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Predator Drones and Unmanned Aerial Vehicles (UAVs)



Tom Tschida/Agence France-Presse -- Getty Images

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Intelligence officials call unmanned aerial vehicles, often referred to as drones, their most effective weapon against Al Qaeda. The remotely piloted planes are used to transmit live video from Iraq, Afghanistan and Pakistan to American forces, and to carry out air strikes.

Predator spy planes were first used in Bosnia and Kosovo in the 1990s. The Air Force's fleet has grown quickly in recent years, and consists of 195 Predators - which are 27 feet long and cost \$4.5 million apiece - and 28 Reapers, a new, more heavily armed drone. Unmanned drones fly 34 surveillance patrols each day in Iraq and Afghanistan, up from 12 in 2006. They are also transmitting 16,000 hours of video each month, some of it directly to troops on the ground.

In addition, Army units have used hand-launched models, which look like toy planes, to peer over hills or buildings. Other drones monitor the seas and eavesdrop from high altitudes, much like the storied U-2 spy planes.

Despite their popularity, the drones have many shortcomings that have resulted from the rush to deploy them. Air Force officials acknowledge that more than a third of their Predators have crashed. Complaints about civilian casualties, particularly from strikes in Pakistan, have also stirred some concerns among human rights advocates.

In July 2009, the Air Force released a report that envisions building larger ones over the next several decades that could do the work of bombers and cargo planes and even tiny ones that could spy inside a room.

The Air Force also said it could eventually field swarms of drones to attack enemy targets. And it will have to be ready to defend against the same threat, which could become another inexpensive way for insurgents to attack American forces. The report envisions a family ranging from "nano"-size drones that could flit inside buildings like moths to gather intelligence, to large aircraft that could be used as strategic bombers or aerial refueling tankers. Midsize drones could act like jet fighters, attacking other planes or ground targets and jamming enemy communications.

Perhaps the most controversial is the idea of drones swarming on attack. Advances in computing power could enable them to mount preprogrammed attacks on their own, though that would be a difficult legal and ethical barrier for the military to cross.

But before long, even a single insurgent could dispatch several small drones at once. Referring to the improvised explosive devices that insurgents have planted like mines in Iraq and Afghanistan, the report warned that the next inexpensive threat to American troops could be "an airborne I.E.D."