PARALLEL

FLIGHT TECHNOLOGIES

UNMANNED SYSTEMS TO SAVE LIVES, PROPERTY, AND THE ENVIRONMENT

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LOS ANGELES
FIRE DEPARTMENT
LAX
Los Angeles World Airports
2
WARD
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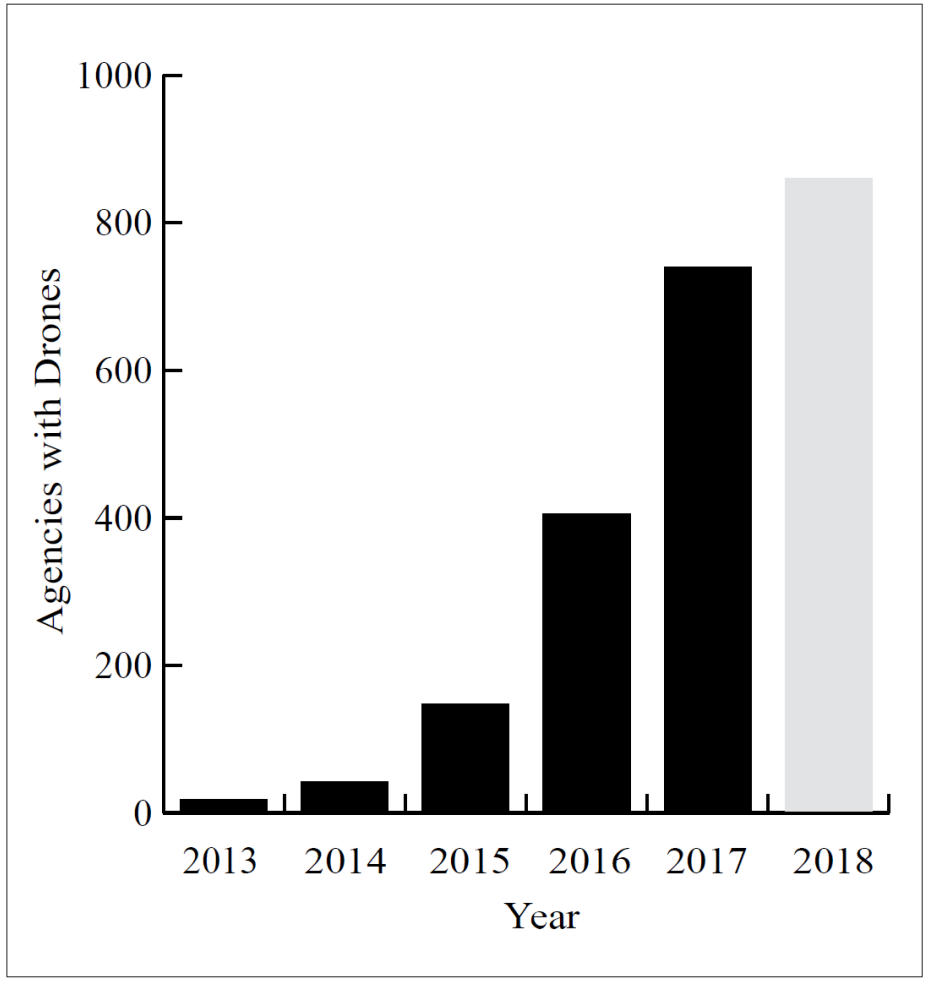
Drones in Public Safety

Public Safety Agencies with Drones by Year*



**Data is available for 860 of the 910 agencies.*

"In the near future public safety agencies will be considered negligent if they don't have a UAS program."

-Derrick Ward, LA City Fire UAS Lead

Public Safety Agencies with Drones

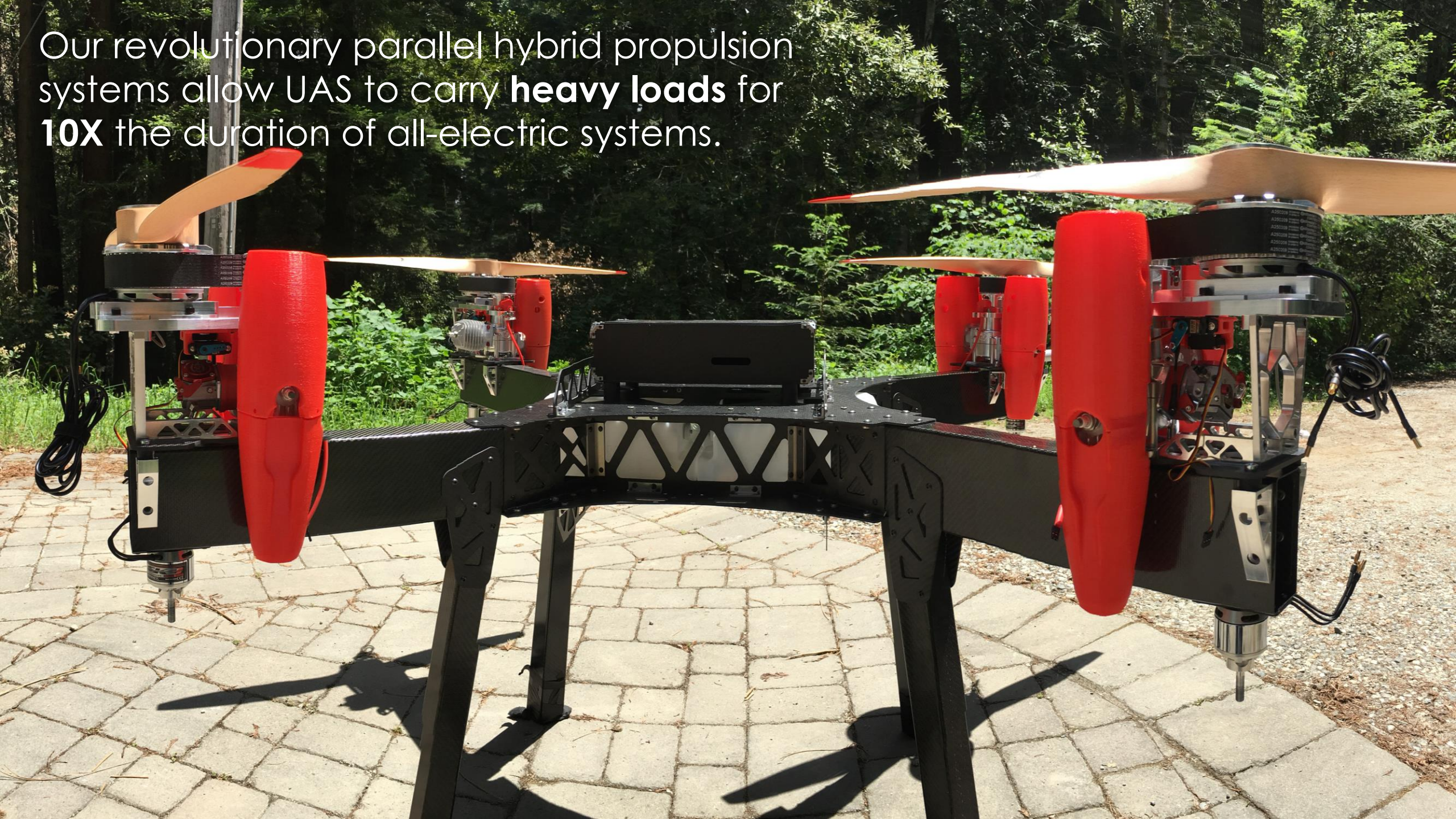
Agency Type	Qty
County Police and Sheriff	302
Municipal Police	278
Fire and EMS	186
City/County Emergency Management	107
Statewide Agency	37

Problem: Flight Time with Heavy Payloads

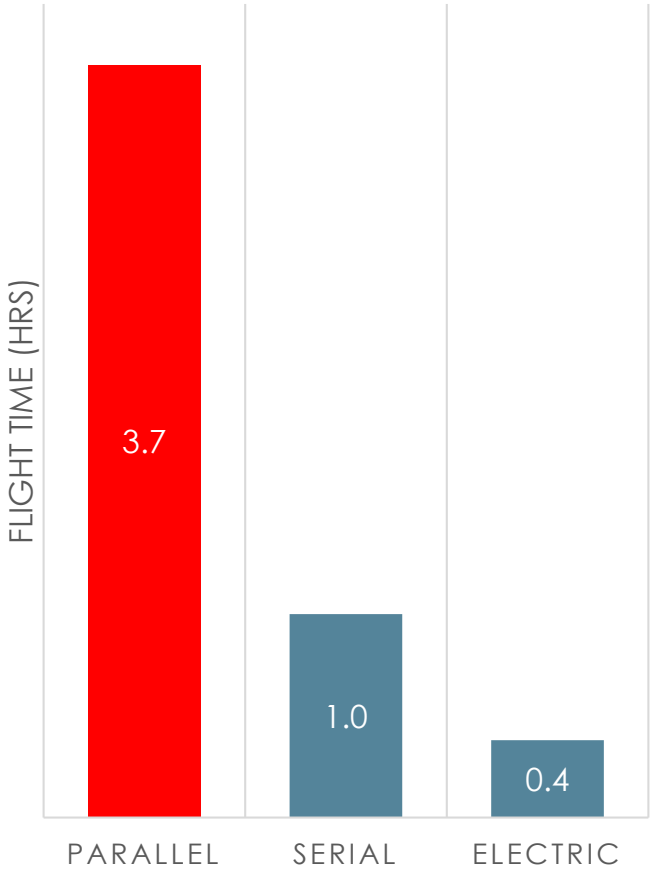
Because of the limitations of lithium batteries…

…multi-rotors can only carry heavy payloads for about 15 minutes.

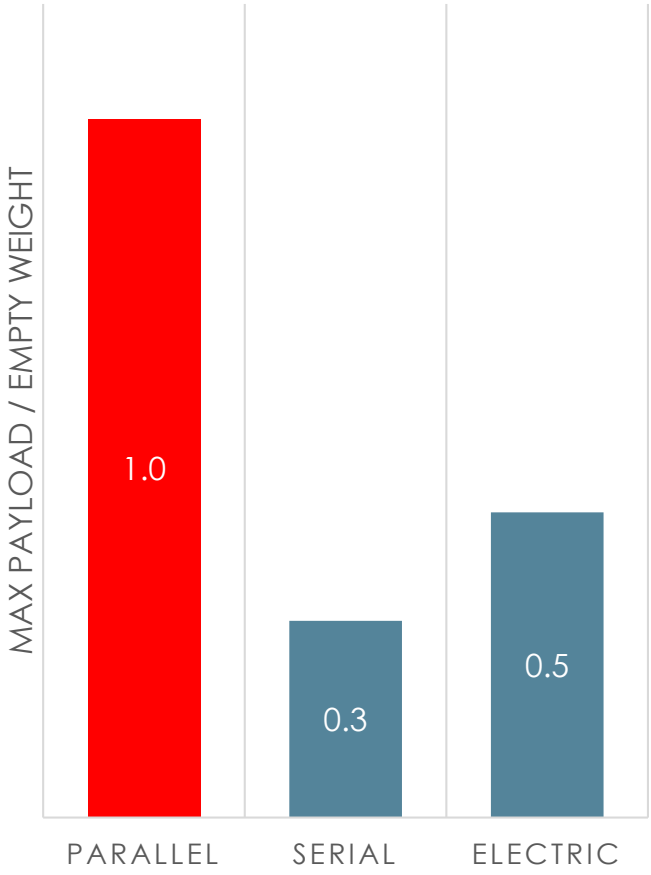
Our revolutionary parallel hybrid propulsion systems allow UAS to carry **heavy loads** for **10X** the duration of all-electric systems.



FLIGHT TIME @ NOMINAL PAYLOAD



MAX PAYLOAD / WEIGHT RATIO



Why Wildfire, Why Now?

- Major problem which cost USA $400B in economic losses in 2018.
- Wildfires will become more problematic in the future due to climate change and population growth
- Critical gap in existing technology which limits suppression to 8 hrs. per day
- Current technology is old, highly regulated (manned), and extremely expensive

Unmanned aircraft can fly day, night, and in low visibility = 24 hrs/day

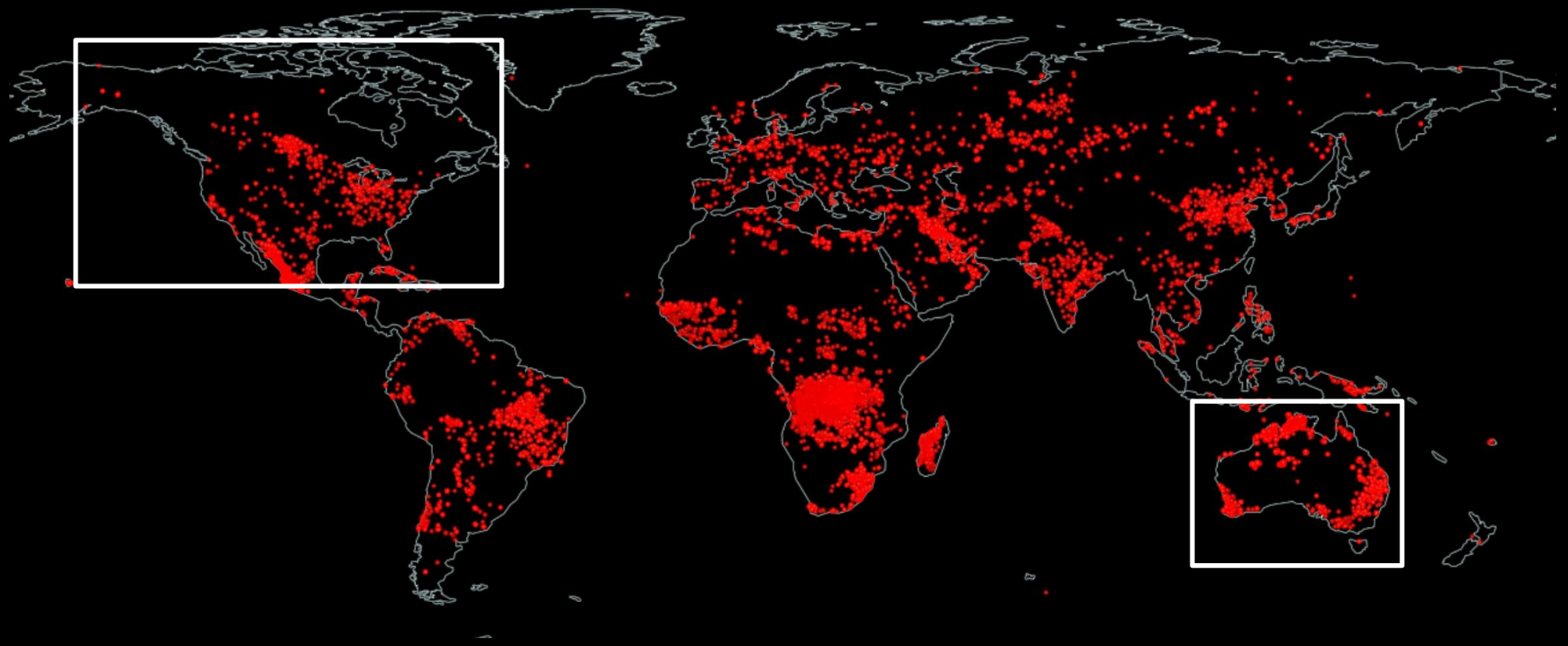
Manned aircraft can only fly in clear daytime conditions = 8 hrs/day

- Move Equipment and Supplies
- Controlled Burns
- Ferry Water
- Direct Suppression

Put unmanned logistics into the hands of public safety response!

- Lower cost and rapidly deployable vs. manned aircraft
- Operate during IFR conditions
- Operate in difficult terrain

USA, Canada, and Australia = $10B in yearly suppression costs



June, 2017 Fire Events Worldwide