



**Statement of Michael S. Fagan
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**BEFORE THE HOUSE OVERSIGHT AND
GOVERNMENT REFORM SUBCOMMITTEE ON
NATIONAL SECURITY AND FOREIGN AFFAIRS**

The Honorable John F. Tierney, Chairman
The Honorable Jeff Flake, Ranking Member

March 23, 2010

Mr. Chairman and members of the subcommittee, thank you for this opportunity to address the subcommittee. My name is Michael Fagan, and I Chair the Unmanned Aircraft Systems (UAS) Advocacy Committee for the Association for Unmanned Vehicle Systems International (AUVSI). It is an honor for me to be here representing the world's largest non-profit organization devoted exclusively to advancing the unmanned systems community.

While national defense still is the primary use of unmanned aircraft systems, there is much more that these systems can do (and are doing) to protect our nation and its citizens.

There are many technological reasons for the rise in the application of unmanned systems. I will briefly mention two. One reason is that detection, surveillance, measurement, and targeting are more effective when done as close to the observable as possible. This axiom applies to military systems as much as it does to everyday life. Small and medium-size UAS put military payloads close to hostile forces for very long periods of time while significantly reducing risk to friendly forces.

Another reason is that size, weight, and power (or SWAP) requirements for equivalent data processing and storage capabilities are decreasing. Last month, the Office of Naval Research completed the first test flights of key elements of a 50-pound persistent surveillance imagery payload for Shadow-class UAS. A similar operational payload is approximately 1,000 pounds and needs a commuter-size aircraft with crew to put it in its necessarily predictable orbit above the hostile target. As reduced SWAP allows more data processing to move onboard the UAS, available data link bandwidth can transmit to the ground more products that are more relevant to more analysts over larger areas – compared to raw data now sent to the ground. Additionally, processing onboard the unmanned aircraft automates intelligence-analysis tasks and increasingly permits the same number of analysts to be effective over a greater area.

UAS technology will continue to increase in the current U.S. regulatory environment, but it will more efficiently and effectively provide benefits to warfighters if UAS manufacturers can more easily and frequently get access to airspace that permits their research, development, test, and evaluation flights. AUVSI is in favor of FAA rulemaking that will enable increased airspace access for UAS manufacturers.

UAS manufacturers also depend significantly on engineers and scientists with relevant education. It is therefore equally important to national security that educational institutions with relevant science and engineering programs have routine access to national airspace. AUVSI is in favor of FAA rulemaking that permits educational institutions the airspace access they require to effectively educate the next generation in autonomous system technologies.

The wars in Iraq and Afghanistan have certainly driven demand for these systems, but many Americans are unaware that a ScanEagle UAS also aided in the successful recovery of Captain Phillips of the Maersk Alabama off the coast of Somalia last year. There are many other useful applications of unmanned technology -- air, ground and maritime systems -- that can protect our nation. Border patrol, emergency response, wildfire monitoring, civil unrest, search and rescue, law enforcement, port security, submarine detection and underwater mine-clearance, bulldozers for clearing land mines and IEDs, and ground robots used for explosive ordnance disposal are some examples of actual and potential robotic system missions for air, ground, and maritime systems.

Unmanned systems have been and will continue to be proven in war, and it is time to prove their heretofore under-recognized capabilities for increasing the effectiveness of civil law enforcement and public safety.

Technologies originally developed for warfare also must be transitioned to commercial operations. There is growing demand from the civil sector for UAS for uses such as precision farming, tracking shoals of fish, aerial photography, and more. This demand has the potential to drive a rapid advance of the technology. The United States has an opportunity to be at the forefront of the research and development of these advanced systems if it can address regulatory obstacles.

Our industry growth is adversely affected by International Traffic in Arms Regulations (ITAR) for export of certain UAS technologies, and by a lengthy license approval process by Political Military Defense Trade Controls (PM-DTC). AUVSI is an advocate for simplified export-control regulations and expedited license approvals for unmanned systems technologies.

Our hope is that today's hearing illuminates some of the ways that unmanned system technologies are changing and could change modern warfare, increase the safety of our men and women in the military, law enforcement, and public safety, and strengthen national security at all levels.

AUVSI's over 6,000 members from industry, government organizations, and academia are committed to fostering and promoting unmanned systems and related technologies.

Thank you for this opportunity to testify. I am happy to answer any questions you and Members of the Subcommittee may have.

UAS Facts, Figures and Quotes

UAS provide critical data for the Joint Warfighter - 24/7/365

- Predators and Reapers are providing more than 700 hours of full motion video every day (>22,000 hours per month) to the warfighter providing unmatched persistence and flexibility. Every second of every day, 40 Predator-series aircraft are airborne worldwide.
- Global Hawks are providing more than 550 hours of imagery each month.
- The U.S. Air Force's active and reserve components are fully engaged in UAS operations with 5 active MQ-1/9 squadrons; 1 active RQ-4 squadron; 2 Air Force Reserve MQ-1 squadrons; 4 ANG MQ-1 squadrons; 1 ANG MQ-9 squadron. The Air Force additionally is conducting UAS training operations at 5 Formal Training Units; 3 MQ-1 (1 ANG); 1 MQ-9; 1 RQ-4

The Air Force is currently flying 41 CAPS (28 Predator, 12 Reaper, 1 Global Hawk)

- The Air Force continues to grow its UAS combat capability and will add 6 MQ-1/9 CAPs over the next year. UAS growth will continue into FY11 with the culmination of 50 MQ-1/9 CAPs.

MQ-1 and RQ-4 aircraft are providing imagery in support of recovery operations in Haiti

- 1 RQ-4 CAP stood up 14 Jan 2010.
 - CENTCOM asset redeployed enroute to the AOR to support SOUTHCOM.
 - Over 50 hours of imagery provided to commanders and partner agencies.

USAF UAS Airframes

- Predators: 143 MQ-1 inventory, 78 in Combat
 - o 690,000 hours flown; averaging 4,500 hrs/week
- Reapers: 40 MQ-9 in inventory, 19 in Combat
 - o 95,000 hours flown; averaging 1,000 hrs/week
- Global Hawk: 18 RQ-4 in inventory (incl test), 7 combat coded, 4 deployed
 - o 38,000 hours flown, averaging 120 hrs/week

Combat Flt Hours (FY08)

Predator - 138,000

Reaper - 12,770

Global Hawk - 6,700

Combat Flt Hours (FY09)

Predator – 179,000

Reaper – 24,000

Global Hawk – 6,500

Combat Flt Hours (FY10)

Predator – 51,000
Reaper – 12,000
Global Hawk – 2,000

- Overall, use of Predator-series aircraft – In 2006 Predator-series aircraft flew 80,000 total flight hours. In 2009, this number more than tripled, growing to 295,000 flight hours for the year.
- Predator-series aircraft are expected to reach the one million flight hours milestone in late March or early April 2010. More than 85% of these hours have been accumulated in combat zones.
- In 2009, while performing border security missions, CBP flew more than 2000 hours and responded to more than 5,200 ground sensor activations; 2900 resulted in the identification of suspected illegal activity such as human or narcotics smuggling. These flight hours directly contributed to the seizure of more than 12,000 pounds of narcotics and the apprehension of more than 1500 suspects. (Source: DHS/CBP, March 2010)

Army UAS statistics as of 10 March 2010

- Approaching the 1 Million hours mark for all types of Army UAS
- 1,287 Fielded systems - in every Army Brigade Combat Team as organic equipment operated by line soldiers
- 291 Deployed systems in Iraq and Afghanistan, varies by density of units deployed - 15-17 per BCT, plus Military Police units
- Army Total Raven hours estimate: 275,269
- Army Raven Combat hours estimate: 241,775
- Over the last decade, the Army has experienced more than 4,200 percent growth in the operational tempo of unmanned aircraft systems.

Army Unmanned Aircraft Systems (UAS) are a rapidly growing capability that are quickly becoming indispensable to the Army. As an example of how quickly this capability has grown within the Army, when Operation Iraqi Freedom (OIF) began in March 2003, there were only 3 systems (13 aircraft) deployed in support of that operation. Today, we have 337 systems (1,013 aircraft) in OIF and Operation Enduring Freedom (OEF). This growth continues. For example, it took the Army 13 years to fly the first 100,000 hours of UAS. It took us less than a year to fly the next 100,000 hours, and now we fly more than 220,000 hours each year. By May 2010 Army UAS will have flown 1,000,000 flight hours, almost 90 percent of which were flown in support of combat operations.

Employment of UAS have become a critical part of how the Army conducts operations. The Army employs UAS across all echelons (to include Division/Corps level) providing dedicated/organic support for tactical maneuver and intelligence operations. Army UAS are predominately employed as tactical Reconnaissance, Surveillance, and Target Acquisition (RSTA) platforms supporting the Commander's scheme of maneuver. In this role, Army UAS have filled a critical need, providing "actionable" intelligence and decreasing the time between sensor and shooter (shortening the "kill chain").

Quotes from UAS Users

"The aircraft is an active contributor to the actual apprehension of these criminals. It's hard to imagine combat today without UAVs. The aircrafts' capabilities are continuously improving, and they are beginning to do a lot of the same missions as our manned aircraft."

Maj. Jonathan Shaffner, brigade aviation officer and chief of operations, 2nd Stryker Brigade Combat Team, 25th Infantry Division

"The Shadow provides coverage for a lot of raids. We do road scans for roadside bombs and have actually caught terrorists in the act of implanting these bombs in the road. The UAV mission is imperative to today's combat operations. When the infantry troops are going into a certain area to clear buildings, we'll go in ahead of time and scan the area, and we'll be able to report to them exact grids of potential enemies in the area."

Sgt. 1st Class David Norsworthy, a UAV platoon sergeant with 2nd BCT, 101st Abn. Div.

"In both Iraq and Afghanistan, my Marines prefer not to go outside the wire without first sending up a Raven or a Wasp to scan the area and see what's going on. We call the Raven and Wasp our Airborne Flying Binoculars and Guardian Angels."

GySgt Butler, Infantry Patrol Sergeant, USMC, 2008

"The Shadow is the commander's eye on the battlefield. It's surveillance, target acquisition and route reconnaissance all in one "We saved countless lives, caught hundreds of bad guys and disabled tons of IEDs in our support of troops on the ground."

Spc. Eric Myles, a UAV operator with Darkhorse Troop, 2nd Squadron, 1st Cavalry Regiment

"We've supported countless troops in contact. We've found IEDs and monitored vehicle-borne IEDs and supported a bunch of raids out there."

Sgt. Reed Myers, a UAV operator with Darkhorse Troop, 2nd Squadron, 1st Cavalry Regiment

"We bring another level to the commanders overall situational awareness, allowing them a chance to check things that would take a lot longer for troops on the ground to find out: from seeing if a high-value insurgent is at his house to if smugglers are trying to cross a river or canal at night. If we see something suspicious, we report it. I personally found an improvised explosive device during Iron Pursuit, and I'm proud that I'm doing a job that can save lives of the troops on the ground."

General comment by Spc. Sam Bishop, a UAV operator, 502nd Military Intelligence Company, 47th Forward Support Battalion, 2nd Brigade Combat Team, 1st Armored Division, Multi-National Division - Baghdad

"The simple fact is this technology saves lives."

Sgt. 1st Class David Norsworthy, a UAV platoon sergeant with 2nd BCT, 101st Abn. Div.