

# The Perils and Prospects of Drone Proliferation

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# DRONE WARFARE



# DRONES

WHAT EVERYONE NEEDS TO KNOW<sup>®</sup>

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# Nano Drones



# Delivery Drones



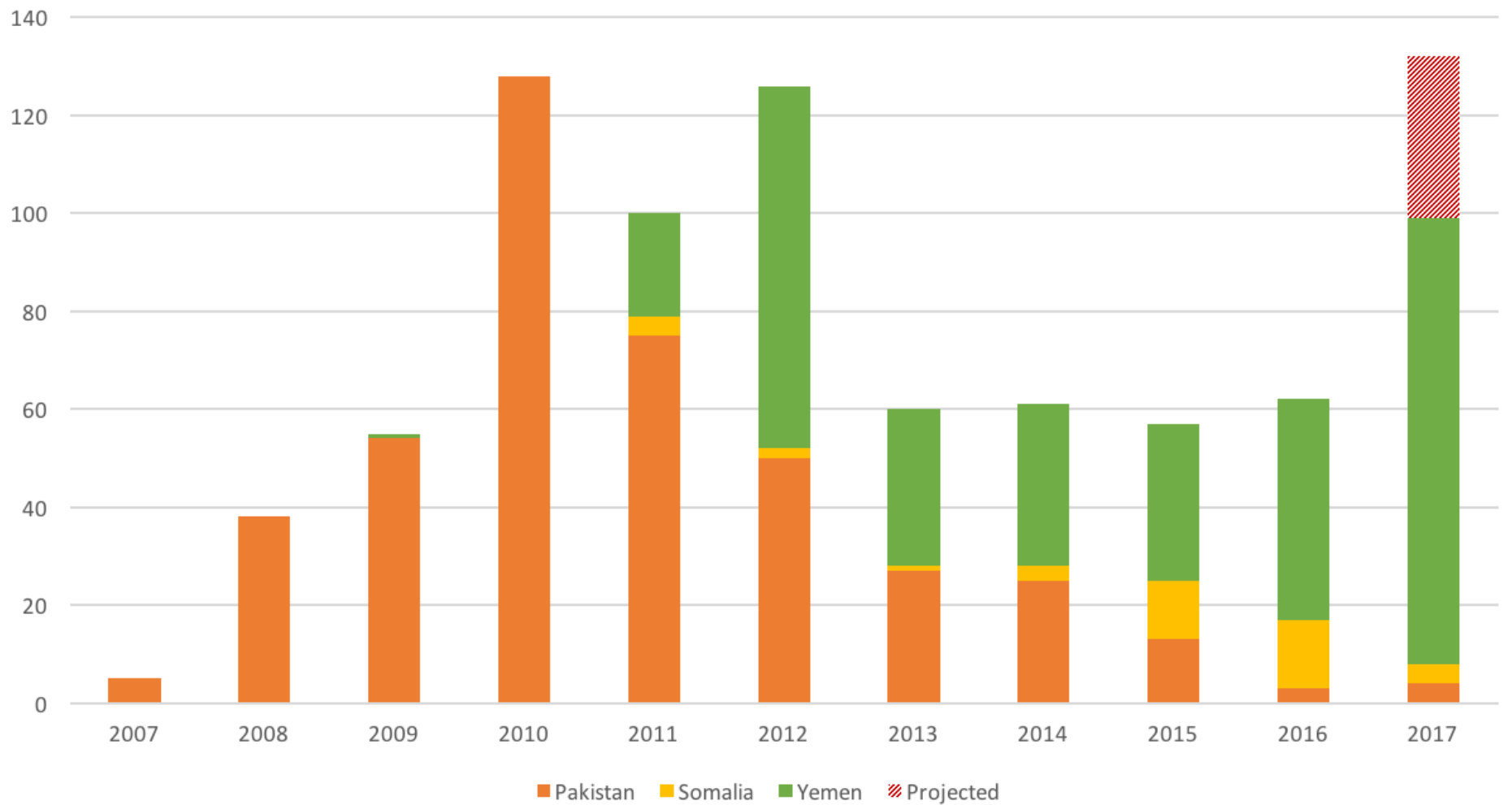
# Drone Strikes



# Overview

- Trends
- Debates about the US Use
  - Legality
  - Ethics
  - Wisdom (effectiveness)
- Implications for proliferation
  - Who is proliferating?
  - What does this mean for security?
- Future-generation drones

## Possible and Confirmed Drone Strikes Not in Active Conflict Zones



# Why the Use of Drones?

- Drone strikes “are legal, they are ethical, and they are wise.” –Jay Carney, WH Press Secretary, 6 Feb 2013



# Let's Examine the Arguments

- They are wise:
  - President Obama: Drone strikes kill the people who are trying to kill us (repeatedly)
  - Michael Hayden: “To keep America safe, embrace drone warfare.” (2016)
  - Even critics agree that “they can protect the American people from attacks in the short term.”
    - Audrey Cronin, *Foreign Affairs* (2013)

# They are legal

- Recourse to force (jus ad bellum)
- (+)
  - Authorized under Article 51 of the UN Charter, self—defense (Brennan 2012)
- Jus in bello: conduct in conflict (distinction)
  - (+)
    - “Principle of distinction and proportionality that the US applies are not just recited at meetings.” (Koh 2010)
    - The use of drones and PGMs reduces “collateral damage”
- Domestic legality: AUMF Sept 2001

# They are ethical

- For a “just cause” such as counterterrorism, drones are better at identifying terrorist and avoiding collateral damage than alternatives
  - Ability to loiter, persist over targets
  - Ability to call off strike at last minute
    - » More humane than ground forces (e.g., Pakistani Army), manned aircraft

# They are not wise

- Tactically effective—yes
- Strategically effective—no
  - Decapitation strategies have limited impact on organizational effectiveness
  - Martyrdom effects create more terrorists than they kill
    - Drone strikes unpopular in Middle East countries, Pakistan, Yemen → radicalizing tion

# Global Attitudes toward Drone Strikes

Country	%Opposition
Jordan	90%
Egypt	87%
Turkey	83%
Russia	78%
Pakistan	66%
US	41%
India	36%
Israel	27%

Source: Pew Global Attitudes 2014

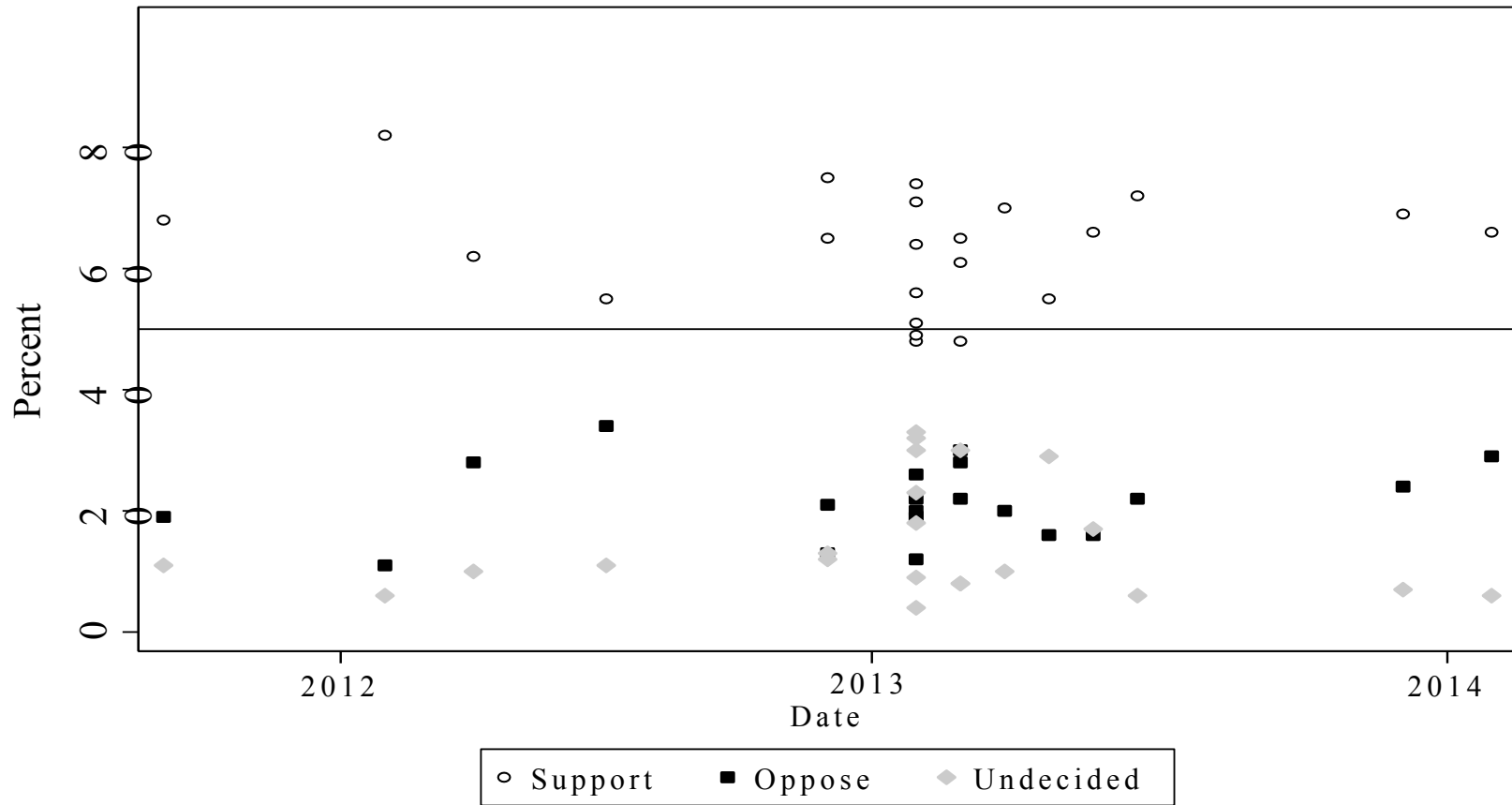
# They are not legal

- Jus ad bellum
  - Early Afghanistan (until 2002) legal, post—2002 not legal
  - At the least, drone strikes outside of “hot zones” such as Afghanistan extralegal
- Jus in bello
  - Targeting policies incompatible with distinction
    - Designation of combatant as military—aged male
    - Policy of “signature strikes”
    - 20% of targets have been high—level militants

# They are not ethical

- Moral hazard problem
  - Low physical and political risk of drones makes them more likely to be used
    - No US casualties made US decision makers less careful
      - Obama: drone strikes a “cure-all” for counterterrorism

# Low Political Risk: US Public Opinion 2011–2014





# The Ethical Upshot: Drones Lower the threshold for using force

- Military action less constrained in time and space
  - More than 500 strikes outside armed battlefield since 9/11
  - Counterfactual: 500 special forces strikes? Manned F-16s?
- Obama (2016): I think you could see, over the horizon, a situation in which, without Congress showing much interest in restraining actions with authorizations that were written really broadly, you end up with a president who can carry on **perpetual wars all over the world**, and a lot of them covert, without any accountability or democratic debate.

# Drone Proliferation

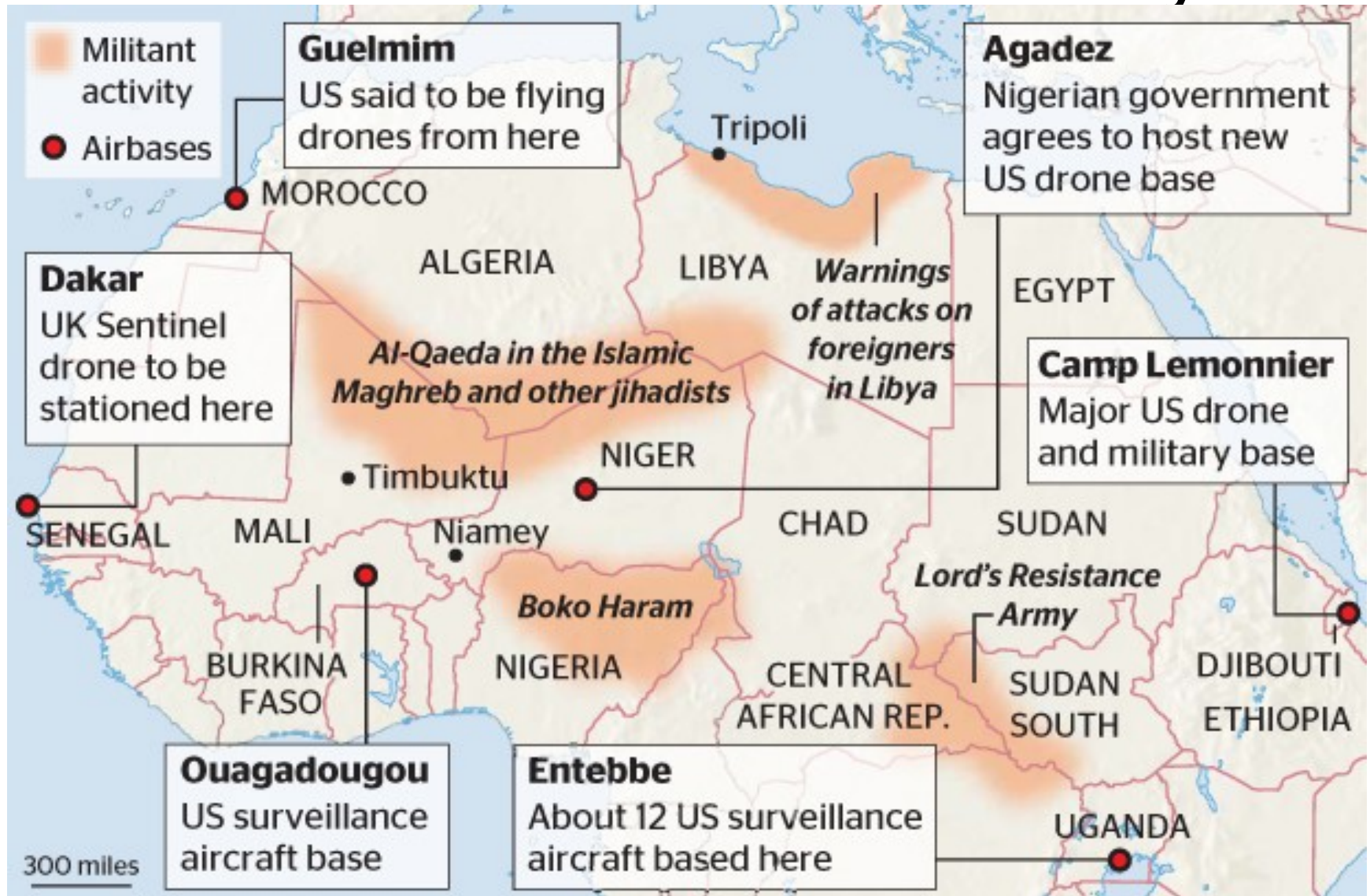
## Countries With Armed Drones



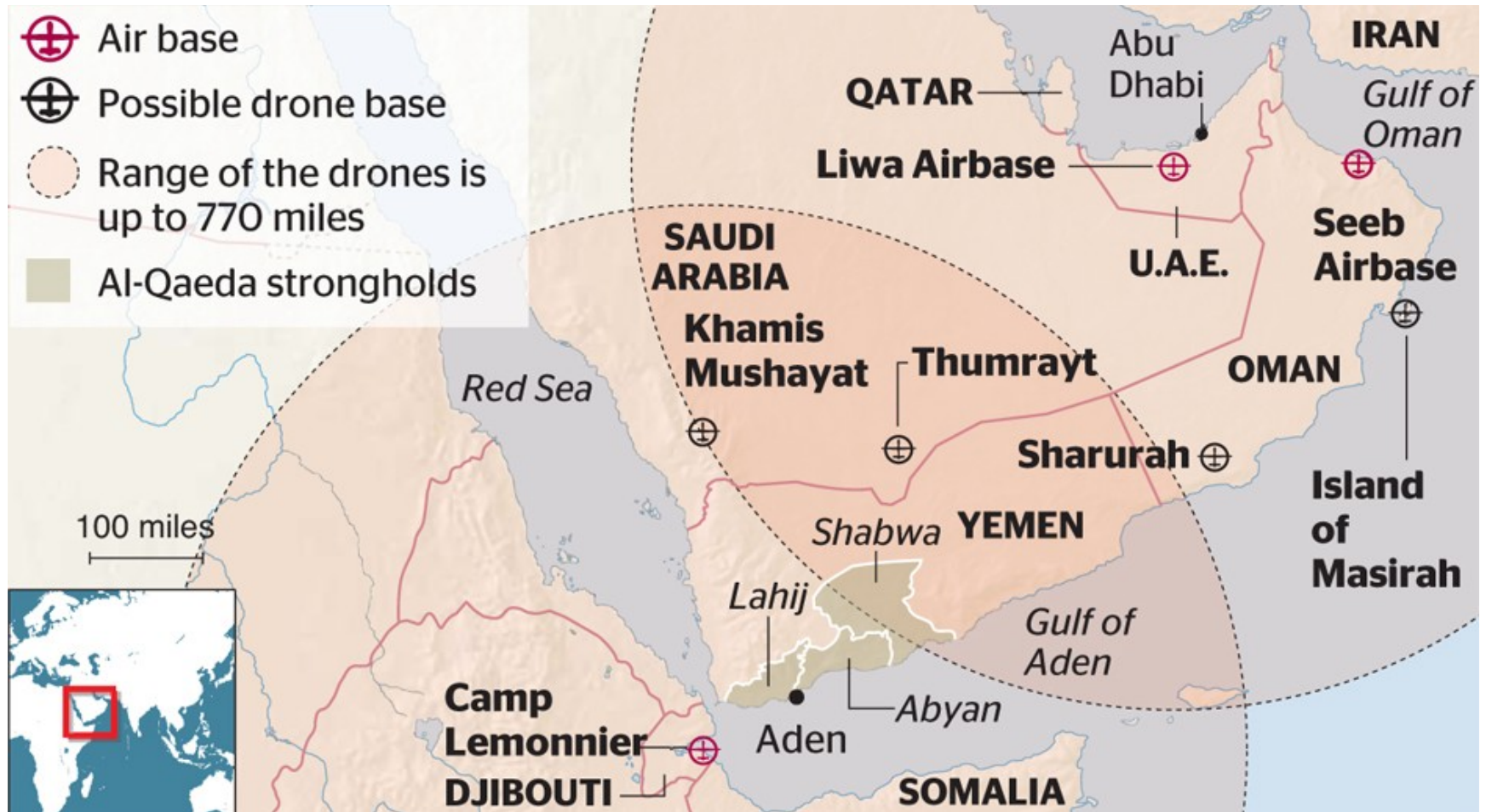
*Map includes countries with an armed drone capability, as well as originating nation for the technology, if armed drones have been purchased in the global market. In some cases, such as the Russian Altius-M drone, the capability may be developed but not yet fielded operationally. Pending transfers of armed drones (the United States to Italy; Israel to Germany and India) are not included.*

Source: Matt Fuhrmann and Michael C. Horowitz, "Droning On," SIPRI, and CNAS, "Drone Proliferation."

# But does US Past = Prologue for Others? Not necessarily



# Many bases, long range



# Limited Generalizability of US experience, except...

- Few other countries will be able to replicate the US experience
- In April 2016, China broke ground on first major overseas military (logistics) base



# Security Implications are Context—Specific

Context	Consequences for current-generation drone proliferation
Counter—terrorism Operations	High
Domestic control/repression	High
Use by non—state actors	Moderate
Interstate wars	Low
Intrastate wars	Low

# Where are countries using drones?

- Locally and in ways they use manned equivalents
- 2015 Tweet, Pakistani ISR Director General



**Gen Asim Bajwa**  
@AsimBajwalSPR



 Follow

1st ever use of Pak made Burraq Drone today.  
Hit a terrorist compound in Shawal Valley killing 3  
high profile terrorists.Details follow

# UK Strikes in Iraq and Syria 2015

	Reaper	Tomado or Typhoon	Total
Number of strikes	205	332	527
Percentage of total	38.8%	61.2%	100%



# Typhoon versus Reaper



# Survivability

- Drones “useless in a contested environment.”—USAF General Mike Hostage
- Best suited to flying where vulnerability doesn’t matter
  - Fine in Afghanistan, Yemen, Somalia, Pakistan since insurgents do not have sophisticated air defenses

# Non—State Actors



"The UAS is the most challenging and prevalent threat plaworm to combined arms forces and therefore, a logical choice for enemy use." —Army Pub 3—01.8 July 2016

# Killer Drone



# Domestic Repression



“Authoritarian regimes who believe people are weaknesses in the machine, that they are the weak link in the cog, that they cannot be trusted...they will naturally gravitate towards totally automated solu-ons .” Bob Work, Dep SecDef

# Next generation drones

- Could be game changers
  - Swarms
  - Stealth
  - Speed
  - Small

# Drone Swarms

- **Small, cheap unmanned aircraft flying in formation**
  - “Large numbers of dispersed individuals or small groups coordinating together and fighting as a coherent whole.”
- **Program one drone as swarm leader**
  - Others function as ISR platform, munitions, or communications devices
  - Must be homogeneous, programmed together, able to communicate
  - Could eventually consist of 3D printer drones.

# Small but deadly

3

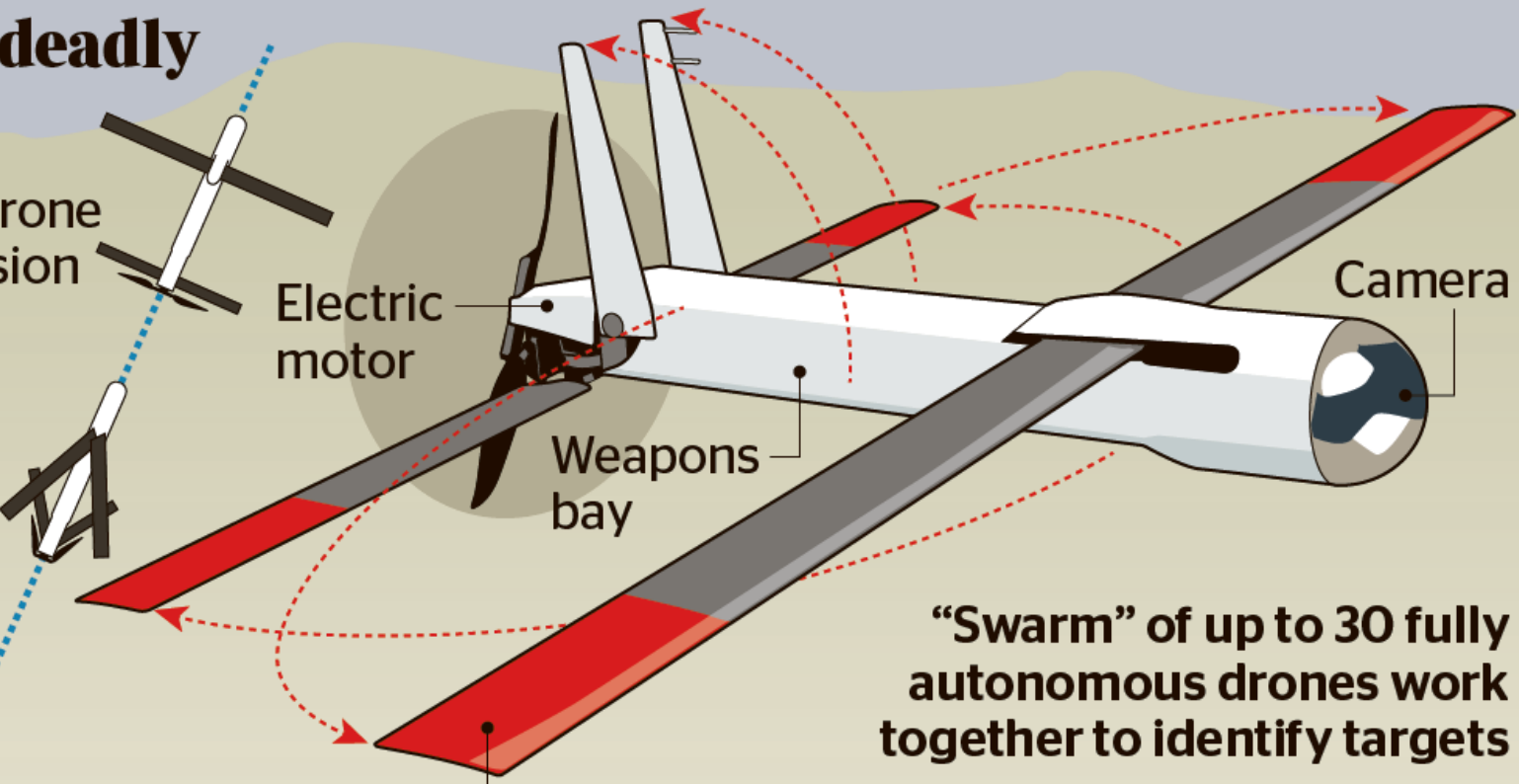
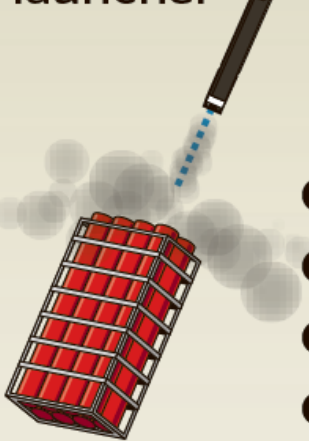
Expendable drone ready for mission

2

Propeller and wings unfurl

1

Drones fired from launcher



Folding wings, tail and "push" propeller

**"Swarm" of up to 30 fully autonomous drones work together to identify targets**

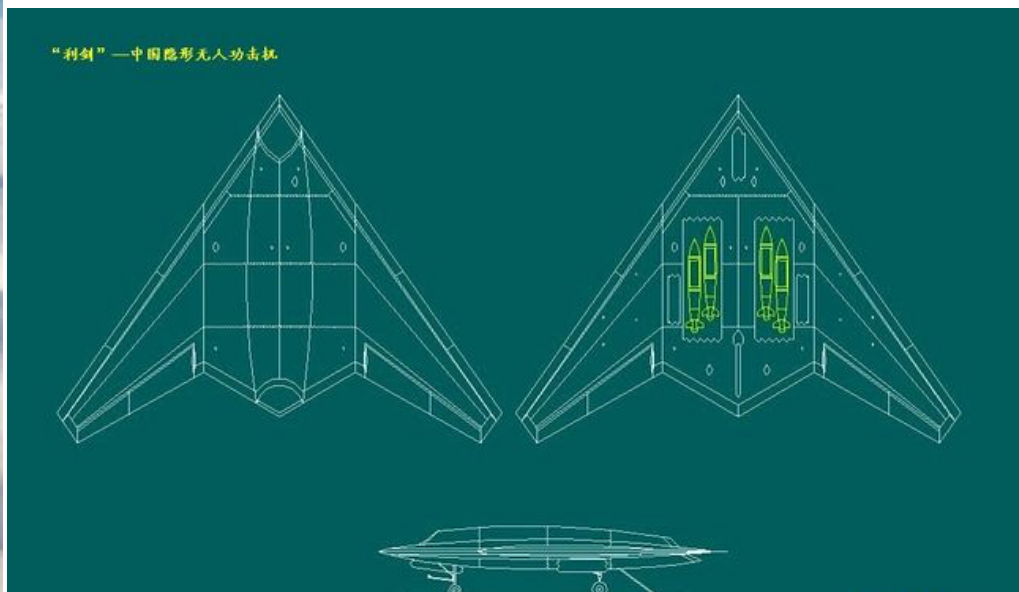
- **Length:** 3ft (90cm)
- **Speed:** 70mph (110km/h)
- **Max height:** 20,000ft
- **Max flight time:** 90 mins





# Stealth

- Key limitation of current drones: large radar cross-section
- Solution: Reduce RCS
- Example: Sharp Sword UAV, China's stealthy attack drone
- Initially will be for reconnaissance
  - Later for combat operations as "first through the door" weapon against targets with strong air defenses



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# Speed

- Other key limitation of current drones:  
**slow speed, high vulnerability**
  - Original Predator flew at 84 mph
- **Solution: faster drone**
  - Rumors of Lockheed spy and strike aircraft that can fly at 6x speed of sound and conduct strikes
    - SR-72, to replace retired SR-71 blackbird



# Size

- Generate ability to “hide in plain sight” by mimicking an insect
- Enormously helpful for covert (ISR) missions
  - Flown autonomously (GPS) and stored in pocket
  - Can also swarm to overwhelm air defenses



# Conclusio

n (1)

- United States' experience with drones important in its own right >500 since 2009
- But may not presage other countries' experiences with drones
- Consequences of drone proliferation context— specific

# Conclusion (2)

- Current--generation drones have been game-changers for counterterrorism but many future scenarios are not CT
- Useful in intrastate conflicts if not game-changers
- Not useful in interstate conflicts
- Perhaps most useful for non-state actors
- Future-generation drones potential game-changers