Minimum Force

Airborne Special Reconnaissance in War

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The Need for ASR

On 30 January 2002, the International Security Assistance Force (ISAF) and US forces embarked on Operation Anaconda, the most ambitious and large-scale clearing operation of the war to that date. While considered a tactical victory, the casualties were relatively high, with eight Americans killed in action and another 82 wounded. The coalition forces experienced several problems, mostly the lack of effective coordination between airstrikes and ground forces and ineffective and incomplete reporting of enemy locations. The lack of coordination with intelligence assets on the front lines of a fast-paced modern conflict and the lack of a purpose-built air platform to find the enemy and report directly to frontline troops contributed significantly to the overall confusion and high casualty rate, despite the enemy force's lack of training and sophistication. One case study highlights these issues—the battle of Takur Ghar.

On 3 March 2002, a Special Operations Forces (SOF) team inserted from an MH-47 Chinook helicopter onto a mountain to set up a ground-based observation post, resulting in the loss of three helicopters and seven elite operators. The enemy presence on the hilltop proved significantly higher than expected, as was consistent with the entirety of Operation Anaconda.[1] Immediately after landing with the first portion of the SOF team, the first helicopter came under fire from a fixed heavy machine gun, small arms from at least three separate firing positions, and was struck by three rocket-propelled grenades. One stuck a critical radar system, and the aircraft lost almost all electrical power, including defensive miniguns.

Somehow still able to fly, the pilot elected to leave the landing zone (LZ) quickly before the SOF team could be ripped to pieces by the incoming fire. As the helicopter took off, Petty Officer 1st Class Neil Roberts fell from the open ramp of the MH-47. The pilots landed the barely functional helicopter in the valley below, and Roberts activated his infrared strobe to mark his position for the second Chinook. The second helicopter, aware of the hot LZ, made a combat landing, and the second half of the SOF team quickly left the helicopter and took up cover and concealment in the surrounding trees.

After searching but unable to make contact with Roberts during their advance, enemy fighters discovered the team. Heavy machine-gun fire pinned the team down and prevented effective extraction. The team did have support from an AC-130H gunship, which orbited overhead providing fire support. However, as the sun rose, the aircraft had to depart to prevent the relatively vulnerable aircraft from becoming a second casualty. While on station, this aircraft was not wholly dedicated to finding the enemy positions as the gunship's primary mission is on-call close air support (CAS).[2]

With a tactical requirement to dedicate one of its two sensors to the friendly location to prevent fratricide, the gunship could find and engage only a single enemy position at a time. Also, communications with the ground forces were minimal and did not enable effective reporting of enemy positions to the friendly troops.[3] There was an intelligence, surveillance, and reconnaissance (ISR) aircraft overhead in the form of an MQ-1 Predator. This aircraft, however, was centrally-controlled and had no communication with the ground forces.[4] Ultimately, the SOF team managed to call for the quick-reaction force of Rangers, a Tactical Air Control Party, and USAF Pararescue to secure their exfiltration, but only after the death of seven Soldiers, Sailors, and Airmen over a battle that lasted the entire day. Petty Officer 1st Class Roberts was posthumously awarded the Silver Star for his actions, and USAF MSgt John Chapman was posthumously awarded the Medal of Honor.

Had there been a dedicated reconnaissance platform in constant communication with ground forces, the outcome at Takur Ghar might have been significantly different. The US military finally addressed the need for dedicated Airborne Special Reconnaissance (ASR) platforms. However, it was not until much later during operations in Iraq that the mission truly gained traction.

Large-scale movement in Operation Iraqi Freedom was over relatively quickly with the initial operations to secure the country over in only 21 days.[5] After this, the United States conducted targeted, specific, SOF raids in a counterterrorism and counterinsurgency role. These raids were often in urban environments that made traditional reconnaissance almost useless. Deep urban canyons and complicated terrain, as well as the warren of internal rooms, kept the enemy well-hidden and required military leaders to rethink tactics as well as assets. As a result of these conditions and in no small part to Takur Ghar and operations like it, senior military officials took action. By urgent operational needs statement, the United States Special Operations Command developed and fielded the first pure Airborne Special Reconnaissance (ASR) platform, the U-28A. First deployed in 2006, the U-28A, "provides manned fixed-wing tactical airborne ISR support to humanitarian operations, search and rescue and conventional and special operations missions."[6]

Despite the urgent operational needs and the platform's actual development and various standards and tactics, ASR does not yet exist in doctrine. Even with the Joint Force's increasingly heavy reliance on light tactical fixed-wing reconnaissance platforms during the last two decades, there is no guiding doctrine on how best to integrate these platforms into the operational level of war, and there should be. The 2018 *National Defense Strategy* (*NDS*) refocuses the defense enterprise on peer competition *and* explicitly states that our armed forces will continue the low-end fight.[7] We need to capture these important lessons somewhere other than platform-specific tactics, techniques, and procedures (TTP) so that they can propagate to, and be adapted by, the future force. We must study what we know of the low-end fight, pass on those best practices to the next generation, and consider how we can use ASR to counter a high-end adversary. Gaining and maintaining a strategic advantage in future conflict will be a function of intelligence and reconnaissance.

Reconnaissance is critical to war fighting. The ability to know where the enemy is, what they are doing, and where your forces are engaged, is necessary for effective combat operations regardless of low-end or high-end conflict.[8] The side that has the best information usually wins.[9] Successful reconnaissance is measured in terms of speed, accuracy, and timeliness.[10] The advent of airpower improved reconnaissance across all three critical measures. With human flight, the rapid acquisition and dissemination of intelligence from the air became the norm for warfare.

World War I (WWI) saw the first large-scale use of air reconnaissance with three categories of sortie, the contact sortie, the tactical reconnaissance sortie, and the artillery observation sortie. Contact sorties served to cut through the fog of war and find friendly forces, assessed the situation in real-time, and reported back to commanders at higher echelon. The tactical reconnaissance sortie found the enemy and discerned its disposition and activities, while the artillery observation sortie spotted enemy artillery batteries, guided friendly bombardments, and enabled counterbattery firing. The effectiveness of air reconnaissance at providing counterbattery corrections was most useful to ground commanders and formed the foundation of the early air corps' mission.[11] This mission was revolutionary, but due to the low availability of air assets and the strategic importance of reconnaissance, commanders held operational control at the corps level, resulting in days to weeks before frontline units knew critical details about their enemy. This delay often led to gaps in front-line war-fighting unit intelligence, leading commanders to make un-informed decisions or rely on gut instinct as opposed to concrete data.[12]

The modern example of Takur Ghar is a pivotal moment in the evolution of airborne reconnaissance. This important milestone marked the foundational requirements of the first purpose-built manned SOF platform to address tactical

intelligence needs. It integrated into that role so successfully that the demand for support skyrocketed. In June 2009, the Air Force developed the first conventional asset to fill this new mission need—the MC-12W Liberty.[13] Parallel to the manned efforts, the remotely piloted aircraft mission evolved as well, with the MQ-9 Reaper capable of both finding enemy targets, providing real-time feed, and carrying a modest amount of ordnance providing precision strike and limited CAS capability.

Eventually, the focus of operations in Afghanistan and Iraq shifted from enabling ground forces to conducting precision airstrikes to target high-value individuals. The ASR aircraft again evolved, their flexibility and advanced sensors giving them the ability to find and fix targets extremely rapidly. They coordinated with armed aircraft to develop advanced TTPs to manage and deconflict airspace in the Tactical Air Controller-Airborne role. They also provided precision terminal guidance for weapons deliveries. The latest iterations of ASR platforms can perform a wide range of functions within the ASR mission from the support of friendly forces to filling roles for precision strikes. Between manned and unmanned platforms, the ASR mission has an unprecedented ability to provide real-time targeting and amplifying information on enemy positions to the frontline friendly forces that are directly engaged with the enemy.

This mission brings a unique blend of multidomain abilities to the battlefield and changes how air reconnaissance assets integrate into the Joint Force. A single ASR asset can simultaneously meet the reconnaissance and intelligence needs of multiple regimental sized units in real-time while providing that information to the Global Integrated ISR Network.[14] This capability means that ASR assets can operate effectively under much more decentralized control than current doctrinal ISR missions.

Modern Role of Ground and Airborne Special Reconnaissance

Modern Special Reconnaissance (SR) provides the commander with several types of data about the enemy as well as the terrain and environment the main force will encounter in an advance. Each branch organizes, trains, and equips its units to conduct this mission. SR must provide three common core functions to the ground force commander. Effective SR must accurately fix the threat's location, movement, and reserves, visualize the terrain, and anticipate the threat's actions.[15]

Fix the Threat

With modern engagements evolving and changing in minutes, reconnaissance must be even more decentrally executed than it has been in the past. Modern general-purpose maneuver forces rely on a nonlinear battlefield to use advantages and create a mass of force at times and locations that set conditions for victory.[16]

Nonlinear battlefields require frontline commanders to have accurate, meaningful, real-time information. Commanders must have an accurate perception of reality to achieve victory. Aircrews refer to this concept as situational awareness. With a centralized construct, intelligence products must flow back up to a headquarters element before they are sent to the frontlines. This situation creates unacceptable delays that result in old and inaccurate reconnaissance at the frontline commander's level, reducing the situational awareness of battlefield forces. The requirement for real-time intelligence is incompatible with the delay inherent in a centralized intelligence system. When providing accurate information, modern reconnaissance, it must flow directly to tactical commanders.

ASR can fix the threat several orders of magnitude faster than ground reconnaissance units and over significantly larger areas and provide critical elements of information rapidly. This rate increases the situational awareness of frontline units significantly better than other traditional ISR efforts. In addition to speed, ASR can leverage real-time links to national intelligence assets and offboard sensors on other aircraft, creating on-the-fly fusion of all-source intelligence to support the ground force commander's intent in real-time. Because of the aircraft's payload capability relative to man-portable systems, these links are far more robust, resilient, and agile than similar capabilities carried by ground special reconnaissance teams.

Visualize the Terrain

Visualizing the terrain is a key function of SR. A commander cannot plan effectively without knowing where the formation is going and what they will encounter. SR provides this function in several ways: verbal reports of the terrain, still and motion imagery, and through geographic and hydrographic surveys. Another key reason to request a terrain survey of SR is that it significantly reduces the chances for successful enemy deception.[17]

ASR can visualize the terrain across the range of the electromagnetic spectrum, covering large physical areas as well as conducting comparisons of change over time. ASR platforms usually carry on-board terrain data that can validate planning assumptions compared with real-world information or allow war fighter-centered realignment to meet emergent combat requirements. They can deliver this information to the Joint Force in real-time.

Anticipate the Enemy

Finally, and most importantly, effective SR must enable the commander to accurately predict the enemy's actions. This function is the most difficult aspect of SR because the characterization of enemy forces is entirely subjective. Sometimes, merely identifying enemy combatants is difficult. This characterization allows

commanders to predict the enemy's response and validate planning assumptions or trigger contingency plans. ASR can characterize individual actions, anticipate routes of march or travel based on enemy qualities and known capabilities, and even identify enemy combatants hiding among a population. The ability to anticipate the enemy from the air is a direct result of the specialized equipment and highly trained crews of ASR units.

Characteristics of Airborne Special Reconnaissance Missions

ASR can provide many essential elements of information to frontline troops and higher-echelon commanders simultaneously. Air assets bring other unique and disruptive abilities to the battlefield that directly enable multidomain operations.

The characteristics of ASR missions are clearly defined commander's scope and intent, delegation to the lowest practical authority, and full support from the Intelligence (J2) infrastructure.

USAF Annex 2-0 emphasizes the processing and dissemination of intelligence. This function is indeed essential in the construct of the centrally controlled employment of ISR the USAF currently uses. With this centralized construct, the information flow is inherently slow. Computers and technology make this much faster than during WWI, but the construct remains essentially unchanged and is insufficient for current and future combat.

ASR units do not have to pass information back up to the central authority for dissemination. They operate with autonomy from central headquarters, operating on mission command and clear commander's intent. They pass updates directly to the front, speaking with the war fighters on the ground in real-time, passing live video and other products directly. They are rapidly flexible to emergent mission requirements and can even support many units simultaneously. The aircraft's technology and connectivity allow much of this data to automatically feed back into the overall global integrated ISR effort, allowing the crew to focus on the war fighter.

By delegating tactical control (TACON) to the lowest practical unit, planners set the most optimal conditions for close working relationships between aircrews and ground forces. ASR working in close coordination with ground and air tactical command and control can rapidly turn the tide of battle.

The designation of supported force in the J2 commander relationship ensures the integrity of the ASR mission. With full J2 infrastructure support, the processing, exploitation, and dissemination (PED) process allows the data to inform operational and strategic decisions. The PED is passive. It does not interfere with the aircrew's ability to support their tactical level unit, nor do PED requests or requirements drive taskings to the aircrew.

Functions of Airborne Special Reconnaissance

According to Air Force Doctrine Document (AFDD)-1, the inherent flexibility of airpower allows a single platform to deliver tactical, operational, and strategic effects simultaneously.[18] For this reason, Joint Force commanders should not consider air assets to be "spent" once they are assigned to a given echelon of command. ASR missions can support any level of warfare when the needs of the force dictate. However, the nature of airpower and the character of ASR lend themselves to the tactical level. They are less effective when control is held at higher levels.

Strategic

Strategic reconnaissance is the gathering and dissemination of information that enables national-level strategic discourse and policy making. Strategic intelligence seeks to characterize general enemy operations, movements, and postures by casting the widest collection net possible. This ability is most useful to higher-echelon commanders and campaign planners at the highest operational echelon of warfare.[19] In general, strategic intelligence enables strategic planning that may or may not include the military instrument of power.

ASR is not an inherently strategic mission. With modern PED and connectivity, ASR missions may gather information and data that enable strategic planning; however, this is a second- or third-order effect. The primary focus of ASR is enabling tactical effects.

Operational

The operational level of war links strategy to tactics by providing a framework to guide campaigns and major combat operations. At this level, combatant commanders develop end states that will support and enable strategic objectives.[20] Arranging battles and undertaking major combat operations are critical pieces of the operational level. ASR mission fundamentals can provide the commander and staff with critical details before and during the onset of hostilities. We must establish operational-level doctrine that will allow planners to best integrate the unique and disruptive capabilities of ASR platforms into campaign plans.

The connectivity and J2 infrastructure support of ASR platforms mean that operational intelligence needs can flow to the right audience regardless of the TACON command relationship. Many other platforms have capabilities that can bridge the strategic and operational intelligence requirements; however, they are not purpose-built for tactical mission sets. As such, ASR provides a uniquely flexible tool to the Joint Force the must be effectively integrated into operational planning.

Tactical

The tactical level of warfare is that the lowest level at which tactical units and joint task forces plan and conduct battles and engagements.[21] Engagements and battles are the most critical component of warfare; the actions of the frontline troops, especially in today's hyperconnected and complex environment, can have immediate and far-reaching operational and strategic impacts.[22] As such, this level of war is where ASR can have the biggest impact on successful military operations.

ASR operators are highly educated and trained, and the best possible chances of overall mission success lie in giving them a clear commander's intent and autonomy of action. The relationship between ground and air at this level is a partnership, with both parties working towards a clear goal. Through standards, training, and education, ground force commanders can be confident that the reconnaissance they receive from ASR missions is relevant, timely, and accurate.

The table is a brief overview of the relative comparison between the existing doctrinal mission set of ground special reconnaissance and airborne special reconnaissance. While each service has its unique capabilities in special reconnaissance just as each airborne platform does, the general characteristics allow a quick, surface level grasp at the similarities and differences between the two missions.

Table. Comparisons between the roles, characteristics, and functions of the special reconnaissance mission

Roles	Ground SR		Airborne SR	
	Positive	**Negative**	**Positive**	**Negative**
Fix the Threat	Precision, accuracy, hard to deceive, Identify equipment condition	Limited geographic scope, prone to deception in urban areas, single-mission reporting, delayed reporting (equipment-dependent)	Speed, volume of targets, rapid multi-modal distribution, wide area coverage all-source intelligence fusion, multisource target correlation	Impacted by weather, mission duration usually <24hrs, vulnerable to deception in some situations
Visualize the Terrain	Precision, accuracy, soil type, load capacity, line of sight considerations hard to deceive, minimally impacted by weather	Requires high terrain for wide view, landmark obscuration, limited coverage area	Wide area coverage, no line-of-sight gaps holistic picture, real-time full-spectrum imaging, radar mapping, computer-assisted change identification, all-source intelligence fusion	Impacted by weather, unable to conduct geographic/ hydrographic survey to a high level
Anticipate the Enemy	Characterization of actions/intent, facial expressions, body language, id true activity levels, less vulnerable to deception/decoy	Line-of-sight only, delayed/minimal correlation with multiple sites	Large-scale troop movements, correlated activity at separate locations, tactical movements, thermal signatures, likely paths of travel, civilian locations/ considerations	Vulnerable to deception/unclear indicators, difficult to characterize intent

Characteristics				
Commander's Intent	Receive specific orders/objectives, operate under ROE, flexible within geographic range	Not easily retasked, equipment/capabilities limited by weight	Rapidly flexible, Operate Under ROE, access to datalinks and beyond LOS resources, wide area of responsiveness, multirole capability/loadouts	Duration limited by fuel, impacted by weather
Delegation of Authority	Limited battlefield scope and relatively high number of capable units drives best fit to tactical level	Usually unable to provide intelligence products directly to higher echelon, reporting delay due to bandwidth/equipment/tactical situation	Operates TACON at tactical level, provides operational and strategic support simultaneously	High-demand, low-density asset
J2 Support	Able to carry moderate products on equipment, thorough pre-mission briefs	Available products at beginning of mission are all that is available, limited connectivity while on mission	Real-time access to national intelligence resources, PED, cross-platform datalinks, all-source fusion products, support from and access to secure networks.	Prone to confusion and possibility of C2 push-pull issues if supported, supporting relationship not clearly defined
Functions				
Strategic	Hard truth of survey data, enemy disposition, characterization, equipments state confirms/denies planning assumptions. Limited ability to engage in action for strategic effect.	Significant time-delay compared to ASR, limited breadth of collection techniques/products, smaller available range of actions.	Real-Time reporting directly to strategic decision makers. Fusion of all-source intelligence into actions that have strategic effects. Wide-area responsiveness and flexibility.	High-demand/ low-density asset, weather dependent
Operational	Precise and accurate data to support operational planning and execution	Long transit times by ground, limited firepower, non-kinetic effects	Real-time support to operational and tactical units, precision strike on some platforms, significant non-kinetic effect options, parallel support and bridge between tactical and operational levels	Weather dependent, high demand/low-density assets, prone to deception in some situations
Tactical	Truth data on enemy, terrain, characterization allows high-confidence tactical decision-making, ability to conduct limited kinetic/non-kinetic operations at tactical level	Able to support limited number of units intelligence needs, delay in reporting, limited equipment and capabilities due to weight	Range of products, J2 support, network connectivity, datalink integration, full-spectrum imagery and sensing, TAC-A for control of supporting airborne assets	Weather dependent, high demand/low-density assets, prone to deception in some situations

Conclusion

ASR is an extremely valuable mission set to the Joint Force commander and can provide a critical edge across the competition continuum. Although ground commanders have always appreciated airborne reconnaissance, the implications of this mission have been far more clear in the minds of those who fly than their joint partners.[23] For this reason, it is critical that air-minded individuals have the guiding hand in creating the doctrine of ASR.

The ability to share reconnaissance information directly with the front echelon in real time enables the key component of mission command.[24] ASR can concurrently enable and augment the joint war-fighting functions of intelligence, information, command and control, fires, movement and maneuver, and protection. ASR missions can simultaneously support multiple ground units, conduct deep shaping fires and preparation of the operational environment, and contribute to theater-level situational awareness across all echelons of the Joint Force. ASR is most efficient when operating with the commander's intent and autonomy. The ability to find and fix enemy positions, visualize the terrain, and characterize the enemy over vast areas accurately and rapidly is the most important advantage in modern maneuver warfare and nonlinear battlefield operations. This ability has been the core advantage of aviation since WWI, and modern ASR aircraft are more capable, more lethal, and more effective than ever. ✪

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Notes

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