallagher, and Turse, Nick. “The Drone Papers: Secret Documents Detail the U.S. Assassination Program.” *The Intercept*. Accessed October 20, 2015. <https://theintercept.com/drone-papers/>.

practices detailing drone-based targeted killing operations<sup>57</sup> have shed much light on the way that networked media technologies have enabled this new development in strategic practice<sup>58</sup>.

## 2.3 THE IRAQ WAR AND DOMESTIC U.S. POLITICS

Research on the Iraq war and its political consequences also records the domestic political pressure that led to the U.S. government to see drone-based targeted killings as a preferable option to pursue counterterrorism objectives in the war on terror. John Kaag and Sarah Kreps argue that public backlash over continued American casualties in Iraq and its negative impact on the political fortunes of the Republican Bush administration after 2006, pressed the newly inaugurated Democratic administration of Barack Obama from 2009 onward to favour counterterrorism tactics that kept American soldiers away from the battlefield. In employing UAVs as a counterterrorism tool, the U.S. was able to attack militant groups while reducing risk to military personnel, thereby reducing domestic political blowback<sup>59</sup>. Micah Zenko, Derek Gregory and scholars of philosophy and ethics including Robert Sparrow<sup>60</sup> have also underlined this crucial political calculation in the development of the United States' policy and practice of drone-based targeted killing. "This is risk-transfer war with a vengeance", argues Gregory, "where virtually all the risks are transferred to

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<sup>57</sup> Ackerman, Spencer. "'Drones Playbook' Shows Key Role Played by White House Staff in Deadly Strikes." *The Guardian*, August 6, 2016, sec. World news. <http://www.theguardian.com/world/2016/aug/06/drones-playbook-white-house-nsc-obama-clinton-trump>. Accessed July 2, 2017.

<sup>58</sup> Gregory 2011b, Chamayou 2015 and Niva, 2013.

<sup>59</sup> Kaag, John, and Sarah Kreps. *Drone Warfare*. 1 edition. Polity, 2014. p. 5

<sup>60</sup> Zenko, Micah. *Reforming U.S. Drone Strike Policies*. Council on Foreign Relations Press, 2013. p. 10. and Sparrow, Robert, 2013, 'War without virtue?', In Bradley Jay Strawser (ed) *Killing by Remote Control*. Oxford and New York: Oxford University Press, p 4.

populations overseas”<sup>61</sup>, a calculus that also performed the function of reducing the images of U.S. soldiers coming home from overseas in body bags on American’s television screens.

McCrisken, Shaw and Niva have all examined the Obama administration’s creation of a bureaucratic structure to oversee the drone program and the various arms of U.S. military and intelligence that contribute to it, and collate databases of individuals and groups labelled imminent threats to the U.S. These databases of names became known as the kill lists, cataloguing individuals to be targeted by counterterrorism drone strikes. McCrisken cites an example of target selection practices in Yemen and Somalia in his work, as detailed in reporting from 2012 by Jo Becker and Scott Shane in the *New York Times*, describing target selection committees who would meet regularly in Washington DC to produce lists of suspects based on intelligence reporting. A shortlist would then arrive on the President’s desk for sign-off on the “high-value individuals”<sup>62</sup> who were to be targeted. Shaw records that these databases collate and contain “a list of suspects targeted for elimination across the planet”<sup>63</sup>, and that under the Obama administration these lists, and the bureaucracy that produces them, became “a permanent feature of U.S. national security”<sup>64</sup>. This development in policy and practice, as examined by McCrisken, Shaw and Niva,

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<sup>61</sup> “Drone Geographies | Derek Gregory.” *Radical Philosophy*. Accessed July 21, 2015. <http://www.radicalphilosophy.com/article/drone-geographies>, p. 7.

<sup>62</sup> Becker, Jo, and Scott Shane. “Secret ‘Kill List’ Tests Obama’s Principles.” *The New York Times*, May 29, 2012. <http://www.nytimes.com/2012/05/29/world/obamas-leadership-in-war-on-al-qaeda.html>, cited in McCrisken 2013.

<sup>63</sup> Shaw, 2013, p 536.

<sup>64</sup> Shaw, 2013, p 536.

represents a radical shift in methods of state violence and the global reach of U.S. power in the post-9/11 era.

## 2.4 TARGETED KILLING IN PRACTICE: PAKISTAN AND YEMEN

Influential strategist David Kilcullen, a former advisor to the U.S. military on counterinsurgency strategy during the Iraq war, has condemned the country's increasing reliance on drone strikes as a counterterrorism tool. In an op-ed in *The New York Times* in 2009 written with Andrew Exum, a former U.S. Army officer, Kilcullen argued the social and political effects of drone strikes in Pakistan were proving highly counterproductive for the U.S. effort against the spread of militant activity in the country and its effect on U.S. efforts in neighbouring Afghanistan. Kilcullen and Exum argued that local blowback from the Pakistan drone strikes was clearly manifesting as widespread anger and political discontent across the country. Indeed, while scholarly research has found that drone strikes can be effective in eliminating leaders and decision makers in hierarchical terrorist organisations<sup>65</sup>, and that this type of decapitation strategy can reduce the ability of violent non-state actor groups to undertake attacks<sup>66</sup>, a growing body of research also shows significant blowback from U.S. drone attacks. Research from Michael Boyle, Micah Zenko, Peter Bergen and Katherine Tiedemann among others has shown they have a significant negative impact on social cohesion in these regions, with these effects more pronounced in tribal societies

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<sup>65</sup> Javier Jordan "The Effectiveness of the Drone Campaign against Al Qaeda Central: A Case Study", *Journal of Strategic Studies*, 37:1, 4-29 (February 2014)

<sup>66</sup> Johnston, Patrick B. "Does Decapitation Work? Assessing the Effectiveness of Leadership Targeting in Counterinsurgency Campaigns." *International Security* 36, no. 4 (April 1, 2012): 47-79 and Price, Bryan C. "Targeting Top Terrorists: How Leadership Decapitation Contributes to Counterterrorism." *International Security* 36, no. 4 (April 1, 2012): 9-46.

dominant in places like Pakistan and Yemen, becoming a major factor in driving certain parts of the population to join the very militant organisations these operations are designed to eradicate<sup>67</sup>.

In all of these analyses, drone-based targeted killings have been shown to create a siege mentality among civilian populations in the regions targeted by U.S. strikes launched from hovering UAVs. While violent extremist groups such as AQ have been showed to be generally unpopular among civilian populations, when under fire from “a faceless enemy that wages war from afar and often kills more civilians than militants”<sup>68</sup>, civilians tend to increase their sympathy for militant groups and their political ideologies. In Pakistan, public outrage at drone attacks has also extended beyond the local and made its way to the national political stage, contributing to political instability in an already fragile state. Boyle’s analysis supports Kilcullen and Exum’s argument, contending that only an approach that includes local populations of remote areas in Pakistan and other countries targeted in U.S. drone strikes in the political process can address the underlying problems that militant groups exploit in order to carve out safe spaces for their own malicious actions.

In Yemen, argues Boyle, the U.S. under the Obama administration particularly engaged in a contradictory counterterrorism strategy that acted to shore up the Yemeni state, “while also

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<sup>67</sup> Ahmed, Akbar, *The Thistle and the Drone: How America’s War on Terror Became a Global War on Tribal Islam*. Brookings Institution Press, 2013, Bergen, Peter, and Katherine Tiedemann. “Washington’s Phantom War: The Effects of the U.S. Drone Program in Pakistan.” *Foreign Affairs* 90, no. 4 (July 1, 2011) and Dur-e-Aden, Aden, “To Drone or Not To Drone: A Comparative Analysis of the Effectiveness of the US’ Drone Policy of Targeted Killing in the Contexts of Pakistan and Yemen.” University of British Columbia, November 2014

<sup>68</sup> Kilcullen, David, and Andrew Exum. “Death From Above, Outrage Down Below.” *The New York Times*, May 17, 2009, sec. Opinion. <http://www.nytimes.com/2009/05/17/opinion/17exum.html>, accessed 15/06/2014.

undermining its legitimacy”<sup>69</sup> through unilateral drone strikes. Boyle’s work also underscores the significance of so-called blowback against U.S. actions in sovereign states as examined in the influential work of Chalmers Johnson<sup>70</sup>, who used the term to describe local retaliation against U.S. covert intelligence operations and other more overt military activity. Johnson’s blowback has arguably been repeated in the post-9/11 era, and can be used to describe the reaction by local populations in countries like Pakistan and Yemen<sup>71</sup> after drone-based targeted killing operations occur in their own towns and villages.

Bergen and Tiedemann’s research on the effect of U.S. drone strikes in Pakistan, undertaken through an analysis of news reporting and surveys, shows that militants made up around 80% of casualties in U.S. targeted killings<sup>72</sup> in Pakistan between June 2004 and April 2011. However, their research also shows that the reality of the U.S. drone campaign in the country is highly misunderstood on a local level, with more than 50% of Pakistani respondents stating that they thought drone strikes killed mostly civilians, not militants<sup>73</sup>. Despite these negative political effects, Bergman and Tiedemann’s study shows that militant behaviour and operational tactics had been significantly affected by U.S. drone-based targeted killing operations. By 2011, fighters for the Haqqani network, a major militant group operating against U.S. and NATO troops across the

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<sup>69</sup> Boyle, Michael J. “The Costs and Consequences of Drone Warfare.” *International Affairs (Royal Institute of International Affairs 1944-)* 89, no. 1 (January 1, 2013) p. 20.

<sup>70</sup> Chalmers A. Johnson. *Blowback: The Costs and Consequences of American Empire*. New York: Henry Holt and company ; Owl Books, 2001.

<sup>71</sup> Williams, B. 2013, p. 2, Zenko, 2013, p. 14 and Aslam, M. W. “A Critical Evaluation of American Drone Strikes in Pakistan: Legality, Legitimacy and Prudence.” *Critical Studies on Terrorism* 4, no. 3 (2011): p. 10.

<sup>72</sup> Bergen, Peter, and Katherine Tiedemann. “Washington’s Phantom War: The Effects of the U.S. Drone Program in Pakistan.” *Foreign Affairs* 90, no. 4 (July 1, 2011). p. 13.

<sup>73</sup> Bergen and Tiedemann, 2011, p.14.

border in Afghanistan, were no longer able to move in groups larger than ten and were, for example, living underground to avoid being targeted from above<sup>74</sup>. In the case of Pakistan, these findings and conclusions are echoed by the work of Aslam, whose research into the effects of U.S. drone strikes in Pakistan has similarly concluded that the effects on the social fabric of these regions is, as he argued, potentially irreparable<sup>75</sup>. While these studies show that the U.S. targeted killing program has proven effective in degrading militant groups' operational capacity in Pakistan, the negative effects on broader counterinsurgency efforts of the United States in the form of negative perception among the local population and blowback against U.S. political objectives of stabilising Pakistan, were significant.

The large body of scholarly work examining the U.S. drone program in Pakistan is complemented by a much smaller body of research on the effects of the U.S. drone program in Yemen. Aden Dur-e-Aden's work provides a comparative analysis of the effects of U.S. targeted killings operations in the two countries. Dur-e-Aden's results support the assertions of other scholars, indicating that targeted killings by the United States were effective in reducing the overall number of terrorist attacks by high-level militant organizations, namely AQ and the Pakistani Taliban in Pakistan and Al Qaeda in the Arabian Peninsula (AQAP) in Yemen. Dur-e-Aden's research also records a reduction in the level of violence in those attacks, that is, how deadly each attack proved to be<sup>76</sup>. Despite these effects on the capacity of militant groups, Dur-e-Aden's research also displays a blowback

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<sup>74</sup> Bergen and Tiedemann, 2011, p. 17.

<sup>75</sup> Aslam 2011, p. 10.

<sup>76</sup> Dur-e-Aden, Aden. "To Drone or Not To Drone: A Comparative Analysis of the Effectiveness of the US' Drone Policy of Targeted Killing in the Contexts of Pakistan and Yemen." University of British Columbia, November 2014. p. 11.

effect in Yemen, confirming other scholars' work that recorded an overall negative effect on the political and social fabric of remote Pakistan and Yemen<sup>77</sup>. Akbar Ahmed's work on the effects of the U.S. war on terror on tribal populations of the Middle East and South Asia, including the U.S. program of drone-based targeted killings in Yemen, came to similar conclusions. Ahmed argues that the United States' drone war in Yemen did nothing but exacerbate the conflict by undermining the sovereignty of the Yemeni government, with the U.S. targeting some of "the world's oldest communities" with "the world's most advanced killing machines"<sup>78</sup>.

In spite of these well-documented negative effects, Bergen and Tiedemann contend that as of 2011, Washington did not have a better tool in its counterterrorism arsenal to deal with militant threats emanating from Pakistan's tribal regions, a major source of attacks on U.S. and NATO troops in neighbouring Afghanistan<sup>79</sup>. While presenting problems of its own, Bergen and Tiedemann argue that the United States' program of drone-based targeted killings in Pakistan, which has been used as a model for attacking threats emanating from other so-called ungoverned spaces around the globe – in particular Yemen, Somalia and other states as this thesis will demonstrate – is not likely to end any time soon. In their analysis, because of its usefulness in this regard, domestic political pressure in the U.S and the lack of other available tools to tackle militancy in the world's ungoverned spaces, the U.S. drone-based targeted killing program is only

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<sup>77</sup> Dur-e-Aden, 2014, p. 74-75.

<sup>78</sup> Ahmed, Akbar. *The Thistle and the Drone: How America's War on Terror Became a Global War on Tribal Islam*. Brookings Institution Press, 2013. p 10.

<sup>79</sup> Bergen and Tiedemann, 2011, p.17.

likely to expand<sup>80</sup>. The highly contested nature of the U.S. drone program, along with the well-documented negative effects on populations in remote regions, make an in-depth study of the networked systems that underpin and enable the United States' practice of targeted killing of critical importance.

## 2.5 CONCLUSIONS

“Drones are here to stay”<sup>81</sup> – these are the words of retired U.S. Army General Stanley McChrystal, who many credit with pioneering the network-centric warfare models that are seen as a major contribution to the development of the U.S. drone ecology. As outlined in this literature review, the United States' practice of targeted killing was developed in the wake of the September 11, 2001 terror attacks and the launch of the U.S. global war on terror. This conflict has become a globalised “long war”<sup>82</sup>, moving from the traditionally defined battlefields of Iraq and Afghanistan to the non-battlefield settings of remote Pakistan, Yemen and Somalia as the U.S. targets individuals and groups it considers imminent threats to its national security. This shift in U.S. counterterrorism practice has been underpinned by the hallmark conditions of globalisation – the global proliferation of networks enabling rapid communication and transportation, along with a concurrently decreasing significance placed on borders and national sovereignty. These conditions have enabled the United States to develop networked systems of warfare, allowing the close integration of its armed forces with UAVs and other networked infrastructure and organisational

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<sup>80</sup> Bergen and Tiedemann, 2011.

<sup>81</sup> McChrystal, Stanley in Kennebeck, *National Bird* (2016).

<sup>82</sup> P. Williams, 2007, p.15.

methods. Drones and the networks that allow them to function, which this thesis will define as the drone ecology, have allowed the United States to further develop its practices of targeted killing as a counterterrorism tool. This study will further develop this field of research, addressing an important gap in the knowledge of how the complex networked system of the drone ecology functions, and how it allows the United States to target and kill individuals and groups across an ever-widening international front in the context of the continuing global war on terror.

# CHAPTER 3: CONCEPTUAL AND RESEARCH FRAMEWORKS

## 3.1 CONCEPTUALISING THE DRONE ECOLOGY

This thesis examines the United States' practice of drone-based targeted killing in the global war on terror. This counterterrorism practice has been developed in the wake of the September 11, 2001 terror attacks in the context of an expanding global effort by the U.S. to combat violent non-state actors such as AQ and ISIS in a globalised world dominated by processes of worldwide technical, social and political interconnection. These processes of globalisation have given the world the Internet, cellular telephones, social media and given birth to new social and political movements. But in combination with the political and social priorities of the United States post-9/11, they have also led to the development of the U.S. drone ecology and practices of drone-based targeted killing in the global war on terror. This chapter will explain how this study will approach the problem of drone-based targeted killing operations in non-battlefield settings, driven by UAVs that are both machines composed of advanced media technologies and as constituent parts of a broader global system – the drone ecology – that has allowed the U.S. to develop its practices of targeted killing in the global war on terror.

The study will approach this problem by indexing and analysing the broader network structures that have been constructed by the U.S. to enable the practice of drone-based targeted killing. The study will apply a series of concepts from IR and media studies to examine how this broader networked system, labelled the drone ecology in this study, functions during drone-based

counterterrorism operations. Firstly, this chapter will outline a number of analytical tools developed by IR and strategic studies scholars that will be useful for an analysis of the processes driving the changing nature of warfare in the era of globalisation. In particular, James Der Derian's theorising of what he labels "War 2.0"<sup>83</sup> and his analysis of the emergence of a global battlespace after the September 11, 2001 attacks, will be outlined in relation to the problem of U.S. drone based counterterrorism practices. Secondly, this chapter will outline how concepts of assemblage thinking and the theory of media ecologies will be used to conceptualise the empirical reality of network-enabled counterterrorism practices such as drone-based targeted killing. Assemblage thinking in this application is one analytical tool that helps to theorise the new phenomenon of networked, drone-based counterterrorism practices in non-battlefield settings. This is an empirical reality that has allowed new forms of agency and state power in the international realm, specifically the capacity to observe and track individuals and groups in some of the world's most remote locations and undertake deadly missile strikes, via the complex network-based systems this study labels the drone ecology.

Finally, this chapter will outline how these conceptual tools will be employed in research design and used to index and analyse the wealth of empirical data provided in *The Drone Papers* leak of internal U.S. military documents. *The Drone Papers* form part of an internal U.S. military study on the effectiveness of the country's drone program, as published by U.S. news outlet *The Intercept* in October 2015. Ultimately, this study will approach the problem of U.S. drone-based counterterrorism practices by detailing the broader network structures that have been built by the

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<sup>83</sup> Der Derian, J. "From War 2.0 to Quantum War: The Superpositionality of Global Violence." *Australian Journal Of International Affairs* 67, no. 5 (2013): p. 575

U.S. to allow drone-based targeted killings to occur, and applying concepts of assemblage thinking to examine how this broader networked system – labelled the drone ecology – functions during drone-based targeted killing operations.

### **3.2 WAR 2.0 AND THE GLOBAL BATTLESPACE**

The development of armed UAVs, used by the U.S. to undertake counterterrorism operations in some of the world's most remote corners, has occurred in the context of rapidly developing global media and communications technologies. Indeed, UAVs themselves are partly composed of and driven by media systems. They are guided and piloted remotely by individuals sending commands and receiving signals through global satellite and terrestrial communications networks. They use multiple media objects including cameras and other various communications sensors that gather information on individuals and groups, sending this data across those networks, which is then in turn used to observe, track and select targets for further intelligence gathering and, crucially, for deadly missile strikes.

Indeed, UAVs simply would not function or be useful in this context without these systems; high-speed satellite and terrestrial communications networks including the Internet and other secured networks operated by the U.S. military; high-resolution digital video and stills cameras; cellular phone snooping technologies; Wi-Fi network sensors; infrared sensors; laser-based missile targeting systems along with high-end missile systems themselves. And then there are the advanced technologies of the broader drone aircraft themselves, missile-armed models named Predator and Reaper, or the high-altitude surveillance machine of the so-called Global Hawk.

These various capacities of armed UAVs, machines made up of some of the world's most advanced technologies, combine to give the U.S. government the ability to undertake long-duration aerial surveillance and perform targeted killing operations in what the U.S. has defined as non-battlefield scenarios, or in operations over nation-states where the U.S. is not officially at war.

To study armed UAVs, targeted killing operations and the broader kill chain formed by the U.S. to make decisions on targeting and strike authorisations, along with the broader networked systems in which they function, this study will employ a series of concepts from the IR and media studies disciplines. These conceptual tools will position the thesis within the broader fields of strategic studies, post-structuralist IR and media studies. James Der Derian, Martin Müller and Christian Bueger have all called for new influences in strategic studies and IR thinking from other disciplines including the sciences, media and other technical disciplines in order to understand new problems and issues in the global arena that relate specifically to the rapid development of increasingly ubiquitous network-driven technical systems in the modern world. Their work has pointed toward rapid processes of globalisation, particularly the development of high-speed global communications networks and of computing power, as key drivers for the development of these new and challenging practices. These scholars have also published works that draw the concepts of assemblage thinking into IR to address these problems of the global era that will be used as conceptual resources for this study.

This thesis will use this conceptual framework to study the empirical reality of U.S. drone-based targeted killing practices, and attempt to understand how the global networks and other systems that support these practices function as a form of media ecology. How are armed drones remotely

controlled in the so-called non-battlefield scenarios of Yemen and Somalia from great distances; what known technologies make up the surveillance capacity of a U.S. armed drone; how are targets for drone strikes selected and tracked; how are lethal strikes authorised in the U.S. practice of targeted killing in the global war on terror? Further, the study will examine how this practice could potentially be expanded to new theatres around the world by current or future U.S. administrations in the pursuit of counterterrorism or other security objectives.

### **3.3 MEDIA ECOLOGIES AND GLOBAL CONFLICT**

This study will combine IR theory and Matthew Fuller's theory of media ecologies, a set of analytical tools used to understand networked media systems that combine human and technical actors and objects, as the core theoretical framework of this thesis. As outlined in the previous chapter, there is a clear gap in the knowledge regarding how the networked systems that support drone operations – a broad assemblage of technical and human actors – allow the United States to remotely observe, track and target individuals and groups in some of the most remote parts of the globe. This study will use these conceptual tools, borrowed from the disciplines of post-structuralist IR and media studies to analyse empirical data recently made available through a series of leaked U.S. military documents, defining the U.S. drone ecology as the complex, networked system through which drone-based targeted killing operations occur.

Der Derian has labelled this shift toward global, remotely controlled warfare as part of a movement to “War 2.0”<sup>84</sup>, an era where conflict stretches “across global battlespace”<sup>85</sup> via arrays of networked communication infrastructure that connect physically distant human and technical elements. Der Derian argues that with the pervasive nature of global communication networks, large troves of data on individuals and the makeup of groups are accessible in a near instant, and their impact on traditional objects of study in IR creates the need for cross-disciplinary studies to understand changing modes of conflict and new forms of state power. Der Derian argues “global media is now an unparalleled force in the organisation, execution, justification and representation of global violence”<sup>86</sup>, the understanding of which requires the reinstatement of theories of science, technology and crucially for this study, media and communications systems to comprehend.

Fuller’s theoretical approach to the study of media ecologies builds upon that of a school of media ecology thought with a long history. The influential media scholar Marshall McLuhan has been credited with initiating the theoretical approach, writing in the early 1960s about the effects of the printing press, the telegraph and television on human society, importantly labelling all of these alongside the wheel as human artefacts<sup>87</sup>. Indeed, McLuhan’s work in this field laid important foundations for the study of media objects and systems, how people and society use them, and the recognition that such media systems and environments are important and can themselves lead to the generation of new phenomena in the world. Following McLuhan’s foundational work, Neil

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<sup>84</sup> Der Derian, 2013, p.575

<sup>85</sup> Der Derian, 2013, p.575

<sup>86</sup> Der Derian, 2013, p. 572.

<sup>87</sup> McLuhan, Marshall cited in Marchand, Philip, *Marshall McLuhan: The Medium and The Messenger: A Biography*, 1998, Massachusetts, The MIT Press, pp. 37-39.

Postman was the first to establish the term media ecology in 1968, writing that this was a theoretical approach allowing the understanding of media objects and devices as a complex environments. According to Postman, “if in biology a 'medium' is something in which a bacterial culture grows (as in a Petri dish), in media ecology, the medium is 'a technology within which a culture grows’”<sup>88</sup>. Walter Ong further developed the field of media ecology studies, indeed Ong’s work has been credited with standardising the field and giving the theoretical approach credibility in the scholarly community. His 1982 work, *Orality and Literacy: The Technologising of the Word* has been credited with codifying much of this progression and standardisation in the field<sup>89</sup>. Christine Nystrom, a media ecologist also working roughly four decades before the publication of Fuller’s *Media Ecologies* that this study leverages for its understanding of how the networks that drive U.S. drone-based counterterrorism practices function, defined the discipline of media ecology in 1973 “as the study of complex communication systems as environments”<sup>90</sup> and a link to Fuller’s contemporary interpretation of the concept and its usefulness for this study is obvious.

The works of McLuhan, Postman and Ong gave rise to the field of media ecology studies, but Fuller’s contemporary work also draws much from more modern scholars in the field including

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<sup>88</sup> Postman, Neil. *Media Ecology Education: Explorations in Media Ecology*, *Media Ecology Education* 5(1), 2006, 5-14 p. 8

<sup>89</sup> Ong, Walter J., and John Hartley. *Orality and Literacy: The Technologizing of the Word*. Routledge, 2012.

<sup>90</sup> Christine Nystrom, *Towards a Science of Media Ecology: The Formulation of Integrated Conceptual Paradigms for the Study of Human Communication Systems*, Doctoral Dissertation, New York University (1973) cited in “What Is Media Ecology? - The Media Ecology Association. Publish date unavailable - accessed May 5, 2019.

[http://www.media-ecology.org/media\\_ecology/](http://www.media-ecology.org/media_ecology/).

Manuel DeLanda and Jussi Parikka. DeLanda's crucial work tracing the history of warfare and its relationship to developments in technology and also in media, *War in the Age of Intelligent Machines*, has been very helpful for this study in a broad theoretical and conceptual sense. In particular, DeLanda's concept of self-organising informs some of this study's thinking around how the drone ecology has been formed and the novel counterterrorism capacities its use engenders, with DeLanda defining self-organising points as "the critical points in the flow of matter and energy, points at which these flows spontaneously acquire a new form or pattern"<sup>91</sup>. Parikka's more recent works on media ecology, network culture and in particular his writings on computer viruses and network conflict<sup>92</sup> have also been informative in the context of this study for the understanding of contemporary media ecologies and for the potentials of asymmetrical and novel forms of networked warfare in contemporary digital cultures.

This thesis will argue that the global system the U.S. has built to operate its armed UAVs and undertake targeted killing operations can be understood as a media ecology, hence the label of the drone ecology. For Fuller, the term ecology "is one of the most expressive language currently has to indicate the massive and dynamic interrelation"<sup>93</sup> within networked systems where people and technologies interact. In media ecologies, Fuller points out that "any one part is always multiply connected, acting by virtue of those connections"<sup>94</sup>, for example an armed U.S. drone

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<sup>91</sup> DeLanda, Manuel, *War in the Age of Intelligence Machines*, New York: Zone Books, 1991, p. 132.

<sup>92</sup> Jussi, Parikki "The Universal Viral Machine - Bits, Parasites and the Media Ecology of Network Culture." in *CTheory*, December 15, 2005" and Parikka, Jussi, "Media Ecologies and Imaginary Media: Transversal Expansions, Contractions and Foldings" *Fibreculture* 17: 2011, <http://seventeen.fibreculturejournal.org/fcj-116-media-ecologies-and-imaginary-media-transversal-expansions-contractions-and-foldings/>, accessed 10/02/2019.

<sup>93</sup> Fuller, Matthew. *Media Ecologies: Materialist Energies in Art and Technoculture*. MIT Press, 2005, p. 2.

<sup>94</sup> Fuller, 2005, p.2

aircraft flying over Yemen, feeding signals and image-based intelligence data to analysts and other officers in Virginia and Nevada, but also taking its direction and commands from those officers and individuals in other locations, distributed throughout a global network. Sy Taffel adds to Fuller's work, writing that the theory of media ecologies "contends that the effects of technologies are not solely determined by either the technological nodes or the human ones, but by the network as a whole"<sup>95</sup>, or that the combination of a multitude of various elements into a large technical ecology will also produce new capacities for that ecology, or that the system produces potential outcomes and effects greater than the sum of its parts. It is the broader networked assemblage of the drone ecology that this thesis will dissect and analyse through application of the theory of media ecologies, through a series of case studies focusing on drone-based targeted killing operations in Yemen and Somalia, based on data from leaked U.S. military documents and press reporting. The study will apply these concepts to this data to understand how the U.S. drone ecology has presented the opportunity for new forms of state power, typified by the ability of the United States to undertake deadly missile strikes in some of the world's most remote corners while the pilots and intelligence analysts guiding those strikes remain on U.S. soil.

### **3.4 DRONE STRIKES, NETWORKED ISR AND ASSEMBLAGE THINKING**

Fuller's theory of media ecologies has its roots in the philosophical works of Gilles Deleuze and Felix Guattari. Deleuze and Guattari's seminal work on assemblage thinking has led to many new,

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<sup>95</sup> Sy Taffel, 'Media Ecologies: An Introduction' in *Media Ecologies and Digital Activism*, March 3, 2011, <https://mediaecologies.wordpress.com/media-ecology-an-introduction/>, accessed 10/09/2015.

challenging approaches in the social sciences particularly regarding how complex, dynamic systems operate. The works of Fuller, Taffel, Christian Bueger and Martin Müller have provided tools that can contribute to an assemblage-based analysis of the United States' practice of drone-based targeted killing. Müller's insights on assemblage thinking in IR are particularly useful here, specifically regarding the capacity of systems such as the drone ecology to create new forms of state power and agency, namely those of remotely tracking individuals and groups in countries where the U.S. is not at war, and undertaking operations to target those individuals and groups in deadly missile strikes. Müller writes, "assemblage is a mode of ordering heterogeneous entities so that they work together for a certain time"<sup>96</sup>, for example, the multitude of separate technologies and actors that contribute to U.S. drone-based counterterrorism operations. As a translation of the French term *agencement*, Müller argues the English term assemblage misses crucial connotations of its origin, "especially that of an arrangement that creates agency"<sup>97</sup>. Hence, assemblage thinking in Müller's IR application allows an opportunity to observe how new forms of agency and state power can be formed through the new phenomena of network systems such as the U.S. drone ecology.

Christian Bueger writes that assemblages are primarily organised by relations between constituent parts or actors, and argues that they are dynamic objects constantly "made and remade in practices"<sup>98</sup>. This thesis will use these concepts to argue that the relations between elements in

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<sup>96</sup> Müller, Martin. "Assemblages and Actor-Networks: Rethinking Socio-Material Power, Politics and Space." *Geography Compass* 9, no. 1 (January 1, 2015): p. 28

<sup>97</sup> Müller 2013, p. 28

<sup>98</sup> Bueger, Christian, "Thinking Assemblages Methodologically: Some Rules of Thumb" in Acuto, Michele, and Simon Curtis, Eds. *Reassembling International Theory: Assemblage Thinking and International Relations*. Kindle Edition, Palgrave Pivot, 2013. Loc 1155 (in lieu of page number due to Kindle ed).

the drone ecology that take place during targeted killing operations, which are themselves made and remade during the practice of targeted killing, are key to understanding the broader system's capacities. Further, studying how the heterogeneous parts of an assemblage relate to each other within a system like the drone ecology as it functions allows one to avoid completely dividing the multiple parts of the ecology from each other. As will follow in the case study chapters of this thesis, an analysis can be written of a U.S. military drone flying over Yemen that details the individual camera, sensor and weapon technologies carried by the drone, its connection to a satellite network including a pilot and sensor operator stationed thousands of miles away in Nevada, while also acknowledging they are part of one broader networked ecology acting as a whole assemblage. Indeed, the empirical reality of targeted killing operations shows that these are not isolated objects acting independently, they are acting in concert as a broader machine or system that has created new forms of state power and agency, capacities that include launching deadly missile strikes, tapping mobile phone conversations and observing people through live-streaming video cameras. While a broader networked system or assemblage such as this can be divided up, the relations within the assemblage and the parts they connect provide a series of legitimate objects for study in order to understand how the U.S. drone ecology works as a whole during real world targeted killing operations.

These theoretical resources will allow this study to unpack and map the drone ecology as an assemblage of heterogeneous objects and human actors, linked by sets of sets of lines running through a network, or relations between the component parts that make up this broader global

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system. The drone ecology broadly covers the networked kill chain of more than 180 human operators per drone mission<sup>99</sup>; UAVs armed with missiles and an array of electronic sensors that collect signals intelligence or SIGINT, and image intelligence or IMINT information from the landscape below indicating the location and movements of potential targets. Cell phones carried by individuals on the ground form part of the ecology, with some UAV models equipped with a device that mimics a cell phone tower, tempting cell phones in the landscape below to lock onto the armed drone as if it were just connecting normally to the mobile phone network<sup>100</sup>. These cell phones are then often used as tracking nodes for surveillance and to identify targets<sup>101</sup> – intersecting with U.S. intelligence databases of other known or suspected terror suspects and potential targets, themselves partly based on whose cell phone has called who in a database of known suspects<sup>102</sup>. The mobile phone handset is an everyday object carried by roughly two thirds of the world’s population<sup>103</sup>. But in the context of U.S. counterterrorism operations in non-battlefield settings, we see this ubiquitous communications technology suddenly interacting temporarily but with potentially deadly consequences as part of the broader U.S. drone ecology.

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<sup>99</sup> Gregory 2011b.

<sup>100</sup> Scahill, Jeremy, Joshua Begley, Cora Currier, Ryan Deveruax, Peter Mass, Ryan Gallagher, and Turse. “The Drone Papers: Secret Documents Detail the U.S. Assassination Program.” *The Intercept*. Accessed October 20, 2015. <https://theintercept.com/drone-papers/>.

<sup>101</sup> Priest, Dana. “NSA Growth Fueled by Need to Target Terrorists.” *Washington Post*, July 21, 2013, sec. National Security. [https://www.washingtonpost.com/world/national-security/nsa-growth-fueled-by-need-to-target-terrorists/2013/07/21/24c93cf4-f0b1-11e2-bed3-b9b6fe264871\\_story.html](https://www.washingtonpost.com/world/national-security/nsa-growth-fueled-by-need-to-target-terrorists/2013/07/21/24c93cf4-f0b1-11e2-bed3-b9b6fe264871_story.html).

<sup>102</sup> Scahill, Jeremy, and Glenn Greenwald. “The NSA’s Secret Role in the U.S. Assassination Program: The NSA’s Secret Role in the U.S. Assassination Program.” *The Intercept* (blog), February 10, 2014. <https://theintercept.com/2014/02/10/the-nsas-secret-role/>.

<sup>103</sup> “Digital in 2017: Global Overview.” We Are Social. Accessed January 14, 2018. <https://wearesocial.com/special-reports/digital-in-2017-global-overview>.

The drone ecology as an assemblage allows the emergence of certain outcomes, namely targeted killing operations or drone strikes on individuals and groups the U.S. government has, correctly or incorrectly, deemed an imminent threat to its national security. This drone ecology has allowed the United States new forms of agency and power in its pursuit of the global war on terror, namely the ability to remotely observe, track and target individuals and groups in some of the world's most remote locations, in countries where the U.S. is not technically at war.

### 3.5 RESEARCH DESIGN

This study will investigate the hypothesis that the development of a networked, near-global drone ecology has been crucial in the development of United States' practice of targeted killing in the global war on terror. To do so, the study will employ conceptual and methodological tools from both the IR and media studies fields to dissect and analyse the networked assemblage of the drone ecology. This thesis will use these theoretical tools to approach two empirical case studies drawn from primary source data made available through leaked U.S. government documents that detail the workings of the country's drone program during operations in non-battlefield settings. These documents, known as *The Drone Papers* were released into the public domain after being leaked to U.S. news organisation *The Intercept* in October 2015. The analysis of these case studies, along with an examination of how the reach of the U.S. drone ecology is increasing, will be supported by extensive press reporting on the topic of U.S. counterterrorism practice from a variety of reputable news organisations along with the work of various research and non-government organisations who have collated data sets on recent U.S. counterterrorism practices.

The U.S. drone ecology is a dynamic system, connecting a variety of heterogeneous elements across great distances through networked communication technologies. An armed Predator drone flying above remote Yemen, a satellite communication process connecting that aircraft to a crew sitting in a ground control station in Nevada, senior officers and intelligence analysts observing from Virginia and other locations, all observing a small group of young men in a desert town, themselves tracked by the signals emitted from their mobile phone handsets and observed through live-streaming video cameras. A variety of heterogeneous and previously largely disconnected objects and individuals momentarily connected through the networked assemblage of the U.S. drone ecology.

Christian Bueger, in his 2013 application of assemblage thinking to IR, argues that well ordered, “arboreal assemblages”, such as new types of networked military technology, “require explanation and attention to the craftwork that has gone into forming them into a well ordered coherent whole”. For Bueger, it is these well-ordered, arboreal assemblages as new phenomena in the international realm that provide one of the greatest challenges to conventional understandings of IR<sup>104</sup>. This study proposes that the system the United States has developed in order to perform drone-based targeted killings – a drone ecology – is one such arboreal assemblage. That is, a heterogeneous networked construction that is both modular and dynamic, for example in terms of the variety of information sources it can draw from to gather intelligence for a potential strike, but that is also regulated and formed by a well-ordered military logic that determines how, for example, decisions are made during a targeted killing operation.

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<sup>104</sup> Bueger 2013.

Matthew Fuller's 2005 work *Media Ecologies* puts forward a systematic method for analysing the assemblages of networked media and communications systems, which Fuller labels media ecologies. Forming what he calls "paratactic lists"<sup>105</sup>, or indexes breaking down the heterogeneous parts that combine to form media ecologies, Fuller's method identifies each element in the broader assemblage and investigates its capacities and how it connects to other elements in the network. For example, in his analysis of the dynamics of illegal pirate radio stations in London, Fuller breaks down a pirate radio station to its detailed parts. Turntables, microphones, transmitters, DJs with skills in finding a beat and mixing records, cell-phone networks that allow callers to dial in and request tracks to be played, and police tracking units that interact with these signals in order to seek out unlicensed, pirate radio broadcasters.

In this work, Fuller admits the simplicity of his approach, but points out that in this effort "to take each part of this giant mechanism" and form an index of capacities and connections, a researcher is able to identify the potentials, the possibilities of agency or power, of the ecology at large<sup>106</sup>. The formation of a dynamic media ecology is brought about through two mechanisms: the presentation of compositional elements, for example the separate objects or human actors that would form the 'drone ecology' and "the establishment of transversal relations between them"<sup>107</sup>, or the construction of a communications network to connect the objects and ways of

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<sup>105</sup> Fuller 2005, p. 14.

<sup>106</sup> Fuller 2005, p. 13.

<sup>107</sup> Fuller, 2005, p 16.

communicating and interacting across that network. The indexation of the assemblage or media ecology, and a listing of the detailed abilities of the various parts, along with the analysis of how the network is used to communicate and interact during drone-based targeted killing operations, thus allows a study of how relations are formed across the broader arboreal assemblage and crucially how the combination of so many moving parts into a new ecology can create entirely new outcomes.

### **3.6 INDEXING THE DRONE ECOLOGY**

Fuller's method of indexation will be applied in this thesis to dissect and analyse the various components of the United States' drone ecology. This system connects unmanned aerial vehicles flying over some of the world's most remote locations, to pilots, intelligence analysts and other actors on U.S. soil and at U.S. military bases abroad, but always at great physical distance from the armed drone aircraft itself and its targets on the ground below. UAVs use high-resolution video cameras and electromagnetic signals and radio waves to scan the landscape below, tracking individuals and groups visually or via electronic signals, transmitting these images and other recorded audio or data signals – known as image intelligence (IMINT), signals intelligence (SIGINT) and communications intelligence (COMINT) by the U.S. military – back to U.S. military officers and intelligence analysts for decisions on targeting<sup>108</sup>.

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<sup>108</sup> Scahill et al, 2015.

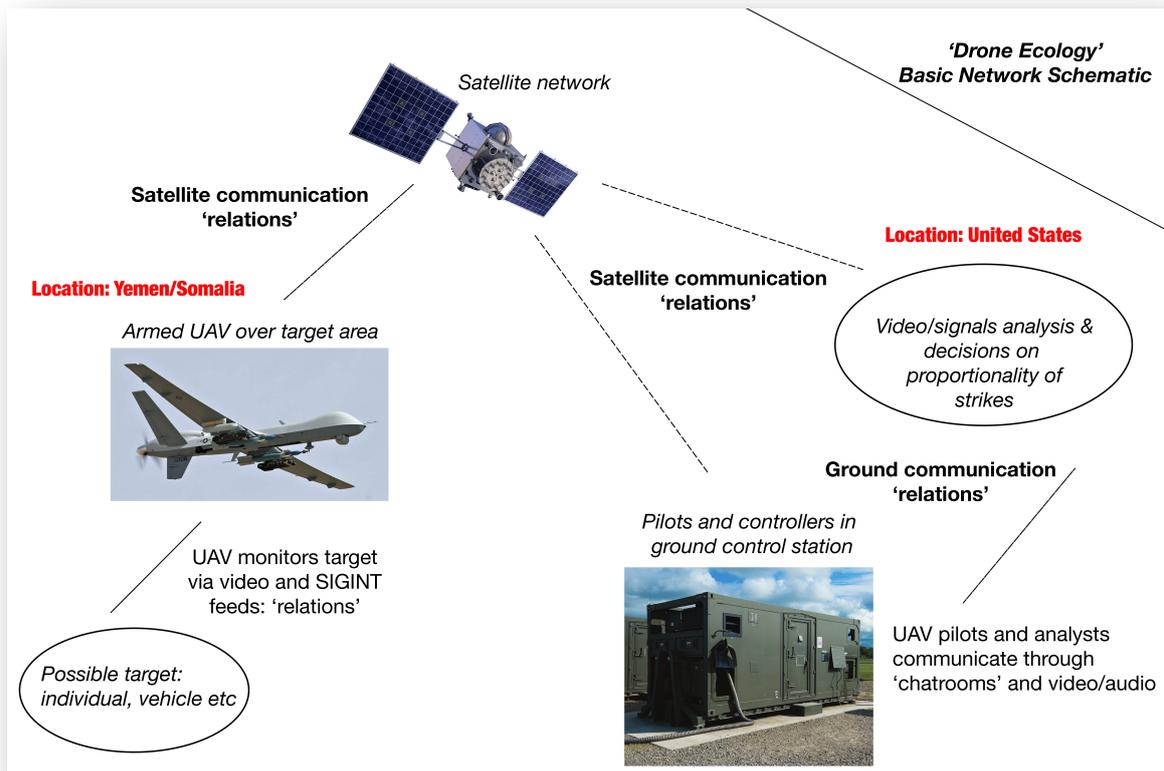


Figure 1: Example of basic network schematic of the drone ecology, showing some compositional elements of the drone network as a media ecology, and their transverse relations. This example is based upon information showing the drone network's structure in non-battlefield settings such as Yemen and Somalia<sup>109</sup>.

This index-based analysis of the systems and broader network that make up the drone ecology will take place through case studies of two documented scenarios in which the U.S. drone ecology has been used in targeted killing operations. These two case studies, focusing on non-battlefield uses of the drone ecology during operations in Yemen and Somalia, will be illuminated by data available through classified documents produced by the United States military, leaked to journalists at the

<sup>109</sup> Scahill et al, 2015.

U.S. news organisation *The Intercept*. These documents, labelled *The Drone Papers* by journalists at *The Intercept*, are internal U.S. military documents based upon a study performed by a unit named the Intelligence, Surveillance and Reconnaissance (ISR) Task Force, attached to the U.S. military's Requirements and Analysis Division. The ISR Task Force were set the task of studying the effectiveness of U.S. drone-based counterterrorism operations in non-battlefield settings and making recommendations on how such operations could be improved and on how U.S. drone operations could potentially be expanded to new theatres.

The documents show in great detail the form and function of the U.S. program of drone-based targeted killings, including schematics of the so-called kill chain and detailed information on a number of real-world -targeted killing operations undertaken by the U.S. in Yemen, Somalia and Afghanistan. For this study a dual case study approach is important, as a comparison of these two scenarios will provide important insight into implications of the standardisation of the drone ecology model across different theatres in the global war on terror. This study of what is emerging as a standardised model of the drone ecology will also then be used to investigate and understand the potential expansion of this model to new theatres of operation. Various analyses of the U.S. drone program indicate that drone-based targeted killings have been more accurate in battlefield settings such as Iraq and Afghanistan, involving a lower instance of civilian casualties or other tragic accidents when compared to nonbattlefield settings<sup>110</sup>. This appears to relate to the higher number of sources of information available to those responsible for target selection in battlefield

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<sup>110</sup> Scahill et al, 2015, and "Covert Drone War | The Bureau of Investigative Journalism." Accessed June 14, 2015. <https://www.thebureauinvestigates.com/category/projects/drones/> and "Get the Data: Drone Wars | The Bureau of Investigative Journalism." Accessed June 14, 2015. <https://www.thebureauinvestigates.com/category/projects/drones/drones-graphs/>

settings, due to the higher number of other U.S. military units on the ground in these theatres who can co-operate with drone crews and assist, for example by corroborating and confirming targeting information or helping to positively identify potential targets. In nonbattlefield settings, with fewer – if any – sources on the ground to corroborate targeting information, there appears to have been a higher instance of civilian casualties or other collateral damage<sup>111</sup>. It is, however, the nonbattlefield mode of the drone ecology that is able to be more easily transplanted to new theatres of operation, as it does not require the presence of U.S. military forces as corroborating sources on the ground below nor does it necessarily require the United States to be officially in a war in a given country for operations to occur. It then stands to reason that if the U.S. practice of targeted killing is to be expanded to new theatres, the non-battlefield model of operation for the drone ecology is the more likely mode that any expansion could be modelled on. Therefore, a thorough understanding of non-battlefield modes of the drone ecology is critically important for a thorough analysis of the implications of an expansion of U.S. targeted killing practices.

The dual case studies featured in this thesis will focus on drone-based targeted killing operations in Somalia and Yemen undertaken by the United States. The Somalia case study will focus on surveillance and targeted killing operations against an individual code-named in *The Drone Papers* as Objective Peckham, which took place in Somalia in late 2011 and early 2012, culminating in the death of Peckham in a missile strike launched from a U.S. drone aircraft on January 21, 2012<sup>112</sup>.

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<sup>111</sup> Scahill et al, 2015, and “Covert Drone War | The Bureau of Investigative Journalism.” Accessed June 14, 2015. <https://www.thebureauinvestigates.com/category/projects/drones/> and “Get the Data: Drone Wars | The Bureau of Investigative Journalism.” Accessed June 14, 2015. <https://www.thebureauinvestigates.com/category/projects/drones/drones-graphs/>

<sup>112</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015. The Intercept, October 15, 2015. <https://theintercept.com/document/2015/10/14/small-footprint-operations-5-13>

The Yemen case study, also based on information contained in *The Drone Papers*, will examine an operation that tracked and killed a target code-named Objective Rhodes in Yemen between April and July 2012, leading to the death of that individual also in a drone-based missile attack on July 3, 2012<sup>113</sup>. A breakdown and analysis of these case studies, along with information contained in the documents as to how the broader network that supports U.S. drone-based targeted killing operations functions, will be used to explore in detail the form of the U.S. drone ecology and will demonstrate how the drone ecology is a new phenomenon in the field of IR which has allowed the United States to develop radical new forms of state power in the context of the global war on terror.

Following the breakdown of these case studies, the study will then use information contained in *The Drone Papers* to examine the U.S. government's efforts to expand the use of the drone ecology to new theatres. The documents contain projections for possible new theatres of operation for U.S. drone-based targeted killing operations. In combination with press reporting on the topic of U.S. counterterrorism operations and counterterrorism policy, chapter six will explore how the very model of the U.S. drone ecology, a modular system that is capable of being transplanted over new geographies, makes the expansion of U.S. drone-based counterterrorism operations into new global theatres a distinct possibility.

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<sup>113</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. The Intercept, October 15, 2015. <https://theintercept.com/document/2015/10/14/small-footprint-operations-2-13>. Accessed 20/10/2015.

Using this research design this study will trace and outline the complex networked systems of the U.S. drone program, examine how the drone ecology was developed, and detail how it has functioned in non-battlefield scenarios in the recent past. This analysis will shed light on how the United States, which found itself in a new and far less certain international security environment after the 9/11 attacks, took the opportunity presented by the network communications technologies of the contemporary era and developed a radical new set of counterterrorism practices. The work undertaken in this thesis, therefore, will be highly original, approaching a new phenomenon in IR and strategic policy through both a novel theoretical framework, and with datasets that have not previously been employed in such an analysis of United States counterterrorism practices. Further, the thesis will use primary documents and recent news coverage and analysis to provide an understanding of how the U.S. program of targeted killing is continuing to develop and expand, and will draw from data available in press reporting to examine the possibility of expansion of this practice into new theatres of operation.

## CHAPTER 4: BREAKING DOWN THE DRONE ECOLOGY

The U.S. drone ecology is a global system of network-connected technical objects and human actors that track and target individuals and groups the United States government has classified imminent threats to its national security. This integrated, global system has provided the U.S. with unrivalled and in many respects revolutionary counterterrorism capacities in the context of its global war on terror, however the drone ecology has not yet been analysed on the whole as a networked media system. This chapter will do just that, using detailed analysis of information included in *The Drone Papers* documents – an internal U.S. military study on the effectiveness of its own drone-based targeted killing program leaked to the media in 2015 – to build an index of the U.S. drone ecology's constituent parts, its major functions, and how these interact to create a set of new and problematic counterterrorism capacities for the U.S.

The analysis in this chapter will then provide the basis for a dissection of two specific case studies of U.S. drone-based targeted killing operations in the non-battlefield theatres of Yemen and Somalia in the following chapter, and thus an opportunity to perform an investigation of U.S. targeted killing operations as they have occurred in real-world case studies in light of the drone ecology's capacities as a global, integrated system. The framework developed in this chapter will thereby allow this study to show how counterterrorism practices, and the empirical reality of contemporary warfare, have been influenced and even transformed by the development of the networked technologies typified by the U.S. drone ecology in the context of the global war on terror.

First, this chapter will introduce *The Drone Papers* documents as the primary source of information for this study, and outline their origin and how they came to be in the public domain. Along with introducing these documents, the chapter will also outline how the U.S. government and military define and understand counterterrorism operations in non-battlefield settings, or as they label them, “small footprint operations”<sup>114</sup> and how these differ from battlefield settings. The analysis will also explore the distinct challenges that come with pursuing the goals of the global war on terror in the remote contexts of countries such as Yemen and Somalia where the U.S. is not involved in a declared war. The chapter will also explore the procedure the U.S. government under former President Barack Obama labelled the AUMF process, or the way in which the White House oversaw U.S. counterterrorism drone strikes, target selection and strike approval in non-battlefield settings.

Secondly, this chapter will investigate and analyse the technical capacities of the U.S. drone ecology using data revealed by the leak of *The Drone Papers* documents. Specifically, the analysis will show how live video streaming, known as Full Motion Video (FMV), and Aerial Precision Geolocation (APG), or the ability to track and tap mobile phones carried by individuals in remote locations from a drone aircraft flying above, are key to the operation of the drone ecology in non-battlefield settings. Along with other media technologies utilised as part of the networked U.S. drone ecology, this chapter will demonstrate how FMV and APG are central to the ability of the U.S. to locate, surveil and attack individuals and groups perceived as a threat to U.S. national security during drone-based counterterrorism operations in some of the world’s most remote

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<sup>114</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.3, *The Intercept*, October 15, 2015. <https://theintercept.com/document/2015/10/14/small-footprint-operations-2-13/>

locations. The chapter will also undertake a close examination of how these and other media systems that make up the drone ecology form part of the systems that guide deadly missile strikes on so-called high value individuals launched from U.S. drone aircraft.

Third, this chapter will examine a number of the United States' most commonly used drone aircraft themselves and how these UAV platforms are deployed in non-battlefield settings. The analysis will investigate how these aircraft relate to and communicate with the global networks that connect them to pilots, sensor operators and intelligence analysts half a world away, and use information contained in *The Drone Papers* to examine the challenges of operating these aircraft in some of the world's most remote locations. Following this, the chapter will also perform an analysis of the so-called find, fix, finish (FFF) process that U.S. drone crews follow when undertaking drone-based counterterrorism operations, and examine how targeted killing operations rely on information drawn from vast networked intelligence databases of U.S. intelligence agencies including the CIA and NSA along with the intelligence services of U.S. allies and partner nations.

Finally, the analysis in this chapter will highlight some of the persistent problems with drone-based targeted killing operations, as described by the U.S. military's own internal studies. Identified in *The Drone Papers* documents, these include an over-reliance on source intelligence of questionable reliability, along with issues with the accuracy and efficiency of the technology of the drone ecology itself. This analysis will also show that when used in these scenarios, compared to its use in battlefield settings such as Iraq and Afghanistan, the U.S. drone ecology returns less usable intelligence that can be used to develop future operations or deepen understanding of

violent non-state actor groups that the U.S. government has argued present an imminent threat to its own national security. In this, the following chapter will show that the development and deployment of the networked technologies of the U.S. drone ecology has indeed transformed U.S. counterterrorism practice in countries where the U.S. is not technically at war, but not necessarily in a manner that provides positive outcomes.

#### **4.1 SMALL FOOTPRINT OPERATIONS AND NON-BATTLEFIELD SETTINGS**

*The Drone Papers* leak contained a tranche of documents analysing the form, function and efficacy of the U.S. drone program. Two of these documents, the most useful for this study, are presented as a series of PowerPoint presentations collating the study's findings and labelled *ISR Support to Small Footprint CT Operations*, dated February 2013 and *ISR Support to Small Footprint CT Operations (Executive Summary)*, dated May 2013, produced by the U.S. military's ISR Task Force, Requirements and Analysis Division. These documents outline an internal and classified U.S. military study on drone-based targeted killing operations in Yemen and Somalia, using U.S. military studies of the effectiveness of ISR in the Iraq and Afghanistan conflicts as a baseline for measuring how well operations in Yemen and Somalia have performed, theatres otherwise referred to in the documents as Arabian Peninsula and Horn of Africa operations.

According to the documents, the point of the ISR Task Force's study is to highlight key factors to successfully performing so-called kill/capture counterterrorism operations in what the study refers to as small footprint environments. That is, operations to kill or capture high value terrorist suspects in countries where the United States is not technically at war, and where there are

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usually very little or no U.S. military assets already operating inside that theatre. Unlike in the battlefield scenarios of Afghanistan and Iraq, where the local deployment of the U.S. military at large provides a range of assistance with human intelligence and targeting information in ISR kill/capture operations, the remote environments of Yemen and Somalia contain little to no U.S. military presence. In this context, the study states its purpose clearly: “to identify capabilities that are most effective/critical when operating in these environments”, and to “describe issues and make recommendations for resourcing and long term investment”<sup>115</sup> in the U.S. drone-based targeted killing program. The documents identify a number of factors that separate drone-based counterterrorism operations in the non-battlefield scenarios of Yemen and Somalia from the battlefield settings of Iraq and Afghanistan. Not only are these factors crucial to understanding the issues associated with the use of the U.S. drone ecology in non-battlefield settings, but by exploring these factors as described by *The Drone Papers* and the various parts of the broader drone ecology that they relate to, this study will be able to gain an understanding of many of the broader functions of the drone ecology. In effect, this exploration will allow this thesis to develop a paratactic list of the major functions of the drone ecology and how they relate to the capacity of the U.S. military to undertake targeted killing operations, through a global network, in some of the world’s most remote corners.

Small footprint operations, or non-battlefield scenarios, present a number of obstacles to U.S. counter-terrorism operations and these challenges are outlined as factors associated with theatres

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<sup>115</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.3, The Intercept, October 15, 2015. <https://theintercept.com/document/2015/10/14/small-footprint-operations-2-13/>

that are “not an active warzone”<sup>116</sup>. This classifies ISR operations that are “outside a defined theatre of active armed conflict”, where the lack of support from other areas of the U.S. military “limits footprint”<sup>117</sup> or provides little to no U.S. military personnel or assets in theatre to assist drone crews. Further, the lack of political and legal support for operations by the U.S. military and intelligence agencies limits “allowable U.S. activities” and presents a lower capacity for “penetration of comms networks”<sup>118</sup>. Essentially, this means that it is very difficult for the U.S. to spy on communications by networks of militants or other individuals and groups under suspicion. The study suggests that the limited availability of military units and other technical capacities on the ground, as well as the limited ability to listen to communications of individuals or organisations targeted impacts the U.S. military’s ability to complete operations through anything other than a deadly missile strike, thereby severely limiting the capacity to collect further intelligence through more traditional on-ground tactics such as raids that net documents or allow the capture of suspects for interrogation.

## 4.2 THE AUMF PROCESS AND TARGET APPROVAL

The U.S. government’s so-called AUMF process is also listed as a factor impacting operations in non-battlefield settings. Under the Obama administration, the White House developed a process of assessing potential targets for targeted killing operations that in many instances brought cases

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<sup>116</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.6

<sup>117</sup> Ibid

<sup>118</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.2 and “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.7, The Intercept, October 15, 2015. <https://theintercept.com/document/2015/10/14/small-footprint-operations-5-13/>

all the way to the President’s desk for final approval<sup>119</sup>. Operations were assessed by the administration under the legal authority known as the Authority for the Use of Military Force (AUMF), and the papers state that gaining an AUMF clearance required a significant amount of information to be submitted for assessment by the White House. This information on potential targets would be written up in a so-called “baseball card”<sup>120</sup> and with other information on operational and logistics issues would be “staffed up to higher echelons – ultimately to the President”<sup>121</sup>. The documents record that the AUMF process requires a significant amount of data and intelligence to justify a targeted killing operation, arguing “relatively few, high level terrorists meet criteria for targeting under the provisions”<sup>122</sup>.

The documents also outline another major challenge, that individuals and organisations targeted have become “OPSEC and ROE savvy”<sup>123</sup>, meaning that they have become aware of how to avoid being tracked by the U.S. military’s drone crews, and are careful to not reveal their locations by speaking on a cell phone or by standing around outside, for example. Targets have, according to the documents, also become aware of the U.S. military’s rules of engagement that attempt to control the possibility civilian casualties, and will hide among civilian populations to avoid being targeted in a drone strike. These factors “limit intel and finishing chances”<sup>124</sup> and make it harder for drone crews to successfully track, target and kill terrorist suspects. Expanding on the challenges identified by the documents under the AUMF process are factors labelled “strict pre-

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<sup>119</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015., p. 6.

<sup>120</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015., p. 9.

<sup>121</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.2 and “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.6, The Intercept, October 15, 2015. <https://theintercept.com/document/2015/10/14/small-footprint-operations-5-13/>

<sup>122</sup> Ibid

<sup>123</sup> Ibid

<sup>124</sup> Ibid

strike assurances”<sup>125</sup>. Under the Obama administration, a target was only approved for “finishing”<sup>126</sup> – or to be targeted in a lethal strike or capture operation – once identification was confirmed and the surrounding environs were deemed a “low Collateral Damage Environment”<sup>127</sup>. The documents state that the requirements “increases work factor, reduces targeting opportunities”<sup>128</sup>. These challenges also demonstrate two key factors in the development of the U.S. drone ecology in non-battlefield settings. The practice of drone-based targeted killing is contested – there is tension between the civilian administration about how these new technologies are used in the U.S. prosecution of the global war on terror. Further, there is constant pressure to continue developing a more efficient network of media-based information gathering technologies around the drones – that is, to make the networked drone ecology more efficient – to increase accuracy and effectiveness in the highly challenging environment of non-battlefield theatres.

The AUMF process was designed, and reinforced, after the Obama administration came under extensive public scrutiny in the United States and around the world over its drone-based counterterrorism program and questions over civilian casualties in the Afghanistan-Pakistan border region and in Yemen. The AUMF process has been the target of great criticism, some such as former Foreign Service employee-turned whistle-blower Peter Van Buren have argued the process is barely legal and allows the White House to sidestep due process and paper over

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<sup>125</sup> Ibid

<sup>126</sup> Ibid

<sup>127</sup> Ibid

<sup>128</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.2 and “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.7, The Intercept, October 15, 2015. <https://theintercept.com/document/2015/10/14/small-footprint-operations-5-13/>

extrajudicial killings – what Van Burren called “murder by decree”<sup>129</sup>. The same process, however, has also been praised by legal and policy experts, such as senior fellow at Washington D.C.-based security policy think-tank Center for New American Security, Adam Klein. Klein called the Obama administration’s AUMF pipeline a process of the highest levels of government maintaining “thorough, individualised review... that meaningfully constrains those developing and carrying out these operations”<sup>130</sup>. These arguments further illustrate how contested these new technologies and counterterrorism practices are, both within government and in the public sphere. However, in spite of this contested nature, the U.S. drone ecology and its use in non-battlefield settings for targeted killing operations has not only become further established but has grown in both its technical capacities and its reach over time, as this study will demonstrate.

### 4.3 FULL MOTION VIDEO, THE EYE IN THE SKY

Drone-based counterterrorism operations in non-battlefield settings are undertaken through a global network broadly consisting of the drone aircraft themselves, high-speed satellite communications, and a series of human actors spread across great distances. In a broad sense, this is the drone ecology as discussed in this thesis. However, the drone aircraft used in this broader networked system are not simple machines, they are flown remotely and controlled via satellite connection, and they carry a vast array of technologies including live-streaming video cameras,

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<sup>129</sup> Van Burren, Peter. “Obama’s Itchy Trigger Finger on Drone Strikes: What Happened to Due Process?” *The Guardian*, February 17, 2014. Accessed 10/04/2015 <https://www.theguardian.com/commentisfree/2014/feb/17/obama-drone-strikes-due-process>.

<sup>130</sup> Klein, Adam. “A Response to the ‘Drone Papers’: AUMF Targeting Is a Deliberate Process with Robust Political Accountability.” *Lawfare*, October 15, 2015. Accessed 12/06/2017 <https://www.lawfareblog.com/response-drone-papers-aumf-targeting-deliberate-process-robust-political-accountability>.

sensors that can track and tap mobile phone conversations, and other high-end media technologies used by drone crews to undertake targeted killing operations. Indeed, as this analysis will show, the video-streaming capacities of drone aircraft are one of the most crucial parts of the drone ecology for undertaking targeted killing operations in non-battlefield settings.

Mapping this part of the drone ecology is possible through information included in *The Drone Papers* documents, which include a breakdown of the technological capacities of the drone ecology and how they have been used in targeted killing operations in the Horn of Africa and Arabian Peninsula by task force 48-4 (Figure 2). These technical methods all contribute to the intelligence, surveillance and reconnaissance (ISR) capacity of the drone ecology in various ways, allowing drone crews to observe movement and activity on the ground below through live video feeds known as Full Motion Video (FMV), listen to communications on radio or mobile phones, track locations and gather other forms of information on targeted individuals and groups through various types of sensors. The term ISR itself refers to the general function of the drone ecology in gathering information and data on targeted individuals and groups using FMV, APG, SIGINT and COMINT sensors and other methods in small footprint operations, or in these case studies the non-battlefield settings of Yemen and Somalia. From this information case files or baseball cards are developed and fed up through the AUMF process for approval by the U.S. civilian administration, a process that in these scenarios can take many months, or even years according to the documents.

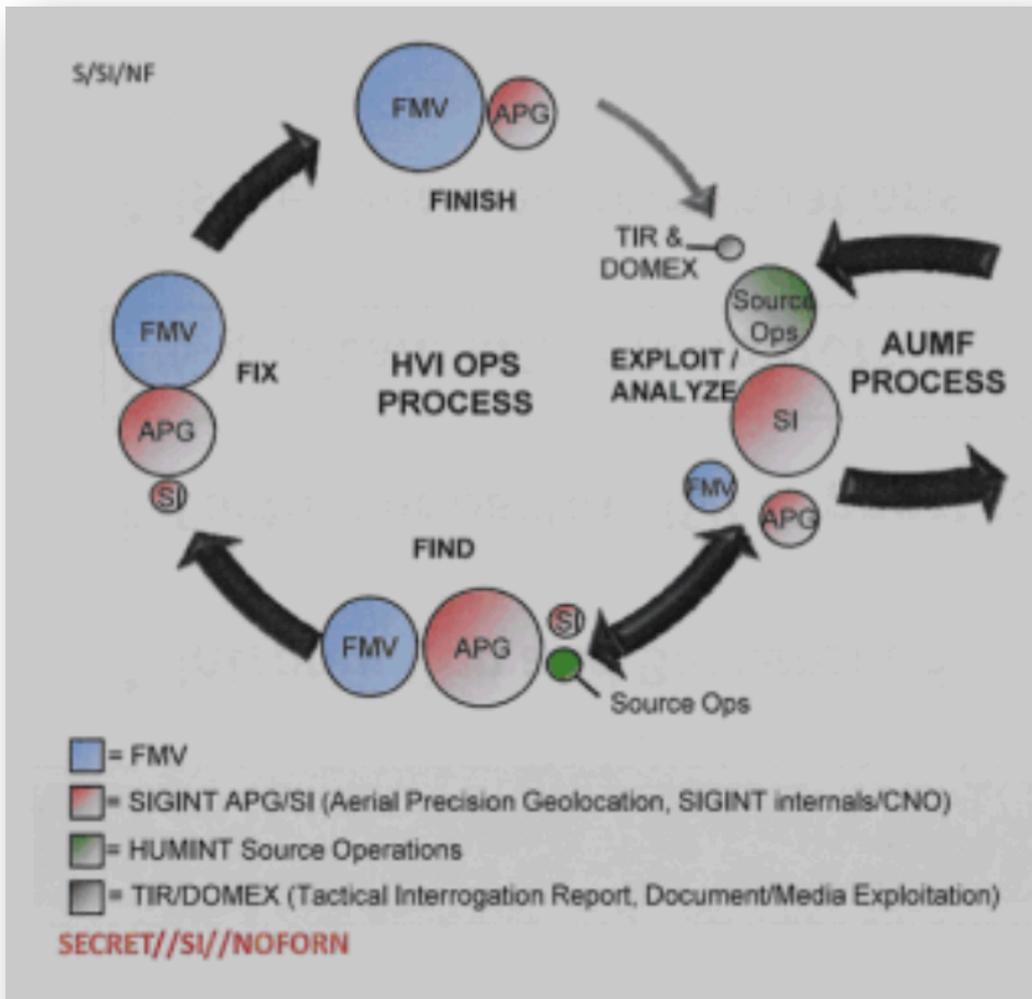


Figure 2: The slide labelled 'ISR Contribution to Operations' shows the combination of FMV, APG, SIGINT and other sources of information that are drawn together to 'find' and 'fix' targets prior to the 'finish' of U.S. drone-based counterterrorism operations.

FMV refers to the live video feeds that run from cameras mounted on drone platforms, as seen in to drone crews, intelligence officers and other military personnel taking part in drone operations. As seen in Figure 3, U.S. drone aircraft such as the MQ-1 Predator and MQ-9 Reaper models carry a sensor ball fitted under the nose of the UAV, where the FMV camera and other sensor devices

are mounted. FMV can include use of live video feeds in colour, infrared night vision, high-magnification telephoto lenses and in newer UAV platforms, high definition video, that all allow close observation of the landscape below a drone. The so-called sensor dome attached to drone aircraft, which contains FMV cameras as well as other sensor technology, is visible in Figure 3.



*Figure 3 – This composite image shows a MQ-9 Reaper drone parked in a hanger in Afghanistan (left), with sensor ball visible under the nose of the aircraft. The image also shows a close-up of the sensor ball of a U.S. drone aircraft (right), which houses the drone aircraft’s FMV live video camera along with other sensor devices used by the drone ecology to view individuals and groups below the drone, along with tapping and tracking mobile phone devices carried by those in view. Source: Getty Images.*

FMV is crucial to drone operations, the figurative eye in the sky that allows drone crews taking part in operations from around the globe to see what is happening on the ground below a drone aircraft. This is particularly important to drone-based targeted killing operations, with the

documents recording that “two thirds of fixes”, or confirmation of a target’s identity, “involved FMV”<sup>131</sup>. Further, these live video feeds allow U.S. drone crews to follow a subject closely as they move - “FMV maintains Fix on initial Find location to enable the TF to keep eyes on the HVI”<sup>132</sup> or high value individual. The final, and more often than not deadly part of targeted kill/capture operations is also dependent on FMV – “every Finish was supported by FMV”<sup>133</sup>. These video feeds, from the media technology of the drone’s camera arrays, are streamed from the UAV to drone operators, military officers and intelligence analysts thousands of kilometres away through a high-speed satellite-based communications network.

#### **4.4 AERIAL PRECISION GEOLOCATION AND TRACKING MOBILE PHONES**

Drone operations also use a number of other media technologies and sensors to gather data during targeted killing operations in non-battlefield scenarios. Aerial Precision Geolocation (APG) is a method of tracking mobile phone signals, satellite phone signals and radio signals from drone aircraft. APG involves the use of various devices which can, for example, force a handheld cellular phone to lock onto the device as if it were a standard cell phone tower, also known as a IMSI catcher. An IMSI catcher can identify a mobile phone device, locate it with a relatively high degree of accuracy, intercept the communications signals of the device, and in some circumstances download data on the device such as its call history, contact lists or SMS message contents<sup>134</sup>. This

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<sup>131</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.10

<sup>132</sup> Ibid

<sup>133</sup> Ibid

<sup>134</sup> Hay Newman, Lily. “DC’s Stingray Mess Won’t Get Cleaned Up | WIRED.” WIRED, April 6, 2018. <https://www.wired.com/story/dcs-stingray-dhs-surveillance/>, accessed 20/8/2018.

form of signal location is listed by the documents as being a crucial element of the drone ecology as it provides the capacity to track individuals' locations and listen to their communications. Indeed, the documents list APG as particularly powerful when used in combination with the FMV or live video capacity of drone aircraft – “APG tips narrow aperture FMV during Find”<sup>135</sup>. In other words the mobile phone tracking capacity of IMSI catchers attached to drone aircraft allows drone operators to track a target via their cell phone's location, with this location data then allowing drone crews to point their FMV camera at the target's location. As the documents state, “during Fix and Finish, FMV and APG are used together, to maintain HVI location and PID”<sup>136</sup>, with PID bring the U.S. military's acronym for positive identification. The abilities provided by these functions of the drone ecology when operating in non-battlefield settings are so useful that over half of successful finishes in Yemen and Somalia during the period of *The Drone Papers* study were achieved through a combination of APG and FMV capacities to reveal a target's location and then confirm their identity visually through the drone's live video feed<sup>137</sup>. However, as this study will demonstrate in later chapters, this combination of FMV and APG is far from allowing the foolproof identification of individuals.

As this data shows, FMV and APG have a key relationship in the function of the drone ecology, they are the figurative eyes and ears of drone crews based in Nevada and intelligence analysts based in Virginia and other locations around the world. Indeed, their relations to other elements of the broader networked drone assemblage are crucial in the United States' ability to undertake drone-based counterterrorism actions in some of the world's most remote corners. However,

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<sup>135</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.8

<sup>136</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.6

<sup>137</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.6

while the documents show that the combination of the APG and FMV capacities of the drone ecology was used in over half of successful operational ‘finishes’ in Yemen and Somalia, the over-reliance on these tools by drone crews operating in non-battlefield settings from half a world away is one of the key factors making deployment of this technology highly dubious.

Find, fix, finish, exploit and analyse, or “F3EA”<sup>138</sup> in the acronym-laden jargon of the U.S. military, denotes the basic process of using the drone ecology’s reach and sensor technologies to uncover a target’s location, confirm target identities, track target movement and then performing targeted killing or in more rare cases capture operations on those targets. ‘Exploit’ and ‘analyse’ refer to the use of intelligence sources – interrogations, captured documents, cell phones, computer hard drives and other sources of data – to create new target portfolios for future FFF cycles.

Importantly, the documents state that the form of drone ecology operations studied here largely fail to meet ‘exploit’ and ‘analyse’ standards. Here the U.S. military’s own internal analysis shows that 75% of operations in the Yemen and Somalia theatres during this study period were ‘finished’ via “kinetic strike”<sup>139</sup>, or through the firing of a missile at a target from a drone aircraft rather than through the capture and interrogation of a suspect. The reliance on deadly strikes like this over capture operations means that in the non-battlefield scenarios of Somalia and Yemen the great majority of ‘finish’ operations observed by the U.S. military’s own study unit ended in little to no useful intelligence being gathered for analysis. The papers make the point that when used to target and assassinate suspected terrorists in these scenarios, compared to the use of on-ground assets such as Special Forces troops, the drone ecology returns less usable intelligence that can

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<sup>138</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.14

<sup>139</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.8

then be used to develop future operations or deepen understanding of violent non-state actors – groups and individuals – that the U.S. government argues present an imminent threat to its own national security.

#### 4.5 THE TYRRANY OF DISTANCE

The counter-terrorism operations featured in *The Drone Papers* target violent non-state actor groups Al Qaeda in the Arabian Peninsula (AQAP) in Yemen, along with Al Shabaab and other with AQ offshoots in Somalia. These are groups long considered by successive U.S. administrations as a threat. Indeed, John O. Brennan, White House counter-terrorism chief under President Barack Obama said in 2011 that AQAP in Yemen were considered “the most operationally active” of all of Al Qaeda’s global chapters and affiliates<sup>140</sup>. In the same speech, Brennan identified Yemen, Somalia, Iraq and North Africa as the prime locations that violent non-state actors such as AQ were using to plan and execute attacks on the United States and on U.S. facilities overseas. Brennan’s comments indicated the disposition of the Obama administration’s approach to counterterrorism operations and the policy of targeted killing, executed through so-called small footprint operations, as the preferred method to combat this threat outside the battlefield scenarios of Iraq and Afghanistan. However, data contained in the documents show that dealing with perceived threats in non-battlefield scenarios is a complicated affair with many significant challenges to successful operation, not least of which being the extremely remote nature of many target areas. The

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<sup>140</sup> Brennan, John O. cited in DeYoung, Karen. “Brennan: Counterterrorism Strategy Focused on Al-Qaeda’s Threat to Homeland.” *Washington Post*, June 29, 2011, sec. National Security. [https://www.washingtonpost.com/national/national-security/brennan-counterterrorism-strategy-focused-on-al-qaedas-threat-to-homeland/2011/06/29/AGki1LrH\\_story.html](https://www.washingtonpost.com/national/national-security/brennan-counterterrorism-strategy-focused-on-al-qaedas-threat-to-homeland/2011/06/29/AGki1LrH_story.html), accessed 10/01/2017.

documents show that in the battlefield setting of Iraq, 80% of target areas were within 150km of an airfield, a two hour round trip for the U.S.' ubiquitous Predator drone and in Afghanistan, 80% of target areas were within 400km of an airstrip, a 5-6 hour round trip for the same remotely piloted aircraft<sup>141</sup>, but in Yemen and Somalia these distances can be doubled.

The airfield used to launch drone flights over Yemen and Somalia, situated at Camp Lemonnier, lies in Djibouti. Most objectives in Yemen are listed as at least 500km from Camp Lemonnier, and most target areas in Somalia are listed as roughly 1000km the same airstrip. These long distances consume a significant proportion (over half for Somalia) of the flight time of drone aircraft used for operations in the region<sup>142</sup>, creating significant challenges for U.S. drone-based counterterrorism operations in the region. Essentially, in Somalia and Yemen it takes drone aircraft longer to reach a target area and the same drone aircraft cannot stay over that area for as long a period, when compared to similar operations in the battlefield settings of Iraq and Afghanistan. These great distances show one of the major limitations of the U.S. drone ecology, that of the range of the drone aircraft in use. Indeed the documents argue that increasing aircraft range is one of the major areas of required improvement for U.S. drone operations in non-battlefield settings. Here, we see that the U.S. military is indeed pushing the limits of the experimental system of the drone ecology to undertake targeted killing operations in non-battlefield settings and that there is impetus to improve the abilities of this system in the context of the continuing global war on terror.

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<sup>141</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.5

<sup>142</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.6

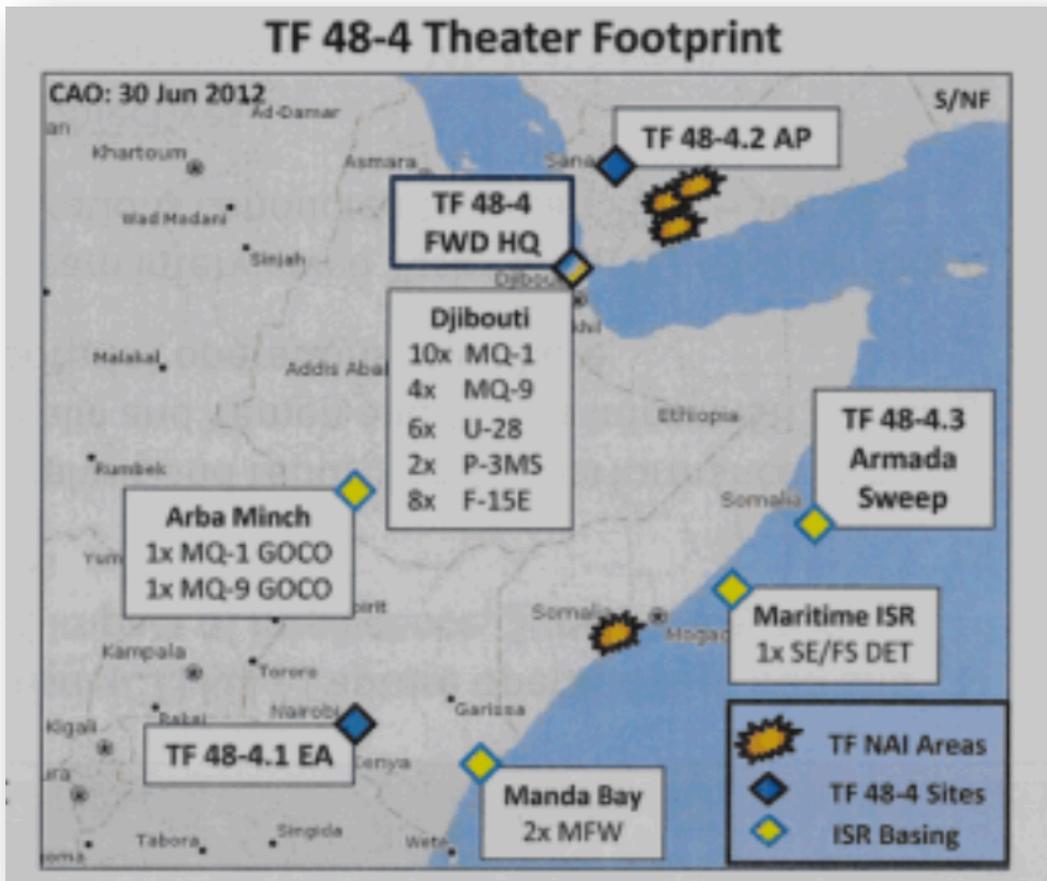


Figure 4: 'TF 48-4 Focus and Organisation: Theatre Footprint' shows the various airfields and maritime naval platforms, forward operating stations, the number of aircraft and their type based at each. Camp Lemonnier, labelled 'Djibouti' on this map, shows by far the largest number and variety of aircraft including both MQ-1 "Predator" and MQ-9 "Reaper" drones. The map also shows areas of active operations, referred to as 'NAI', or Nominated Areas of Interest, in both Yemen and Somalia.

The map labelled *TF 48-4 Theater Footprint* (figure 4) provides detail of the makeup of the task force that undertakes drone-based targeted killings in the region. TF 48-4 is broken up into East Africa (EA) and Arabian Peninsula (AP)-focused branches. The task force's two branches are

subdivided into teams on a geographic basis, spread across the region at Camp Lemonnier in Djibouti; the Yemeni capital, Sanaa; the Kenyan capital, Nairobi; Manda Bay in Kenya situated near the Somali border; at Arba Minch airfield in Ethiopia and on U.S. Navy vessels stationed off the coast of Somalia<sup>143</sup>. This information is also corroborated by Adam Moore and James Walker's study of tender documents and other contracts between the U.S. military and private military contractors and logistics companies<sup>144</sup>. Moore and Walker have revealed information on the growing network of U.S. military bases in the region, and their work records that Camp Lemonnier has been used to fly drones across the Horn of Africa and Arabian Peninsula since at least 2006. The U.S. base at Camp Lemonnier is a key regional node in the U.S. drone ecology as used for targeted killing operations in Yemen and Somalia, used to house and launch drone aircraft such as the MQ-1 Predator and MQ-9 Reaper airframes most commonly used by the U.S. in counterterrorism operations of this type. Indeed, bases such as this that can perform as a regional hub, where drones can land, take off and undergo maintenance, and where the personnel required for those tasks can be housed, are key for the use of the U.S. drone ecology in any given region, as we will explore later in this study in more detail.

Importantly, not all of these outposts are ISR bases, or bases where armed drones are stationed and operate from. Some such as those in Sana'a and Nairobi have been revealed in media reporting as stations for Special Forces operators and other forward-deployed intelligence officers. According to a variety of press reporting, these forward deployed elements primarily involve

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<sup>143</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.4

<sup>144</sup> Moore, Adam, and James Walker. "Tracing the US Military's Presence in Africa." *Geopolitics* 21, no. 3 (July 2, 2016): 686–716.

elements attached to the Joint Special Operations Command (JSOC) but occasionally, for example during the targeted killing of U.S. citizen and alleged Al Qaeda propagandist Anwar al-Awlaki in 2011, JSOC and CIA teams combine forces<sup>145</sup>. Camp Lemonnier in Djibouti is home to the lion's share of aircraft used by TF 48-4, with ten MQ-1 'Predator' drones; four MQ-9 'Reaper' drones; six U-28 manned surveillance aircraft, two P-3M surveillance aircraft, and eight F-15E manned fighter/bomber aircraft. This spread of bases with various resources throughout the Arabian Peninsula and Horn of Africa region are all nodes in the broader U.S. drone ecology network, geared to undertake counterterrorism operations in the non-battlefield settings of Yemen and Somalia and potentially in other locations across Africa and the Middle East.

#### 4.6 'FIND, FIX, FINISH' AND NETWORKED INTELLIGENCE

The U.S. military divides up the process of drone-based targeted killing operations into three stages – find, fix and finish. These are the stages of tracking, targeting and either killing or capturing high value individuals, and they are closely linked to getting approval for an operation under the AUMF process. Data displayed in figure 5, a detail of one of the slides from *The Drone Papers*, provides insight into the range of information sources that are drawn into the drone ecology's target selection processes. Figure 5 also shows the way that these sources of information have changed from operations in the battleground setting of U.S.-occupied Iraq in

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<sup>145</sup> "Yemen: Reported US Covert Actions 2001-2011." The Bureau of Investigative Journalism. Accessed May 13, 2018. <https://www.thebureauinvestigates.com/drone-war/data/yemen-reported-us-covert-actions-2001-2011> and Stephen Collinson. "Obama's Strategy Suffers Setback in Yemen - CNNPolitics." CNN. Accessed May 13, 2018. <https://www.cnn.com/2015/03/26/politics/yemen-rebels-obama-anti-terror-strategy/index.html>.

2007 and the non-battlefield settings of Yemen and Somalia during this study's data-gathering period in 2012. Figure 5 shows that in Iraq, where U.S. troops would perform house-to-house searches, finish operations would often produce captured suspects to interview and electronic or document-based data to mine for intelligence.

In non-battlefield settings data for new operations primarily comes from SIGINT or signals intelligence provided by the U.S. National Security Agency or the NSA's partner organisations – for example the UK's NSA-equivalent, GCHQ or Yemen's National Security Bureau. By and large, in Yemen and Somalia there are little to no ground assets available to undertake capture operations so finishes of suspects are primarily targeted killings rather than capture operations. In fact, the documents state that operations in the Horn of Africa "finish in a kill, vice capture, 75% of the time"<sup>146</sup>. As the documents put it "kill operations significantly reduce the intelligence available from detainees and captured material"<sup>147</sup>. In other words, operations in non-battlefield settings like Yemen and Somalia produce a deficit of intelligence compared to capture operations more dominant in battlefield settings such as Iraq and Afghanistan.

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<sup>146</sup> "The Drone Papers - Small Footprint Operations 5/13", 2015. p.8

<sup>147</sup> "The Drone Papers - Small Footprint Operations 5/13", 2015. p.8

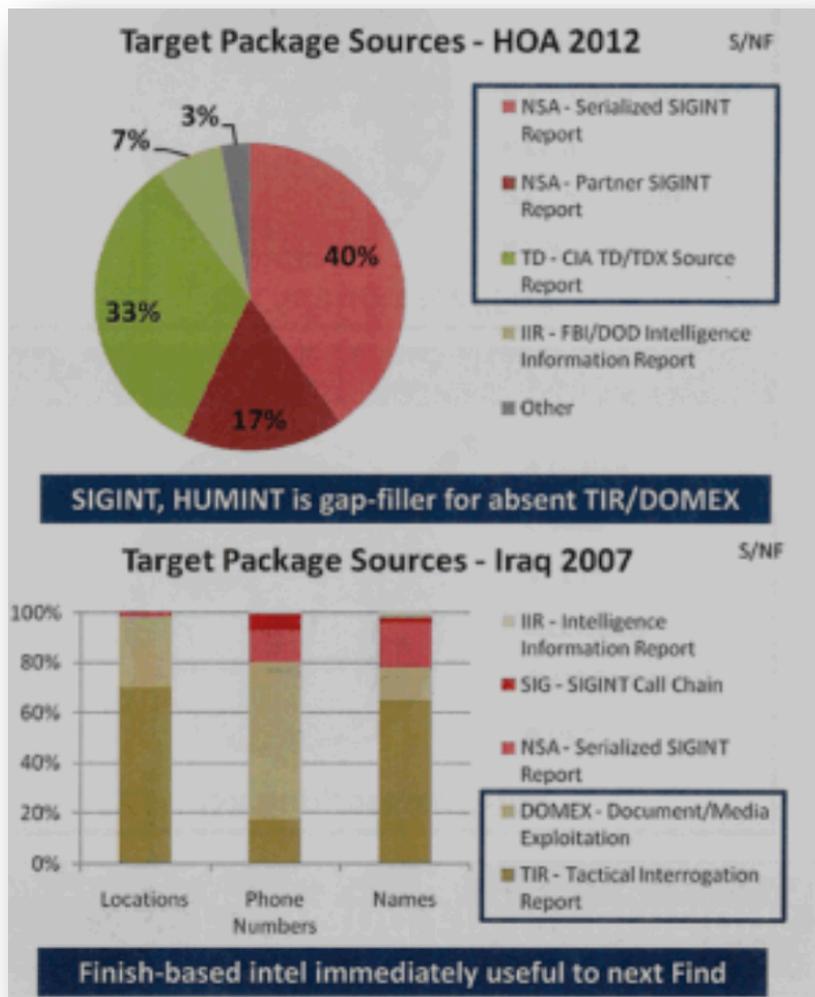


Figure 5: Detail of 'Target Package Sources' shows the sources of information used to target drone strikes and capture/kill operations in the Horn of Africa during 2012 as compared to similar operations in Iraq during 2007. A reliance on NSA-provided SIGINT along with CIA source reports is clearly visible in HOA operations from this table as compared to Iraq operations.

According to this data from *The Drone Papers*, signals intelligence data from these huge databases was used to build target profiles for 57% of new targeted killing operations in Yemen and Somalia. Adding to this is reporting from investigative journalists Glenn Greenwald and Jeremy Scahill for

*The Intercept* news outlet. Their work shows that by 2014 the NSA often provided target lists for U.S. drone operations “based on controversial metadata analysis and cell-phone tracking technologies”<sup>148</sup>. Further, Greenwald and Scahill’s reporting, based on confidential sources within the U.S. military, contends that rather than confirming identities through sources on the ground through direct visual confirmation, “the CIA or the U.S. military then orders a strike based on the activity and location of the mobile phone a person is believed to be using”<sup>149</sup>. The mobile phone-targeting method as recorded by Greenwald and Scahill shows two things. Primarily it shows the dynamic formation of the drone ecology’s broader assemblage, tapping into one of the world’s most commonly used digital media devices – a cell phone – for use in target selection for deadly missile strikes. Secondly it also highlights the highly questionable nature of the methods being used to make life-or-death decisions in the course of drone-based counterterrorism operations in non-battlefield settings.

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<sup>148</sup> Scahill, Jeremy, and Glenn Greenwald. “The NSA’s Secret Role in the U.S. Assassination Program: The NSA’s Secret Role in the U.S. Assassination Program.” *The Intercept* (blog), February 10, 2014. <https://theintercept.com/2014/02/10/the-nsas-secret-role/>. Accessed 2/10/2017.

<sup>149</sup> Scahill and Greenwald, 2014.

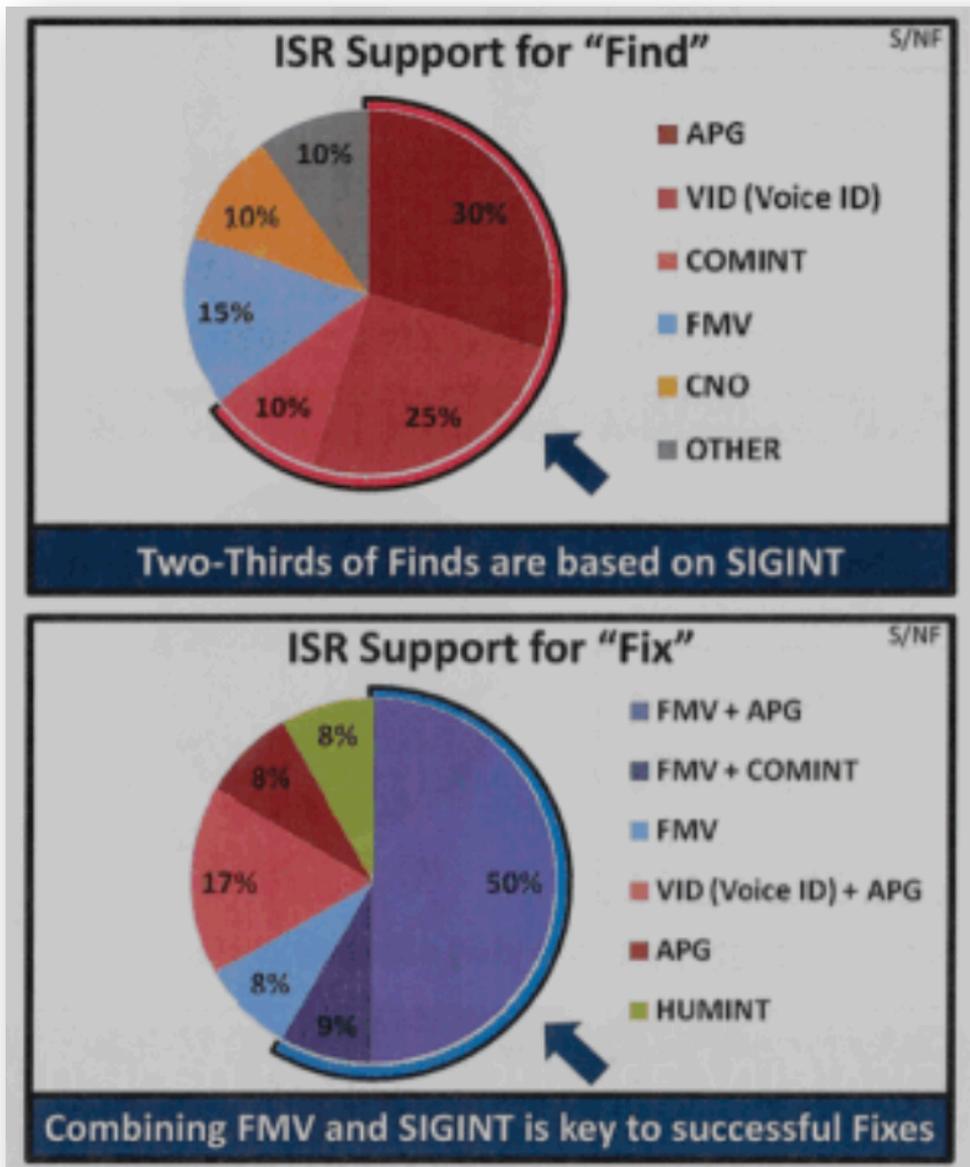


Figure 6: Detail of 'ISR Contributions to Operations', showing the sources of intelligence for 'find' and 'fix' phases of drone-based operations by TF 48-4 in the Yemen and Somalia theatres.

Another of the schematic documents contained in *The Drone Papers*, entitled *ISR Contributions to Operations* (Figure 6) points to the relationship between ISR practices and the various networked media and communications technologies of the U.S. drone ecology. In the non-battlefield settings

of Yemen and Somalia, APG and FMV, along with Voice ID and computer network operations (CNO) all take a major role in target identification and location practices. Figure 6 also identifies how important each of these technical data gathering methods is to the process, and how embedded networked media technologies such as live view cameras and cell phone tracking devices, along with databases of intelligence information are core to targeting decisions in these environments.

SIGINT denotes intelligence gathered through exploiting communications signals, for example tapping cell phones or listening in on radio conversations, an activity primarily undertaken by the NSA<sup>150</sup>, and by intelligence and security agencies in so-called host countries, or the states where these drone-based counterterrorism operations are being undertaken, such as Yemen and Somalia. Figure 6 shows that around two thirds of finds are based on this form of data gathering, and the study argues that compared to the tactical intelligence gathered by U.S. military operators during similar counterterrorism work in Afghanistan and Iraq, through capturing individuals, documents and other electronic storage media during operations, “these sources are neither as timely nor as focused” and therefore not as relevant to develop the next operational cycle. In other words, this type of intelligence is simply not as useful for combating dispersed networks of violent non-state actors. Further, tactical intelligence gathered during field operations in those battlefield scenarios generated new objectives that could be “often actioned within days”<sup>151</sup> as opposed to the months or even years that new target cases required for action in the non-battlefield scenarios of Yemen and Somalia.

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<sup>150</sup> Scahill and Greenwald, 2014

<sup>151</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.9

Further data is available in *The Drone Papers* on which of these various sources of intelligence data are used throughout both find and fix stages of a drone-based targeted killing operation. Figure 6 shows that APG and VID, or Voice Identification – tapping telephones and other radio signals – dominate the ‘find’ phase of operations, contributing 55% of ‘find’ leads. Along with other COMINT or communications intelligence, nearly two thirds of finds are completed through electronic or media-based intelligence of one type. Full motion video on its own provided leads for 15% of finds, and CNO – or intelligence gathered through exploitation of various types of digital devices and computer networks – provided 10% of find leads. These figures show the truly broad nature of the sources of information being drawn into the U.S. drone ecology. Indeed, it is obvious that the United States military has built a broad-based, networked media assemblage centred on drone aircraft and a global satellite communications network, which gathers data from an incredibly broad range of networked media devices and sources to make life and death targeting decisions, and that these processes have become core to U.S. counterterrorism practice in non-battlefield settings.

#### **4.7 THE DECLINE OF HUMAN INTELLIGENCE**

HUMINT refers to intelligence gathered through interrogations or other human sources, and *The Drone Papers* point to most useful human intelligence in these non-battlefield settings being obtained from “CIA source reporting”<sup>152</sup>. Figure 6 shows that HUMINT and TIR/DOMEX, or target interrogations and document exploitation do form part of the targeting cycle. However the

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<sup>152</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.9

documents also clearly show that APG, FMV and Voice ID are by far the dominant forms of intelligence gathering used to locate and then to positively identify individuals and groups in Yemen and Somalia. Through the 'find' phase the documents indicate a heavy reliance on signals intelligence including voice identification and communications intelligence, APG and FMV. As the study says, "APG tips narrow aperture [of] FMV during find"<sup>153</sup>. This data from documents corroborates the news reporting of Greenwald and Scahill, who documented the relationship of tracking and tapping cell phones carried by individuals and drone-based targeted killing operations. According to the documents, drone crews stationed half a world away use this electronic intelligence data to locate a target and then pursue the direct visual identification of individuals through the drone ecology's live video capacity, observing individuals and groups below and looking for key signs that a particular target is indeed who they are looking for. Retired U.S. Air Force Colonel Chris Chabillss, quoted in a *L.A. Times* report on U.S drone operations at Creech Air Force base just outside Las Vegas, Nevada, stated "you can look at guys walking down a road and tell whether any of them are armed"<sup>154</sup>. According to the documents, "FMV, especially HD"<sup>155</sup> or high definition versions of FMV cameras fitted to newer drone models "is also used to build near certainty"<sup>156</sup> of a particular individuals' identity through searching for and recording "distinguishing physical characteristics"<sup>157</sup>. In fact, as one of the case studies examined in the following chapter will demonstrate, these types of distinguishing physical features are indeed used for identifying high-value individuals during real-world drone-based targeted killing operations.

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<sup>153</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.8

<sup>154</sup> Zucchino, David. "Drone Pilots Have a Front-Row Seat on War, from Half a World Away." In *Los Angeles Times*, 21/2/2010 accessed May 20, 2015. <http://www.latimes.com/world/la-fg-drone-crews21-2010feb21-story.html>.

<sup>155</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.10

<sup>156</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.10

<sup>157</sup> Ibid

Figure 6 also shows how crucial various forms of electronic surveillance and data exploitation are for successful ‘fixes’, or the confirmation of the identification of an individual being hunted by the globally distributed operators of the drone ecology. The combination of FMV with either APG or other communications intelligence forms make up 59% of successful ‘fixes’, and as the documents note, “combining FMV and SIGINT is key to successful fixes”<sup>158</sup>. The connection between the two phases is also explained – “FMV maintains Fix on initial Find location to enable the TF”, or drone operations task force, “to keep eyes on the HVI while building up to near certainty”<sup>159</sup>. This selection of data from *The Drone Papers* highlights the importance placed on two of the most advanced and crucial parts of the drone ecology’s broader technical assemblage – FMV and APG. Further, the capacity of crews attached to Task Force 48-4 to successfully perform a deadly missile strike on a target is heavily impacted by the same technical capacities of the drone ecology, with the documents recording that “every finish was supported by FMV”<sup>160</sup>.

The conditions of small footprint operations also influence the fix and finish phases, which are dominated by the use of APG and FMV to confirm the identification of targets and to successfully complete a strike, or ‘finish’ an operation. Importantly, *The Drone Papers* add that signals intelligence, in particular the use of what is referred to as computer network operations (CNO), contribute to the fix and finish phases of an operation. This reliance on electronic forms of intelligence, though, does present significant problems. According to the documents, drone-based

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<sup>158</sup> Ibid

<sup>159</sup> Ibid

<sup>160</sup> Ibid

counterterrorism operations in the Horn of Africa and Arabian Peninsula finish in a kill – rather than capture and subject interrogation – in three out of four cases<sup>161</sup>. This leads to “very little ‘finish-based’ intel to drive next ‘F3’ cycle”, or in other words a lack of actionable intelligence gained through either interrogation of captured suspects, or through the exploitation of documents gathered during any on-location capture operations. In other words, during the period of *The Drone Papers* study, three quarters of drone operations against individuals and groups who have been identified as an imminent threat to U.S. national security in Somalia and Yemen end in killing that individual or group via a missile strike, rather than a capture and interrogation. *The Drone Papers* analysis points out the dominance of deadly finishes “significantly reduce the intelligence available from detainees and capture material”. The impact of this is clearly outlined in the documents “actioning HVIs can take months to years compared to days to weeks in Iraq/Afghanistan”<sup>162</sup>, dramatically slowing the cycle of operations which can then produce usable information for future targeted killing or capture actions. Essentially, the dominant mode of use of the drone ecology in non-battlefield settings – for deadly kill operations – makes follow-on operations to further pursue these networks of alleged threats to U.S. national security extremely difficult.

## 4.8 CONCLUSIONS

The U.S. drone ecology is a highly complex networked assemblage, used to track and target individuals and groups considered a threat to U.S. national security in some of the world’s most

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<sup>161</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015 p.8

<sup>162</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.8

remote corners. U.S. drone crews and intelligence analysts, physically located at facilities in the United States and other locations around the world, draw information from large intelligence databases to create case files or baseball cards on these so-called high-value individuals, and then use the media-based technical capacities of the U.S. drone ecology to track those individuals and groups with drone aircraft flying over countries where the U.S. is not technically at war. The technical capacities carried by drone aircraft, that include FMV cameras and APG devices; Voice ID, or the identification of individuals by voice patterns heard on phone calls; Computer Network Operations that manipulate computer networks to collect intelligence data and other communications intercepts are all used to track and target these individuals and groups.

Indeed, the U.S. drone ecology's media technology-driven technical capacities are crucial to the success of drone-based counterterrorism operations. As this chapter has demonstrated, signals intelligence or SIGINT drawn from the technical capacities of drone aircraft leads to two-thirds of successful finds. Further, these signals intelligence methods, combined with FMV and other electronic forms of surveillance, lead to 90% of successful finds of targeted individuals<sup>163</sup>. When it comes to the fix, or the confirmation of a target with enough certainty to launch a deadly strike, FMV live video and APG cell phone tracking specifically are involved in more than 50% of cases. The same data from *The Drone Papers* documents shows that the broader electronic capacities of drone aircraft combining FMV and APG with other forms of signals and communications intelligence are factors in 92% of successful fixes. In short, the U.S. military is almost entirely reliant on the media-based technical capacities of the integrated drone ecology network, in particular FMV and APG capacities, but also on other forms of signals intelligence and data

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<sup>163</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.10

gathering from manipulating computer networks, to undertake drone-based counterterrorism operations in non-battlefield settings in the context of the global war on terror.

*The Drone Papers* documents also list a significant number of problems and challenges limiting the performance of the U.S. drone ecology in remote non-battlefield settings<sup>164</sup>. These challenges are numerous and include long distances from drone bases to target areas; a “critical shortfall”<sup>165</sup> in the ability to provide positive identification of targeted groups and individuals; the inability to undertake capture operations instead of kill operations and thus transform a given mission into useful intelligence for new operations; the “frequent inability”<sup>166</sup> to maintain “24/7 persistent stare”<sup>167</sup> over target areas and maintain a constant view of a target without losing visual contact and needing to start the entire process of locating a targeted individual from scratch. For each of the major issues identified in the study, a solution has also been proposed. Continuing to develop communications intelligence and video technologies carried by drone aircraft; leveraging relationships with local government security forces and intelligence agencies along with insertion of U.S. special forces troops into a given area of operations in order to increase capture outcomes over kills during operations<sup>168</sup>; increasing the “endurance”<sup>169</sup> and mission range of drone aircraft and increasing the use of drone aircraft launched from Navy ships at sea in order to decrease the distance to targets in theatre; and increasing the number of “ISR orbits”<sup>170</sup> or the number of drones flying above target areas. Ultimately, according to the documents these limiting factors

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<sup>164</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.12

<sup>165</sup> Ibid

<sup>166</sup> Ibid

<sup>167</sup> Ibid

<sup>168</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.14

<sup>169</sup> Ibid

<sup>170</sup> Ibid

mean the rate at which operations can complete a full FFF cycle “will be significantly lower than previously seen in Iraq and Afghanistan”<sup>171</sup>. Or, in other words, the performance of U.S. counterterrorism operations in non-battlefield settings such as Yemen and Somalia still lags a long way behind the capacity of the U.S. military in counterterrorism operations in battlefield settings such as Iraq and Afghanistan.

Despite the demonstrated capacity shortfall of the U.S. drone ecology in non-battlefield settings, the documents again here also demonstrate the clear intent to expand the use of the U.S. drone ecology to new theatres, stating a clear intent of *The Drone Papers* study itself to “inform ISR planning and investments for potential small footprint operations elsewhere”<sup>172</sup>. This is despite the fact that according to this comparison – and in almost every listed criterion – drone-based counter-terrorism operations have been shown to be far less successful in non-battlefield settings versus battlefield settings. As demonstrated, the over-reliance by drone crews on the high end technical capacities of the U.S. drone ecology to perform surveillance and target selection in these environments, primarily due to the lack of other resources in a theatre to assist with these tasks, has been shown by the U.S. military’s own internal study teams to be a highly problematic practice. Indeed, the data contained in *The Drone Papers* documents shows that the U.S. military is aware that this practice leads to less effective and desirable operational outcomes, namely the over-use of missile strikes launched from drones to kill suspects rather than efforts to capture and interrogate those so-called high-value individuals with the view to gathering potentially useful intelligence on the very groups the U.S is attempting to combat.

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<sup>171</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.12

<sup>172</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.2, and “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.3

The data analysed in this chapter has provided insight into the technical functions of the U.S. drone ecology when used in non-battlefield settings, for example FMV surveillance and APG tracking, and how those sensor capacities interact with each other during U.S. drone-based counterterrorism operations. These technologies, from the interaction of an APG sensor on a U.S. drone aircraft with a cell phone being carried by an individual on the ground below, to the high speed communication of that data across a satellite network to human operators in the roles of pilot, sensor operator and intelligence analyst half a world away in the United States, form the broader networked assemblage of the U.S. drone ecology as used in non-battlefield settings. The framework and definitions of the drone ecology's technical capacities established in this chapter will now be used in the next chapter of this study to analyse the empirical reality of U.S. drone ecology operations through two case studies of targeted killing operations in Yemen and Somalia. Through these case studies, this study will continue to demonstrate the highly problematic nature of the use of the integrated drone ecology network and how U.S. counterterrorism practices have been influenced and even transformed by its development in the context of the global war on terror.

## CHAPTER 5: TARGETED KILLING IN YEMEN AND SOMALIA

Drone-based targeted killing operations as undertaken by the United States have been underway in countries where the U.S. is not technically at war since the early 2000s, and in the following chapter this study will undertake an investigation of the empirical reality of American drone-based counterterrorism practices through two real world case studies. These two case studies, situated in the non-battlefield scenarios of Yemen and Somalia, will allow a detailed analysis of U.S. drone-based targeted killing operations against alleged high-level operatives of violent non-state actor groups aligned with or offshoots of Al Qaeda. Further, the case studies in this chapter will also allow an examination of how the networked technologies of the U.S. drone ecology have allowed the development of a radical set of new counterterrorism practices – in the context of two real-world targeted killing operations – by the United States in the context of the global war on terror.

The study will perform this analysis by applying the indexed framework of the U.S. drone ecology outlined in the previous chapter to two specific case studies made available through data included in *The Drone Papers* documents. Along with the data contained in *The Drone Papers*, a variety of press reporting will provide extra detail on the specific targeted killing case studies and the ways in which the drone ecology operated in each case. The analysis in this chapter will also explore the workings of the U.S. military's FFF process developed to prosecute targeted killing operations in non-battlefield settings and examine how this has played out in real-world, documented operational scenarios. Finally, these analyses will help to map the drone ecology's use in the remote scenarios of Yemen and Somalia and how this integrated networked assemblage gathers information using various media technologies, how that information is streamed through the

global communications networks that drives the drone ecology, and how the human operators of U.S. drone aircraft deal with that information for decision-making during targeted killing operations.

The first case study examined in this chapter will detail the operation that targeted an individual named Objective Rhodes in Yemen, an operation that took over three years from start to finish and that culminated in a deadly missile strike in July 2012. The case study will use information contained in *The Drone Papers* leak to follow the FFF process undertaken by the U.S. military drone crews assigned to the operation, and through this analysis the chapter will detail how the various technical capacities of the drone ecology are used in an operational context to locate and track so-called high-value individuals. The case study will also outline the level of interaction of the U.S. drone ecology with external sources of intelligence data for counterterrorism operations, in this case the Yemeni National Security Bureau, and outline the highly problematic nature of this type of interaction in the context of U.S. counterterrorism operations in non-battlefield settings. Further, the case study following the Objective Rhodes targeted killing operation in Yemen will provide a real-world exploration of how the networked technologies of the drone ecology have allowed the U.S. to develop a revolutionary set of counterterrorism practices, in regions of the world where the United States is not involved in declared wars, in the context of the continuing global war on terror.

The second case study analysed in this chapter will focus on the operation to track and assassinate an individual code-named Objective Peckham in Somalia that ended in a deadly, drone-based missile strike January 2012. This case study will also follow the FFF process used by U.S. drone

crews, using information contained in *The Drone Papers* documents to outline how drone crews interact across the network of the drone ecology to observe and track individuals located in remote regions such as Somalia. In addition to this, the study will also detail how the drone ecology draws information from the intelligence services of close U.S. allies such as the U.K. to assist in identifying and tracking high value individuals and investigate how the tapping and tracking of mobile phone communications through a drone's APG sensors can become critical to the success or failure of drone-based targeted killing operations.

Importantly, this second case study of a drone-based counterterrorism operation in a non-battlefield setting will also analyse how the U.S. military has developed what could be described as a standardised model of drone operations in these remote scenarios. As will be demonstrated, the method of operation of U.S. drone-based counterterrorism practices across both the Yemen and Somalia case studies in this chapter is remarkably similar, and information contained in the leaked documents analysed here shows that the U.S. military has indeed worked to develop a standardised method of operating with the drone ecology in non-battlefield settings. The existence of a potentially standardised model of drone ecology operations will also become more important in the later parts of this study exploring the use of the potential use of the U.S. drone ecology in new theatres. Finally, the Somalia case study included in this chapter will explore the challenges faced by U.S. drone crews when undertaking drone-based targeted killing operations in remote geographies at the very limit of the operational range of U.S. drone aircraft such as the commonly used Predator and Reaper models, and the many problems that operating at the edge of this range presents.

## 5.1 CASE STUDY 1: YEMEN AND OBJECTIVE RHODES

The first of two case studies to be examined in this study focuses on a drone-based targeted killing operation that led to the death of an individual code-named Objective Rhodes in Yemen on July 3, 2012. The mission to locate, identify, track and finally assassinate Objective Rhodes took more than three years according to information in *The Drone Papers* documents<sup>173</sup>. This case study, along with the following case study focusing on a similar operation in Somalia, will reveal the methods used to track, target and assassinate individual and groups the U.S. has deemed a threat to national security. The Yemen case will detail how the technical capacities of the drone ecology, more specifically the ability of U.S. drone aircraft to deliver full-motion video feeds as well as to track cell phones through the use of APG technology allow the U.S. to prosecute targeted killing operations in the non-battlefield setting of Yemen, where the U.S. is not involved in a declared war. Additionally, press reporting on the targets of the drone strikes featured in this case study also reveals the real-world identity of the individual named Objective Rhodes, and allows further exploration of how the U.S. military uses the global, networked capacities of the drone ecology to track, target and in the U.S. military's parlance, 'finish' terrorist suspects.

The three year operational period for the Objective Rhodes mission involved a protracted period of surveillance operations, clear partnership with the Yemeni National Security Bureau to gather intelligence on Rhodes' background and activities, a period of gaining approval for a lethal strike from the Obama Administration's AUMF process, and even involved one unsuccessful missile

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<sup>173</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.22

strike just weeks before a second drone strike finally killed Objective Rhodes. This case study, made possible by the data available in *The Drone Papers* documents, is just one example of the scores of drone strikes that have caused hundreds of casualties in Yemen since U.S drone-based counterterrorism operations began there in 2001. Data collected by independent researchers at the US-based *New America Foundation* and UK-based *Bureau of Investigative Journalism* show from 2001 up to the time of this study, the number of drone strikes in Yemen totalled between 274 and 327 with between 1008 and 1722 total casualties<sup>174</sup>. This examination of the Objective Rhodes drone-based targeted killing operation by the United States will show in detail how a U.S. targeted killing operation against a so-called high value individual is planned and executed through the networked assemblage of the U.S. drone ecology when operating in remote settings such as Yemen that allow the U.S. few, if any, assets on the ground to provide intelligence or confirm targeting information for deadly strikes. Ultimately, this case study will demonstrate how the U.S. drone ecology and its integrated parts function during targeted killing operations in non-battlefield settings, where the United States military is not technically at war.

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<sup>174</sup> ‘International Security Data Site’ by *New America Foundation*, accessed 19/2/2018, <http://securitydata.newamerica.net> and ‘Drone Warfare’ by *Bureau of Investigative Journalism*, accessed 19/2/2018 <https://www.thebureauinvestigates.com/projects/drone-war>

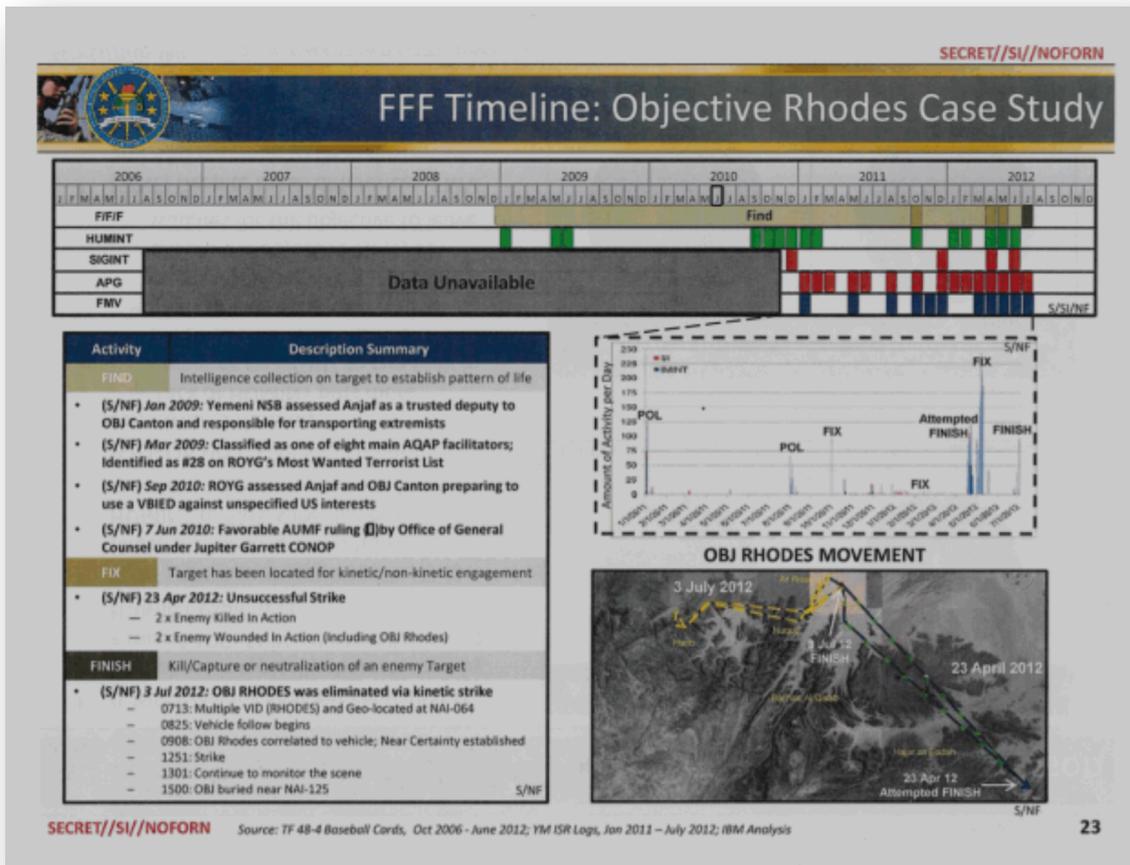


Figure 7: “FFF Timeline: Objective Rhodes Case Study”, showing ‘Activity/Description Summary’ (further detailed in Figure 8), intelligence and data source timeline (detailed in figure 9), an analysis of the pace of activity in the operation and a map showing Objective Rhodes’ movement during the latter parts of the targeted killing operation that culminated in a deadly missile strike on July 3, 2012.

## 5.2 'FINDING' OBJECTIVE RHODES

During the period of the U.S. military's internal study that led to *The Drone Papers*, from January 2011 through to October 2012<sup>175</sup>, the amount of U.S. drone-based counter terrorism activity in Yemen eclipsed that of Somalia. The documents list 16 "current authorisations to action"<sup>176</sup> at the time of their publication in Yemen, compared to 4 in Somalia, with current authorisation to action referring to a target case that has been authorised for targeted killing or capture operations through the AUMF process<sup>177</sup>.

Activity	Description Summary
<b>FIND</b>	Intelligence collection on target to establish pattern of life <ul style="list-style-type: none"> <li>• (S/NF) Jan 2009: Yemeni NSB assessed Anjaf as a trusted deputy to OBJ Canton and responsible for transporting extremists</li> <li>• (S/NF) Mar 2009: Classified as one of eight main AQAP facilitators; Identified as #28 on ROYG's Most Wanted Terrorist List</li> <li>• (S/NF) Sep 2010: ROYG assessed Anjaf and OBJ Canton preparing to use a VBIED against unspecified US interests</li> <li>• (S/NF) 7 Jun 2010: Favorable AUMF ruling ( )by Office of General Counsel under Jupiter Garrett CONOP</li> </ul>
<b>FIX</b>	Target has been located for kinetic/non-kinetic engagement <ul style="list-style-type: none"> <li>• (S/NF) 23 Apr 2012: Unsuccessful Strike               <ul style="list-style-type: none"> <li>– 2 x Enemy Killed In Action</li> <li>– 2 x Enemy Wounded In Action (including OBJ Rhodes)</li> </ul> </li> </ul>
<b>FINISH</b>	Kill/Capture or neutralization of an enemy Target <ul style="list-style-type: none"> <li>• (S/NF) 3 Jul 2012: OBJ RHODES was eliminated via kinetic strike               <ul style="list-style-type: none"> <li>– 0713: Multiple VID (RHODES) and Geo-located at NAI-064</li> <li>– 0825: Vehicle follow begins</li> <li>– 0908: OBJ Rhodes correlated to vehicle; Near Certainty established</li> <li>– 1251: Strike</li> <li>– 1301: Continue to monitor the scene</li> <li>– 1500: OBJ buried near NAI-125</li> </ul> </li> </ul>

<sup>175</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.3

<sup>176</sup> "The Drone Papers - Small Footprint Operations 5/13", 2015. p.6

<sup>177</sup> Ibid

*Figure 8: Detail of ‘Activity and Description Summary’ from Objective Rhodes case study, showing chronological list of major activity points in the operation from the initial intelligence report provided to the U.S. from Yemen’s National Security Bureau that alerted TF 48-4 to Objective Rhodes’ activity in January 2009, to the finish operation that reportedly killed Rhodes on July 3, 2012.*

The mission to find Objective Rhodes began in January 2009 and is described in *FFF Timeline: Objective Rhodes Case Study* (figure 7, detailed in figure 8). The *Objective Rhodes Activity and Description Summary* lists major developments during all three find, fix and finish phases of the operation to target Rhodes in chronological order. The data shows in January 2009 Rhodes was identified as a deputy to a senior member of AQAP and a “facilitator”<sup>178</sup> for the organisation. This information was gleaned by TF 48-4 from an assessment by the Yemeni NSB or National Security Bureau – one of the many security agencies of the-then U.S.-allied Yemeni government.

Incidentally the NSB’s duties are not entirely clear, although in 2009 the NSB apparently reported directly to the office of Yemen’s President Ali Abdullah Saleh<sup>179</sup>. Importantly these early details of the Objective Rhodes case study demonstrate the clear linkage between the U.S. drone ecology and intelligence and security services of host nations such as Yemen, sources of questionable reliability, and that the drone ecology is indeed drawing information from these sources for use in tracking and targeting individuals and groups in non-battlefield settings.

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<sup>178</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.23

<sup>179</sup> Pike, John. “Yemen Intelligence Agencies.” Global Security. Accessed June 24, 2017. <https://www.globalsecurity.org/intell/world/yemen/index.html>. N.B. By the time of the strike that killed Rhodes, over three years later, Yemen’s President was Abdu Rabbu Mansour Hadi, who took power in late February 2012.

This information fits with previous assertions in the documents, as well as through research noted in this study's literature review, such as the work of Michael Boyle, Akbar Ahmed, Peter Bergen and Katherine Teidemann, that U.S. drone-based counterterrorism operations in the non-battlefield scenarios of the Arabian Peninsula and Horn of Africa have been highly reliant on intelligence gathered by partner countries' intelligence and security apparatus, and that these security apparatus operate under opaque guidelines from governments with questionable records on human rights and transparency<sup>180</sup>. Figure 8 also shows that the Yemeni NSB's intelligence report marked Rhodes, also referred to as "Anjaf", as a "trusted deputy" to another individual code-named Objective Canton, and that he was "responsible for transporting extremists"<sup>181</sup>. Indeed, information contained in *The Drone Papers* shows the reliance on information from these sources in non-battlefield settings has in many cases eclipsed intelligence sourced through interrogations or document exploitation directly undertaken by the U.S. military or intelligence services.

Through additional press reporting on U.S. counterterrorism operations in Yemen, and specifically on the events detailed in this case study, it is possible to glean information on the real identity of Objective Rhodes. Work by investigative reporter Cora Currier for *The Intercept* argues that so-called Rhodes, or Anjaf as he is described in Figure 8, was likely an individual named Fahd Saleh al-Anjaf al-Harithi<sup>182</sup>. A series of documents cited in Currier's reporting record an individual by that name was killed on July 4, 2012 in remote Yemen, roughly the same time as the strike that is listed

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<sup>180</sup> Boyle 2013, Ahmed 2013 and Bergen and Tiedemann 2011

<sup>181</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.23

<sup>182</sup> Currier, Cora, October 15 2015, "The Kill Chain: The Lethal Bureaucracy behind Obama's Drone War." *The Intercept*. Accessed November 24, 2015. <https://theintercept.com/drone-papers/the-kill-chain/>.

as finally killing Objective Rhodes – that is if the time zone difference between Yemen and the United State is taken into account. Press reports from *Reuters* and *TheHill* also label al-Anjaf al-Harithi as a top AQAP member<sup>183</sup> and this corroborates information contained in Figure 8 which contends al-Harithi/Rhodes was a high-ranking member of AQAP with an entry from March 2009 identifying Rhodes as “one of eight major AQAP facilitators”<sup>184</sup>, listed as number 28 on the Yemeni government’s most wanted terrorist list. It is this data, drawn into the broader networked apparatus of the U.S. drone ecology from sources of questionable reliability and accuracy in the form of the Yemeni NSB, that appears to have largely been the basis for the target profile submitted to the U.S. civilian government’s AUMF process for strike authorisation. On June 7, 2010, figure 8 shows that the Rhodes case was given a “favourable AUMF ruling by Office of General Counsel”<sup>185</sup> for a deadly strike, opening a 60 day window for the task force to go after Objective Rhodes with the full lethal force of the drone ecology.

### 5.3 ‘FIXING’ OBJECTIVE RHODES

A separate intelligence and data source timeline included in the case study documents (Figure 9) identifies the type of intelligence used in various phases of the Objective Rhodes operation. Figure 9 shows that the find period began with a HUMINT item in January 2009. This date lines up with the Yemeni NSB report initially bringing Objective Rhodes to the attention of TF 48-4’s drone-

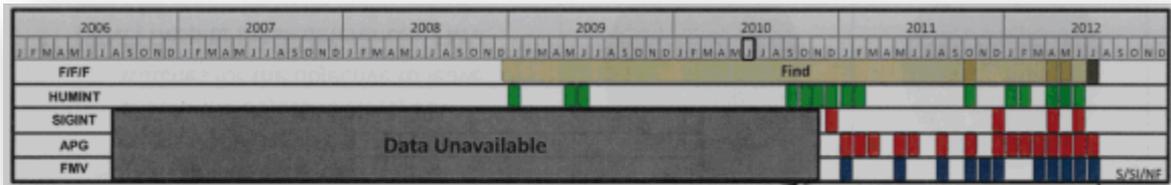
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<sup>183</sup> Mukhashaf, Muhammed. “Yemen Air Strikes Kill Four Al Qaeda Suspects: Witnesses.” *Reuters*, July 3, 2012, accessed June 10, 2018 <https://www.reuters.com/article/us-yemen-arrests/yemen-says-smashes-three-al-qaeda-linked-cells-idUSBRE8620MK20120703> and Muñoz, Carlo. “US Airstrikes Kill Four Al Qaeda Suspects in Yemen.” Text. *TheHill*, July 3, 2012, accessed June 10, 2018 <http://thehill.com/policy/defense/236171-us-airstrikes-kill-four-al-qaeda-suspects-in-yemen>.

<sup>184</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.23

<sup>185</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.23

based counterterrorism operations as outlined in Figure 8. Figure 9 also details the intelligence and data sourcing drawn into the TF 48-4 drone ecology throughout the remainder of the FFF process of the Objective Rhodes manhunt.



*Figure 9: Detail of the intelligence and data source timeline and from the Objective Rhodes case study. The timeline lists the type of intelligence sourced during the operation, when during the operation the intelligence was brought into the drone ecology systems used by TF 48-4 and at what point the task force was in ‘find’, ‘fix’ or ‘finish’ phases. Importantly, use of APG and FMV capacities of the drone ecology increased in the latter parts of the operation, and at each ‘fix’ and the final ‘finish’ phase, APG and FMV capacities were both in play.*

Comparing information from figures 8 and 9, it’s possible to see human intelligence, probably sourced from the Yemeni government, was the only listed source of intelligence in the hunt for Objective Rhodes in the initial operational stages. The positive AUMF ruling for the operation is also marked on figure 9’s timeline with a black box marking the month of June 2010. After this point in the operation, the level of drone-based activity focusing on intelligence and data gathering increased dramatically, especially for increased use of both APG cell-phone tracking and FMV live video feed capacities.

Another important data point as listed in Figure 8 comes in September 2010, shortly after the positive AUMF ruling for the Objective Rhodes operation. According to the documents, the Yemeni government provided important information to TF 48-4 indicating Objective Rhodes and the unnamed 'Objective Canton' were "preparing to use VBIED against unspecified US interests"<sup>186</sup>. In other words, Rhodes and his alleged senior in AQAP were organising a car bomb attack against U.S. personnel or infrastructure in Yemen. Figure 9 shows a point of HUMINT or human intelligence input at September 2010, indicating that the Yemeni intelligence report likely came from a human source or informant of some description via the Yemeni government's intelligence and security apparatus. The correlation of these data points also further illustrates the reliance of U.S. drone-based counterterrorism operations upon local "national intelligence partner"<sup>187</sup> services, despite their highly contested nature in the nations of the Arabian Peninsula and Horn of Africa. Yet, by January 2011 figure 9 shows a cluster of HUMINT, SIGINT, APG and FMV reports that all show a sharp increase in the effort to locate and positively identify Objective Rhodes. These clusters also display the increase in interaction between human intelligence provided by a foreign partner government and information gathered by TF 48-4 itself through the technical capacities of the U.S. drone ecology. APG cell phone location and FMV live video capacities of the U.S. military's armed drone aircraft show the highest hit rate from this point until the final finish of Objective Rhodes, far more than reliance on either SIGINT or HUMINT sources.

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<sup>186</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.23

<sup>187</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.12

According to figure 9, in the twenty months from December 2011 to the ‘finish’ of Objective Rhodes in July 2012, APG was counted as a data source in 15 months. FMV was counted as a data source for 11 of those months. Importantly, APG was used each month for the last eight months of the operation, and FMV in each month for the last five until July 2012. HUMINT added data to the operation for nine of the final 20 months, also being used in three of the last four months but not July 2012 – the month of the successful Rhodes ‘finish’. SIGINT added information only in four of the final twenty months and was used in the second to last month but also not in July 2012<sup>188</sup>. Again, the reliance upon APG and FMV capacities of the drone ecology to first locate a cell phone associated with the target and live video feeds to provide positive visual identification by drone crews are evident. The operation to track and target Objective Rhodes is a prime example of the heavy reliance of U.S. drone crews upon the high end technical capacities of the drone ecology which are in essence networked media technologies, various cameras and sensors that feed information from the drone aircraft through a global communications network to U.S. drone crews taking part in counterterrorism operations from half a world away.

#### 5.4 ‘FINISHING’ OBJECTIVE RHODES

Nearly two full years passed between the June 2010 positive AUMF ruling in the Rhodes case and the start of the fix phase – the period when as described in the documents the “target has been located for kinetic/non-kinetic engagement”<sup>189</sup>. On April 23, 2012, the documents note the first

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<sup>188</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.23

<sup>189</sup> Ibid

missile strike from an armed drone aircraft against Rhodes. This “attempted finish”<sup>190</sup> as described in figure 8 did not result in the death of Rhodes, however the strike did result in the reported wounding of Rhodes along with one other “enemy wounded in action”. The April 2012 strike did result in the death of two individuals listed in the study as “Enemy Killed in Action” with no further description of their identity, age or gender<sup>191</sup>. TF 48-4 pursued a second targeted missile strike from a drone aircraft on Objective Rhodes on July 3, 2012, when the documents record “OBJ RHODES was eliminated via kinetic strike”<sup>192</sup>. At 7.13am on July 3, the log records “multiple VID (RHODES) and Geo-located at NAI-064”<sup>193</sup>, denoting that the crews of TF 48-4 had secured multiple visual identifications of Objective Rhodes through the FMV live video capacities of the task force’s drone aircraft. TF 48-4 crews then also geo-located the target, or combined the multiple visual identifications with APG tracking of a cell phone handset associated with Rhodes.

These kinetic strikes – the launching of a missile at a target on the ground from a drone aircraft – are almost entirely informed and guided by the high end technical capacities of the U.S. drone ecology, and it is clear to see that the United States military in its counterterrorism operations in non-battlefield scenarios is incredibly reliant on the networked apparatus of the drone ecology. Indeed, these networked technical capacities of the U.S. drone ecology have transformed U.S. counterterrorism practice in non-battlefield settings, such as those detailed here in Yemen.

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<sup>190</sup> Ibid

<sup>191</sup> Ibid

<sup>192</sup> Ibid

<sup>193</sup> Ibid

At 8.25am “vehicle follow begins”<sup>194</sup>. At 9.08am figure 8 describes an entry, “OBJ Rhodes correlated to vehicle; Near Certainty established”<sup>195</sup>. In this entry we see that TF 48-4 officers have reportedly established the standard of near certainty that the targeted individual is traveling in the observed vehicle. Until 12.51pm Objective Rhodes was tracked while traveling in remote Yemen, and it’s at this point that the documents list only “Strike”<sup>196</sup>. The crews at 12.51pm on July 3, 2012, took the opportunity to undertake a lethal missile strike on a vehicle the documents claim was carrying Objective Rhodes. For the next ten minutes, until 1.01pm the TF 48-4 crews “continued to monitor the scene”<sup>197</sup>, orbiting the drone aircraft above the target area, observing from thousands of kilometres away through live video feeds, all connected through a high-speed satellite network connection. The final data point in the operation to ‘finish’ Objective Rhodes is then recorded at 3pm – “OBJ buried near NAI-125”<sup>198</sup>.

In just under seven hours of July 3, 2012, the drone crews of TF 48-4 had progressed from a following a vehicle driving through remote Yemen to assassinating an individual identified by the U.S. government as a threat to U.S. national interests, and then observing that individual’s funeral. All of these events, along with the surveillance and tracking operation that led to them over many months, occurred through the networked assemblage of the U.S. drone ecology: a remotely piloted aircraft connected to a network of technical objects and human operators spread across the region and world beyond, undertaken with no U.S. military troops on the ground in the non-battlefield setting of Yemen. This is a real-world demonstration of how the U.S. drone ecology has

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<sup>194</sup> Ibid

<sup>195</sup> Ibid

<sup>196</sup> Ibid

<sup>197</sup> Ibid

<sup>198</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.23

contributed to a transformation of counterterrorism practices by the United States in non-battlefield settings in the global war on terror – a high level of reliance on both networked media devices such as FMV cameras and APG sensors along with dependence on intelligence sources of questionable reliability, leading to the targeting of individuals and groups through deadly missile strikes in some of the world’s most remote locations.

## 5.5 CASE STUDY 2: SOMALIA AND OBJECTIVE PECKHAM

The second case study of a specific drone-based targeted killing operation in this thesis focuses on the effort by TF 48-4 to target and assassinate an individual code-named Objective Peckham in Somalia, culminating in a drone strike on January 21, 2012. While not seeing the level of drone-based counterterrorism activity as the Yemen theatre, Somalia has been another key focus of targeted killing operations by the U.S. drone ecology since 2003, seeing between 101 and 104 total strikes with between 707 and 929 casualties up to the time of this study<sup>199</sup>. Importantly, these numbers saw a significant jump under the administration of U.S. President Donald Trump, with the New America Foundation recording the Trump administration leading an “unprecedented escalation of the U.S. counterterrorism war in Somalia”<sup>200</sup> since Trump’s inauguration in January 2017.

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<sup>199</sup> ‘International Security Data Site’ by *New America Foundation*, accessed 20/11/2018, <http://securitydata.newamerica.net> and ‘Drone Warfare’ by *Bureau of Investigative Journalism*, accessed 19/2/2018 <https://www.thebureauinvestigates.com/projects/drone-war>

<sup>200</sup> ‘International Security Data Site’ by *New America Foundation*, 2018

The operation to track, target and kill Objective Peckham is just one example of these operations in Somalia. The drone-based counterterrorism operation lasted more than five years, stretching from early intelligence reports that identified Peckham attending militant training programs in late 2006, through to the U.S. military's final missile strike on Peckham from a drone aircraft in January 2012. The examination of this case study provides some insight into some of the most challenging conditions where the U.S. drone ecology currently practices targeted killing missions, those where U.S. drone aircraft such as the Predator and Reaper drone models are flying at the far edge of their operational range. These conditions present significant challenges to drone crews, not least of which the fact that flying to the edge of a UAV's operational range means very limited time spent actually observing a so-called high value individual. Further, the study of the operation to target and kill Objective Peckham also shows how the U.S. drone ecology interacts with intelligence services of close allies such as the United Kingdom, and provides more detailed insight into how U.S. drone aircraft use APG sensors to tap the mobile phone communications of targeted individuals, and how the drone ecology's APG sensors are used sometimes almost exclusively for target selection and deadly missile strikes.

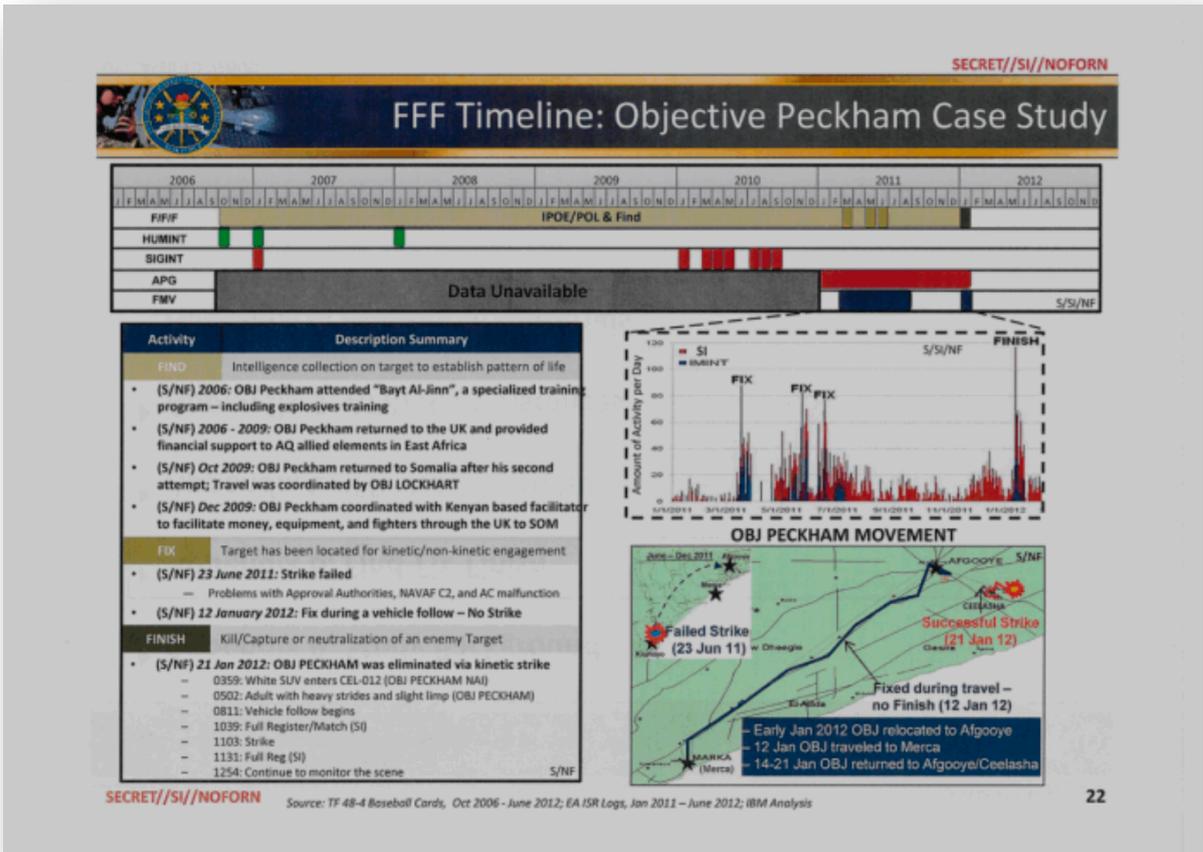


Figure 10: 'FFF Timeline: Objective Peckham Case Study' showing activity and description summary, intelligence and data source timeline, and a map of the target's movements during the latter parts of the Objective Rhodes targeted killing operation.

Following the previous case study detailing the Objective Rhodes operation in Yemen, the Objective Peckham case study delivers a second opportunity to observe the relationship between various elements of the U.S. military's drone ecology as a targeted killing operation progresses from start to finish. Importantly, the drone aircraft used in the Peckham case study were launched and based from the Camp Lemonnier airfield in Djibouti, the previously detailed central node of the U.S. drone ecology as it operated in East Africa and the Arabian Peninsula. Further, the

Peckham case study provides details of how a finish operation can fail, or at least be significantly delayed, when the technology of the drone ecology skips a beat due to the extremely challenging conditions presented by non-battlefield scenarios when the target area lies at the edge of a drone aircraft's operational range.

The detail contained in this case study also sheds further light on the degree to which U.S. drone-based counterterrorism operations rely on high-end media technologies and the uninterrupted flow of information through the U.S. drone ecology in order to achieve counterterrorism objectives in the global war on terror. In fact, these case studies demonstrate that the U.S. drone ecology is reliant on these technologies to a fault for counterterrorism practice in non-battlefield scenarios. As will be demonstrated there are more similarities than differences in the mode of operation of the U.S. drone ecology in each of these two case study theatres, also pointing to the conclusion that the U.S. drone ecology as a modular system is essentially transplantable and operates in a very similar manner across various theatres of operation.

## 5.6 'FINDING' OBJECTIVE PECKHAM

According to the documents, Objective Peckham was "eliminated via kinetic strike"<sup>201</sup> on January 21, 2012 after an operation lasting nearly five years. The operation tracked Peckham moving between Somalia and the UK, with Figure 10 detailing that Peckham attended a training camp in Somalia that allegedly included explosives training during 2006, and that he "returned to the

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<sup>201</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.22

UK”<sup>202</sup> from 2006 through 2009. This long term stay in the UK, from where the documents allege Peckham provided “financial support”<sup>203</sup> to AQ allied groups in East Africa, indicating at least a long term connection to the UK of some description, possibly permanent residence or citizenship however the documents do not confirm this.

While *The Drone Papers* once again do not provide anything more than a code-name for their target, additional press reporting does allow identification of Objective Peckham with a reasonable degree of accuracy. A report from the *Associated Press* on January 22, 2012 details a U.S. drone strike killing an al Qaeda “official”<sup>204</sup> who was reportedly a British-Lebanese dual citizen “fighting alongside insurgents in Somalia”<sup>205</sup>. The report identifies the man killed in the targeted killing operation, in which a U.S. drone strike hit a car on the outskirts of Mogadishu, as Bilal al-Berjawi. The map contained in figure 10 also places the successful ‘finish’ of Objective Peckham in Ceelasha, an urban area on the outskirts of Mogadishu.

According to the *Associated Press* report, Berjawi had grown up in West London before traveling overseas to fight alongside insurgent groups in Afghanistan and then initially traveling to Somalia in 2006. The report records that Berjawi’s death in the January 2012 drone strike was confirmed in a statement from an insurgent media foundation known for telegraphing statements on behalf of

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<sup>202</sup> Ibid

<sup>203</sup> Ibid

<sup>204</sup> Houreld, Kimberly Dozier, and Raphael G. Satter. “Officials: US Drone Strike Killed Somali Insurgent.” *The San Francisco Examiner*, January 22, 2012. Accessed July 3, 2017. <http://www.sfexaminer.com/officials-us-drone-strike-killed-somali-insurgent/>.

<sup>205</sup> Houreld and Satter 2017

Al-Shabaab. The drone strike itself is also confirmed in the report by an unnamed U.S. official – a common practice in press reporting where a government or military source is not authorised to speak to the media. It also claims Berjawi helped to oversee recruitment, training and tactics for Al Shabaab<sup>206</sup>. Further reporting by Mike Pflanz in the UK-based *The Telegraph* provides more insight into the identity of Berjawi, who appears to be one and the same Objective Peckham. Pflanz reports that Berjawi was killed when three missiles from a U.S. drone hit his vehicle, also placing the attack just outside Mogadishu<sup>207</sup>. According to the report in *The Telegraph*, Berjawi was second in command of Al Shabaab. *The Telegraph's* report also claims Berjawi grew up in London, but as with the *AP* report on Berjawi's death, cites the UK Foreign Office claiming that Berjawi was not a British citizen.

A third report, however, published in *The Intercept* by reporter Ryan Gallagher, contends that Berjawi was indeed a British citizen and that at some point after his alleged relationship with Al Qaeda-linked insurgents in East Africa became known to British authorities, his British citizenship was revoked by the U.K. government<sup>208</sup>. Based on legal documents, Gallagher writes that the U.K. revoked Berjawi's passport in September 2010, while he was in Somalia, having again travelled there from the UK in late 2009. Documents cited in Gallagher's report quote Berjawi's lawyer at the time, Saghir Hussain, deciding an appeal to the revoking of Berjawi's citizenship as not worth pursuing, due to the difficulty and perceived risk of maintaining contact with Berjawi in Somalia. "I

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<sup>206</sup> Houreld, Dozier, and Satter, "Officials: US drone strike killed Somali insurgent" January 22, 2012

<sup>207</sup> Pflanz, Mike. "US Drone Strike in Somalia Kills Britain-Linked Al-Qaeda Agent," January 22, 2012, sec. World. Accessed July 3, 2017. <https://www.telegraph.co.uk/news/worldnews/al-qaeda/9031127/US-drone-strike-in-Somalia-kills-Britain-linked-al-Qaeda-agent.html>.

<sup>208</sup> Gallagher, Ryan "Stripped of British Citizenship and Killed by an American Drone." *The Intercept*, October 15, 2015. <https://theintercept.com/drone-papers/the-life-and-death-of-objective-peckham/>

can't guarantee that while he's communicating with us he won't be droned and killed", said Hussain<sup>209</sup>, pointing to the lawyer's well founded assumption that using mobile phone communications to stay in touch with his client in Somalia could mean their conversations would be recorded, and the location of his client's phone may lead to a missile strike from a drone operated by the U.S. This detail also points to the potential that an citizen of a major U.S. ally, the United Kingdom, was targeted and killed in a U.S. counterterrorism operation in Somalia without access to any due process, yet another example of the contentious and problematic nature of the capacities made available to the United States through the development of its drone ecology and that system's influence on counterterrorism practice.

Activity	Description Summary
<b>FIND</b>	Intelligence collection on target to establish pattern of life
	<ul style="list-style-type: none"> <li>• (S/NF) 2006: OBJ Peckham attended "Bayt Al-Jinn", a specialized training program – including explosives training</li> <li>• (S/NF) 2006 - 2009: OBJ Peckham returned to the UK and provided financial support to AQ allied elements in East Africa</li> <li>• (S/NF) Oct 2009: OBJ Peckham returned to Somalia after his second attempt; Travel was coordinated by OBJ LOCKHART</li> <li>• (S/NF) Dec 2009: OBJ Peckham coordinated with Kenyan based facilitator to facilitate money, equipment, and fighters through the UK to SOM</li> </ul>
<b>FIX</b>	Target has been located for kinetic/non-kinetic engagement
	<ul style="list-style-type: none"> <li>• (S/NF) 23 June 2011: Strike failed <ul style="list-style-type: none"> <li>– Problems with Approval Authorities, NAVAF C2, and AC malfunction</li> </ul> </li> <li>• (S/NF) 12 January 2012: Fix during a vehicle follow – No Strike</li> </ul>
<b>FINISH</b>	Kill/Capture or neutralization of an enemy Target
	<ul style="list-style-type: none"> <li>• (S/NF) 21 Jan 2012: OBJ PECKHAM was eliminated via kinetic strike <ul style="list-style-type: none"> <li>– 0359: White SUV enters CEL-012 (OBJ PECKHAM NAI)</li> <li>– 0502: Adult with heavy strides and slight limp (OBJ PECKHAM)</li> <li>– 0811: Vehicle follow begins</li> <li>– 1039: Full Register/Match (SI)</li> <li>– 1103: Strike</li> <li>– 1131: Full Reg (SI)</li> <li>– 1254: Continue to monitor the scene</li> </ul> </li> </ul>

**SECRET//SI//NOFORN** Source: TF 48-4 Baseball Cards, Oct 2006 - June 2012; EA 15

<sup>209</sup> Gallagher, 2015

*Figure 11: Activity and description summary detailing operational stages of Objective Peckham targeted killing, from 2006 through to January 21, 2012.*

Returning to *The Drone Papers* documents themselves; the dated entries in the activity and description summary of the Objective Peckham case study (figure 11) begin in 2006, with the detail of Peckham's attendance of a training camp in Somalia. While figure 11 does not list a month or day in 2006 for this event, examination of the intelligence and data source timeline for the Peckham study (figure 12) shows an entry of human intelligence for October 2006. The specific source for this item of HUMINT is not listed, however the reporting work of Gallagher records that Peckham had been interrogated on at least one occasion by individuals from the British intelligence service MI5<sup>210</sup>. This, along with other detail in Gallagher's reporting on surveillance of Peckham in London by security services and the likelihood that Peckham had his UK citizenship revoked by the British government while he was in Somalia in 2009, indicate that Berjawi was indeed under the close watch of the British government's intelligence and security services. This indicates also that the origin of the target case file for Peckham, or at least some parts of it, could have been part of a package of information provided to the U.S. military and intelligence community by the UK.

Figure 11's second entry shows that from 2006-2009 TF 48-4 listed Peckham as returning to the UK, where the documents claim he "provided financial support to AQ allied elements in East Africa"<sup>211</sup>.

Data entries in figure 12 from October 2006 through to January 2010 are sparse, with an entry

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<sup>210</sup> Gallagher 2015

<sup>211</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.22

each for HUMINT and SIGINT marked in January 2007, and one entry for HUMINT a year later in January 2008. The documents then place Peckham as returning to Somalia “after his second attempt”<sup>212</sup> in October 2009. Curiously, figure 12 does not provide an intelligence data point in October 2009. December 2009 has Figure 11 placing Objective Peckham co-ordinating with a Kenyan-based individual “to facilitate money, equipment, and fighters through the UK to SOM” or Somalia<sup>213</sup>. The detailed intelligence assessments listed through Figure 11, as with the similar assessments made in the Objective Rhodes case study, built a case for TF 48-4 to apply for AUMF approval of a targeted killing mission on Peckham when the opportunity arose. But crucially it also shows the continued likely interaction on this mission between the U.S. and the security and intelligence services of the UK, with information on Peckham’s activities in that country fed into the network of the U.S. drone ecology contributing to the counterterrorism operation against Peckham’s alleged actions in supporting AQ-allied groups in Somalia through financing, and by helping fighters travel to join the group.

## 5.7 ‘FIXING’ OBJECTIVE PECKHAM

While figure 12 shows a series of SIGINT hits through 2010, seven months of the year show SIGINT used as a source of information in the find phase of the Peckham operation, figure 11 shows no dated entries for the entire year<sup>214</sup>. Curiously the entire find section of the Peckham activity and description summary does not hold an entry for an AUMF ruling on the case, unlike the case study

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<sup>212</sup> Ibid

<sup>213</sup> Ibid

<sup>214</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.22

on Objective Rhodes in Yemen, and delays to this high-level approval appears to have been a blockage for the operation on at least one occasion. “Strike failed”<sup>215</sup> lists figure 11, adding that “problems with Approval Authorities, NAVAF C2, and AC malfunction” led to the failed targeted killing attempt. Figure 12 indicates a ‘fix’ in June 2011, but also indicates fixes in March and May of the same year with no extra details from figure 11.

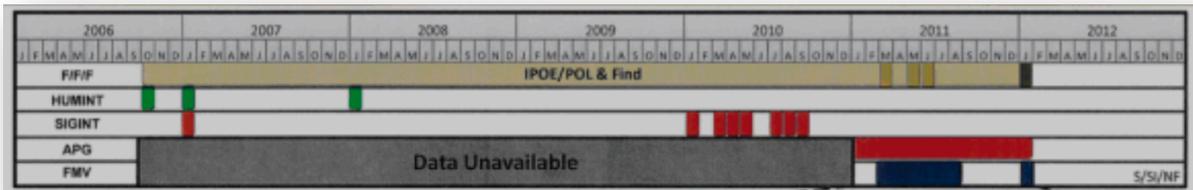


Figure 12: Intelligence and data source timeline from the Objective Peckham case study (detail of figure 10).

A column in *The Economist* places the June 2011 unsuccessful strike in southern Somalia<sup>216</sup>, which is backed up by the map from figure 10 showing a failed strike in the country’s south. As previously mentioned, this location lies at around 1000km from the air base at Camp Lemonnier in Djibouti, approximately the maximum operational range for drone aircraft used by the U.S. in the region at this time. Further, the extremely remote nature of this location on the outskirts of Mogadishu and the poorly governed nature of Somalia more broadly mean that the drone crews of TF 48-4 undertaking this mission were extremely reliant on the high end technical capacities of the U.S.

<sup>215</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.22

<sup>216</sup> Mombasa, J.L. “A Very British Execution?” *The Economist*, January 25, 2012. Accessed 02/08/2017 <https://www.economist.com/baobab/2012/01/25/a-very-british-execution>

drone ecology when performing surveillance, tracking and target identification during the Peckham operation. While the data contained in *The Drone Papers* shows that U.S. drone crews can indeed operate at the limits of the drone ecology's range, in instances when they become extremely reliant on the drone ecology's technical capacities and network of information sources, rather than sources on the ground, operations can take much longer and experience more significant challenges in tracking and targeting.

Figure 11 provides no extra information on either the cited issues with approval authorities or platform malfunctions – was the approval process too slow to allow the strike to be accurate, did the targeting or FMV camera equipment malfunction? Or did some other part of the drone ecology's complex systems stop working? A slide contained in *The Drone Papers* labelled *PID/CDE requirements* outlines the causes for operations that experienced similar failures with one “not authorised”<sup>217</sup>; four with “high CDE”<sup>218</sup>, a high collateral damage estimate or the potential of significant civilian casualties; and another four with “lost PID”<sup>219</sup>, or a case of losing individual that had previously been positively identified due to bad weather, sensor failures or “enemy OPSEC”<sup>220</sup>, that is the target managed to avoid being tracked in one way or another<sup>221</sup>. Then, there's the “blinks”<sup>222</sup>, or the issue of losing the positive identification of a subject that drone crews have been following for some time due to the fact that there is not enough drone aircraft to cover a certain theatre of operations. The problem of blinks is also compounded when operating at the far

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<sup>217</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.13

<sup>218</sup> Ibid

<sup>219</sup> Ibid

<sup>220</sup> Ibid

<sup>221</sup> Ibid

<sup>222</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.12

end of the drone ecology's range, according to the documents. So, while the technical capacities of the U.S. drone ecology such as FMV and APG do indeed provide the United States with unrivalled capacities in counterterrorism practice, these technologies and associated practices are not fool proof especially when operating in very distant non-battlefield scenarios such as Somalia.

*The Drone Papers* study lists one major set of recommendation for avoiding failures of the type that occurred to the Objective Peckham operation, in regards to failure to 'fix' a subject in remote locations. That is, improve the technical capacities of the various media sensors attached to the U.S. drone ecology and which feed crucial intelligence data during missions to drone crews half a world away through high speed satellite network connections. The documents state the U.S. military must "continue to develop/field critical ISR sensors such as HD FMV and COMINT systems (Voice ID, Single-use ID, Geolocation)"<sup>223</sup>, identifying the key technical capacities of the drone ecology for rapid improvement and providing clear impetus for the further development of the media-based sensors of the U.S. drone ecology to improve its performance in non-battlefield settings. While we do not know the specific cause of the failed strike on Objective Peckham on June 23, 2011, it's possible to see in the documents the awareness that operating in non-battlefield settings brings with it significant challenges, and a perceived need to continue improving the technical capacities of the U.S. drone ecology to improve its overall capabilities as a broader counterterrorism system in these remote environments.

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<sup>223</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.13

## 5.8 'FINISHING' OBJECTIVE PECKHAM

January 12, 2012 brought the final lethal strike on Objective Peckham. At 5.02am an “adult with heavy strides and slight limp (OBJ PECKHAM)”<sup>224</sup> enters the scene, the details of Peckham’s injury allegedly obtained during a previous drone strike attempt on his life visible to drone crews through the ecology’s FMV live view camera. At 10.39am “Full Register/Match (SI)”<sup>225</sup> is achieved, ostensibly through a signals intelligence match of Peckham’s identification. At 11.03, “strike”<sup>226</sup>, and within half an hour at 11.31am the TF 48-4 crew had confirmed the kill. As documented by Gallagher’s work, the lawyer of Bilal al-Berjawi – the individual believed to be Objective Peckham – had held grave concerns about the risk of maintaining telephone contact with Berjawi in Somalia. The lawyer, Hussain, believed that having Berjawi speak on the phone could allow the U.S. military to track Berjawi and kill him via a drone strike. Mombassa’s work in *The Economist* expands on this notion, recording that after the first unsuccessful strike on Berjawi/Peckham in June 2011, his wife returned to the UK. In January 2012, she gave birth, and Mombassa contends that Berjawi then called her using a mobile phone. “That telephone call”, writes Mombassa, “seems to have been traced by British intelligence and the coordinates passed on to the Americans”, sharing the information through well-formed intelligence sharing arrangements. The British intelligence tip-off likely quickly made its way through the networked drone ecology to guide an already existing counterterrorism operation into a fit of action. A short time later, three missiles struck Berjawi’s

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<sup>224</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.22

<sup>225</sup> Ibid

<sup>226</sup> Ibid

vehicle in the same location and on the same date as the successful targeted killing operation that assassinated Objective Peckham<sup>227</sup>.

As in the Objective Rhodes case study, the technical capacities of the U.S. drone ecology were crucial to the final stages of the targeted killing operation focused on Objective Peckham. Throughout the operation the documents list information gleaned through the technical capacities of the drone ecology as key to each stage of the operation's development, in fact in the very remote Somalia theatre these technical capacities of the U.S. drone ecology have been shown to be more crucial to U.S. counterterrorism practices. The use of information fed to the drone ecology by intelligence services of allied nations (here via the UK), signals intelligence intercepts, APG cell-phone geolocation and FMV live video were all dominant features of the operation to track and kill Peckham. Here in Somalia, as with more than half of the successful 'finishes' conducted by TF 48-4 during the period of *The Drone Papers* study, APG and FMV capacities of the drone ecology were crucial to the targeted killing operation that finally killed Objective Peckham after more than five years. When considered alongside the Objective Rhodes case study in Yemen, this case further demonstrates the problematic nature of the use of the U.S. drone ecology in targeted killing operations, and its dramatic effects on U.S. counterterrorism practice in the global war on terror.

## 5.9 CONCLUSIONS

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<sup>227</sup> Mombasa, J.L., "A very British execution?" in *The Economist*, 25/01/2012, <https://www.economist.com/baobab/2012/01/25/a-very-british-execution>, accessed 02/08/2017

The U.S. drone ecology is an integrated system reliant on networked media and communications technologies that has allowed the United States to develop a series of novel and revolutionary counterterrorism practices in the context of the global war on terror. These revolutionary counterterrorism practices also amount to a new phenomenon in the international realm and have allowed new forms of state power on the part of the United States – the most crucial of these being the ability to remotely surveil, track and target individuals and groups with deadly missile strikes in countries where the United States is not involved in a declared war and often has little to no military assets on the ground. As demonstrated in the two case studies examined in this chapter, these types of counterterrorism operations are only possible because of dramatic developments in networked technologies that have enabled the U.S. to develop its drone ecology – a system comprising armed, unmanned aircraft flying above so-called non-battlefield settings, controlled by pilots and other military officers scattered around the world who draw from huge databases of intelligence data operated by the U.S., its allies and partners to make life-or-death operational decisions.

Using the framework of indexing the drone ecology brought forward from the previous chapter, this chapter has performed a detailed examination of the U.S. drone ecology during two case studies of real-world U.S. targeted killing operations which took place in Yemen and Somalia. While these are just two examples of the hundreds of drone-based targeted killing operations that have taken place in these countries, the operations to track and target the individuals code-named Objective Rhodes and Objective Peckham in Yemen and Somalia respectively do shine a light on the many ways the networked technologies of the drone ecology have influenced U.S. counterterrorism practice in non-battlefield settings. The examination of these case studies has demonstrated the reliance of the U.S. military's drone crews on the technical, media-based

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technologies of the drone crew to locate, identify and track so-called high value individuals in countries where the U.S. is not technically at war. Specifically, live video streaming via the FMV camera equipment attached to drone aircraft and the use of APG sensors to locate mobile phones thought to be held by terrorist suspects and to tap phone and radio communications are crucial in these settings, where the lack of U.S. military assets or other sources of human intelligence on the ground below have been shown to be crucial for the completion of the deadly FFF cycle by U.S. drone crews in these scenarios. Indeed, in both case studies examined in this chapter, the use of FMV, APG and other COMINT and SIGINT technologies have been shown to be decisive factors in the assassinations of individuals the U.S. had determined to be a threat to its national security through the military-to-civilian government AUMF process.

As demonstrated, in order to successfully undertake these operations, the United States military has become deeply reliant on the technical capacities of the drone ecology to locate, track and target so-called high value individuals and groups in non-battlefield settings. Further, data examined in this chapter has also demonstrated the importance of the high-speed communications networks that drive the U.S. drone ecology, and the level to which drone crews rely on the ecology's connection to other large databases of intelligence information operated by the intelligence services of the U.S. including the CIA and NSA, and those of its allies. In fact, from the data made available in *The Drone Papers* leak it is clear that U.S. military units, such as Task Force 48-4 that undertake these drone-based counterterrorism operations, are often extremely reliant on intelligence sourced from these databases and partner intelligence agencies, such as those of the UK, for case files on terrorist suspects. Indeed, as explored in the Objective Peckham study, this is particularly crucial when a suspect is travelling internationally and potentially also a citizen of more than one country or even the citizen of a U.S. ally. Further, as demonstrated in the

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twin case studies in this chapter, it is also clear that drone crews also depend in some instances on information of questionable reliability from various partner countries' intelligence agencies, such as the Yemeni National Security Bureau as seen here in the operation to track and target Objective Rhodes where the majority of basic intelligence on the identity and movements of the targeted individual appear to have been drawn from Yemeni government sources.

In addition, the reliance on deadly missile strikes as a method to complete, or finish, operations in non-battlefield settings over the capture method preferred by U.S. military units in battlefield settings such as Iraq and Afghanistan, appears particularly detrimental to U.S. counterterrorism objectives in the global war on terror overall. As the documents record, drone-based counterterrorism operations in the non-battlefield settings of Yemen and Somalia finish in a kill versus a capture 75% of the time<sup>228</sup>. The U.S. military's own internal study states that this leads to a dearth of intelligence not only for new raids on new targets, but also in data that allows the U.S. to understand and track the broader non-state violent actor organisations, such as AQAP in Yemen and Al Shabaab in Somalia, which they themselves are trying to confront. Hence, the combination of various technical capacities of remotely piloted drone aircraft, connected across great distances to pilots and analysts via high-speed communications networks, allows the U.S. drone ecology capacities far beyond the sum of its parts. But this is not without cost, as the development of the networked assemblage of the drone ecology has led the U.S. military to develop and become reliant on a series of revolutionary counterterrorism practices that, in the view of its own internal study, lead to operational outcomes that are in many cases counterproductive.

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<sup>228</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.8

However, despite these issues with the U.S. drone ecology's function and effectiveness, *The Drone Papers* documents also clearly state the intention to expand the non-battlefield mode of the U.S. drone ecology to new theatres. This, in fact, is one of the core purposes of the internal study these leaked documents are based upon – “to inform ISR planning and investments for potential future small footprint operations”<sup>229</sup>. Hence, while the U.S. military's own internal study shows that the global, network-connected drone ecology is indeed highly problematic in its operation, it is also one of the prime tools the U.S. military has in its counterterrorism arsenal and as this study will explore in the next chapter, one which the U.S. has been actively attempting to expand into new theatres of operation in its continued pursuit of the global war on terror.

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<sup>229</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.2

## CHAPTER 6: DRONE OPERATIONS IN NEW THEATRES

The expansion of drone-based targeted killing operations in countries where the United States is not technically at war, also known as non-battlefield settings, has been one of the most challenging developments in U.S. counterterrorism practice in the context of the global war on terror. As discussed throughout this thesis, these non-battlefield settings have become central to U.S. counterterrorism strategy in the continuing global war on terror, centred on the states of Pakistan, Yemen and Somalia, which the U.S. has identified as hosting violent non-state actor groups such as the Taliban, AQ, AQAP and Al Shabaab. Arguably these states have acted as a proving ground for the use of the U.S. drone ecology, where tactics and technologies have been tested and refined to allow the U.S. to track and target individuals and groups considered a threat to the country's national security.

While U.S. drone-based targeted killing operations have focused on the theatres of Yemen and Somalia as examined in the previous chapter, along with major operations of a similar nature in Pakistan, there is also evidence the networked U.S. drone ecology has now been deployed in new theatres as the U.S. pursues violent non-state actors such as AQ and more recently, ISIS. Armed U.S. drone aircraft of the same type used in Yemen and Somalia are now taking flight from airstrips in Niger and Turkey, taking part in counterterrorism operations from Mali and Libya to Syria and Iraq. As in Yemen and Somalia operations, these drone aircraft are operating as part of the broader U.S. drone ecology, transmitting live video feeds and tracking signals from cell phones held by so-called high value individuals, to pilots and drone crews spread as far as Nevada, Virginia, at U.S. military bases in Europe and on U.S. Navy vessels in the Mediterranean sea. Indeed,

documents included in *The Drone Papers* leak, an internal U.S. military study on the effectiveness of its nascent drone-based operations in non-battlefield settings, also project how the U.S. military can most effectively apply the model of the drone ecology to new theatres. In fact, and as this chapter will show, *The Drone Papers* documents go so far as to project specific countries that are likely to become new theatres of operation. This is in spite of the admission in these documents, and the findings backed up in this thesis, that the use of the U.S. drone ecology in targeted killing operations in non-battlefield settings in the global war on terror is in fact highly problematic.

*The Drone Papers* study does not, however, simply state that the use of the U.S. drone ecology in these contexts is problematic. This internal view of the U.S. drone program and its weaknesses also proposes which of the U.S. drone ecology's technical capacities and communications technologies need to be improved for the drone ecology model to function more effectively as part of the United States' global counterterrorism operations. These recommendations are far-reaching, and propose investment in higher resolution video cameras to improve FMV feeds and more accurate APG sensors to enable more successful interception of telephone conversations and tracking of mobile phone handsets. In particular, the documents outline how crucial improving the drone ecology's technical capacities are for operations in theatres where the U.S. has little to no sources on the ground to gather or confirm intelligence and targeting information, in particular media technologies such as live view cameras, APG sensors and other SIGINT and COMINT technologies that allow U.S. drone crews to better see and hear groups and individuals on the ground in some of the world's most remote regions.

This chapter will also examine evidence that wide-reaching information gathering methods have been used to feed the U.S. military's intelligence processing network for drone-based counterterrorism operations, in order to supplement the intelligence databases of U.S. intelligence agencies and those of their partners. These sources include the use of publicly available social media websites such as Twitter for the gathering of intelligence data used to target drone strikes in various theatres, including during NATO and U.S. military operations in Libya. Press reporting on developments in U.S. counterterrorism operations in non-battlefield settings, along with other publicly available data sets on U.S. counterterrorism operations, will be used to demonstrate that not only has the U.S. military contemplated applying the model of the U.S. drone ecology to counterterrorism operations in new theatres, but it has in fact already done so.

This chapter will also investigate how the U.S. has developed relationships with so-called host nations, including the North African state of Niger, and how the development of these relationships has been key to the expansion of the U.S. drone ecology into new theatres. These new relationships have increased interaction of the U.S. military with local armed forces, improved intelligence sharing on would-be targets in new theatres, and expanded the number of air bases that can launch U.S. drone-based counterterrorism operations, thus becoming nodes in the global U.S. drone ecology network. In addition, the analysis in this chapter will show how the development of these relations with new states has dramatically increased the reach of the U.S. drone ecology in both these host states and in neighbouring countries that are considered home to threatening violent non-state actor groups. Ultimately, this chapter will trace the growth and geographic expansion of the U.S. drone ecology from the proving grounds of Yemen and Somalia to new theatres, demonstrating how the U.S. military has developed the integrated drone ecology

to be a modular system for drone-based counterterrorism operations that can be applied to new theatres, given the right operating conditions.

## 6.1 LONG DISTANCE IMPLICATIONS

The use of U.S. drone-based counterterrorism operations in Yemen and Somalia as a model for the development of drone ecology operations in new theatres is clearly stated throughout *The Drone Papers* documents. In fact, the documents' introductory pages clearly articulate the intent to use lessons learnt from the operation of the U.S. drone ecology in the Horn of Africa and Arabian Peninsula "to inform ISR planning and investment for potential future small footprint operations"<sup>230</sup> in other regions. In addition, the documents also outline that the U.S. military's internal study of operations in Yemen and Somalia has allowed planning for future operations in new theatres by identifying "capabilities that are most effective/critical when operating in these environments"<sup>231</sup> and making recommendations "for resourcing and longer term investment"<sup>232</sup>. From the study's own positioning, then, it is clear that the use of the U.S. drone ecology in counterterrorism operations in non-battlefield settings has not just been a one-off experiment, but that those theatres have been indeed considered a proving ground for testing and improving drone-based counterterrorism practice. Further, these records show that the United States military has for some time intended to grow the reach of the U.S. drone ecology to new theatres in the Middle East and Africa, and as this chapter will show, potentially further abroad again.

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<sup>230</sup> "The Drone Papers - Small Footprint Operations 5/13", 2015. p.2, *The Intercept*, October 15, 2015. <https://theintercept.com/document/2015/10/14/small-footprint-operations-5-13>

<sup>231</sup> "The Drone Papers - Small Footprint Operations 5/13", 2015. p.2

<sup>232</sup> "The Drone Papers - Small Footprint Operations 5/13", 2015. p.2

In short, a primary purpose of the *The Drone Papers* study undertaken by the U.S. military was to contribute to the ability of the U.S. to expand the use of its drone-based counterterrorism practices to new theatres. As the documents also show, these new theatres include geographies beyond the battlefield settings of Iraq and Afghanistan, and the non-battlefield or “small footprint operation”<sup>233</sup> settings of Yemen and Somalia. *The Drone Papers* study uses the case studies of Yemen and Somalia drone-based counterterrorism operations to project how to more effectively operate the complex, networked assemblage of the U.S. drone ecology in similarly remote and politically complicated regions around the world, in conditions that make the use of the U.S. military in a battlefield context extremely difficult if not impossible. The documents, however, do temper expectations of the possible success of any such expansion, stating that compared to the OPTEMPO or operational pace of drone-based offensive actions in battlefield settings such as Iraq and Afghanistan, “expectations should be calibrated for realities of HVI ops outside of active war zone”<sup>234</sup>. In other words, the study’s authors themselves posit that any non-battlefield drone-based counterterrorism operations will always see a slower pace and much more difficult conditions for action, and that expectations for tracking and targeting so-called high value individuals should be considered in relation to the capacities demonstrated in Yemen and Somalia counterterrorism operations.

Some of the planning detail for operating the U.S. drone ecology in new theatres included in *The Drone Papers* is present in a slide labelled Long Distance Implications, included here in Figure 13.

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<sup>233</sup> Ibid

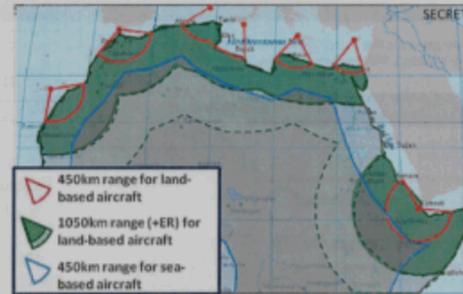
<sup>234</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.12, The Intercept, October 15, 2015. <https://theintercept.com/document/2015/10/15/small-footprint-operations-2-13/#page-12>

Figure 13 compares directly the geographic challenges experienced by the drone crews of TF 48-4 in Yemen and Somalia with conditions for drone crews operating in the battlefield settings of Iraq and Afghanistan. The long distance between origin airbases and target areas, such as those experienced by drone crews operating missions over Yemen and Somalia from Camp Lemonier in Djibouti, presents one of the most significant challenges to drone crews working in remote non-battlefield settings. Figure 13 bears this problem out, taking data on flight times and distances for U.S. drone aircraft used in counterterrorism operations in Yemen and Somalia, and projecting these operational ranges across most of North Africa, and demonstrating how far the U.S. can reach from airbases available to it in and around North Africa and the Mediterranean.



## Long Distance Implications

- ▶ (S/NF) In Iraq 80% of finishing operations occurred within 150km of airfields
- ▶ (S/NF) The equivalent distance is 450km for Yemen and over 1000km for Somalia
  - ISR platforms spend half their mission flight time in transit--generating 38% fewer orbits per sortie than in other theaters
- ▶ (S/NF) The issue of distance is magnified when translated to all of northern Africa
  - MFW aircraft with a range of 450km will only reach about 5% of north Africa
  - The range of land-based RPA aircraft allows them to reach 25% of the area
  - Sea-basing allows short-range aircraft to reach 35% of the land mass



Transit Ranges from US/NATO Bases\*

Issue	Key Finding and Recommendation	S/NF
LONG ENDURANCE	<b>Finding:</b> Long distances from airfields to operating areas is a significant planning factor	
	<b>Recommendation:</b> Consider ways to increase mission range and endurance for all ISR platforms; when satisfying airborne ISR requirements, key metric should be "orbits" not "CAPs" or "lines"	
SEA-BASING	<b>Finding:</b> Political and developmental issues complicate basing and over-flight planning	
	<b>Recommendation:</b> Even with shorter ranges, sea-based ISR may be a valuable complement to long endurance land-based ISR	

SECRET//NOFORN

Source: ARC-GIS Data Sets Dec 2012; IBM Analysis

\* Includes ISR coverage out of Djibouti, but not Niamey, Arba, or Agadez 15

Figure 13 – ‘Long Distance Implications’ shows the projection of ranges of U.S. drone aircraft across northern Africa, with ranges indicated from known airfields the U.S. has access to across north Africa and the Mediterranean.

Figure 13 shows projected transit ranges, or operational ranges of aircraft, from both U.S. and NATO bases within proximity of a number of North African and East African states. The origin points for these range calculations include air bases in Italy, Crete and the Spanish-administered Canary Islands, both operated by the U.S. military and NATO allies. A series of concentric circles

show the 450km range of “land based aircraft”<sup>235</sup>, as well as the 1050km range of the same aircraft with “+ER”<sup>236</sup> or extended range capacity, and the 450km range of sea-based ISR aircraft launched from U.S. Navy vessels near the North African coast. While the following information is not shown in Figure 13, we can assume that the ISR platforms mentioned include the ubiquitous MQ-1 Predator and MQ-9 Reaper drone aircraft used widely by TF 48-4 in operations over East Africa and the Arabian Peninsula.

While the 450km range provides some coverage of coastal regions in North and East Africa, when the 450km sea-based range and 1050km extended land-based range are added, over eleven countries in the region are within operational range of U.S. drone aircraft. According to Figure 13, armed U.S. drone aircraft could at the time of *The Drone Papers* study reach most of Western Sahara, Morocco, Mauritania, Algeria, Tunisia, Libya, Egypt, Sudan, Eritrea, Ethiopia, Djibouti and Somalia. Importantly, while Figure 13 projects the possibility of executing drone-based counterterrorism operations across North Africa, the bottom right corner of the Figure 13 map also shows that Mogadishu, the capital of Somalia, is located right at the outer edge of the U.S. drone ecology’s extended range when flying out of the Camp Lemonnier base in Djibouti. Ceelasha – the town in which the subject of Chapter 5’s Somalia case study, Objective Peckham, was killed in a U.S. targeted killing operation in January 2012 – is located on the outskirts of Mogadishu. This demonstrates that the U.S. drone ecology is indeed able to operate at the very edge of its range to target and kill individuals in counter-terrorism operations and suggests that the operational ranges for the U.S. drone ecology in North Africa as exhibited in Figure 13 are in fact quite accurate.

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<sup>235</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.15

<sup>236</sup> Ibid

## 6.2 CHALLENGES TO OPERATING IN REMOTE THEATRES

Figure 13 states that land-based aircraft with extended range, and short-range sea-based aircraft, give the U.S. drone ecology reach across 35% of northern Africa<sup>237</sup>. But it also lists challenges; the long distances themselves reduce “orbits”<sup>238</sup>, or the amount of time a drone can stay above a target area and maintain watch, the risk here being the possibility of losing a target and having to start the time consuming processing of locating and identifying them again. As Figure 13 states, a major finding of the study was simply that the U.S. military needed to “consider ways to increase mission range and endurance for all ISR platforms”<sup>239</sup>, or increase the ability for U.S. drone aircraft to reach and stay above target areas for longer. “Political and developmental issues”<sup>240</sup> also complicate where ships carrying sea-based aircraft can sail or anchor, and in particular the countries whose airspace U.S. military aircraft can transit. In short, the challenges associated with the U.S. drone ecology reaching over a third of northern Africa are not small<sup>241</sup>.

The same political complications are also a factor in developing new airbases on land, according to the documents. A slide labelled *Factors Affecting ISR Orbits* lists options for mitigating what it calls the cost of long transit distances. “Developing bases closer to target areas”<sup>242</sup> is listed as one of the major operational improvements that can be made to improve time on target. However this is

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<sup>237</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.15

<sup>238</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.15

<sup>239</sup> Ibid

<sup>240</sup> Ibid

<sup>241</sup> Ibid

<sup>242</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.36

also listed as a “slow and politically challenging process”<sup>243</sup>, as developing new bases also involves long-winded political negotiations and often quid-pro-quo deal making with potential host countries. Swapping “short-legged aircraft” of various types with “long-legged aircraft”<sup>244</sup> such as the MQ-1 Predator and MQ-9 Reaper are listed as the preferred options, and adding to that the inclination is for deploying the newer Reaper, a “faster airframe”<sup>245</sup> with the capacity to reach target areas in less time.

An additional, important detail included in Figure 13’s transit range map is that it does not include coverage out of two locations in Niger, listed as Niamey and Agadez. However, according to the documents and further press reporting detailed later in this chapter, Niamey and Agadez are both hosts for U.S. ISR coverage and have become hosts for airbases equipped for U.S. drone operations<sup>246</sup>.

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<sup>243</sup> Ibid

<sup>244</sup> Ibid

<sup>245</sup> Ibid

<sup>246</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.15

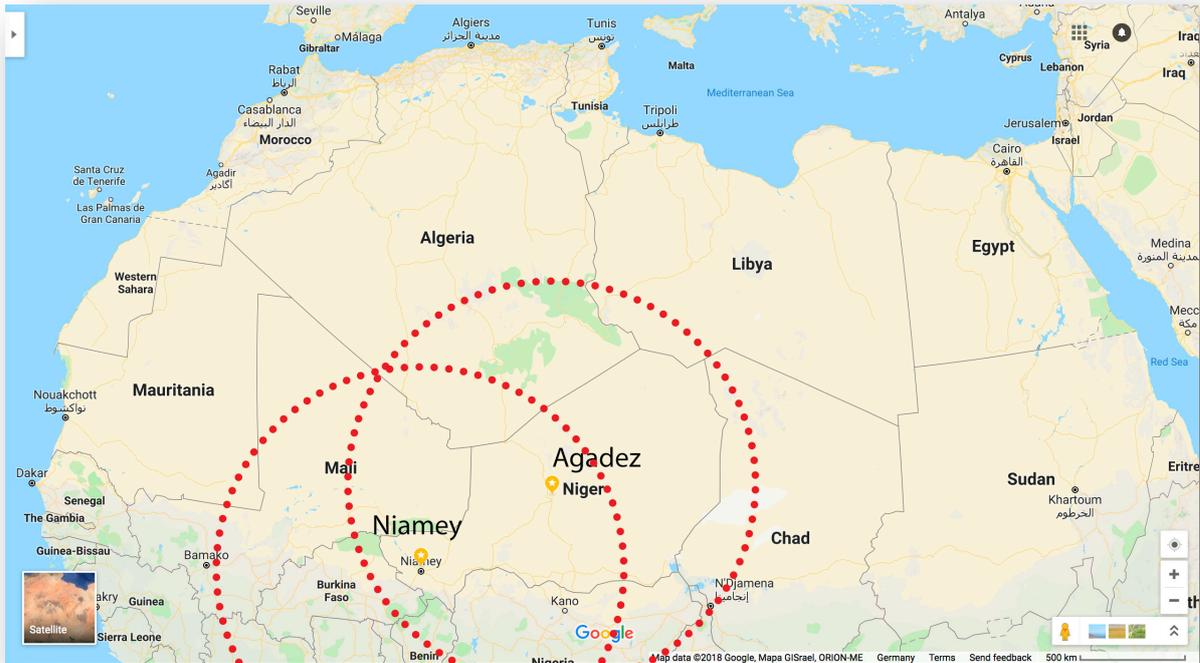


Figure 14: Location of ISR coverage not included in Figure 13's 'Transit Range' map, namely facilities in Agadez and Niamey, Niger, also showing approximate 1050km range of MQ-9 Reaper drone. (Source: Google Maps)

Figure 14, a map produced for the purpose of this study, shows Niamey and Agadez and makes an approximation of a 1050km combat range, which is the distance a Reaper drone can fly from an airbase to a target area and back again. Figure 14 provides some insight into how these two locations complement the coverage provided in the Figure 13 map, creating extra coverage on a region of North Africa obvious in its absence from the coverage map included in *The Drone Papers* study, that of Figure 13. Given this information, Figure 14 shows that airbases made available to the U.S. military in Niger provide coverage of parts of central Africa and the Sahara desert that were missing from Figure 13. These are regions that have been documented as transport routes for arms trade out of Libya since the fall of the Gaddafi regime in 2011, and include remote desert

regions in northern Nigeria and remote Mali that have played host to Islamist militant groups including Boko Haram and Al Qaeda in the Maghreb (AQIM). In just one examination of these security conditions, reporter Borzou Daragahi described the rapidly deteriorating situation in the Libya-Niger border region in a 2014 investigation of the region's security landscape after the fall of Gaddafi:

*“The uprising also added a dangerous new element to the mix of contraband swirling back and forth across the Sahara: guns, and lots of them. Gaddafi’s vast weapons storehouses – expansive bunkers spread out across the desert – were thrown open and looted. A traditionally lawless area became even more unruly as state security forces melted away”<sup>247</sup>.*

This is the insecure mix viewed with concern by the U.S. military and intelligence community as *The Drone Papers* study was compiled, a region that had already seen the presence of Islamist militias was now alive with a weapons trade among other smuggling. Hence, southern Libya, Mali and Niger, shortly after the 2011 upheaval in the Middle East and North Africa dubbed the Arab Spring, came into the hairpin sights of the U.S. drone ecology.

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<sup>247</sup> Daragahi, Borzou. “Libya’s Badlands.” *Financial Times Magazine*, January 10, 2014, accessed 15/10/2017. <https://www.ft.com/content/e5881820-78c4-11e3-a148-00144feabdc0>.

### 6.3 INCREASING BANDWIDTH: THE PUSH FOR MORE DRONE DATA

Increasing the geographic reach of the drone ecology across northern Africa by improving the range of drone aircraft and gaining access to new airfields has been established as a clear goal of the U.S. military and government. However this is not the only area of the broader drone ecology the U.S. military has been working to improve. The need for the drone ecology to be collecting and processing increasing amounts of information on so-called high value individuals and groups targeted in U.S. counterterrorism operations has brought the already advanced media and communication systems of U.S. drone aircraft into line for improvements of their own. These systems provide U.S. drone crews the ability to view individuals and groups in the landscape below drone aircraft on live video feeds, listen in to phone and radio conversations, tap Wi-Fi networks, or track their movements by geolocating cell phones, all transmitted to drone crews half a world away via high speed network links. The drone ecology's media systems such as FMV cameras and APG sensors, which feed data through this global communications array, are crucial for operations in non-battlefield environments where the U.S. has neither boots – nor in many cases eyes – on the ground to confirm intelligence or positively identify targets for deadly missile strikes. However, the demonstrated shortfalls in the ability to collect this information, including issues such as “blinks”<sup>248</sup> or signal dropouts, or for example the lack of clear definition in a video feed, severely limit the operating capacity of drone crews and can be the cause of either operational failure or terrible cases of mistaken identity in a deadly context.

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<sup>248</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.32

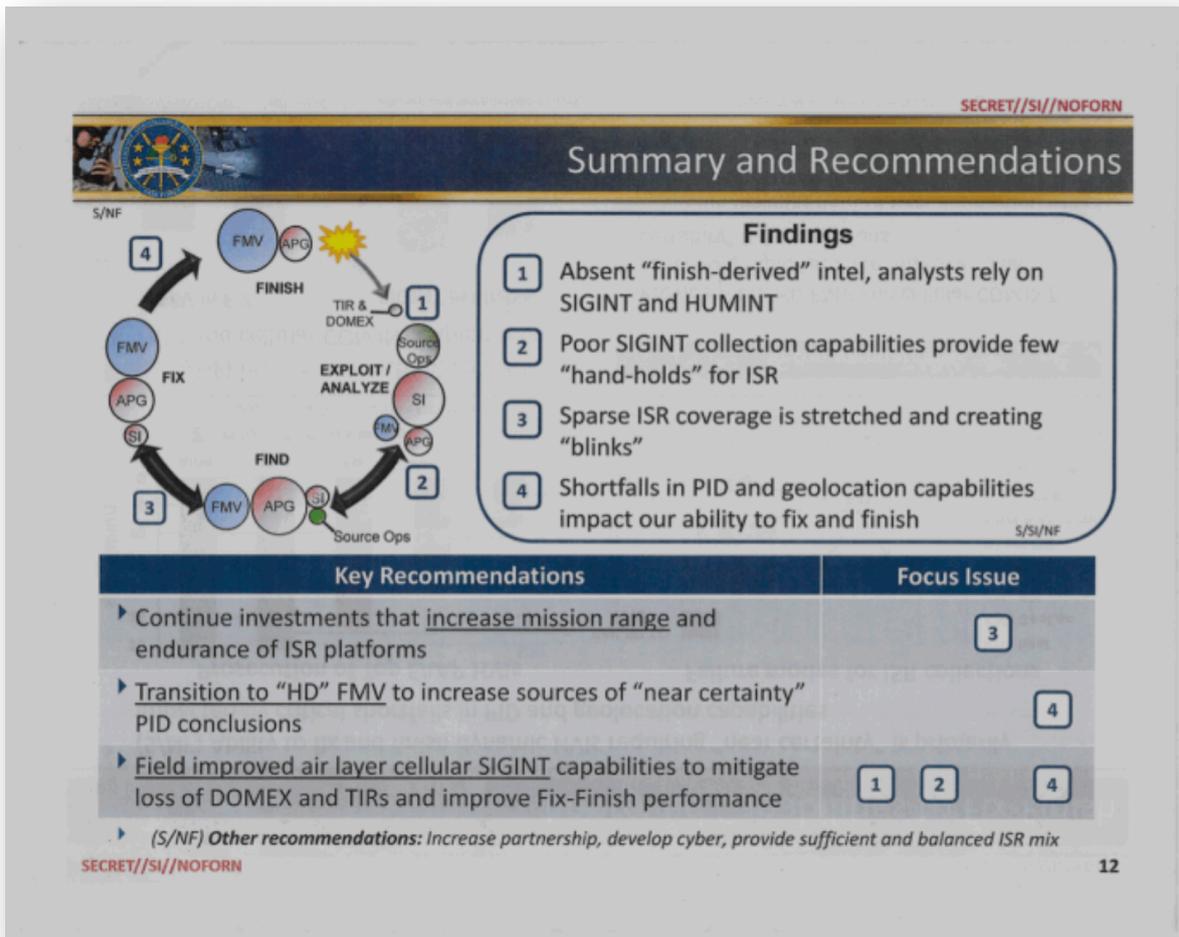


Figure 15: The ‘Summary and Recommendations’ slide details the data requirements of the U.S. drone ecology while performing targeted killing operations, and puts forward recommendations to improve data gathering and analysis capacities drone systems.

Figure 15 demonstrates the importance placed on improving the technical capacities of the drone ecology by the U.S military and articulates four major issues affecting these types of operations that are related to drone ecology’s networked media systems. Only one of those issues, “sparse ISR

coverage” creating “blinks”<sup>249</sup> or blind spots in coverage of specific targets, identifies a problem related to the performance of the drone aircraft platforms themselves, specifically their operational range and the low number of drone aircraft available for particular missions. The remaining three out of four of these major areas for improvement relate to the technical capacities of the drone ecology that gather data for intelligence purposes, and the network’s ability to gather and process information and then feed this information to drone crews and intelligence analysts – the approximately 185 individuals involved in each drone operation as recorded by Gregory<sup>250</sup> – scattered at various locations thousands of miles away<sup>251</sup>.

When operating in non-battlefield settings U.S. drone operators are almost completely reliant on these technical capacities such as APG cell-phone geolocation, FMV live video feeds, SIGINT or COMINT sensors, or the various media-based cameras and sensors that individuals engaged in the network of the drone ecology use to tap phone and radio conversations, or intercept other communications occurring over digital media and computer networks. As is outlined in a separate slide of *The Drone Papers* slide set, over 50% of operations in the Yemen and Somalia theatres during the 2012 study period used signals intelligence of at least one form as the source of intelligence for “target development”<sup>252</sup>. Further, the documents also identify the lack of “finish-derived intel”<sup>253</sup> as a major factor holding back drone crews from completing the final part of a drone-based counterterrorism operation, which as established is in most cases a missile strike launched from a drone aircraft. Especially during the find and fix phases of a drone-based targeted

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<sup>249</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.12

<sup>250</sup> Gregory 2011b

<sup>251</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.12

<sup>252</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.9

<sup>253</sup> “The Drone Papers - Small Footprint Operations 5/13”, 2015. p.12

killing operation, when a target is located and then positive identification is confirmed, the lack of human sources on the ground in non-battlefield settings is seen as a significant issue by the U.S. military's own internal study unit. This lack of HUMINT, or human intelligence, is thus identified as a key factor that can be improved by better signals intelligence<sup>254</sup>, or the use of more accurate media technologies connected to the networked drone ecology to increase collections and processing of data. "Improved remote/airborne collection"<sup>255</sup> – or the improvement of the technologies integrated into the assemblage of the drone ecology to collect and process information, from drone aircraft in the sky, is identified in the papers as a key improvement to increasing the success of U.S. drone-based counterterrorism operation in non-battlefield settings. Thus, while the need for drone aircraft that can fly further is seen as a crucial improvement, the U.S. military is also clearly placing a great deal of effort into improving the media-based remote information gathering capacities of its networked drone ecology in order to improve its performance in drone-based counterterrorism operations.

Primarily, the capacities identified by Figure 15 for improvement include improved SIGINT intelligence collection and analysis capacity and the reduction of "shortfalls in PID and geolocation capabilities"<sup>256</sup>, or the capacity to positively identify and track a subject from remotely controlled aircraft in the sky above. These capacities are seen as crucial for increasing the performance of the U.S. drone ecology as they impact the ability to locate and successfully kill or capture individuals and groups identified as a threat in remote corners of the globe<sup>257</sup>. Figure 15's Key

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<sup>254</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.24

<sup>255</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.14

<sup>256</sup> "The Drone Papers - Small Footprint Operations 5/13", 2015. p.12

<sup>257</sup> Ibid

Recommendations pane indicates how crucial the study's authors see improvement of signals intelligence capabilities, alongside APG tracking and FMV feeds. In fact, fielding these "improved air layer cellular SIGINT capabilities"<sup>258</sup> is seen as the best method to improve this lack of information gathering on targets and improve the performance of U.S. drone-based counterterrorism practices in these remote contexts.

These technical data gathering and processing capacities of the drone ecology – intimately connected to its status as a broader assemblage driven by media technologies relating across network infrastructure – are one of the key factors that make it a unique phenomenon in the field of IR and strategic studies. Building on the already existing air power of manned aircraft operated by the U.S. military, these technical information-gathering technologies, which are then connected to and relate across the same high-speed satellite network infrastructure that allows unmanned aircraft to be piloted from half a world away, are what delivers the U.S. drone ecology the capacity to produce new forms of state power in the context of U.S. counterterrorism practices in the global war on terror. More specifically, these new forms of state power include the capacity for 24-hour airborne surveillance from remotely piloted aircraft, the ability to tap mobile phone and radio communications and to use those mobile phone technologies as tracking devices, as well as the ability to launch deadly missile strikes. In fact, 57% of "baseball cards"<sup>259</sup> or target portfolios in Yemen and Somalia during the study period were developed from signals intelligence. As *The Drone Papers* state, around 75% of finishes in Somalia theatres during the study period were

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<sup>258</sup> Ibid

<sup>259</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.9

“kinetic strikes”<sup>260</sup> that eliminate suspects, rather than capture operations that allow for potentially intelligence-rich interrogations of those captured individuals. In fact, even the U.S. military’s own internal study unit is highly critical of this reliance on live video feeds, tracking cell phones and intercepting radio and telephone conversations to undertake deadly missile strikes and wipe out individuals and groups who have intelligence value if left alive and captured for interrogation instead, as discussed earlier in this thesis. In fact, it is clear from this data that analysts and drone crews are overtly reliant on signals intelligence, leading to a shortfall in capacity to develop further targeting cycles, or to progress operations designed to effectively combat networks of violent non-state actor groups, in a timely and effective manner.

Further, the documents identify the need for higher definition video cameras and improved COMINT or communications intelligence sensors. These newer generation devices would be capable of intercepting cell phone conversations, radio communications, and to identify individuals via their voice patterns and gather other data<sup>261</sup>. Specifically, the improvement of these communications interception capacities and the use of high definition video cameras over lower resolution imaging technology are positioned in the documents as best ways to compensate for the major shortfall of operating in non-battlefield settings, or as the documents state, “to make up for lack of access on the ground”<sup>262</sup>. The same data also recommends increasing the number of both MQ-1 Predator and MQ-9 Reaper platforms in operation across the region equipped with newer types of communications intelligence sensors that better gather data, such as being able to draw out an individual mobile handset’s phone number, that they argue would then enable

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<sup>260</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.8

<sup>261</sup> Ibid

<sup>262</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.14

quicker positive identification of individuals. The documents contend that making up this shortfall in data collection and processing capacity should lead to a 20% improvement in finish rates in Yemen and Somalia operations<sup>263</sup>.

*The Drone Papers* also argue that the lack of data to line up target selection and direct drone aircraft and their highly sensitive data-gathering technologies to the right location “is probably the most significant reason for the low rate of finishes”<sup>264</sup>. In other words, the lack of information flowing through the drone ecology, along with limited capacity of sensor technologies such as FMV, APG, Voice ID and other COMINT and SIGINT capacities were seen as a major failing of the U.S. drone ecology’s performance in counterterrorism practices in the non-battlefield settings of Yemen and Somalia. These technical failings of the drone ecology are also identified as key limitations for broadening the horizons of drone-based counterterrorism operations into new theatres, such as those containing newly assessed threats in remote regions of North Africa. The improvement of the collection, flow and quick processing of intelligence data across the networked assemblage of the drone ecology are identified as key improvements required to improve the whole system’s performance in counterterrorism operations. Further, the improvement of the media systems such as FMV cameras and APG sensors attached to drone platforms, and the capacity of the high-speed satellite network that drives them are given the greatest weight for improvement in the U.S. military’s own internal summaries, over the performance of the remotely piloted platforms themselves or the weapons systems they carry. Thus, as far as the expansion of the drone ecology into new theatres and the performance of the

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<sup>263</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.14

<sup>264</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.14

drone ecology in counterterrorism operations in those theatres are concerned, the major focus for improvement has been placed on media technologies and how they relate across the broader network, showing how crucial these systems are to contemporary U.S. counterterrorism practice in non-battlefield settings in the global war on terror.

#### 6.4 NEW THEATRES, NEW PARTNERSHIPS

In essence, in the context of U.S. counterterrorism practice in the global war on terror, non-battlefield settings exist in countries where the United States is not engaged in a declared war. In these contexts, U.S. military assets from general infantry to intelligence agencies and sometimes, but not always, special forces troops are generally not present and thus cannot be relied upon to gather information, corroborate intelligence, guide air strikes or to identify, observe and attack or capture so-called high value individuals or groups. While the U.S. drone ecology's vast technical capacities have been developed at least partly to allow the U.S. to undertake counterterrorism operations in theatres where they do not have on-ground assets such as these, the lack of U.S. military assets in a theatre still has a significant impact on the operational success of drone-based counterterrorism operations. A process *The Drone Papers* refer to under the title "Host/Partner Engagement"<sup>265</sup> is an effort to address this shortfall through increasing co-operation with governments, militaries and intelligence services of the countries in which U.S. drone-based counterterrorism operations are occurring. "In the reduced access environment" state the

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<sup>265</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.14

documents, “national intelligence partners often have the best information and access”<sup>266</sup>, for example the Yemeni National Security Bureau that are listed as a major source of information for U.S. operations to target and kill Objective Rhodes, the target of this study’s Yemen case study, in 2012<sup>267</sup>. Further, the documents state that intelligence data drawn from these partner nations’ security services, or even potentially information provided by U.S.-aligned rebel groups fighting a common enemy of the U.S. as will become obvious during analysis in this chapter, should be shared “rapidly”<sup>268</sup> across the network to “minimise time delays”<sup>269</sup> during operations. Again, there is clear impetus for the data gathering capacities of the U.S. drone ecology to grow in number and scope at the same time as new theatres for U.S. drone-based counterterrorism operations come into focus. Further, there is clearly a continuing willingness on behalf of the U.S. military to draw data from sources of questionable reliability, such as the Yemeni NSB, a troubling aspect of U.S. counterterrorism practice in itself.

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<sup>266</sup> Ibid

<sup>267</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.22

<sup>268</sup> Ibid

<sup>269</sup> Ibid

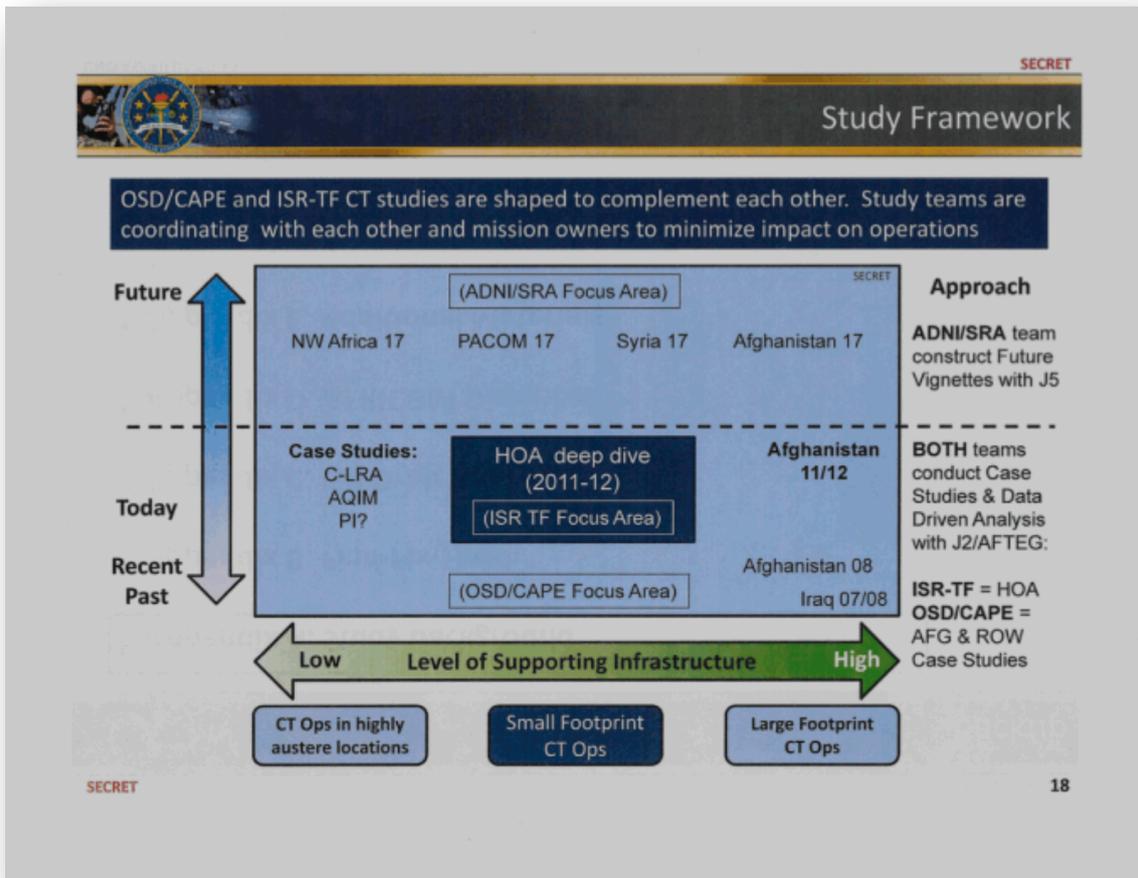


Figure 16: The 'Study framework' slide drawn from The Drone Papers leak, which includes potential new operational theatres labelled 'future vignettes' of where U.S. drone-based counterterrorism operations may be undertaken next.

As has been established, the U.S. military undertook its Small Footprint Operations study to improve and develop the capacities of the drone ecology by examining the performance of this system during counterterrorism operations in Yemen and Somalia. Another express goal of the study has been to prepare for future operations in new theatres, or as the papers state, to

“describe issues and make recommendations for resourcing and long term investment”<sup>270</sup> in the U.S. drone program. Figure 16 shows which countries the U.S. military considered may be the most likely new theatres for such operations at the time of the study’s completion in early 2013. During the period leading up to this, the documents show that the ISR Task Force responsible for the study was also collaborating with other units of the U.S. military to project how the U.S. drone ecology may be used in future operations.

The documents reveal the planning for real-world new theatres was in fact quite detailed and projected roughly five years into the future from the Horn of Africa study dates of 2011-2012<sup>271</sup>. Figure 16 shows this forward operational planning laid out in a matrix, related to the timing of operations from “Recent Past” through “Today” and “Future”<sup>272</sup> on the graph’s y-axis, and the requisite “level of supporting infrastructure”<sup>273</sup> for operations from “low” to “high” along the x-axis<sup>274</sup>. The documents expand on the level of supporting infrastructure required for these projected new theatres through both descriptions and case-study examples; low levels of support referring to “CT Ops in highly austere locations”<sup>275</sup> and exemplified by case-studies such as “C-LRA”, an acronym listed on U.S. government documents as efforts to “Counter - Lord’s Resistance Army”<sup>276</sup> in central Africa and “AQIM”, or operations to tackle the violent non-state actor group

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<sup>270</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.3

<sup>271</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.18

<sup>272</sup> Ibid

<sup>273</sup> Ibid

<sup>274</sup> Ibid

<sup>275</sup> Ibid

<sup>276</sup> “COUNTER - Lord’s Resistance Army (C-LRA) | Central Africa Regional | Archive - U.S. Agency for International Development.” Accessed August 4, 2018. <https://2012-2017.usaid.gov/central-africa-regional/fact-sheets/fact-sheet-counter-lord%E2%80%99s-resistance-army-c-lra>.

AQIM, a group active in the desert regions of Mali, Niger and Libya<sup>277</sup>. AQIM are one of the many groups who took advantage of the security vacuum in the region after 2011, when according to Bruce Riddell the group “accumulated huge amounts of weapons from Libya after Gaddafi’s fall”<sup>278</sup>. “Large footprint CT Ops”<sup>279</sup> exist at the “high” level of the infrastructure scale, and are exemplified in Figure 16 as operations in “Iraq 07/08” and “Afghanistan 11/12”<sup>280</sup>. Essentially, the scale of operation that the Obama administration classified as technical battlefield scenarios, where the United States is officially involved in a war and there are extensive U.S military assets in-theatre. Drone-based counterterrorism operations in the Horn of Africa and Arabian Peninsula, the focus of the study’s broader efforts, sit in between these examples in the centre of the “supporting infrastructure” axis and are classified as “small footprint operations”<sup>281</sup>.

Figure 16 also lists collaboration between the ISR study task force responsible for the study leaked in *The Drone Papers* publication, and other units of the U.S. military and national intelligence agencies responsible for research, development and planning for future technological developments and operations. In particular, Figure 16 lists three acronyms denoting separate units of the U.S. military and intelligence community; “OSD/CAPE”, “ADNI/SRA” and “J2/AFTEG”<sup>282</sup> – two of these acronyms are easily identifiable as departments within the U.S. military or Department of Defence and information exists on their role, but the third, J2 has no easily

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<sup>277</sup> Whitlock, Craig. “Drone Warfare: Niger Becomes Latest Frontline in US War on Terror | The Guardian,” March 26, 2013. Accessed 15/10/2017 <https://www.theguardian.com/world/2013/mar/26/niger-africa-drones-us-terror>.

<sup>278</sup> Riedel, Bruce. “The Al Qaeda Menace in Africa” in *The Brookings Institution Op-Eds*, Accessed October 26, 2017. <https://www.brookings.edu/opinions/the-al-qaeda-menace-in-africa/>

<sup>279</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.18

<sup>280</sup> Ibid

<sup>281</sup> Ibid

<sup>282</sup> Ibid

locatable reference in public documents. OSD/CAPE denotes “Office of Secretary of Defence – Cost Assessment and Program Evaluation”<sup>283</sup>, whose role is to provide the Department of Defence with, in CAPE’s own words, “timely, insightful and unbiased analysis on resource allocation and cost estimation problems”<sup>284</sup>. According to the Figure 16 matrix OSD/CAPE’s role exists in the “recent past” following on from the work being done to study and understand “today” operations in the Horn of Africa by the ISR task force itself<sup>285</sup>. CAPE provides costing assessments and accounting for new programs, such as the expansion of drone operations beyond the Horn of Africa to new theatres. ADNI/SRA denotes the department of the Assistant Director of National Intelligence – Systems and Resource Analysis, whose responsibilities include “framing major resource decisions”<sup>286</sup>.

According to Figure 16, ADNI/SRA is engaged to “construct future vignettes with J5” – J5 being a U.S. military acronym referring to the Joint Chiefs of Staff of the U.S. military, a body of senior military officers who advise the highest levels of the American civilian government including the President. *The Drone Papers* study was conducted from 2011-2012, and the two sets of slides used as primary documents in this study have completion dates of February and May 2013. However, as Figure 16 shows, the ISR Task Force in collaboration with other major departments of the U.S. military and national intelligence community were using the findings of this study to project possible future operations up to 2017, five years forward. Figure 16 lists “future” operations as

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<sup>283</sup> “OSD-CAPE.” Accessed September 5, 2018. <https://www.cape.osd.mil/>.

<sup>284</sup> “OSD-CAPE.” Accessed September 5, 2018. <https://www.cape.osd.mil/>.

<sup>285</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.18

<sup>286</sup> “Assistant DNI, Systems & Resource Analyses.” Accessed September 4, 2018. <https://www.dni.gov/index.php/who-we-are/leadership/assistant-dni-systems-resource-analyses>.

including “NW Africa 17”, “Syria 17”, and “Afghanistan 17”, along with “PACOM 17”<sup>287</sup>. PACOM refers to the United States’ Pacific Command, re-named the Indo-Pacific Command in May 2018<sup>288</sup>. PACOM includes Asia the Pacific, not traditionally theatres associated with U.S. drone-based counterterrorism operations. Further, as the Figure 16 matrix shows, both the Syria and PACOM projected future operations fall into the so-called “Small Footprint CT Ops model”<sup>289</sup>, following on from the Yemen and Somalia case studies, while North-West Africa projected operations fell into “highly austere”<sup>290</sup> and Afghanistan operations are labelled “large footprint”<sup>291</sup> operations.

At the time of this study the U.S. military had been involved in Afghanistan for over a decade, and operations in North Africa involving the U.S. were already being undertaken via the NATO-led military intervention in Libya in 2011. It is important to note that at this point in time the U.S. military was not officially involved in the conflict in Syria and that Islamist militant movements in Indonesia and the Philippines have long been on the radar of concern for the U.S. government<sup>292</sup>. Further, the information provided by Figure 16 demonstrates that the technologies and practices associated with the U.S. drone ecology are now integral to how the U.S. military plans and pursues counterterrorism operations around the world. Figure 16 demonstrates that significant cross-department planning has occurred into how U.S. drone-based counterterrorism practices will be

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<sup>287</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.18

<sup>288</sup> “US Military Renames Pacific Command.” *BBC News*, May 31, 2018, sec. US & Canada. <https://www.bbc.com/news/world-us-canada-44312024>, accessed July 1, 2018.

<sup>289</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.18

<sup>290</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.18

<sup>291</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.18

<sup>292</sup> Kilcullen, David. *The Accidental Guerrilla : Fighting Small Wars in the Midst of a Big One*. Oxford, United Kingdom: Oxford : Oxford University Press, 2011.

used in regional conflicts that were seen as concerning enough to plan for by the upper echelons of the U.S. military and civilian government at the time of the U.S. military's internal study. This also demonstrates that the U.S. military has continued to plan for using the U.S. drone ecology in counterterrorism operations in non-battlefield settings beyond Yemen and Somalia, in spite of its own internal data clearing showing the problematic nature of this system, the practices it has engendered, and their questionable effectiveness in combating dispersed violent non-state actors in the context of the global war on terror.

## 6.5 NEW HORIZONS: MALI, NIGER AND THE SAHEL

Figure 16 shows the forward planning performed by the U.S. military and government on the potential expansion of the drone ecology and its associated counterterrorism practices to non-battlefield settings beyond Yemen and Somalia. However, to gather more detailed information on both the planned and actual expansion of the use of the U.S. drone ecology for counterterrorism operations this study must resort to examining press reporting on U.S. counterterrorism practices. Given the limited nature of publicly available information on this topic, press reporting following developments in U.S. counterterrorism practice and policy is one of the most fruitful areas of examination for discovering how the U.S. drone ecology's horizons have been expanded since 2013. Press reporting also allows this study to expand upon the data contained in Figure 16, and to add to the data contained in the maps of Figures 13 and Figure 14. In fact, when combined with data included in *The Drone Papers* leak, examination of press reporting allows the development of a much clearer picture on how and where the U.S. military has seen fit to undertake drone-based counterterrorism operations, and how it has continued to expand the modular U.S. drone ecology

as a template for operations in geographies far beyond the non-battlefield settings of Yemen and Somalia.

Press reporting has documented U.S. efforts to expand the use of the drone ecology to North Africa as early as 2012, with Raf Sanchez in *The Telegraph* newspaper recorded in October of that year efforts by the U.S. to undertake drone-based counterterrorism operations in Mali. These expanded U.S. drone operations were set to be part of a broader effort by French forces to reduce the capacity and scope of AQIM in Mali and across the Maghreb region<sup>293</sup>, and according to Sanchez' reporting were limited to the use of the capacity for U.S. drone aircraft to observe and track individuals and groups and did not extend to the use of the U.S. drone ecology for targeted missile strikes. Work by Craig Whitlock from March 2013 in *The Guardian* also records the relocation of U.S. Predator drones to Niger for use in observing and tracking militants in the deserts of north-west Africa, giving what he calls "a strategic foothold"<sup>294</sup> in the region to the Pentagon. While Whitlock states that the U.S. government was circumspect about providing details on the drone deployment to Niger, the Nigerien government were in contrast very forthcoming. "We welcome the drones"<sup>295</sup>, said Niger's President Issoufou Mahamadou to Whitlock at the time, admitting that the region's militaries were relatively weak and that in his view countries like Niger needed American assistance to deal with Islamist militants based in their own country as well as neighbouring Mali and Libya. U.S. officials also spoke to Whitlock for his

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<sup>293</sup> Sanchez, Raf. "US 'to Deploy Drones to Launch Air Strikes against Al-Qaeda in Mali,'" October 2, 2012, sec. World. <https://www.telegraph.co.uk/news/worldnews/africaandindianocean/mali/9582612/US-to-deploy-drones-to-launch-air-strikes-against-al-Qaeda-in-Mali.html>.

<sup>294</sup> Whitlock, Craig. "Drone Warfare: Niger Becomes Latest Frontline in US War on Terror" in *The Guardian*, March 26, 2013. <https://www.theguardian.com/world/2013/mar/26/niger-africa-drones-us-terror>. Accessed 15/10/2018

<sup>295</sup> Issoufou Mahamdou quoted in Whitlock 2013.

reporting, giving some insight into their activities in Niger and stating that the then-unarmed MQ-1 Predator drones stationed in the country were providing ISR support to Nigerian and French forces in the region<sup>296</sup>. Whitlock's reporting also reveals that as part of this process, U.S. forces were allowing both Niger and France access to the intelligence data gathered by the U.S. drone ecology at the time, patching liaisons from both countries into the video feeds from drone aircraft along with other SIGINT and COMINT data collected by the U.S. network. Niger, it would appear, was by early 2013 quickly becoming Washington's willing local partner in combating violent non-state actors in North-west Africa, allowing its airfields to become hubs in the expanding U.S. drone ecology and becoming an active user of data gathered by U.S. drone aircraft on violent non-state actors such as AQIM.

The detail in Sanchez and Whitlock's reporting on the expansion of the U.S. drone ecology to Niger was developed further in late 2015 by Nick Turse, whose investigation into the U.S. military's activity across Africa revealed what he called its "startling size"<sup>297</sup> across the continent, particularly in North-West Africa. While U.S. AFRICOM claimed at the time to be involved in just one African country, namely Djibouti where the Camp Lemmonier drone base already examined in this thesis is located, Turse's reporting revealed U.S. military involvement in 49 nations out of the 54 African countries the U.S. officially recognised<sup>298</sup>. While not all of this involvement related specifically to the expansion of U.S. drone-based counterterrorism operations, the report does detail the development of bases equipped to handle or contribute to drone operations across the continent.

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<sup>296</sup> Whitlock, 2013.

<sup>297</sup> Turse, Nick, "The Startling Size of US Military Operations in Africa." in *Mother Jones*, September 9, 2013. Accessed November 10, 2015. <http://www.motherjones.com/politics/2013/09/us-military-bases-africa>.

<sup>298</sup> Turse 2015.

In this, Turse's report backs up the 2013 reporting in *The Telegraph* by Sanchez, which initially revealed the expansion of U.S. drone missions against AQIM in Mali. Turse reports that the anti-AQIM operations in support of the French military were indeed being fielded from airbases in neighbouring Niger<sup>299</sup>. Specifically, Turse cites a U.S. AFRICOM spokesperson stating that U.S. air operations from Diori Hamani International Airport in Niger's capital, Niamey, had been providing "support for intelligence collection with French forces conducting operations in Mali and with other partners in the region"<sup>300</sup>. While not stating that the U.S. military was at that point undertaking drone-based targeted killing operations in North-West Africa, the reporting from Turse and Sanchez does reveal that by 2013 the U.S. military had already undertaken expanding the drone ecology to North-West Africa, using bases in Niger to provide intelligence, reconnaissance and surveillance support to partner nations undertaking their own offensive counterterrorism operations including France and the Nigerien government itself.

Eric Schmitt and Scott Sayare's reporting in *The New York Times* on the expansion of U.S. drone-based counterterrorism operations in North Africa corroborates the work by Turse and Sanchez, recording that the first Niger drone base was set up under then-President Barack Obama in February 2013<sup>301</sup>. Schmitt's work has also recorded that drone operations were moved from Niger's capital to the Agadez region in central Niger in 2016, in order to be closer to smuggling routes used by Islamist militants to move arms and fighters in and out of neighbouring Libya<sup>302</sup>.

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<sup>299</sup> Turse 2015.

<sup>300</sup> U.S. AFRICOM spokesperson Benjamin Benson cited in Turse, 2015.

<sup>301</sup> Schmitt, Eric, and Scott Sayare. "New Drone Base in Niger Builds U.S. Presence in Africa." *The New York Times*, February 22, 2013. <https://www.nytimes.com/2013/02/23/world/africa/in-niger-us-troops-set-up-drone-base.html>.

<sup>302</sup> Schmitt, Eric. "A Shadowy War's Newest Front: A Drone Base Rising From Saharan Dust - The New York Times," April 22, 2018. <https://www.nytimes.com/2018/04/22/us/politics/drone-base-niger.html>.

Building on this work by Schmitt, in 2018 the *New York Times* released a series of articles chronicling both the use of existing drone bases in Niger by the U.S. military, and expansion of new facilities reportedly under both U.S. military and CIA purview. Schmidt, reporting in April 2018, documented the expansion of the previously existing drone facility in Agadez, that Schmitt writes would be “used to stalk or strike extremists deep into West and North Africa, a region where most Americans have no idea the country is fighting”<sup>303</sup>. Schmitt’s reporting reveals that as of early 2018 the Pentagon had increased the number of troops based in Niger at a location named Air Base 201, and that drone-based counterterrorism operations were being combined with targeted raids by U.S. and Nigerien Special Forces units<sup>304</sup>. In these raids, the reconnaissance capacities of U.S. drone aircraft would feed those Special Forces units with information during operations, and drone aircraft would launch missile strikes in support of those U.S. and Nigerien troops on the ground. Schmitt’s reporting also records that armed U.S. drones had, as of early 2018, been used to perform targeted strikes on senior Al Qaeda figures across the border in southern Libya indicating “a possible expansion of strikes”<sup>305</sup> in the country that had become increasingly lawless since the fall of Gaddafi in 2011. Here we see the U.S. drone ecology working in a sort of hybrid mode, with the U.S. using the non-battlefield practices as used in Yemen and Somalia and combining them with the use of limited U.S. and host nation troops, in this case reportedly Nigerien forces, operating in the landscape below.

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<sup>303</sup> Schmitt, 2018b.

<sup>304</sup> Ibid

<sup>305</sup> Ibid

Further reporting from Schmitt in *The New York Times* records that U.S. airstrikes likely involving drone aircraft platforms at least for surveillance and targeting, if not the deadly strikes themselves, have indeed been used to target ISIS-aligned militants in Libya<sup>306</sup>. From Schmitt's reporting, we can see indications of the U.S. military rolling out the integrated network technology of the drone ecology in Niger and Libya, operating at the small footprint operation scale, where the broader ecology is used in partnership with special operations forces on the ground to undertake counterterrorism operations driven by drone technology. However, in Libya the U.S. drone ecology also appeared to be operating at a second scale, with the unmanned drone aircraft interacting with manned aircraft involved in larger scale airstrikes beyond the capacity of the lightweight airframe of drone aircraft such as the most commonly deployed Predator or Reaper models. Further to this, initially U.S. drone operations against militant targets in Libya had flown from a U.S. airbase located in Sicily, in southern Italy. But with their limited range, "the Reapers could not reach militant hide-outs in southern Libya," says Schmitt<sup>307</sup>, again pointing out the need for further drone-base locations to extend the effective range of the U.S. drone ecology to the south of the country. Air Base 201, according to Schmitt's reporting, filled this need for a base that increased operational range to southern Libya and added significant capacity to the U.S. drone ecology in North Africa<sup>308</sup>.

Most recently *The New York Times* also reported the existence of another drone base in remote Niger, closer again to the country's remote northern border with Libya than Air Base 201, itself

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<sup>306</sup> Schmitt, Eric. "American Drone Strike in Libya Kills Top Qaeda Recruiter" - *The New York Times* March 28, 2018. Accessed June 17, 2018. <https://www.nytimes.com/2018/03/28/world/africa/us-drone-strike-libya-qaeda.html>.

<sup>307</sup> Schmitt 2018b.

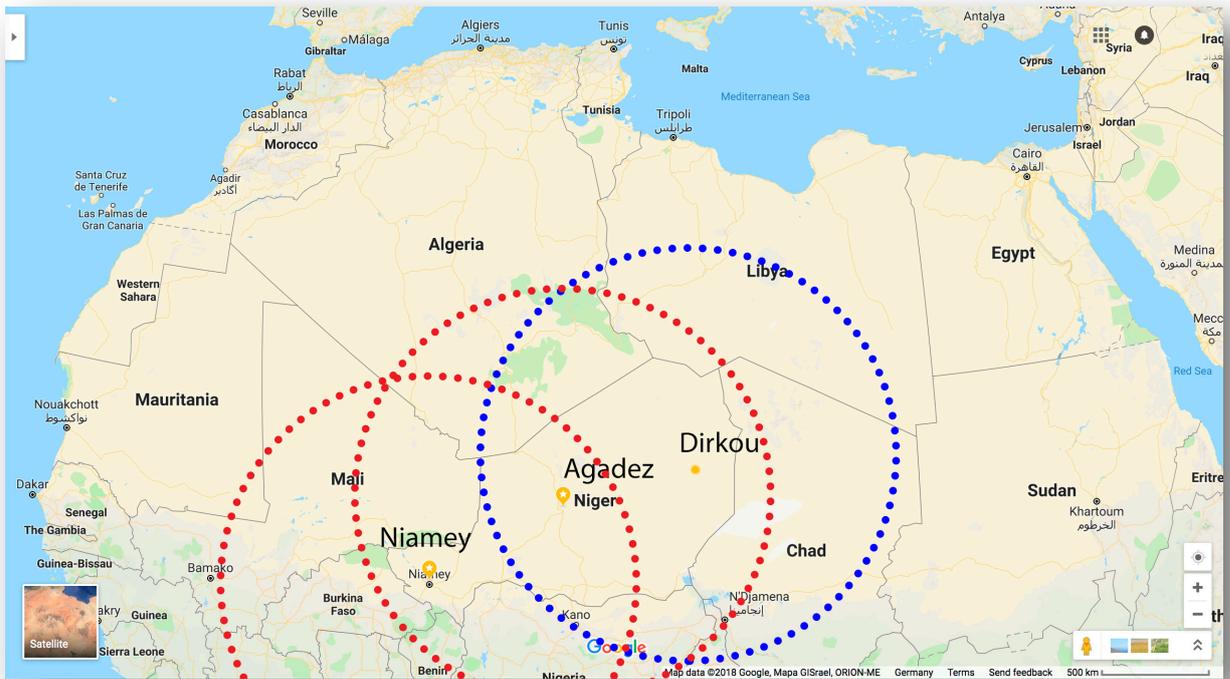
<sup>308</sup> Schmitt 2018b.

situated near Agadez. In September 2018, Joe Penney, Eric Schmitt, Rukmini Callimachi and Christoph Koettel reported the construction of a new CIA-operated drone base in Dirkou, Niger, specifically built to enable the crews of the U.S. drone ecology “to hunt Islamist militants in southern Libya”<sup>309</sup>. The report from Penney et al records Nigerien and American officials acknowledging U.S. drone operations being run from a small commercial airport in Dirkou, but Penney et al’s reporting also uses satellite imagery to demonstrate the growth of the facility over the first half of 2018. The reporting cites unnamed U.S. officials saying the Dirkou drone facility had not at the time been used for lethal operations “but would almost certainly be in the near future, given the growing threat in southern Libya”<sup>310</sup>. In fact, the base at Dirkou significantly expands the operational range of the U.S. drone ecology in the region, and Figure 17 extrapolates the combat range of MQ-9 Reaper aircraft from the Dirkou location using the same method as that used to map ISR coverage in Figure 14. Figure 17 demonstrates that the new facility in Dirkou provides the networked assemblage of the U.S. drone ecology significantly extended coverage of the southern half of Libya, a region already identified as a host for violent non-state actor groups such as AQ and AQIM, and a region which does not receive coverage from drone flights launched from airfields in Europe or from U.S. Navy vessels at sea in the Mediterranean. Further, the addition of the Dirkou drone base, when considered in relation to already existing coverage provided by existing facilities already discussed in Niger, also creates an approximate coverage range for the U.S. drone ecology from Bamako in Mali’s south-west all the way through to central Libya and Algeria in the north, and the Chadian border region with Sudan in the east.

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<sup>309</sup> Penney, Joe, Eric Schmitt, Rukmini Callimachi, and Christoph Koettl. “C.I.A. Drone Mission, Curtailed by Obama, Is Expanded in Africa Under Trump” *The New York Times*, September 9, 2018. <https://www.nytimes.com/2018/09/09/world/africa/cia-drones-africa-military.html>, accessed 9/9/2018.

<sup>310</sup> Penney et al, 2018.



*Figure 17: A third range circle is added to the same map of North Africa as used in Figure 14, using the information provided by Penney et al on the existence of a new CIA-run drone base in Niger, located in the country's north-east at the remote town of Dirkou. The combat range of a MQ-9 Reaper drone, as illustrated here, allows U.S. drone-based counterterrorism operations to then cover approximately half of southern Libya. (Source: Google Maps and Penney et al, 2018).*

Importantly, the report from Penney et al also records the expansion of CIA drone-based counterterrorism operations in non-battlefield settings of North-West Africa under the new administration of U.S. President Donald Trump from the start of 2017 onward. While the CIA's drone program had been curtailed under President Obama due to public backlash over incidents of civilian casualties, largely during operations in Pakistan and Yemen, under the Trump

administration the CIA has reportedly resumed independent drone-based counterterrorism operations<sup>311</sup>. While the U.S. military's AFRICOM operates drone-based counterterrorism operations from airbases further west in Niger, Penney et al record that the CIA base in Dirkou is in a highly strategic position "hundreds of miles closer to southwestern Libya, a notorious haven for Al Qaeda and other extremist groups"<sup>312</sup>, and that the CIA base was deliberately set up to be closer to the problematic region of southern Libya. Here we can see, as *The Drone Papers* documents recommend, U.S. military and intelligence agencies responding to the need to "develop bases closer to target areas"<sup>313</sup> and increase their ability to reach those target areas in shorter times given the available drone aircraft platforms with relatively fixed operational ranges. In other words, an expanded area for surveillance of individuals and groups considered a threat and their potential targeting in lethal drone strikes, and an expansion of the reach and technical capacities of the U.S. drone ecology into new non-battlefield theatres. The CIA in this region is reportedly also bolstering intelligence sharing and training for local Nigerien forces, as *The Drone Papers* suggested by "increasing host/partner engagement"<sup>314</sup>, expanding the use of the U.S. drone ecology in another of the world's most remote places and a region where the United States is not technically at war.

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<sup>311</sup> Ibid

<sup>312</sup> Ibid

<sup>313</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.36

<sup>314</sup> "The Drone Papers - Small Footprint Operations 2/13", 2015. p.14

## 6.6 NEW HORIZONS: LIBYA

While the development of a series of U.S. drone bases in Niger after 2013 is a critical development, U.S. drone-based operations over Libya have not been limited to the counterterrorism operations launched from this collection of small airfields in Niger. Data published by *The New America Foundation* bolsters *The Telegraph* and *New York Times*' reporting and details the increase in drone strikes across the Libyan theatre since 2011. *The New America Foundation* records that U.S. drone strikes have been part of a significant campaign that saw 495 U.S. air strikes around the Libyan city of Sirte in one 2016 operation alone<sup>315</sup>. Information provided by the *Airwars* project, an independent project documenting airstrikes by the U.S. and its coalition partners in Libya, Syria and other countries, also records that U.S. drone strikes have been a consistent part of the ongoing conflict in Libya that began in 2011 with the uprising against Gaddafi<sup>316</sup>. A report published by *La Repubblica* and *The Intercept* in June 2018, based on interviews with U.S. military sources and analysis of open-source data, recorded that overall the U.S. had performed more than 550 drone strikes in Libya in the years since 2011<sup>317</sup>. That figure, claims the report by Nick Turse, Henrik Moltke and Alice Speri, puts Libya ahead of all other countries targeted using the U.S. drone ecology in terms of the sheer number of strikes undertaken, including Pakistan, Yemen and Somalia. The reporting by Turse et al shows that during one period in 2016, there were over 300 U.S. drone strikes in Libya, "seven times more than the 42 confirmed U.S. RPA attacks carried out

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<sup>315</sup> "Airstrikes and Civilian Casualties in Libya." New America. Accessed September 19, 2018. <https://www.newamerica.org/international-security/reports/airstrikes-and-civilian-casualties-libya/>.

<sup>316</sup> "Libya Conflict Data", *Airwars.org*, 2018. Accessed September 17, 2018. <https://airwars.org/conflicts/libya/data-mapping/>.

<sup>317</sup> Turse, Nick, Henrik Moltke, and Alice Speri. "The U.S. Has Conducted 550 Drone Strikes in Libya Since 2011 — More Than in Somalia, Yemen, or Pakistan." *The Intercept*, 21/06/2018, accessed June 24, 2018. <https://theintercept.com/2018/06/20/libya-us-drone-strikes/>.

in Somalia, Yemen, and Pakistan combined for all of 2016”<sup>318</sup>, citing data from the *Bureau of Investigative Journalism* for the tally of strikes outside Libya. Their report contends that the drone aircraft used in these attacks were flown at least in the early years after 2011 from a U.S. air base in Sicily named Naval Air Station Sigonella. Later in the campaign, when U.S. drone aircraft took part in the 2016 surge of drone strikes against militant groups aligned with ISIS, Turse et al record that MQ-9 Reaper aircraft were launched from Italy along with other types of U.S. Marine Corps drone aircraft flown from U.S. Navy vessels in the Mediterranean sea. Here, the U.S. drone ecology model as proposed in *The Drone Papers* can be seen at work, with the use of land-based U.S. drone aircraft supplemented by the use of sea-based drone aircraft, which the documents have put forward as a “valuable complement to long endurance land-based ISR”<sup>319</sup>. In other words, drone aircraft launched from ships at sea, while not able to fly as far as larger land-based drone aircraft, are seen as a valuable addition to the data gathering and processing capacities of the broader assemblage of the drone ecology, and this recommendation has been employed in the Libyan theatre as well as further east in Yemen and Somalia. This development also demonstrates the modular nature of the U.S. drone ecology, as various aircraft are able to connect to the broader networked assemblage on demand and interact by feeding data to the global network of drone crews, drawing from intelligence databases for targeting data and piloting commands, and contributing to various drone-based counterterrorism objectives shared across the broader network.

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<sup>318</sup> Turse et al, 2018.

<sup>319</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.15

The fever-pitch of U.S. drone operations over Sirte during late 2016 was so great, argue Turse et al, that the city effectively became “ground zero”<sup>320</sup> for testing a high-pitch version of drone-based counterterrorism practice “involving multiple drones working in sync with indigenous forces and U.S. special operators”<sup>321</sup>. Again, we see the dynamic and highly networked nature of the drone ecology as a broader assemblage, with U.S. drone aircraft being used in close co-ordination with both U.S. operators and what the documents refer to as “host/partner forces”<sup>322</sup>, or local U.S.-allied forces on the ground while also interacting with other drone aircraft taking part in the same operation. Once again, we see empirical reality of operations in the continuing war on terror back up the recommendations in *The Drone Papers* documents, with drone aircraft and their remotely based crews using high speed, global networked communications to engage with small teams of special forces soldiers on the ground in non-battlefield settings to, as the documents put it, “assist the partner”<sup>323</sup> using the high-end integrated technologies of the U.S. drone ecology.

According to Turse et al’s 2018 reporting, around 70 per cent of MQ-9 Reaper missions during the battle were what is known as close support – where aircraft are used to launch strikes in support of ground troops – in order to back up local forces engaged in street-to-street urban combat. Importantly, the reporting from Turse et al also cites a speech from Col. Case Cunningham, an officer at Creech Air Force base in Nevada. Creech is a major hub of global U.S. drone activity, and Cunningham’s comments are another insight into the level of high speed network connectivity and expansive geographic reach of the U.S. drone ecology, with Cunningham saying that drone aircraft

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<sup>320</sup> Turse et al, 2018.

<sup>321</sup> Turse et al, 2018.

<sup>322</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.14

<sup>323</sup> Ibid

during the battle of Sirte were used “in tandem with one another” and also with piloted aircraft and Marine helicopters “with the drone aircraft helping to guide the conventional aircraft as they attacked”<sup>324</sup>. According to Cunningham, this data sharing across the network allowed drone operators to “find, fix, track, target, and engage in a very low – single-digit – number of minutes with extremely high precision”<sup>325</sup>, with all of the actors on the ground and in the sky above communicating and transmitting intelligence and targeting data in real time over the high-speed network. These tactics, all on display during the battle of Sirte in 2016, are a real world example of the U.S. military operating via complex network interconnections in an ecological formation, during real-time operations, enabling new forms state power during drone-based counterterrorism operations in one of the most remote corners of the globe. In fact, as Cunningham states, officers of the drone ecology are able to develop new methods of engagement on the run – “some of the tactics were created and some of the persistent attack capabilities that hadn’t been used widely before were developed because of this operation”<sup>326</sup>.

Sirte is located in northern Libya on the country’s Mediterranean coastline, and both the work of Turse et al and reporting from Eric Schmitt in The New York Times from March 2018 indicate that the operations over the city in late 2016 were undertaken by drone aircraft launched from land bases in Italy and U.S. Navy ships at sea not far from the coastline. However, Schmitt’s March 2018 reporting also reveals that as of early 2018 the U.S. military had also begun undertaking drone-based counterterrorism operations in the country’s south, with a strike on an alleged senior Al

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<sup>324</sup> Col. Case Cunningham, 2017 quoted in Turse et al, 2018.

<sup>325</sup> Col. Case Cunningham, 2017 quoted in Turse et al, 2018.

<sup>326</sup> Col. Case Cunningham, 2017 quoted in Turse et al, 2018.

Qaeda logistician and weapons smuggler in the desert town of Ubari<sup>327</sup>. As the Figure 13, 14 and 17 maps show, southern Libya is not within range of U.S. drones based in Italy, and the same applies for sea-based drone aircraft. Schmitt notes that U.S. officials “warned of more attacks on extremists”<sup>328</sup> in southern Libya when quizzed by the reporter on the late-March drone-based missile strike targeting Musa Abu Dawud, who Schmitt describes as a “high ranking official in Al Qaeda in the Islamic Maghreb”<sup>329</sup>. While there are scant details on the lead up to the attack, Schmitt’s reporting does reveal that Abu Dawud had been under surveillance for some time – leading to the assumption there was a more drawn-out FFF process similar to operations in Yemen and Somalia as opposed to the rapid fire processes reported during the battle of Sirte.

Further, given the remote location of Ubari, 700km to the south of the capital Tripoli and on the edge of the Sahara desert, it is fair to surmise that the drone-based missile strike which killed Abu Dawud in March 2018 would likely have originated from one of the U.S. military’s newer drone bases in Niger, and as Schmitt contends, is a move that “could further widen the Pentagon’s shadow war in that part of the continent”<sup>330</sup>. In the Abu Dawud strike in particular, we can see the modus operandi of U.S. drone-based counterterrorism operations as practiced in the proving grounds of Yemen and Somalia rolling out in southern Libya, and with it the geographic expansion of the U.S. drone ecology and associated targeted killing practices to new theatres.

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<sup>327</sup> Schmitt, Eric. “American Drone Strike in Libya Kills Top Qaeda Recruiter - The New York Times,” March 28, 2018. Accessed June 17, 2018 <https://www.nytimes.com/2018/03/28/world/africa/us-drone-strike-libya-qaeda.html>.

<sup>328</sup> Schmitt 2018a

<sup>329</sup> Schmitt 2018a

<sup>330</sup> Schmitt 2018b

Press reporting also provides a snapshot of how the U.S. drone ecology uses an incredibly broad range of information sources to provide targeting data for drone-based missile strikes on individuals and groups. During the 2011 NATO-led intervention in Libya, reporting in *The Guardian* newspaper from Richard Norton-Taylor and Nick Hopkins documented NATO forces using the social media website Twitter as a source for air strike targeting information<sup>331</sup>. Norton-Taylor and Hopkins' reporting states that while NATO commanders claimed to only use such sourcing if it was corroborated, NATO also said the information gleaned by allied intelligence operators from Twitter allowed pilots and drone crews to react to changes on the battlefield more rapidly.

Painting a similar operational picture to much of the data and analysis in *The Drone Papers* study, the reporting by Norton-Taylor and Hopkins states that NATO was using Twitter as a source to fill the gap created by a lack of on-ground sources, recording that "without boots on the ground to guide commanders, officials admit that Twitter is now part of the overall intelligence picture"<sup>332</sup>. With a mission specifically to target the forces of Moammar Gaddafi as he fought rebel groups during the Libyan uprisings of 2011, "potentially relevant tweets" were "fed into an intelligence pool and then filtered for relevance and authenticity"<sup>333</sup>. The report cites senior NATO officers saying they may be using other online sources in addition to Twitter, saying "NATO scooped up all the open source information it could to help them understand Gaddafi"<sup>334</sup>. Methods of corroboration listed by NATO included confirmation with sources amongst NATO-aligned rebel

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<sup>331</sup> Norton-Taylor, Richard, and Nick Hopkins. "Libya Air Strikes: NATO Uses Twitter to Help Gather Targets." *The Guardian*, June 16, 2011, sec. World news. Accessed 15/10/2015 <http://www.theguardian.com/world/2011/jun/15/libya-nato-gathers-targets-twitter>.

<sup>332</sup> Norton-Taylor and Hopkins, 2011

<sup>333</sup> Ibid

<sup>334</sup> Ibid

groups fighting on the ground and imagery from surveillance aircraft and satellites. Norton-Taylor and Hopkins cite commentary from a NATO spokesman, Wing Commander Mike Bracken, who said their campaign in Libya relied on what he labelled fused intelligence, which he further explained:

*“If we get information from a press conference in Rome or we get information from somebody passing second hand, we'll get information from open source on the Internet, we'll get Twitter, you name any source of media and our fusion centre will deliver all of that into useable intelligence”<sup>335</sup>.*

Norton-Taylor and Hopkins' reporting also records that so-called fused intelligence is part of a broader intelligence and tactical approach applied to contemporary battlefield environments, particularly where online or other digital communications are in use. Fused intelligence in the Libyan scenario combined open-source information drawn from publicly available websites like Twitter, with on-ground analysis from NATO-aligned rebel groups, and for example former British SAS soldiers and other western military experts working as private contractors on the ground during the battle against Gaddafi, whose task was reportedly “helping to identify NATO targets”<sup>336</sup>. According to Norton-Taylor and Hopkins, the targets identified by these private contractors on the ground in Libya were “then verified by spy planes and U.S. Predator drones”<sup>337</sup>. Again, we see the emergence of a broader assemblage in use in a military context, a networked system covering

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<sup>335</sup> Wing Commander Mike Bracken quoted in Norton-Taylor and Hopkins, 2011.

<sup>336</sup> Ibid

<sup>337</sup> Ibid

both the battlefield itself and other actors in physical locations across the globe, fed by information from a broad range of both open and closed sources, with that information used for targeting and other tactical decisions on the fly.

While Norton-Taylor and Hopkins' reporting in *The Guardian* does pre-date *The Drone Papers* study, the type of information collation and target-verification methods described in their reporting points precisely to a model very similar to the U.S. drone ecology in use in Libya, under NATO command, during the battle against Moammar Gaddafi's forces in 2011. According to their reporting, and NATO's own spokespeople, NATO alongside U.S. forces used a model of intelligence gathering that drew multiple sources of information together for real-time analysis, from both publicly accessible sources such as Twitter and other social media websites, combining that information with other sources on the ground including NATO-aligned rebel groups and western military contractors assisting with airstrike targeting information<sup>338</sup>. This intelligence was then compared with data gathered through aerial surveillance by spy planes, satellites and U.S. drone aircraft. This is a window into the model of the U.S. drone ecology in flight, working in tandem with other allied western militaries under the umbrella of a NATO operation in North Africa. Of course, while the NATO intervention in Libya during the 2011 uprising against Moammar Gaddafi's forces was on a much greater scale than the so-called small footprint operations studied in this thesis, it is possible to glimpse the broader operation of the U.S. drone ecology model at play in a real-world scenario, where information from a broad range of sources is drawn together through high-speed communications networks, analysed in real time for targeting information, and strike decisions are made based on that real-time analysis. As Wing Commander Bracken states, "let's be

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<sup>338</sup> Ibid

quite clear, NATO does not have boots on the ground<sup>339</sup>, and as this analysis of the drone ecology model shows, in many cases such as the large-scale NATO operations in Libya or the small footprint drone-based counterterrorism operations in Yemen and Somalia show, it is not always necessary for NATO or the U.S. to do so. However, this model of operation is in general less accurate and provides less beneficial operational outcomes – a higher rate of kills versus captures of individuals and groups who potentially hold great intelligence value – than the model of counterterrorism operations relied upon by U.S. military forces in battlefield situations. In battlefield scenarios such as Afghanistan and Iraq, information is generally corroborated by more sources as the U.S. military’s official presence in a theatre provides a broader range of on-ground operators to provide information and corroborate intelligence drawn in from other parts of the military’s broader intelligence gathering and processing networks. Further to this, as the documents studied in this thesis have shown, in battlefield scenarios there is a higher rate of captures of high value individuals, over the deadly missile strikes relied upon in non-battlefield scenarios, which in turn leads to better intelligence outcomes for future operations to limit the effectiveness of violent non-state actor groups such as AQ, AQIM and IS.

## 6.7 NEW HORIZONS: SYRIA

The Syrian theatre has also seen a dramatic increase in U.S. drone-based counterterrorism operations over recent years. Syria is another location listed as a future focus area in the Figure 16 matrix<sup>340</sup>, where the U.S. military’s ‘Future Vignettes’ team had projected that operations in the

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<sup>339</sup> Wing Commander Mike Bracken quoted in Norton-Taylor and Hopkins, 2011.

<sup>340</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.18

country could exist somewhere between the scale of non-battlefield, small footprint operations seen in Yemen and Somalia, and the larger-scale drone-based operations in Afghanistan. Once again, while there is a very limited amount of information available on U.S. operations in Syria, existing press reporting reveals that U.S. drone-based counterterrorism operations began in Syria long before the 2017 date floated by the documents, in particular as the country's civil conflict between a variety of rebel groups and the regime of Bashar al-Assad gathered pace from 2012 onwards.

As the situation in the country continued to deteriorate, Ken Dilanian and Brian Bennett reported in *The Los Angeles Times* in March 2013 that the CIA was collating data on targets in Syria for possible U.S. drone strikes. The CIA intelligence officers working on Syria, according to Dilanian and Bennett, were “assembling detailed dossiers on key militants”<sup>341</sup> in order to give the Obama administration “lethal and nonlethal options”<sup>342</sup> if it came to the conclusion Syria's civil conflict was “creating a haven for terrorists”<sup>343</sup> and required U.S. intervention of some description. By August 2014, Mark Landler and Helene Cooper reported in *The New York Times* that air surveillance operations of the ISIS group in Syria, driven in large part by U.S. drone aircraft, had been authorised by the White House. Landler and Cooper noted at the time the authorisation marked “a significant step toward direct American military action in Syria”<sup>344</sup> and importantly the

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<sup>341</sup> Dilanian, Ken, and Brian Bennett. “CIA Begins Sizing up Islamic Extremists in Syria for Drone Strikes.” *Los Angeles Times*, March 15, 2013. <http://articles.latimes.com/2013/mar/15/world/la-fg-cia-syria-20130316>.

<sup>342</sup> Ibid

<sup>343</sup> Ibid

<sup>344</sup> Landler, Mark, and Helene Cooper. “Obama Authorizes Air Surveillance of ISIS in Syria.” *The New York Times*, August 25, 2014. <http://www.nytimes.com/2014/08/26/world/middleeast/obama-syria-ISIS.html>.

early stages of broadening the horizons of the U.S. drone ecology, along with the lessons learnt in the proving grounds of Yemen and Somalia, to a new theatre in Syria.

Events again took a significant turn in September 2014, when then-President Barack Obama announced the launch of major operations in Syria through a U.S.-led coalition against ISIS militants, who had just months before taken control of territory in both Iraq and Syria. Importantly, in this speech, Obama cited imminent threats to U.S. national security and Americans' safety as the justification of operations against ISIS and publicly outlined the rollout of major overseas operations in Syria. These operations were to involve a radically different approach than that which his predecessor, President George W. Bush, had taken in Afghanistan and Iraq in 2001 and 2003 respectively by inserting large numbers of U.S. troops into those countries as an attempt to address perceived threats. Instead, Obama announced that the U.S. would "degrade and destroy"<sup>345</sup> ISIS in Iraq and Syria through a rollout of what this thesis has described as the U.S. drone ecology, or remotely piloted air power driving an offensive campaign of counterterrorism operations supported by local partner forces on the ground:

*"This counter-terrorism campaign will be waged through a steady, relentless effort to take out ISIL wherever they exist, using our air power and our support for partner forces on the*

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<sup>345</sup> Barack Obama, cited in "Transcript: President Obama's Speech on Combating ISIS - CNNPolitics.Com." CNN, September 11, 2014, accessed 15/6/2015 <http://www.cnn.com/2014/09/10/politics/transcript-obama-syria-isis-speech/index.html>.

*ground. This strategy of taking out terrorists who threaten us, while supporting partners on the front lines, is one that we have successfully pursued in Yemen and Somalia for years.*<sup>346</sup>

Obama's words are an almost perfect description of the function and development of the U.S. drone ecology. In the speech on operations against ISIS, Obama outlined counterterrorism operations based on U.S. air power that would target individuals and groups deemed a threat to U.S. national security, paired with on-ground operations involving local partners and U.S. Special Forces. Further, Obama publicly linked the strategy about to be rolled out in Syria against ISIS with operations that had been "successfully"<sup>347</sup> undertaken in Yemen and Somalia for many years – the very type of operations outlined in *The Drone Papers* study. Obama's comments demonstrate that the thinking and practice of using the networked U.S. drone ecology in major counter-terrorism operations – and potentially much larger conflagrations – had become a core part of strategic policy planning at the highest levels of the U.S. government by mid-2014.

A May 2015 report from Eric Schmitt in *The New York Times* details offensive U.S. drone operations over both Iraq and Syria, that he reveals were happening in concert with manned air operations that saw around 4200 air strikes in the first nine months of U.S. and coalition operations against ISIS<sup>348</sup>. While Schmitt's reporting focuses on the strict rules of engagement placed on U.S. forces operating in Syria and some of the frustrations emerging from the ranks of

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<sup>346</sup> Obama 2014, cited in CNNPolitics.com, 2014

<sup>347</sup> Obama 2014, cited in CNNPolitics.com, 2014

<sup>348</sup> Schmitt, Eric. "With ISIS in Cross Hairs, U.S. Holds Back to Protect Civilians." *The New York Times*, May 26, 2015. Accessed 27/5/2018. <http://www.nytimes.com/2015/05/27/world/middleeast/with-isis-in-crosshairs-us-holds-back-to-protect-civilians.html>.

the U.S. military undertaking operations under those conditions, he also provides some first-hand insight into the real-time operation of the U.S. drone-based counterterrorism operations during missions over Syria. Schmitt cites one unnamed U.S. pilot of an A-10 aircraft saying “in most cases, unless a general officer can look at a video picture from a U.A.V., over a satellite link, I cannot get authority to engage”<sup>349</sup>. The pilot’s comments reveal that during operations the A-10, a manned aircraft typically used for low altitude “close support”<sup>350</sup> of ground troops, is connected to a broader global network where senior officers are either providing or denying approval for strikes in real time, over satellite network connections. According to the A-10 pilot, his orders would change depending on what the senior officer located in another location would see on a video feed provided by a drone aircraft flying above the same Syrian or Iraqi landscape. Here we see decision making in counterterrorism operations, and in fact in even larger scale operations, occurring in real time depending on what participants in the networked assemblage of the drone ecology can see happening on live view cameras attached to drone aircraft flying above the conflict, thousands of miles distant. As *The Drone Papers* state, units should “pre-plan for rapid sharing of IC information and increase COMINT and CNO collection ops”<sup>351</sup> in order to increase success of U.S. drone-based counterterrorism operations in non-battlefield scenarios. These examples from the Syrian theatre show the modular assemblage of the U.S. drone ecology, in this instance also interacting with manned aircraft in-theatre, transmitting live video feeds via a global satellite-based communications network, with those visual information feeds determining mission outcomes in real time.

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<sup>349</sup> Unnamed United States A-10 pilot, cited in Schmitt 2015

<sup>350</sup> “A-10 Thunderbolt II.” Northrop Grumman. Accessed October 17, 2017.  
<http://www.northropgrumman.com/Capabilities/A10ThunderboltII/Pages/default.aspx>.

<sup>351</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.12

Further details in press reporting also hint at the role of U.S. drone operations over Syria at this time. A BBC News report from August 2015, citing a Pentagon spokesperson, details the first U.S. drone flights over Syria taking off from an air base in Turkey<sup>352</sup> – indicating that the U.S. government and military had made efforts to expand the number of airfields available for launching U.S. drone aircrafts for offensive operations over Syria. Further reporting published by The Washington Post from Greg Miller also details a joint CIA and JSOC program in Syria targeting alleged high value ISIS figures that appeared to also be using the small footprint operations model of the U.S. drone ecology to undertake lethal counter-terrorism operations. Miller’s reporting reveals that the CIA program had by September 2015 already been responsible for assassinating a British national in Syria, also an alleged senior member of ISIS, Junaid Hussain<sup>353</sup>. Hussain was reported as being responsible for designing the group’s social media campaign to encourage attacks inside the United States.

Miller’s reporting labels the combined capacities of the CIA’s Counterterrorism Center and JSOC as Obama’s “preferred weapons against terrorist groups”, following on from the successes of the two in pioneering the use of armed UAVs and carrying out “the raid that killed the al-Qaeda chief”<sup>354</sup> Osama bin Laden in 2011. Miller’s reporting places the CIA-JSOC joint operations in Syria in the context of “a spreading campaign of secret operations and drone strikes that encompasses

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<sup>352</sup> “US Carries out First Drone Strike in Syria from Turkey - BBC News,” August 5, 2015. <http://www.bbc.com/news/world-europe-33793356>.

<sup>353</sup> Miller, Greg. “U.S. Launches Secret Drone Campaign to Hunt Islamic State Leaders in Syria.” *The Washington Post*, September 1, 2015. [https://www.washingtonpost.com/world/national-security/us-launches-secret-drone-campaign-to-hunt-islamic-state-leaders-in-syria/2015/09/01/723b3e04-5033-11e5-933e-7d06c647a395\\_story.html](https://www.washingtonpost.com/world/national-security/us-launches-secret-drone-campaign-to-hunt-islamic-state-leaders-in-syria/2015/09/01/723b3e04-5033-11e5-933e-7d06c647a395_story.html).

<sup>354</sup> Miller 2015

Pakistan, Yemen, Somalia and parts of North Africa”<sup>355</sup>. Importantly, Miller’s reporting also reveals the changing nature of how the U.S. technology was used in Syria as compared to the operations in Yemen, Somalia and Pakistan in which the system was largely developed. He states that due to domestic political considerations, specifically pressure from inside the U.S. Senate Intelligence Committee and other policymaking areas in Washington D.C., the Obama administration split the processes of counterterrorism operations using the U.S. drone ecology in Syria between both the CIA and U.S. military’s Joint Special Operations Command – with the CIA responsible for ‘find’ and ‘fix’, and JSOC responsible for ‘finish’<sup>356</sup>. Citing unnamed officials, Miller reports that the CIA-JSOC tie-up at the time was “increasingly viewed as a model that could be employed in future conflicts”<sup>357</sup>. The close relationship, according to Miller’s reporting, also extended to the technical and institutional links between the agencies operating drone-based counter-terrorism operations over Syria. CIA and JSOC both had liaisons operating in their intelligence hubs at Langley, Virginia and Fort Bragg, North Carolina, “and both can watch each other’s video feeds”<sup>358</sup>, highlighting the interconnected network nature of intelligence and operational capacity across divisions within the U.S. intelligence and military structures especially regarding drone-based counterterrorism practices in the context of the global war on terror.

Another valuable detail of Miller’s reporting also sheds light on the value to U.S. intelligence services and the military for what is described as CNO, or computer network operations<sup>359</sup>, and

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<sup>355</sup> Ibid

<sup>356</sup> Ibid

<sup>357</sup> Ibid

<sup>358</sup> Ibid

<sup>359</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.12

DOMEX, or document exploitation<sup>360</sup>. CNO and DOMEX are seen as highly useful methods for gathering intelligence to help identify and locate high value individuals in militant networks such as ISIS and AQ, especially in the context of non-battlefield settings where there are little to no on-ground sources for the U.S. military and intelligence agencies to leverage. In *The Drone Papers* documents, CNO and DOMEX are repeatedly listed as key requirements for increasing the successful operation of the U.S. drone ecology during targeted killing operations in non-battlefield settings.

Miller's reporting details a raid by U.S. special operations forces in May 2015, targeting leaders of the ISIS group in northern Syria. The raid resulted in the death of an individual named Abu Sayyaf, an alleged senior ISIS officer, and the capture of his wife along with a trove of computers and other digital devices – digital documents primed for exploitation by U.S. intelligence services and for details on new potential operations against militant networks in northern Syria. The documents reportedly contained “insight into the Islamic State’s structure, leadership and finances”<sup>361</sup> and helped CIA and JSOC analysts to gain a deeper understanding of the ISIS militant network in Syria and Iraq, as well as develop a new list of targets in both countries. The May 2015 raid that killed Abu Sayyaf, using the broader networked system of the U.S. drone ecology to provide surveillance, network communications and offensive capacity, paired with U.S. special operations forces to undertake the operation on the ground themselves, also provides a window into the continuing evolution of drone-based counterterrorism practices by the U.S. In this case, instead of simply relying on U.S. UAV aircraft driven by the drone ecology’s networks to undertake

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<sup>360</sup> “The Drone Papers - Small Footprint Operations 2/13”, 2015. p.9

<sup>361</sup> Miller 2015

a strike on the high value individual Abu Sayyaf, it appears the U.S. military decided to undertake the raid with special forces operators supported by drone aircraft partly in order to make as many intelligence gains as possible.

The rollout of the U.S. drone ecology to the Syrian theatre, then, demonstrates two key factors in the development and expansion of the U.S. drone ecology and counterterrorism practices associated with its use. First, it shows that the U.S. military does plan forward many years for possible uses of the U.S. drone ecology in new theatres. Indeed, as Figure 16 shows, *The Drone Papers* documents had projected use of the U.S. drone ecology at a small footprint scale in the Syrian theatre years in advance. As with the expansion of the U.S. drone ecology into other theatres, certain conditions needed to be met for the effective use of the integrated system needed to be met, specifically the U.S. gaining access to air bases within operational range of U.S. drone aircraft and certain political agreements to be made, and this was met with access granted by Turkey for the use of air bases on its soil for the take-off and landing of U.S. drone operations. Further, it also appears that the U.S. has learnt some lessons from its application of the drone ecology assemblage to non-battlefield settings in Yemen and Somalia. The use of U.S. special forces troops on the ground during operations on high value individuals with drone aircraft operating in support, specifically in the instance of the raid on Abu Sayyaf in 2015, shows that the U.S. is willing to modify its practices while using the U.S. drone ecology in counterterrorism contexts to improve operational outcomes.

## 6.8 CONCLUSIONS

Beyond the proving grounds of Yemen and Somalia, the U.S. drone ecology has now been transplanted to new theatres across North Africa and the Middle East, including in Niger, Mali, Libya and Syria. While the process of setting up drone-based counterterrorism operations in new regions has clear challenges, not least of which gaining access to use airfields for take-off and landing of drone aircraft, the examination here shows that it is indeed possible for the United States to transplant its modular, networked drone ecology into new global regions. However, the challenges to expanding the use of the drone ecology in new regions are not insignificant, and transplanting the U.S. drone ecology to new theatres is a very complex exercise. To gain access to new regions, the United States government must undertake complicated negotiations with what the documents refer to as host/partner nations, or countries prepared to accept U.S. drone bases, U.S. military crews and other facilities on its soil. The host nation's drone base locations must also place U.S. drone aircraft within operational range of target areas, in order for these aircraft to be able to travel to a given target area and loiter above it, watching and listening for activity from so-called high value individuals and groups the United States government has deemed a threat to U.S. national security.

Indeed, from the examination of press reporting and various research and rights organisations' data sets, we can see that the process of negotiating access for U.S. drone crews to airbases in Niger took some years. However, the upshot is now the U.S. now appears to have established a series of functional drone bases in that country that provide sufficient operational range to cover a significant proportion of critical geographies in north-west Africa, from Mali's western reaches to

Algeria, southern Libya and Chad, and the entirety of Niger itself. Analysis of press reporting has also demonstrated that the U.S. has undertaken not just operations to gather intelligence on militant groups through surveillance activity, with data provided to local partners and the French military in Mali, but they have also undertaken U.S. targeted killing operations in the region, hunting individuals and groups including AQ, AQIM and ISIS, with flights launched from the new series of drone bases in Niger.

Further analysis in this chapter has also explored how the broader networked intelligence systems of the U.S., along with military allies through the NATO alliance, use various sources of publicly available online information such as Twitter to feed intelligence through the networked assemblage of the drone ecology and assist with directing drone-based missile strikes. This global media and information architecture, the networked assemblage this thesis labels the drone ecology, also connects with U.S. special forces operators and other allied military groups to share information on individuals and groups, guide special forces operators in the field, who in turn help to guide targeted strikes launched from drone aircraft flying above. Further, drone aircraft flying above non-battlefield settings such as Yemen, Somalia, Niger and Libya are driven from half a world away with their pilots and sensor operators working from ground control stations in Nevada and Virginia. The same global distribution applies to the intelligence analysts and commanding officers making decisions on mission plans and targeting, as the commentary from the unnamed A-10 pilot and Creech Air Force Base commanding officer cited in this chapter illustrate. Further, all of this is largely occurring in theatres where the United States is not technically in a declared war.

Indeed, former U.S. President Barack Obama's own words when announcing U.S. operations in Syria and Iraq against ISIS provide clear insight into the application of the U.S. drone ecology systems in those new theatres. The use of the drone ecology in Syria and Iraq, albeit on a larger scale than operations in Niger, Mali and Libya, also shows how far drone-based counterterrorism practices, based on the use of the drone ecology, have penetrated U.S. military thinking. No longer is it mass numbers of boots on the ground, but now manned and unmanned aircraft all relating across a global, high speed communications network with operators, officers and intelligence analysts also spread across the globe, who pursue individuals and groups that the U.S. sees as a threat. This broader, networked assemblage, made up of a multitude of elements creating new forms of agency and state power in some of the world's most remote corners, an outcome far greater than the sum of its globally distributed parts. The drone ecology, tested and proven in the limited theatres of Yemen and Somalia, and Pakistan before, is now being treated as a model for future counterterrorism operations by the U.S., a transplantable system that can be carried into new theatres and which will take the future of U.S. counterterrorism practice, and potentially the future of global conflict, along for the ride.

## CHAPTER 7: CONCLUSIONS

The United States' drone ecology is the global system that drives the U.S. program of targeted killing operations undertaken in non-battlefield settings, or countries where the U.S. is not technically at war, in the context of the continuing global war on terror. The drone ecology is a networked assemblage, connecting the United States' unmanned aircraft to a series of actors around the globe who take part in counterterrorism missions and to large databases of information which both help direct UAVs and their pilots to targets, fed by the information gathered by the array of technical sensors carried by these aircraft. This global networked assemblage, and the novel information gathering and counterterrorism techniques it has enabled, has been responsible for a dramatic transformation of U.S. counterterrorism and intelligence-gathering practices. Further, its rapid development and subsequent embedding in the U.S. military and government's counterterrorism doctrine mean that the U.S. drone ecology is not only here to stay, but that its status as a modular, transplantable system mean that it is likely to be expanded to new theatres across the globe.

Advanced and refined during the late 1990s and driven by the RMA thinking of the time, U.S. unmanned drone aircraft began being used in an offensive context after the September 11, 2001 terror attacks in the United States, where the U.S. found them particularly useful for observing and monitoring groups in the early days of the conflict against AQ in Afghanistan. Soon after, use of the system also began in countries where the United States was not technically at war, namely

Pakistan and Yemen<sup>362</sup>, to monitor, track and attack individuals and groups the U.S. considered a threat, but who were residing in regions of these countries where local authorities did not have the ability or motivation to address the threat the groups posed. Strategic policy thinkers in the administration of U.S. President George W. Bush labelled these regions ungoverned territories, and under the Bush and Obama administrations, pursuit of the U.S. global war on terror these novel counterterrorism practices became ascendant<sup>363</sup>. Soon the practice of targeted killing by launching missile strikes from drone aircraft in non-battlefield settings against so-called high-value individuals<sup>364</sup>, or those that the U.S. has decided are an imminent threat based on their association to violent non-state actor groups<sup>365</sup>, became a major part of U.S. counterterrorism practice in the global war on terror.

This expanding use of drone aircraft during counterterrorism operations in non-battlefield settings was driven in part by the processes of globalisation in high-speed telecommunications networks such as the Internet and satellite communications, and the globalisation of transport and logistical links through the late 1990s and early 2000s. Along with these conditions of globalisation of communication and information flows, the U.S. military found itself bogged down in protracted conflicts in Iraq and Afghanistan, the world's most powerful armed force unable to combat dispersed networks of militant fighters in the tight streets of cities like Baghdad. In response to this, the U.S. military's Joint Special Operations Command under then-General Stanley McChrystal invested in network communications infrastructure and computing bandwidth to become a

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<sup>362</sup> Boyle 2013.

<sup>363</sup> Bauman 2002 and Barkawi 2005.

<sup>364</sup> Gregory 2011b.

<sup>365</sup> Williams, Brian Glyn, 2013

network themselves, and use those network media-based technological innovations to hunt down cells of militants dispersed and hidden amongst the Iraqi and Afghan populations<sup>366</sup>. The heavy casualty toll these drawn-out conflicts took on the U.S. military also guided decision-making by the U.S. civilian administration, increasing domestic pressure on the Bush administration in particular to get U.S. troops out of harm's way. After the inauguration of President Barack Obama in 2009, the U.S. administration made the calculation that offensive operations in the global war on terror were better undertaken in ways that reduced risk for U.S. military personnel, thus also reducing the potential for political blowback at home. So, under the Obama administration, invasions and occupations of countries which were seen to harbour threats to the U.S. such as Iraq and Afghanistan were out, and counterterrorism practices that reduced that risk<sup>367</sup>, namely drone-based targeted killing operations in countries where the U.S. was not in a declared conflict, were in.

The U.S. drone ecology also developed among these conditions of globalisation as a system including remotely piloted aircraft, themselves guided by signals carried over a global satellite network piloted by U.S. military officers often based thousands of miles from theatres of operation, in Nevada or Virginia, or other U.S. bases around the globe. U.S. drone aircraft are equipped with a multitude of media technologies and other sensors, such as the ubiquitous full motion video (FMV) cameras and aerial precision geolocation (APG) sensors that feed video streams to drone pilots half a world away, who also draw intelligence information and other data from large databases of networked information produced by U.S. intelligence services, and as this study has shown, intelligence services of U.S. allies such as the UK and partner countries including Yemen, Niger and

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<sup>366</sup> Niva, Steve 2013 and Kaplan, Fred 2013.

<sup>367</sup> Shaw, Ian G. R. 2013 and Bergen, Peter, and Katherine Tiedemann 2013.

others. This coalescence of information from a variety of sources including input from media-based devices, traveling through a high-speed global communications network, is the type of networked media assemblage that theorist Matthew Fuller has labelled media ecologies<sup>368</sup>. Media ecologies are modular and dynamic assemblages, mobilising various heterogeneous elements across a broad network to create outcomes and forms of agency that are themselves new – hence the label this study has coined, the U.S. drone ecology. This global networked assemblage is a crucial object of study for the IR and strategic studies fields, as it has guided the development of novel and revolutionary counterterrorism practices by the United States in countries where the U.S. is not technically at war. Further, the U.S. drone ecology is a construction that has provided the United States with new forms of state power and agency in the international realm. These new forms of state power include the use of the U.S. drone ecology for surveillance and tracking in counterterrorism operations and its use as a platform to launch deadly missile strikes on militant suspects, commonly referred to as drone strikes, developments that have led to thousands of casualties in countries including Pakistan, Yemen and Somalia in the context of the global war on terror.

Further, this study's examination in detail of the most crucial and advanced technical capacities of the U.S. drone ecology, as revealed in the leaked U.S. military documents of *The Drone Papers*, reveals precisely how the technologies of the drone ecology function during these novel counterterrorism practices undertaken by the U.S. These technical capacities allow drone crews, intelligence analysts and other military and government officers the ability to observe individuals and groups on the ground in countries like Yemen and Somalia in real time from locations across

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<sup>368</sup> Fuller 2005

the globe, individuals and groups suspected who allegedly hold associations with violent non-state actor groups such as AQ, AQAP, AQIM and ISIS. FMV cameras and APG sensors, along with other communications and signals intelligence gathering devices, allow the U.S. military to gather intelligence on these groups and individuals at an unprecedented level of accuracy and in real time, and for this information to be shared with a multitude of military and intelligence officers across great distances in live feeds.

These media-based technologies allow 24-hour visual surveillance of suspects and allow the tapping of phone and radio conversations along with the accurate tracking of movement using mobile phone technology, among other methods. The U.S. drone ecology's broader connection with other networked intelligence databases also allow cross-checking of this information at rapid speed with huge troves of information managed by the NSA and CIA, among others. This information is used to build profiles not just of individuals, but whole networks of non-state actor groups, based on data gathered by drone aircraft and through other operational practices including Special Forces raids that net computers, other digital devices including mobile phones, and physical documentation. This information is then used to build so-called baseball card target portfolios, and as demonstrated in the Yemen and Somalia case studies examined in this study, the information gathered through the drone ecology is used for targeting individuals and groups in deadly missile strikes and small-scale Special Forces raids. These practices, where individuals and groups are targeted in missile strikes launched from remotely piloted aircraft driven by a global communication network labelled the U.S. drone ecology by this study, are entirely new counterterrorism practices and provide the U.S. with novel forms of state power in the age of networked warfare.

However, these new and challenging counterterrorism practices associated with the use of the U.S. drone ecology are not without their problems. As this study's examination of the U.S. military's own internal study of its drone-based counterterrorism operations shows, the use of the U.S. drone ecology to gather information on violent non-state actor groups such as AQ, ISIS and Al Shabaab is not as efficient or as effective a method of counterterrorism intelligence gathering as more traditional, on-ground methods of human intelligence as employed in battlefield scenarios such as in Iraq and Afghanistan. In these battlefield scenarios, where the U.S. is involved in a declared conflict and has more U.S. military assets in a given theatre, military and intelligence networks can be mobilised to gain a far clearer picture of individuals and groups associated with violent non-state actors. In essence, this study has demonstrated that intelligence and other information on violent non-state actor groups and individuals is of poorer quality – potentially leading to poorer counterterrorism outcomes – when there is an over-reliance on the high-tech capacities of the U.S. drone ecology over more traditional methods of intelligence gathering.

In spite of these issues, the U.S. drone ecology has been continually developed and refined, and now exists as a system that can essentially be transplanted to new theatres of operation. The U.S. drone ecology has been developed as a series of techniques and practices that allow U.S. drone crews, such as Task Force 48-4 operating from Camp Lemonnier in Djibouti, to operate in a similar if not almost identical fashion across a variety of theatres. For such an expansion to take place, certain conditions must be met, including ensuring the availability of airfields for UAVs to operate from and complex political negotiations over access to those airfields and airspace above them, to be cleared. But in short, the U.S. drone ecology today forms a model or template that can

theoretically be applied to new theatres beyond Yemen, Somalia and Pakistan where the system has already been deployed and thoroughly tested. Further, as this study has demonstrated, that expansion is not just theoretically possible, but that it has been underway in the context of U.S. counterterrorism operations in the real world.

Data from the U.S. military's own internal study shows that in 2013, the military's own forward planning units foresaw the potential need for the use of the U.S. drone ecology in North-West Africa, Syria and even potentially the Asia-Pacific region along with its continued use in the battlefield scenario of the conflict in Afghanistan. Examination of recent press reporting also shows that expansion of the U.S. drone ecology is an empirical reality and has occurred in a number of new theatres, namely in Mali, Libya, Niger and Syria, has indeed taken place. This expansion has not been a simple process for the U.S. military and government, however. Press reports and other documents show that the expansion of the U.S. military's drone program into the southern Libyan theatre has required the establishment of political agreements with the Nigerien government for the use of multiple airfields, including the establishment of new airfields and expansion of existing but insufficient facilities, for the use of U.S. military and CIA drone crews. Analysis has also shown that these airfields have now likely been used for both surveillance flights to track and observe militant groups in Mali, Niger and other countries in the region, as well as for deadly targeted strikes on individuals and groups in Libya. Evidence contained in press reporting and in public statements from U.S. military and NATO officers also indicates the extent to which the drone ecology's broad information gathering networks have been used to guide and target these counterterrorism operations. This includes for example the use of the social media website Twitter as a source for targeting information for airstrikes during the Libyan conflict and the engagement with local militias during the 2016 Battle of Sirte for confirmation of targeting data

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for drone strikes on ISIS-linked militants. Overall, the analysis in this study has shown that the U.S. drone ecology is not only prepared for expansion to new theatres beyond its well documented use in Pakistan, Yemen and Somalia, but that the expansion of the U.S. drone ecology and its associated counterterrorism practices to new theatres including Niger, Libya and Syria has been underway for some time.

The development of the U.S. drone ecology has dramatically influenced United States counterterrorism policy, particularly in non-battlefield settings in the context of the global war on terror. Indeed, the development of a globally connected and network-media based assemblage that connects unmanned drone aircraft with drone crews, military and government officers scattered around the world and with other large databases of intelligence on individuals and groups associated with violent non-state actors such as Al Qaeda, has allowed for the development of a raft of new counterterrorism practices. These practices, including the live video surveillance of individuals and groups in some of the world's most remote regions, along with the tapping of phone and radio communications and the use of individuals' own mobile phones as tracking devices, all based on the technical capacities of remotely piloted drone aircraft, have provided the United States with a series of novel and significantly problematic forms of state power, in turn transforming counterterrorism practices and the empirical reality of contemporary warfare in the context of the continuing global war on terror.

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