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## Bad Idea: UAVs Aren't Usable in Contested Environments

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The conventional wisdom is that existing unmanned aircraft systems (UAS), especially non-stealthy, long endurance platforms such as the MQ-9 Reaper, MQ-1C Grey Eagle, and RQ-4 Global Hawk, are not capable of operating in a contested environment. This belief has led to these platforms being written off when considering a hypothetical contingency scenario against a near-peer adversary with modern air defense systems. These UAS are often used for operations where persistent surveillance and strike capabilities are needed, increasing their vulnerability to detection and destruction by a wide range of anti-aircraft systems including relatively rudimentary anti-aircraft artillery for medium to low altitude UAS like the MQ-9 and MQ-1. UAS also lack the structural reinforcement and highly redundant flight systems found on many manned aircraft. As a result, it is less likely that a UAS will be able to return to base if damaged on a mission. This argument is best exemplified by David Deptula and Mark Gunzinger in their 2014 report, [Toward a Balanced Combat Air Force](#), in which they argue that these platforms are “unsuitable for power-projection operations over long ranges and in contested environments.”

This thinking is arguably an outgrowth of the Air Force's historical aversion to embracing unmanned aircraft. There was a long-held belief that such platforms were little more than novelties or were designed for a niche mission set that the Air Force would rather not undertake. While this overt mindset has receded in the past few years, its intellectual inertia has continued to hold sway despite proven successes of UAS. For example, the Israeli military has a long track record of integrating unmanned and manned aircraft operations in contested environments. These integrated air operations were used to suppress sophisticated Soviet produced surface-to-air missile systems in the Bekaa Valley during Operation Peace for Galilee in 1982.<sup>1</sup>

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<sup>1</sup> Thomas P. Ehrhard, *Air Force UAVs: The Secret History*, (Washington, DC: Mitchell Institute for Airpower Studies, 2010), 25.

The Israeli experience helps to demonstrate why the conventional wisdom is wrong. The fact that Israel achieved this success with very rudimentary UAS only further emphasizes this point. Existing UAS can be effectively employed to support operations in a contested environment. Those that argue that they cannot are not thinking creatively about how to employ UAS beyond the existing paradigm of persistent surveillance and strike operations. It will be increasingly difficult for the U.S. to succeed in a future near-peer contingency without fully leveraging all of its military assets to include non-stealthy, medium and high-altitude UAS such as the Reaper and Global Hawk. In fact, these platforms may prove invaluable for supporting stealthy, penetrating aircraft like the B-21 and F-35.

The first step toward utilizing existing UAS in non-permissive environments is to break out of the existing operational paradigm. There is no debate that existing UAS are easy targets if they are loitering at low speeds over a fixed target for hours on end in a contested environment. But there are many other missions where existing UAS might play a major role. The first is as a long dwell electronic warfare platform operating outside of or at the edge of enemy air defenses. Because of its long loiter time, UAS like the MQ-9 and RQ-4 can be ideal collection vehicles for electronic and signals intelligence. The RQ-4 in particular can sense over greater distances due to its higher operating altitude. These same characteristics make these platforms ideal to carry standoff jammers or expendable stand-in jamming munitions. For example, a single MQ-9 may be capable of carrying around eight Miniature Air Launched Decoy-Jammers (MALD-J).<sup>2</sup> This EW support mission will be critical as adversary nations channel investments into counter-stealth radars in an attempt to defeat stealth aircraft.

Equipped with small standoff weapons, existing UAS can serve as an extended magazine for stealth aircraft operating within a non-permissive environment. For example, a powered variant of the Small Diameter Bomb, would likely be able to outrange the standard interceptors of frontline Russian and Chinese SAM complexes. Larger standoff weapons could be carried albeit a far smaller number. The physics of stealth means that aircraft cannot carry external weapons, which dramatically limits the potential payloads of tactical fighters like the F-35 and F-22. In addition, stealth aircraft can become vulnerable when releasing internally stored weapons as it increases their radar signature considerably. In this way, existing UAS could serve as

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<sup>2</sup> This is an approximation that assumes a 4,000 pound external payload capacity for a late Block MQ-9 and a 300 pound MALD-J. These eight munitions would be spread across four hardpoints with dual launch rails.

additional “shooters” for more advanced aircraft acting as sensors. This operational concept also has the added benefit of maximizing the on-station time of relatively scarce assets (stealth aircraft) as their engagements per sortie would dramatically increase thanks to the magazine depth afforded by the teamed aircraft.

Some might argue that these uses of existing UAS are not technically operations in a contested environment. They are supporting operations within a contested environment, but the UAS themselves are begin held in areas of reduced danger. However, existing UAS could be also used further inside the threat envelope if a commander was willing to accept a greater degree of risk. The fact that UAS are uninhabited means that they can be considered a disposable asset in extremis. Embracing disposability is likely a longer-term goal for certain classes of UAS, but the Air Force should consider how disposability may enable new concepts for suppression of advanced enemy air defense capabilities. In this role, these platforms could be used as stand-in jammers and decoys to degrade the efficacy of an adversary’s radar systems and, if necessary, to serve as missile sinks for manned wingman.

These examples are illustrative of how new thinking can enable the use of existing UAS to support operations in a contested environment. However, they are by no means exhaustive. Creativity, new payloads, and new operating concepts must become the coin of the realm when developing the warfighting capabilities required to meet 21<sup>st</sup> Century threats.

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