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Given the escalating A2/AD threat from U.S. adversaries, a growing number of critics argue that executing a JFEO by way of airborne assault is no longer feasible due to the associated risks. Despite the challenges with projecting joint forces into contested regions, the U.S. Army's airborne assault JFEO capability remains a viable option for military commanders to rapidly project combat power anywhere in the world once the A2/AD threat has been neutralized. Further, and perhaps more importantly, the U.S. Army's ability to deploy conventional and special operations airborne forces globally is a strong deterrent against hostile state and non-state actors.

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Command and Staff College
Marine Corps University
2076 South Street
Marine Corps Combat Development Command
Quantico, Virginia 22134-5069

MASTER OF MILITARY STUDIES

The Army's Airborne Assault Forces—A Critical Component of the U.S. Military's Strategic Deterrence and Joint Forcible Entry Capability

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

MAJOR PATRICK A. TOFFLER JR

AY 2020-21

Mentor and Oral Defense Committee Member: Dr. J. H. Joyner
Approved: _____
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Approved: _____
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United States Marine Corps
Command and Staff College
Marine Corps University
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Approved: _____
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Approved: _____
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Executive Summary

Title: The Army's Airborne Assault Forces—A Critical Component of the U.S. Military's Strategic Deterrence and Joint Forcible Entry Capability

Author: Major Patrick A. Toffler, United States Army

Thesis: Despite the risks associated with projecting joint forces into contested regions, the U.S. Army's airborne assault Joint Forcible Entry Operation (JFEO) capability remains a viable option for military commanders to rapidly project combat power anywhere in the world once the anti-access and area-denial (A2/AD) threat has been neutralized. Further, and perhaps more importantly, the U.S. Army's ability to deploy conventional and special operations airborne forces globally is a strong deterrent against United States' adversaries.

Discussion: The Department of Defense demands that its joint forces maintain a high level of readiness and stand ready to deploy on short notice to defeat enemy A2/AD systems, enter contested territory, and accomplish the Nation's assigned missions.[1] Given the escalating A2/AD threat from adversaries of the United States, a growing number of critics argue that executing a JFEO by way of airborne assault is no longer feasible due to the associated risks.

Further, these professionals argue that mass airborne assault operations against a near-peer adversary would result in substantial loss to the force reducing its tactical value.[2] The enemies of the United States have sophisticated systems integrating radar, satellite, and ISR assets, providing early warning against a U.S. joint force attempting to enter contested airspace. Specifically, the enemy will likely have established defenses comprising of Surface-to-Surface Missiles (SSM), Surface-to-Air Missiles (SAM), and well-trained and equipped militaries ready to engage the joint force during infiltration, actions on the objectives, and throughout exfiltration.

Conclusion: In spite of the threats, the U.S. military must train and maintain the ability to rapidly deploy highly capable airborne forces. The United States remains the only nation in the world with the capability to project and sustain combat power globally. The U.S. military should not concede this incredible strategic advantage over its adversaries. Rather, the solution must be for the U.S. Army and the joint community to employ innovative solutions to disrupt, degrade, and neutralize enemy A2/AD capabilities enabling an airborne assault. To maintain the United States' strategic JFEO deterrence, the U.S. military must develop advanced strategies through the combination of pre-assault fires, offensive cyber operations, electronic warfare assets, and deception operations to reduce the risk to force and support mission accomplishment.

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[1] Joint Chief of Staff, *Joint Concept for Entry Operations (JCEO)*, (Washington D.C.: Joint Chiefs of Staff, April 7, 2014), 34-35.

[2] James King, "Yes, Mass Airborne Operations Are a Thing of the Past," Modern War Institute, Last modified October 12, 2016, https://mwi.usma.edu/yes-mass-airborne-operations-thing-past/.

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THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

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To the Rangers, Paratroopers, and Soldiers I have had the privilege of serving with in the 75th Ranger Regiment, 10th Special Forces Group, 82nd Airborne Division, and 4th Infantry Division thank you for your mentorship, example, and professionalism. My appreciation and understanding of the capabilities within infantry and airborne units is thanks in large part to serving with such incredible Soldiers, non-commissioned officers, and officers from these organizations. I am proud to have served with you.

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When [the] United States loses the ability to forcibly enter another's terrain, we have surrendered our influence in a world where that surrender will not play well.[3]
- Former Secretary of Defense Jim Mattis

Introduction

The Department of Defense's (DoD) Joint Publication 3-18 defines Joint Forcible Entry Operations (JFEO) as "forcible entry seizing and holding a military lodgment in the face of armed opposition or forcing access into a denied area to allow movement and maneuver to accomplish the mission."[4] In this research paper, I will make the argument that despite the increasing anti-access and area-denial (A2/AD) threat from adversaries of the United States, the U.S. Army's conventional and special operations airborne assault forces remains a viable option for military commanders to project combat power anywhere in the world. That said, for the U.S. military to successfully conduct a JFEO, the A2/AD threat must first be neutralized. Further, and perhaps more importantly, the U.S. Army's airborne capability to rapidly deploy infantry forces globally remains a strong deterrent against our adversaries.

While the risks associated with conducting a JFEO by way of airborne assault against a near-peer adversary are significant, the answer is not to eliminate airborne assault forces. The United States remains the only nation in the world with the capability to rapidly project and sustain combat power globally. The U.S. military should not concede this incredible strategic advantage over its adversaries. Rather, the solution must be for the U.S. Army and the joint community to employ innovative solutions to disrupt, degrade, and neutralize enemy A2/AD capabilities enabling a successful airborne assault. To maintain the United States' strategic JFEO deterrence, the U.S. military must develop advanced strategies through the combination of pre-

[3] Then-Central Command (CENTCOM) Commander, General James Mattis as quoted in "Joint Forcible Entry," LTG Frank G. Helmick, September 15, 2010, Infantry Warfighter Forum, Power Point briefing. www.benning.army.mil/iwc/2010/Downloads/LTGHelmick.ppt (accessed October 27, 2011).
[4] Joint Chiefs of Staff, *Joint Forcible Entry Operations (JFEO)*, Joint Publication 3-18, (Washington, D.C., 27 June 2018), GL 5.

assault fires, offensive cyber operations, electronic warfare (EW) assets, and deception operations to reduce the risk to force and support mission accomplishment.

In preparing this paper, I conducted extensive research on military defense, national power, JFEO, and airborne assault forces. These resources provided detail on the A2/AD threats facing airborne forces, as well as arguments both for and against maintaining airborne assault capability within the U.S. Army. Through this research, I found that some professionals argued against keeping airborne assault capability given the known threats and associated risks. I also discovered several scholars who advocated for the necessity of airborne forces as a critical component within the U.S. Army's tools to rapidly deploy combat forces worldwide to accomplish designated missions. I found fewer professionals who have written on how the U.S. military would defeat our adversaries' A2/AD capability to set the necessary conditions to conduct an airborne assault into a contested environment. While I will highlight a RAND study covering survivability data for U.S. Air Force transport aircraft maneuvering into contested airspace, more research is needed on how the U.S. military plans to contend with the problem of conducting a JFEO by way of airborne assault.

Given the known threats to U.S. military transport aircraft and to airborne assault forces, this paper seeks to address the role of U.S. Army airborne forces in the 21st century. To underscore the value of the airborne assault capability, I will provide a brief history of the formation of airborne units and significant operations utilizing airborne forces during World War II. Next, this essay will cover more recent combat airborne operations by the U.S. military in Panama (Operation Just Cause), Afghanistan (Objective Rhino), and Iraq (Operation Northern Delay) as case studies illustrating the unique expeditionary capabilities of airborne forces to rapidly deploy combat power in support of the mission. Further, this essay will discuss the

opposing arguments against airborne assault operations. Last, I will close by offering a way ahead for airborne forces to remain a viable military option against the adversaries of the United States.

For the purposes of this essay, I will focus on airborne assault forces utilizing static-line parachute techniques from fixed-wing aircraft (Figure 1).[5] Conventional airborne units within the U.S. Army include three brigades from the 82nd Airborne Division out of Fort Bragg, North Carolina, the 173rd Airborne Brigade headquartered in Vicenza, Italy, and the 4th Infantry Brigade Combat Team (Airborne) within the 25th Infantry Division in Joint Base Elmendorf-Richardson, Alaska. Additionally, the 75th Ranger Regiment, a special operations Infantry Brigade within the United States Special Operations Command (USASOC), is based out of Fort Benning, Georgia.

Figure 1: C-17 deploying U.S. Airborne forces utilizing T-11 static-line parachutes

[5] Dustin Biven, "Sky Full of Chutes," U.S. Department of Defense, Last modified June 8, 2018. https://dod.defense.gov/OIR/gallery/igphoto/2001933045/.

While the 75th Ranger Regiment is a specialized infantry unit within USASOC, it is worth including this unit as they are also trained to conduct airborne assault operations anywhere in the world. Additionally, the 75th Ranger Regiment employs the same static-line parachute deployment tactics from U.S. Air Force fixed-wing aircraft (e.g., C-17 and C-130) as the three conventional units listed above. Of note, this essay will not cover the deployment of small units, such as reconnaissance or special forces teams, who typically execute airborne deployment by way of high-altitude high-opening (HAHO) or high-altitude low-opening (HALO) military free fall (MFF) into contested battlespace (Figure 2).[6]

Figure 2: U.S. Special Forces conducting a HALO Military Free Fall jump exiting from a C-130

Though U.S. adversaries have credible A2/AD capabilities, it is much easier for small teams to infiltrate contested airspace through HAHO or HALO tactics. However, these teams are limited by their numbers and firepower to the scope of their designated missions (e.g., raid, special reconnaissance, or hostage rescue). The more challenging problem for the U.S. military is to rapidly deploy larger formations of combat forces into enemy territory to accomplish the

[6] Wesley Bonin, "Off We Go into the Wild Blue Yonder," Keesler Air Force Base, accessed January 17, 2021, https://www.keesler.af.mil/News/Art/igphoto/2000270911/.

designated mission (e.g., airfield seizure). When executing airborne assaults, the U.S. Army deploys its forces utilizing static-line parachutes. For these reasons, this paper will examine the utility and viability of airborne assaults with a minimum of battalion size formations.[7]

History of the U.S. Army Airborne Forces

Airborne forces offer the Joint Force Commander an immediate forcible entry option since they can be launched directly from the United States without the delays associated with acquiring intermediate staging bases (ISBs) or re-positioning of sea-based forces…Airborne operations can be launched at a considerable distance from the target area with such speed as to cause tactical or operational surprise and prevent effective action by the enemy.[8]

Prior to the United States' entry into World War II, the military studied how the Soviets and Nazi Germany tested and employed their respective airborne forces. In 1939, the German military successfully deployed airborne forces across Norway, Belgium, and Crete. Seeing the success from the Germans and Soviets, the United States invested in building aircraft and parachutes to support the employment of infantry from the sky.[9] On August 15, 1942, the U.S. Army activated both the 82nd Airborne Division and the 101st Airborne Divisions, and within a year added the 11th, 13th, and 17th Airborne Divisions. The Allied Forces conducted their first airborne combat operation on November 8, 1942, launching a battalion of paratroopers in 2nd Battalion, 509th Parachute Infantry Regiment from Britain onto Northern Africa as part of Operation Torch. Building on this achievement, the U.S. military conducted its first division-sized combat airborne operation (Operation Husky) onto the island of Sicily on June 9, 1943 under the leadership of Major General Mathew Ridgeway. Despite adverse weather conditions, friendly fire leading to 33 of the 144 C-47 aircraft being shot down, and paratroopers from the

[7] An Infantry battalion consists of approximately 1,000 troops with a combination of rifle, special tactics, and support companies. For more information on Infantry battalions refer to ATP 3-21.20, *Infantry Battalion*.
[8] Joint Chief of Staff, *Joint Forcible Entry Operations (JFEO),* Joint Publication 3-18, (Washington, D.C., June 27, 2018), I-10, A-1.
[9] Roger E. Bilstein, "The U.S. Army Air Forces in World War II: Airlift and Airborne Operations in World War II," U.S. Department of Defense, 1998, https://media.defense.gov/2010/Sep/22/2001330050/-1/-1/0/AFD-100922-024.pdf, 12-13.

82nd Airborne Division being scattered well outside planned drop zones, the operation proved strategically effective forcing the Italians to withdraw from the island in August 1943.[10]

Throughout World War II, airborne operations proved critical to the deployment of infantry forces behind enemy lines. Airborne forces seized key terrain, disrupted lines of communication, and defeated enemy defensive positions to shape Allied operations including Operation Overlord onto Normandy in June 1944, Operation Market Garden in the Netherlands in September 1944, and Operation Varsity supporting Allied forces crossing the Rhine River in March 1945. Today, the U.S. Army maintains airborne infantry forces with the 82nd Airborne Division, 173rd Airborne Brigade, and an airborne brigade from the 25th Infantry Division. In 1974, the U.S. Army also stood up 1st and 2nd Ranger Battalions, which later grew to the 75th Ranger Regiment in 1984. Elements within these organizations participated in successful airborne operations throughout the Korean War (1950-1953), the Vietnam War (1965-1974), Grenada (1984), Panama (1989), Afghanistan (2001), and Iraq (2003).

In the next section of this essay, I will cover three U.S. military combat airborne operations in Panama, Afghanistan, and Iraq. These recent historical case studies provide important context to the value of airborne assaults to quickly project and sustain combat power. It is worth noting that all three of these operations were conducted by the U.S. military against inferior enemies with limited air defense capability. The United States has not conducted an airborne assault against a great power threat since World War II. That is not to say that the U.S. military could not execute a JFEO against a near-peer adversary, but the A2/AD threat would have to be neutralized prior to mitigate losses to aircraft and the force. Regardless, these three

[10] William Murray, "Airborne Operations During World War II," HistoryNet, last modified on June 12, 2006, https://www.historynet.com/airborne-operations-during-world-war-ii.htm.

case studies help illustrate the enormous power and capability that airborne assault forces bring to the U.S. Army and joint military commanders.

Case Studies of Modern U.S. Army Airborne Operations

Panama—Operation Just Cause, December 20, 1989

JUST CAUSE showed what we are capable of...I feel very good about the overall quality of the operation, the quality of advice we got, and the professionalism with which [the military] carried out the operation.[11]
- Former Vice President Dick Cheney

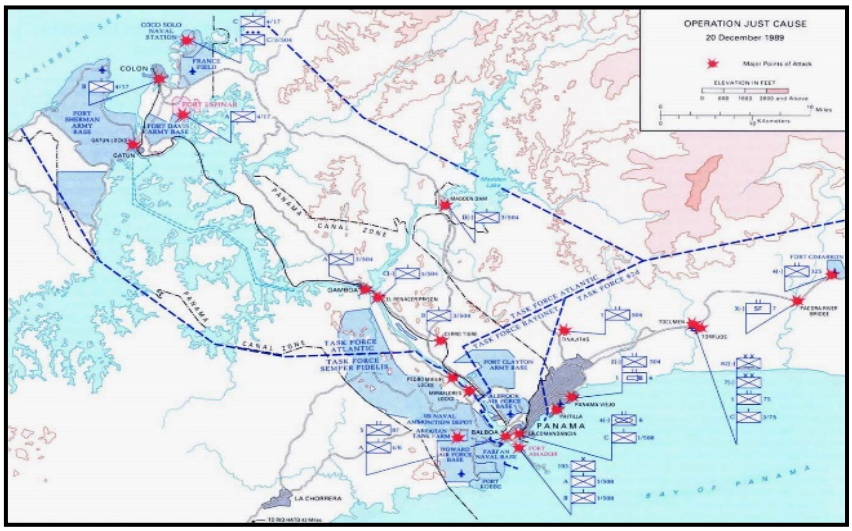

Figure 3: U.S. operational plans during Operation Just Cause, 20 December 1989

On the early morning hours of December 20, 1989, the United States launched a JFEO into Panama with 27,000 U.S. troops to destroy the Panamanian Defense Forces (PDF) and capture the Panamanian dictator, Manual Noriega (Figure 3).[12] Joint Task Force-South (JTF-South) comprised of conventional and special operations forces including Navy Seal Teams, 7th Special Forces Group, 75th Ranger Regiment, 6th Marine Regiment, 82nd Airborne Division, and 7th Infantry Division.[13]

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[11] Cole, Ronald H. "Operation Just Cause Panama." Office of the Chairman of the Joint Chiefs of Staff. Last modified 1995. https://www.jcs.mil/Portals/36/Documents/History/Monographs/Just_Cause.pdf, 72.
[12] "Panama Maps - Perry-Castañeda Map Collection - UT Library Online," University of Texas Libraries, accessed January 18, 2021, https://legacy.lib.utexas.edu/maps/panama.html.
[13] Lawrence A. Yates, *The U.S. Military Intervention in Panama: Operation Just Cause, December 1989-January 1990,* Washington, D.C: Center of Military History, United States Army, (2014), 52-54.

After diplomatic efforts failed between the United States and Noriega, and PDF soldiers killed a Marine officer, Lieutenant Robert Paz, and captured a Navy Lieutenant, Adam Curtis, and his wife, Bonnie, on the evening of December 16, President George H.W. Bush made the decision to overthrow Noriega's authoritarian regime. In a speech to the American people on December 20, President Bush stated that military force in Panama was necessary to "restore democracy to the Panamanian people, safeguard the lives of Americans in Panama, protect the integrity of the Panama Canal, and bring Noriega to justice for violations with drug trafficking."[14]

On short notice, the U.S. military assembled conventional and special operations forces to create JTF-South. Deploying from Fort Bragg, North Carolina and Fort Benning, Georgia, 1st, 2nd, and 3rd Battalions from the 75th Ranger Regiment, and 1st Brigade of the 82nd Airborne Division conducted multiple airborne assaults to seize Rio Hato and Torrijos-Tocumen airfields, and "eliminate PDF resistance in sector" on the morning of December 20.[15] The seizure of these airfields crippled the PDF and enabled JTF-South to build up and sustain combat power. Upon seizing the airfields, paratroopers from the 82nd Airborne Division successfully executed follow on air-assaults to secure objectives at Panama Viejo, Fort Cimarron, and Las Tinajitas. While the PDF did not present an overwhelming threat to the mission, JTF-South had to contend with Panamanian ZPU-4 anti-aircraft weapons which posed a serious threat to low-flying transport aircraft and the forces conducting the airborne assaults.

In addition to the ZPU-4 weapon systems, the commander of JTF-South, Lieutenant General Carl Stiner, was concerned over the PDF companies near the airfields utilizing "small

[14] Frederick Kempe, *Divorcing the Dictator – America's Bungled Affair with Noriega*. (New York: G.P. Putnam's Sons, 1990), 6-7.
[15] Lawrence A. Yates, *The U.S. Military Intervention in Panama*, 273.

arms fire in mass" against the Rangers descending onto their objectives.[16] Echoing these concerns, the commander of the 75th Ranger Regiment, Colonel William Kernan (retired as a 4-star General), stated, "we were going to take a lot of casualties if these people [PDF] were able to marshal their forces" onto the nearby airfields.[17] To mitigate the risk to force and to the mission, the JTF-South conducted precision strikes utilizing 2,000-pound laser-guided munitions with the F-117A Nighthawk, along with close air support from AC-130 Spectre gunships minutes before the designated H-hour. With the PDF threat degraded, U.S. Air Force C-130 and C-141 aircraft entered Panamanian airspace under the cover of darkness to initiate the airborne assaults from the 75th Ranger Regiment and 82nd Airborne Division.[18]

The deployment of airborne forces during Operation Just Cause provides an excellent example to the utility that conventional and special operations airborne forces bring to military commanders. Within 96 hours of notification, the U.S. military successfully launched a joint task force consisting of over 27,000 U.S. troops to defeat the PDF, overthrow Noriega's authoritarian regime, and restore democracy to the Panamanian people. Spearheading this attack were the airborne assaults onto Rio Hato and Torrijos-Tocumen airfields by the 75th Ranger Regiment and 82nd Airborne Division. These airfield seizures enabled the buildup of combat power and the successful execution of follow-on operations including the capture of Manual Noriega on January 3, 1990.[19]

[16] Lawrence A. Yates, *The U.S. Military Intervention in Panama*, 280-281.
[17] Ibid., 284.
[18] Ibid., 69, 236, 269, 280.
[19] Cole, Ronald H. "Operation Just Cause Panama." Office of the Chairman of the Joint Chiefs of Staff. Last modified 1995. https://www.jcs.mil/Portals/36/Documents/History/Monographs/Just_Cause.pdf, 63.

Afghanistan—Objective Rhino, October 19-20, 2001—Operation Enduring Freedom

CENTCOM demonstrated to the enemy its capacity to control all areas of the country, when on 19 October 2001, U.S. Special Forces and Rangers raided deep into the Taliban's heartland of Kandahar seizing Objective Rhino.[20]

Figure 4: 3rd Battalion, 75th Ranger Regiment conducts an airborne assault onto Objective Rhino near Kandahar, Afghanistan on October 19, 2001

In the aftermath of the terrorist attacks against the United States on September 11, 2001, there was immense domestic and international pressure for the U.S. military to respond quickly with deadly force. President George W. Bush directed the armed forces to prepare military operations targeting the terrorist network responsible for the attack, Al-Qaeda, and the Taliban government in Afghanistan who refused to give up Al-Qaeda's leader, Osama bin Laden.[21] Specifically, CENTCOM (Central Command responsible for Afghanistan and the greater Middle East) was directed to "kill or capture Al-Qaeda commanders and make the invasion of Afghanistan a global example of what happens when rogue states sponsor terrorism."[22] With this guidance, the U.S. military along with the Central Intelligence Agency (CIA) set in motion a

[20] Ian Langford, "Operation Enduring Freedom (OEF), Afghanistan 2001," *2010 JSOU and NDIA SO/LIC Division Essays* 10, no. 4 (May 2010), 31.
[21] Ibid., 28-29.
[22] Douglas J. Feith, *War and Decision: Inside the Pentagon at the Dawn of the War on Terrorism*, (New York: Harper Collins, 2008), 84.

plan to partner with the Northern Alliance Afghan forces to defeat the Taliban and destroy Al-Qaeda leadership.

As part of this military strategy, U.S. Special Operations Forces, including 3rd Ranger Battalion, 75th Ranger Regiment, conducted a JFEO to seize an airfield (Objective Rhino) south of Kandahar on October 19, 2001 (Figure 4).[23] The successful airborne assault by 3rd Ranger Battalion enabled 160th SOAR (Special Operations Aviation Regiment) MH-47 and AH-6 helicopters to refuel in preparation for follow-on operations to Objective Gecko, the compound of Taliban's leader, Mullah Mohammed Omar. The combined airborne and air-assault operations led to the defeat of multiple Taliban fighters, the collection of critical intelligence, and confirmed the viability of future operations utilizing Objective Rhino as a base of operations.[24]

While the Taliban fighters defending Objectives Rhino and Gecko did not have air defense capability, the airborne assault by 3rd Ranger Battalion remains a relevant case study on the power of airborne forces to conduct a JFEO to seize critical infrastructure. In the case of Objective Rhino on October 19, seizing the airfield through an airborne assault was the only feasible option given the ranges to reach both objectives, and the necessity to secure and assess the airfield before C-130s could safely land. Once the forward arming and refueling point (FARP) was established, conditions were set for the follow-on air-assault to Objective Gecko. The successful airborne assault by 3rd Ranger Battalion was the first operation into Afghanistan and led to the eventual overthrow of the Taliban government in Afghanistan.

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[23] "U.S. Army Rangers Jump into Afghanistan - Operation Rhino (2001)," YouTube, last modified September 16, 2009, https://www.youtube.com/watch?v=tFk6BmHEROE.
[24] Ian Langford, "Operation Enduring Freedom (OEF), Afghanistan 2001," *2010 JSOU and NDIA SO/LIC Division Essays* 10, no. 4 (May 2010), 31-32.

Iraq—Operation Northern Delay, March 26, 2003—Operation Iraqi Freedom

Northern Delay was the first strategic brigade airdrop using C-17 aircraft in formation, integrating a conventional Army airborne brigade within the 10th Special Forces Group, and integrating an armored battalion into an airborne operation.[25]

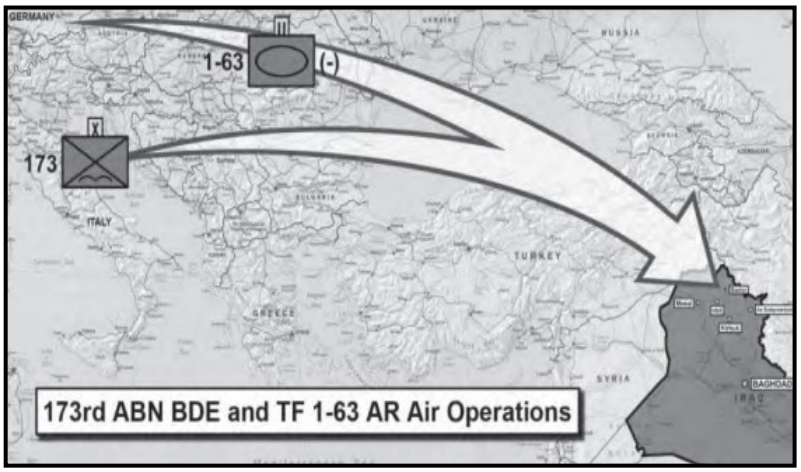

Figure 5: 173rd Airborne Brigade—Operation Northern Delay, March 26, 2003

In March 2003, the United States exercised decisive military force to overthrow the Iraqi government under the authoritarian leadership of Saddam Hussein and restore democracy to the Iraqi people. To accomplish this mission, the U.S. military planned and conducted operations on five fronts across Iraq. As part of the northern front, the 173rd Airborne Brigade within the Combined Joint Special Operations Task Force-North (CJSOTF-N) deployed from their home base in Vicenza, Italy (over 3,000 kilometers away) to seize Bashur airfield near Erbil, Iraq on March 26, 2003 (Figure 5) in support of Operation Northern Delay.[26]

Unlike the Taliban fighters in southern Afghanistan during Objective Rhino, the Iraq military possessed far greater air defense capability. The U.S. Air Force 62nd Airlift Wing along with the paratroopers from the 173rd Airborne Brigade faced threats including small-arms fire,

[25] Andrew D. Robinson, "Operation Northern Delay: The Evolution of Joint Forcible Entry," Master's Thesis, Command and General Staff College, (2018). IV.
[26] Gregory Fontenot, E. J. Degen, and John Tohn. On Point: The United States Army in Operation Iraqi Freedom (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), 224.

anti-aircraft artillery, and MANPADS (man-portable air defense systems).[27] To mitigate this risk, the 62nd Airlift Wing crews used combat evasive maneuvers to rapidly descend from 23,000 feet to a drop altitude under 1,000 feet above the ground less than five miles from Bashur airfield. In addition, Operation Northern Delay was supported with close air support from a B-52 Stratofortress strategic bomber and an AC-130 Spectre gunship.[28] Despite the intelligence reporting Iraqi military defending the airfield, approximately 1,000 paratroopers from the 173rd Airborne Brigade successfully conducted the airborne assault and seized the airfield with minimal resistance.

Though the 173rd Airborne Brigade and the CJSOTF-N did not face a significant threat at Bashur airfield, the operation proved vital to the overall success of military operations throughout the northern front in Iraq. Due to extended ranges, an airborne assault JFEO into contested Iraqi airspace was the only effective option for military planners to deploy and mass combat power into enemy territory. The successful airfield seizure by the 173rd Airborne Brigade set conditions for the rapid buildup of combat power including M-1 Abram tanks from 1-69 Armor Brigade deploying from Germany. Further, the airfield seizure provided a critical base of operations during the initial phases of Operation Iraqi Freedom, enabling special forces elements to conduct follow-on operations with Kurdish military in northern Iraq.[29]

Operation Just Cause, Objective Rhino, and Operation Northern Delay are three missions where the use of airborne assault forces was critical to the overall success of the operation. In all three missions, airborne forces deployed over great distances, penetrated contested airspace, and

[27] Shane M. Hershman, "The Planning and Execution of the Airdrop and Airland of the 173rd Airborne Brigade over Northern Iraq on 26-30 March 2003" (U.S. Army War College Personal Experience Monograph, Carlisle Barracks, PA, 2005), 3-5.
[28] Ibid.
[29] Robinson, Andrew D. "Operation Northern Delay: The Evolution of Joint Forcible Entry." Master's Thesis, Command and General Staff College, 2018, 71-72.

executed successful JFEOs. Although the PDF in Panama, Taliban in Afghanistan, and Iraqi military did not present the U.S. military with a serious integrated air defense system (IADS) threat, these three operations all show the capability and power of airborne forces deploying on short notice to seize critical infrastructure, defeat the enemy, and accomplish the designated mission. The subsequent section will present the argument for why there is growing concern over the viability of airborne assaults against the adversaries of the United States.

Opposition Against the use of Airborne Assault Forces

One of the biggest mistakes militaries make is to assume that future wars will resemble wars of the past…Militaries are also more inherently conservative than other types of organizations, as they seek to control the tremendous uncertainties of warfare to the greatest degree possible, because the consequences of failure are so extraordinarily high.[30]

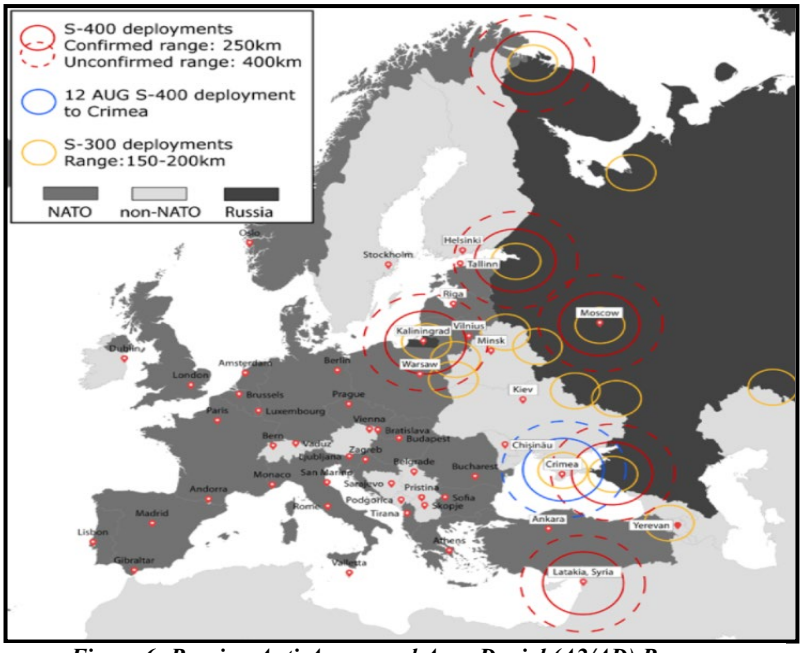

Figure 6: Russian Anti-Access and Area-Denial (A2/AD) Ranges

Given the advantages airborne forces provide military and civilian leaders, why are professionals calling for the removal or reducing the number of airborne forces? The primary reasons have much to do with risk to the mission and risk to force. The integrated A2/AD capabilities of near-peer adversaries (e.g., China and Russia) and even inferior forces (e.g., Iran,

[30] David Barno and Nora Bensahel, *Adaptation Under Fire: How Militaries Change in Wartime* (New York: Oxford University Press, USA, 2020), 231.

North Korea, and Syria) make conducting any JFEO difficult (Figure 6).[31] The challenges associated with defeating enemy radar systems and air defense artillery increase the risks and costs associated with the execution of JFEO by way of airborne assault. Critics argue that airborne assault forces would be defeated through early-detection systems (e.g., radar, satellite, and Intelligence Surveillance Radar (ISR) assets) with a combination of long, medium, and short-range ballistic missiles.[32]

In an essay for Modern War Institute, James King, a U.S. Army Intelligence officer, contends that mass airborne operations should be abandoned in favor of limited scale insertions by special operations forces due to the substantial risk to aircraft and forces. He writes, "the dramatic increase in accuracy in air defense weapon systems [Russian made S-400 and S-300, SA-17, ZPU-23-4, and SA-24] has significantly decreased the potential survivability of aircraft involved in this type of mission [airborne assault]."[33] King concludes, "the limited tactical advantage of large, modern-day airborne operations are overshadowed by their potential strategic loss."[34] While King concedes that the U.S. military does have effective Suppression of Enemy Air Defenses (SEAD) capabilities to roll-back enemy radar and vehicle-based air defense systems, he argues that this will not be enough. Further complicating an airborne assault is the enemies' ability to fire MANPADS at slow-moving aircraft. These MANPADs put U.S. Air Force C-130 and C-17 aircraft flying slow (130 knots) and at low altitude (1000 feet) over drop zones at considerable risk.

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[31] James King, "Yes, Mass Airborne Operations Are a Thing of the Past," Modern War Institute, Last modified October 12, 2016, https://mwi.usma.edu/yes-mass-airborne-operations-thing-past/.
[32] Patrick Toffler, "JFEO Position Paper—JFEO in A2/AD Contested Environments," Command and Staff College, Marine Corps University, December 13th, 2020.
[33] James King, "Yes, Mass Airborne Operations Are a Thing of the Past," Modern War Institute, Last modified October 12, 2016, https://mwi.usma.edu/yes-mass-airborne-operations-thing-past/.
[34] Ibid.

In a lecture to Command and Staff College, Col (Ret.) Art Corbett stated that the United States' "ability to roll-back land-based adversary A2/AD capabilities is highly problematic without significant escalation." He added, the adversaries of the United States "have studied the American way of war, discerned the Achilles heel of our joint expeditionary capability, and directed their A2/AD investments to compel inelegant dilemmas on the U.S. joint force."[35] Unless the United States is planning a JFEO against an inferior opponent, challengers will contend that JFEO is not a viable military option. Simply stated, the opposition argument can be summed up as the risks are too great to both low-flying transport aircraft and to U.S. forces to justify an airborne assault JFEO.

Challenges for Airborne Assault Forces and the Way Ahead

> *Airborne forces will likely be confronted with increasingly sophisticated anti-access threats, including evolving low, medium, and high-altitude air-defense systems; longer-range surface-to-surface fires threatening the lodgments that are critical to the success of airborne operations; and improved tactical combat capabilities in the hands of potential opponents. To overcome these new threats, the airborne force will need new capabilities.*[36]

The Department of Defense's (DoD) *Joint Concept of Entry Operations* states that the joint forces "must be able to disrupt, destroy, and defeat enemy area-denial capabilities and enter onto foreign territory and immediately employ capabilities to accomplish assigned missions."[37] Since World War II, the U.S. military has produced and maintained airborne forces to accomplish forcible entry operations into contested enemy territory. DoD's *Joint Operational Access Concept* (JOAC) contends that airborne forces provide a critical capability for both "joint synergy" and "cross-domain synergy" enabling "the seamless application of combat power" to

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[35] Art Corbett, "Joint Forcible Entry Operations" (lecture, Marine Corps University, Command and Staff College, December 2, 2020).
[36] John Gordon IV, Agnes Gereben Schaefer, David A. Shlapak, Caroline Baxter, Scott Boston, Michael McGee, Todd Nichols, and Elizabeth Tencza, *Enhanced Army Airborne Forces: A New Joint Operational Capability*. Santa Monica, CA: RAND Corporation, 2014. https://www.rand.org/pubs/research_reports/RR309.htm, xiii.
[37] Joint Chief of Staff, *Joint Concept for Entry Operations (JCEO)*, (Washington D.C.: Joint Chiefs of Staff, April 7, 2014), 34-35.

accomplish the required mission. Specifically, JOAC argues that cross-domain synergy between the "component (e.g., airborne assault forces securing forward air bases) to the low-level tactical [capability] (e.g., aerial, naval, space, cyber, and land-based capabilities) cooperates" to defeat the enemy's A2/AD systems enabling sustained operations.[38] Moreover, Joint Concept for Entry Operations (JCEO) describes airborne forces as a pivotal component, along with air-assault and amphibious assault forces, providing initial entry forces with the unique capability to "enter foreign territory" and "insert offset from infrastructure (e.g., airfields or seaports)" to conduct operations independent of external sustainment.[39]

Of the four-primary means of JFEO infiltration, airborne assault carries several advantages over air-assault, amphibious assault, and air-land. For one, airborne assaults can be executed at far greater ranges than either air-assaults or amphibious assaults. This range advantage enables airborne forces to gain and sustain the element of surprise, provided the enemy's early detection systems (e.g., radar) are neutralized prior to infiltration. Additionally, airborne forces conduct air drops with far more combat power (e.g., artillery, mortars, vehicles, supplies, and medical equipment) to provide sustained organic combined arms capability. Due to the weight and space limitations of helicopters, air-assault by way of CV-22, CH-53, CH-47, or UH-60 cannot provide the air-assault force with nearly the same combat power.

Another advantage airborne assault provides over the other forms of infiltration is the ability to drop forces far deeper into enemy territory. Not only can airborne forces travel undetected much further than air-assaults or amphibious assaults, but these forces can penetrate

[38] Joint Chief of Staff, *Joint Concept for Entry Operations (JCEO)*, (Washington D.C.: Joint Chiefs of Staff, April 7, 2014), 16.
[39] Ibid.

contested regions well beyond the ranges of helicopters.[40] Further, the U.S. Army's airborne assault forces remain a strong deterrent against the adversaries of the United States. Colonel (Ret.) Mike Kazmierski underscores this point writing:

> *Within the defense structure, only the airborne forces are capable of strategic airlift and forced entry. By having this forced entry, force projection capability, the airborne forces also provide the nation with another form of deterrence, to be used as an element of national power.*[41]

This theory of projecting airborne units as a strategic deterrence force was tested following the January 3, 2020 U.S. military strike killing Iran's General Qassim Soleimani. As tensions escalated between Iran and the United States, the U.S. military conducted a rapid no-notice deployment of 1st Brigade from the 82nd Airborne Division. While the deployment of the 82nd Airborne Division was not an airborne assault into contested airspace, this example provides context to the deterrent power of deploying substantial combat forces on the border of our adversaries.

Much of the research on airborne assault forces and JFEO make the argument that while airborne infiltration remains a viable military option, the associated costs both to the mission and the force remain high. Those critical of airborne assault JFEO contend that these costs are far too great unless the United States is prepared for a significant escalation in combat power required to reduce the risks to an acceptable level. Those in favor of airborne forces conducting JFEO argue that despite the risks, the U.S. military must train and maintain the ability to rapidly deploy highly capable conventional and special operations forces. The capability and the will to project combat power remains a credible strategic deterrence against the enemies of the United States.

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[40] David Johnson and John Gordon IV. "Reimagining and Modernizing U.S. Airborne Forces for the 21st Century," War on the Rocks. Last modified April 20, 2016. https://warontherocks.com/2016/04/reimagining-and-modernizing-u-s-airborne-forces-for-the-21st-century/.

[41] Michael J. Kazmierski, "United States Army Power Projection in the 21st Century: The Conventional Airborne Forces Must Be Modernized to Meet the Army's Strategic Force Requirements and the Nation's Future Threats," Master's Thesis, Command and General Staff College, 1990, 120.

The primary gap in available research is answering how the U.S. military would feasibly deploy and conduct a JFEO utilizing airborne forces into an A2/AD contested environment? While the U.S. military trains to fight near-peer adversaries, the U.S. military has not deployed large-scale airborne forces against a viable threat since World War II (e.g., Operation Overlord (June 1944) and Operation Market Garden (September 1944)). As addressed in the three case studies, the most recent U.S. Army airborne assaults occurred against inferior enemy forces with limited A2/AD capability in Panama in 1989 (Operation Just Cause), Afghanistan in 2001 (Objective Rhino), and Iraq in 2003 (Operation Northern Delay).

Regarding the question of how the U.S. military would effectively conduct a JFEO against a peer or near-peer adversity, Thomas Rid argues for the use of cyber weapons stating, "the greatest benefit of cyber-weapons may be using them in conjunction with conventional or covert military strikes, as Israel did when it blinded the Syrian air defense in 2007" during Operation Orchard.[42] Further, Art Corbett advocates for the continued development of directed-energy weapons asserting:

> *The next major shift in the character of future war will likely occur when directed-energy weapons are perfected and incoming missiles can be 'burned' at an acceptable cost with sufficient volume and assurance to restore maneuver to large platforms and defend large infrastructure.*[43]

Though Rid and Corbett provide potential methods for contending with the A2/AD threat, defeating sophisticated defensive systems presents the United States and our allies with an intensifying challenge. To maintain the credible U.S. military strategic JFEO deterrence, the joint community must continue to develop advanced strategies through the combination of pre-assault

[42] Thomas Rid and Peter McBurney, "Cyber-Weapons," The RUSI Journal, February 29, 2012. https://doi.org.10.1080/03071847.2012.664354.
[43] Art Corbett, "Joint Forcible Entry Operations," Lecture, Marine Corps University, Command and Staff College, December 2, 2020.

fires, offensive cyber operations, electronic warfare (EW) assets, and deception operations to reduce the risk to force and support mission accomplishment.

In 2004, RAND conducted a study to quantify the risks and test the feasibility for the U.S. Air Force to conduct a JFEO into a notional near-peer A2/AD contested environment. Notably, the research team sought to answer the question "can large aircraft survive against modern air defense capabilities?"[44] To answer this challenging question, RAND simulated multiple scenarios employing U.S. Air Force aircraft (e.g., C-130s and C-17s) to conduct a vertical envelopment into Kosovo. In the scenario, the enemy forces in Kosovo employed modern A2/AD capabilities equivalent to what the U.S. military would expect to face from either Russia or China. In a separate report to Congress in June 2020, Colonel Nishawn Smagh, succinctly reports on these threats writing:

> *Potential adversary capabilities are designed to create a nonpermissive environment, deny the U.S. military freedom of movement, and mitigate the effectiveness of U.S. combat power within an armed conflict. Both China and Russia have fielded advanced warfighting capabilities to include mobile ballistic missiles, mobile air and coastal defense weapon systems, cyber, stealth aircraft, remotely piloted aircraft, advanced ISR and electronic warfare capabilities.*[45]

Recognizing these threats, the RAND test concluded that "no single technology assessed appeared to provide a complete solution for ensuring survivability of transport aircraft in defended airspace."[46] These tested technologies included a combination of current conventional and future weapon systems to improve survivability. The Army Science Board (ASB) envisioned

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[44] John Matsumura, Randall Steeb, Blake Crowe, Nicholas Dienna, Yuna Huh Wong, Gary Quintero, and William Sollfrey, *Survivability Options for Maneuver and Transport Aircraft: Analytic Support to the Army Science Board*. Santa Monica. CA: RAND Corporation, 2004. https://www.rand.org/pubs/monographs/MG123.html.
[45] Nishawn S. Smagh, "Intelligence, Surveillance, and Reconnaissance Design for Great Power Competition (CRS Report No. RL46389)," Congressional Research Service, last modified June 4, 2020, https://fas.org/sgp/crs/intel/R46389.pdf.
[46] John Matsumura, Randall Steeb, and Blake Crowe. Sollfrey, *Survivability Options for Maneuver and Transport Aircraft*., XIX.

these technologies being employed as part of a three-tier survivability framework: preparation of the battlefield, team protection, and individual protection (Figure 7).[47]

Layer of Survivability	Near-Term Technologies to Incorporate	Farther-Term Technologies to Develop
Preparation of the battlefield	• Advanced RSTA systems (e.g., foliage penetration radar, small, agile UAVs, or unattended ground sensors) • Prep fires using area weapons (e.g., fuel air explosives)	• Long endurance, autonomous loitering aircraft/missile, with target recognition • Long-haul command, control, and communications • Clearing of landing zones with energy weapons
Team protection	• Low cost expendable decoys • Small high-speed anti-radiation missile (HARM) • Low-cost autonomous attack submunition (LOCAAS)	• Unmanned Combat Armed Rotorcraft (UCAR) • Directed energy (solid state lasers) for hard kill of airborne SAM
Individual protection	• Suite of Integrated Infrared Countermeasures (SIIRCM) • Directional Infrared Countermeasures (DIRCM) • Suite of Integrated Radio-Frequency Countermeasures (SIRFC) • Hybrid lightweight armor	• Airborne version of the small low-cost interceptor device (SLID) • Directed energy; Multifunction electro-optics for defense of U.S. aircraft (MEDUSA) • Signature reduction • Intelligence obscurants

Figure 7: Near and Far Term Technologies for Improving Survivability of Large Transport Aircraft

While the RAND study did conclude that no single technology eliminated the A2/AD threat, the research team did find that a combination of techniques and technologies did provide significant improvement to survivability of aircraft during insertion. The most effective solution included "the use of low-altitude ingress with an unmanned platform serving as escorts and hunters, armed with a high-speed anti-radiation missile (HARM)" which improved survivability by 70 percent.[48] Further, the ASB found throughout their simulations with 30 transport aircraft that all survived when flying along the edges of A2/AD ranges in conjunction with employing

[47] John Matsumura, Randall Steeb, and Blake Crowe. Sollfrey, *Survivability Options for Maneuver and Transport Aircraft*., XVII-XVIII.
[48] Ibid., XIX-XX.

layered defense concepts. Ultimately, the RAND study concluded that a "layered concept and associated technologies provide dramatic improvement over flying transport aircraft alone." However, the research team cautioned that given the associated risks deploying these aircraft to conduct a vertical envelopment into contested environment should be done "judiciously."[49]

In addition to the RAND study, the U.S military should take lessons from one of its allies, Israel, who with the assistance of the United States and United Kingdom intelligence agencies executed a successful military operation into contested airspace to destroy Syria's Al-Kibar nuclear reactor on September 6, 2007. Israel's sophisticated intelligence methods coupled with the use of cyber technologies enabled the Israel Defense Force (IDF) and Air Force (IAF) to penetrate Syria's advanced Integrated Air Defense Systems (IADS) undetected. Beyond the effective airstrike to neutralize Syria's nuclear reactor, Operation Orchard proved to rogue actors, including Iran, that Israel would not tolerate the illegal production of nuclear weapons and further, that they had the capability to destroy nuclear facilities at will. For the United States and its allies, Operation Orchard demonstrated the utility of cyber operations to enable the undetected access into contested airspace.

When Israel made the decision to conduct a unilateral preemptive strike against the Al-Kibar nuclear facility, the IDF and IAF employed cyber and EW capabilities to neutralize the Russian-made Syrian IADS. While the specific tactics employed remain classified, experts speculate that the IAF used an airborne cyber-attack targeting Syrian radar systems. In the essay, "Cyber Weapons," Thomas Rid and Peter McBurney contend that the goal for Israel was "to trick the active [radar] system to display no approaching airplanes to its operators for a limited

[49] John Matsumura, Randall Steeb, and Blake Crowe. Sollfrey, *Survivability Options for Maneuver and Transport Aircraft*., XXI.

time."[50] Yaakov Katz from the Jerusalem Post reports that the Israeli forces deactivated all of Syria's air defense systems "for the entire period that the Israeli fighter jets needed to infiltrate the country, bomb their target, and escape."[51] David Fulghum from Aviation Week & Space argues that Israel employed technology comparable to the U.S. "Suter airborne network attack system developed by BAE Systems and integrated into U.S. unmanned aircraft by L-3 Communications." He adds:

> *The technology allows users to invade communications networks, see what enemy sensors see, and even take over as a systems administrator so sensors can be manipulated into positions so that approaching aircraft cannot be seen. The process involves locating enemy emitters with great precision and then directing data streams into them that can include false targets and misleading messages algorithms that allow activities control.*[52]

Although it is probable Israel employed cyber operations to gain access into Syrian air defense systems, others contend that the IDF employed more conventional bombing and EW tactics. Follath and Stark offer further detail stating "seven F-15s flew at low altitude using precision-guided weapons to eliminate a radar station" enabling their uncontested entry into Syrian airspace to destroy the Al-Kibar nuclear facility.[53] Most likely, Israel utilized a combination of conventional and cyber tactics to neutralize Syrian air defense systems. Regardless of the tactics employed, the mission was a resounding tactical success (Figure 8).[54] The IDF's special forces

[50] Thomas Rid and Peter McBurney, "Cyber-Weapons," The RUSI Journal, February 29, 2012. https://doi.org.10.1080/03071847.2012.664354.
[51] Yaakov Katz, "And They Struck Them with Blindness," The Jerusalem Post, last modified September 29, 2010, https://www.jpost.com/Magazine/Features/And-they-struck-them-with-blindness.
[52] David A. Fulghum, "Why Syria's Air Defenses Failed to Detect Israelis," *Aviation Week & Space Technology* 3: (2007).
[53] Follath and Stark, "The Story of 'Operation Orchard': How Israel Destroyed Syria's Al Kibar Nuclear Reactor."
[54] Caren Kaplan, "Air Power's Visual Legacy: Operation Orchard and Aerial Reconnaissance Imagery as Ruses De Guerre," Taylor & Francis, Last modified November 5, 2014. https://www.tandfonline.com/doi/full/10.1080/23337486.2014.974949

teams and IAF entered Syrian airspace undetected, destroyed the nuclear facility, and returned to Israel without any shots fired from the Syrian military.[55]

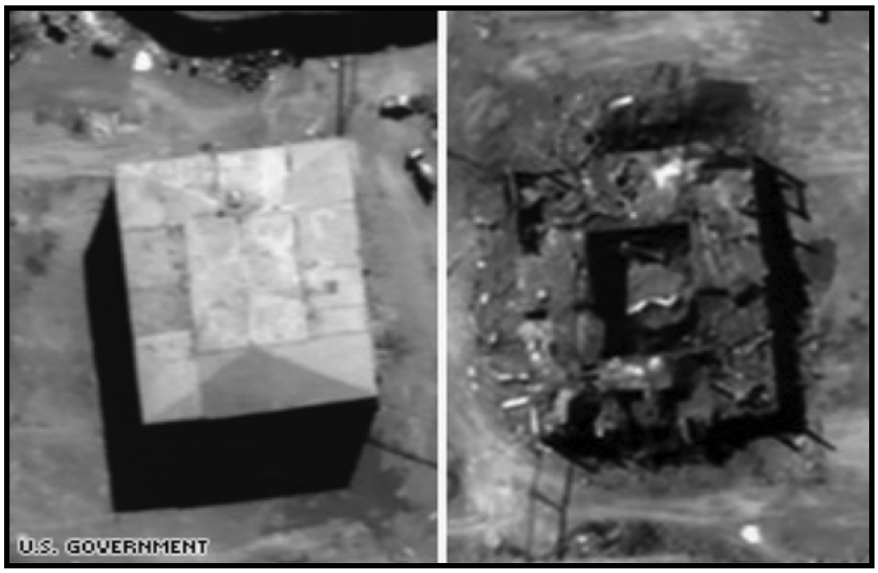

Figure 8: Al-Kibar Nuclear Reactor before and after IAF strikes during Operation Orchard

Operation Orchard does not provide the U.S. military with a specific example of how to employ airborne forces into contested airspace against a near-peer enemy. That said, the operation by the IDF and IAF does show the utility and viability that new technologies in the cyber and EW domains can have in supporting the U.S. military in defeating enemy A2/AD systems. For the U.S. military, Operation Orchard proved that A2/AD systems can be defeated through a combination of cyber and conventional weapons. Once the enemies' defense capabilities (e.g., command and control nodes, radar systems, and missile systems) have been neutralized, airborne forces remain the military's foremost capability to rapidly project combat power into contested environments.

[55] Patrick Toffler, "Operation Orchard—How Israel Employed Cyber and Information Operations to Destroy Syria's Al-Kibar Nuclear Reactor," Command and Staff College, Marine Corps University, February 12, 2021.

Conclusion

The United States must maintain the credible capability to project military force into any region of the world…Moreover, the credible ability to do so can serve as a reassurance to U.S. partners and a powerful deterrent to those contemplating actions that threaten U.S. interests.[56]

Throughout this paper, I argued that U.S. Army airborne forces remain a viable military option for commanders planning JFEO against near-peer and inferior enemy forces once the A2/AD is neutralized. The essay opened with an historical overview of U.S. airborne forces including the initial formation of the 82nd and 101st Airborne Divisions in 1942 taking lessons from Nazi Germany and the Soviets. The U.S. Army conducted mass airborne operations throughout World War II against peer adversaries in North Africa, Italy, and Europe. Two infamous battles addressed in this paper were Operation Overlord in Normandy, France in June 1944, and Operation Market Garden in the Netherlands in September 1944. Next, this essay discussed the modern airborne assaults by the U.S. Army in Panama (Operation Just Cause), Afghanistan (Objective Rhino), and Iraq (Operation Northern Delay) to illustrate the utility and power that airborne forces bring to the joint force.

The paper then provided an overview to the primary arguments against the tactical value of airborne forces. More specifically, critics contend that modern A2/AD capabilities employed by near-peer adversaries make the risk to both force and to the mission far too great. The enemies of the United States have sophisticated systems integrating radar, satellite, and ISR assets, providing early warning against a U.S. joint force attempting to enter contested airspace. Acknowledging these challenges and the fact that the U.S. military executed all three of the modern airborne assaults against inferior enemies with limited A2/AD capability, this essay pointed to a RAND study which provided quantifiable data and solutions to contend near-pear capabilities. Further, I used the IDF's 2007 Operation Orchard as a recent example of solutions

[56] Department of Defense, *Joint Operational Access Concept, Version 1.0*, (17 January 2012), 2.

employed by U.S. allies to defeat an adversary's A2/AD systems. By combining conventional tactics and weapons with emerging technologies, the IDF defeated a highly capable Syrian IADS defense to destroy the covert Al-Kibar nuclear facility.

Moving forward, the solution for the U.S. military and its allies to devise innovative solutions to neutralize enemy A2/AD capabilities enabling JFEO by way of airborne assault. Despite the A2/AD threats of U.S. adversaries, U.S. Army airborne forces remain an asset to military commanders as a rapid response contingency force to be employed against small-scale and near-peer conflicts. The former is an easier problem for U.S. forces to contend with due to the enemy having limited A2/AD capability. The three U.S. combat case studies highlighted in this report provide proof to the value of airborne forces to quickly project combat power and decisively accomplish the designated mission. In the future, it is more probable that U.S. airborne forces will be employed against an enemy with inferior A2/AD capability. That said, the U.S. Army and the joint force remains capable of conducting a JFEO by way of airborne assault against near-peer competitors once the A2/AD threat has been neutralized. The key to dealing with the A2/AD threat is for the joint force to continue to refine technologies with tactics to mitigate the enemies' defense. This paper has shown there are plausible means to first neutralize the A2/AD threat through a "layered system-of-systems survivability approach."[57]

[57] John Matsumura, Randall Steeb, and Blake Crowe. Sollfrey, *Survivability Options for Maneuver and Transport Aircraft*., XIX.

Bibliography

Barno, David, and Nora Bensahel. *Adaptation Under Fire: How Militaries Change in Wartime*. New York: Oxford University Press, USA, 2020.

Beaulieu, James. "Seizing the Lodgment: Forcible Entry Lessons from Panama and the Falklands." School of Advanced Military Studies--United States Army Command and General Staff College. Last modified May 26, 2016. https://apps.dtic.mil/dtic/tr/fulltext/u2/1021809.pdf.

Bilstein, Roger E. "The U.S. Army Air Forces in World War II: Airlift and Airborne Operations in World War II." U.S. Department of Defense. Last modified 1998. https://media.defense.gov/2010/Sep/22/2001330050/-1/-1/0/AFD-100922-024.pdf.

Biven, Dustin. "Sky Full of Chutes." U.S. Department of Defense. Last modified June 8, 2018. https://dod.defense.gov/OIR/gallery/igphoto/2001933045/.

Bonin, Wesley. "Off We Go into the Wild Blue Yonder." Keesler Air Force Base. Accessed January 17, 2021. https://www.keesler.af.mil/News/Art/igphoto/2000270911/.

Cole, Ronald H. "Operation Just Cause Panama." Office of the Chairman of the Joint Chiefs of Staff. Last modified 1995. https://www.jcs.mil/Portals/36/Documents/History/Monographs/Just_Cause.pdf.

Corbett, Art. "Joint Forcible Entry Operations." Lecture, Marine Corps University, Command and Staff College, December 2, 2020.

Department of Defense. *Joint Operational Access Concept, Version 1.0.* 17 January 2012.

Department of Defense. *Military and Security Developments Involving the People's Republic of China: 2020*. Office of the Secretary of Defense, 2020.

Department of the U.S. Army. "ATP 3-21.20 – Infantry Battalion." Headquarters Department of the Army, Washington, DC. Last modified December 2017. https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN6672_ATP%203-21x20%20FINAL%20WEB.pdf.

Feith, Douglas J. *War and Decision: Inside the Pentagon at the Dawn of the War on Terrorism*. New York: Harper Collins, 2008.

Fontenot, Gregory, E. J. Degen, and John Tohn. On Point: The United States Army in Operation Iraqi Freedom. Fort Leavenworth, KS: Combat Studies Institute Press, 2004.

Follath, Von Erich, and Holger Stark. "The Story of 'Operation Orchard': How Israel Destroyed Syria's Al Kibar Nuclear Reactor." Spiegel International. Last modified November 2,

2009. https://www.spiegel.de/international/world/the-story-of-operation-orchard-how-israel-destroyed-syria-s-al-kibar-nuclear-reactor-a-658663.html.

Fulghum, David A. "Why Syria's Air Defenses Failed to Detect Israelis." *Aviation Week & Space Technology* 3: 2007.

Kaplan, Caren. "Air Power's Visual Legacy: Operation Orchard and Aerial Reconnaissance Imagery as Ruses De Guerre." Taylor & Francis. Last modified November 5, 2014. https://www.tandfonline.com/doi/full/10.1080/23337486.2014.974949.

Katz, Yaakov. "And They Struck Them with Blindness." The Jerusalem Post. Last modified September 29, 2010. https://www.jpost.com/Magazine/Features/And-they-struck-them-with-blindness.

Gilhool, Timothy M. "Pegasus Unbound? The Challenge of Sustainment and Endurance in Airborne Joint Forcible Entry Operations." US Army Command and General Staff College, School of Advanced Military Studies. Last modified May 26, 2005. https://apps.dtic.mil/dtic/tr/fulltext/u2/a437595.pdf.

Gordon, John IV, Agnes Gereben Schaefer, David A. Shlapak, Caroline Baxter, Scott Boston, Michael McGee, Todd Nichols, and Elizabeth Tencza, Enhanced Army Airborne Forces: A New Joint Operational Capability. Santa Monica, CA: RAND Corporation, 2014. https://www.rand.org/pubs/research_reports/RR309.html

Hershman, Shane M. "The Planning and Execution of the Airdrop and Airland of the 173rd Airborne Brigade over Northern Iraq on 26-30 March 2003." U.S. Army War College Personal Experience Monograph, Carlisle Barracks, PA, 2005.

King, James. "Yes, Mass Airborne Operations Are a Thing of the Past." Modern War Institute. Last modified October 12, 2016. https://mwi.usma.edu/yes-mass-airborne-operations-thing-past/.

Johnson, David, and John Gordon IV. "Reimagining and Modernizing U.S. Airborne Forces for the 21st Century." War on the Rocks. Last modified April 20, 2016. https://warontherocks.com/2016/04/reimagining-and-modernizing-u-s-airborne-forces-for-the-21st-century/.

Joint Chief of Staff. *Joint Concept for Entry Operations (JCEO)*. Washington D.C.: Joint Chiefs of Staff, April 7, 2014.

Joint Chief of Staff. *Joint Forcible Entry Operations (JFEO)*. Joint Publication 3-18, Washington, D.C., June 27, 2018.

Kazmierski, Michael J. "United States Army Power Projection in the 21st Century: The Conventional Airborne Forces Must Be Modernized to Meet the Army's Strategic Force

Requirements and the Nation's Future Threats." Master's Thesis, Command and General Staff College. 1990.

Kelly, Sean P. "Airborne Assault Forces: The Most Expedient and Practical Forcible Entry Response Available in Today's Contemporary Operating Environment." Master's thesis, Naval War College, 2012.

Kempe, Frederick. *Divorcing the Dictator – America's Bungled Affair with Noriega*. New York: G.P. Putnam's Sons, 1990.

King, James. "Yes, Mass Airborne Operations Are a Thing of the Past." Modern War Institute. Last modified October 12, 2016. https://mwi.usma.edu/yes-mass-airborne-operations-thing-past/.

LaBrecque, Michael F., Ronald McGurk, and Ryan Swedlow. "Sustaining Joint Forcible Entry Operations." www.army.mil. Last modified October 4, 2018. https://www.army.mil/article/211934/sustaining_joint_forcible_entry_operations.

Langford, Ian. "Operation Enduring Freedom (OEF), Afghanistan 2001." *2010 JSOU and NDIA SO/LIC Division Essays* 10, no. 4 (May 2010), 27-37. https://www.researchgate.net/profile/Joseph_Long6/publication/319112603_Is_democracy_the_answer_to_terrorism/links/59921b1baca27289539bb7fa/Is-democracy-the-answer-to-terrorism.pdf#page=40.

Lear, Kyle E. "Airborne Joint Forcible Entry: Ensuring Options for U.S. Global Response." U.S. Army War College. Last modified January 20, 2012. https://apps.dtic.mil/dtic/tr/fulltext/u2/a561401.pdf.

Loh, John M. "Defeating Modern Air Defenses is Achievable with Smart Strategies, Not Only Stealth and Standoff." Defense News. Last modified August 9, 2018. https://www.defensenews.com/digital-show-dailies/smd/2018/08/09/defeating-modern-air-defenses-is-achievable-with-smart-strategies-not-only-stealth-and-standoff/.

Matsumura, John, Randall Steeb, Blake Crowe, Nicholas Dienna, Yuna Huh Wong, Gary Quintero, and William Sollfrey. *Survivability Options for Maneuver and Transport Aircraft: Analytic Support to the Army Science Board*. Santa Monica. CA: RAND Corporation, 2004. https://www.rand.org/pubs/monographs/MG123.html.

Mattes, Peter. "System of Systems: What, Exactly, is an Integrated Air Defense System?" Mitchell Institute for Aerospace Studies. Last modified June 2019. https://docs.wixstatic.com/ugd/a2dd91_2f17e209f90f4aaab80b116e4d139eb4.pdf.

McAleer, Pete. "Defeating Adversary A2AD: Merging Domains at the Water's Edge." Strategy Research Project. Last modified January 4, 2015. https://publications.armywarcollege.edu/pubs/517.pdf.

Miller, Todd. "Joint Forcible Entry Exercise 2016." Defense.info. Last modified July 29, 2018. https://defense.info/air-power-dynamics/2018/07/joint-forcible-entry-exercise-2016/.

Murray, William. "Airborne Operations During World War II." HistoryNet. Last modified June 12, 2006. https://www.historynet.com/airborne-operations-during-world-war-ii.htm.

Nicholson Jr., John W., Jason W. Condrey, and Claude A. Lambert. "Assured Access Building a Joint and Multinational Airborne Forcible Entry Capability." National Defense University Press (NDU Press). Last modified October 2013. https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-71.pdf?ver=2014-02-26-092543-063.

"Panama Maps - Perry-Castañeda Map Collection - UT Library Online." University of Texas Libraries. Accessed January 18, 2021. https://legacy.lib.utexas.edu/maps/panama.html.

Pawlyk, Oriana. "82nd Airborne Forces Will Jump into Europe for Forcible Entry Ops in Major Exercise." Military.com. Last modified October 15, 2019. https://www.military.com/daily-news/2019/10/15/82nd-airborne-forces-will-jump-europe-forcible-entry-ops-major-exercise.html.

Pernin, Christopher G., Katharina L. Best, Matthew E. Boyer, Jeremy M. Eckhause, John Gordon IV, Dan Madden, Katherine Pfrommer, et al. "Enabling the Global Response Force--Access Strategies for the 82nd Airborne Division." RAND Corporation Provides Objective Research Services and Public Policy Analysis | RAND. Last modified 2016. https://www.rand.org/content/dam/rand/pubs/research_reports/RR1100/RR1161/RAND_RR1161.pdf.

Perry, Walter L., Richard E. Darilek, Laurinda L. Rohn, and Jerry M. Sollinger. "Operation Iraqi Freedom: Decisive War, Elusive Peace." RAND Corporation Provides Objective Research Services and Public Policy Analysis | RAND. Last modified 2015. https://www.rand.org/content/dam/rand/pubs/research_reports/RR1200/RR1214/RAND_RR1214.pdf.

Rid, Thomas and Peter McBurney. “Cyber-Weapons.” The RUSI Journal. February 29, 2012. https://doi.org.10.1080/03071847.2012.664354.

Robinson, Andrew D. “Operation Northern Delay: The Evolution of Joint Forcible Entry.” Master’s Thesis, Command and General Staff College, 2018.

Smagh, Nishawn S. "Intelligence, Surveillance, and Reconnaissance Design for Great Power Competition (CRS Report No. RL46389)." Congressional Research Service. Last modified June 4, 2020. https://fas.org/sgp/crs/intel/R46389.pdf.

"The Future of Airborne Forces in NATO." NDC Conference Report--Research Division NATO Defense College. Last modified July 1, 2013.

https://www.files.ethz.ch/isn/166780/Report_FutureAirborneForcesNATO_Lasconjarias.pdf.

Thompson, Peter D. "Maintaining the Army's Conventional Airborne Assault Capability." Master's Thesis, Command and Staff College, Marine Corps University. 2020.

Toffler, Patrick A. “JFEO Position Paper—JFEO in A2/AD Contested Environments.” Command and Staff College, Marine Corps University. December 13, 2020.

Toffler, Patrick A. “Operation Orchard—How Israel Employed Cyber and Information Operations to Destroy Syria’s Al-Kibar Nuclear Reactor.” Command and Staff College, Marine Corps University. February 12, 2021.

"U.S. Army Rangers Jump into Afghanistan - Operation Rhino (2001)." YouTube. Last modified September 16, 2009. https://www.youtube.com/watch?v=tFk6BmHEROE.

Yates, Lawrence A. *The U.S. Military Intervention in Panama: Operation Just Cause, December 1989-January 1990* Washington, D.C: Center of Military History, United States Army, 2014.