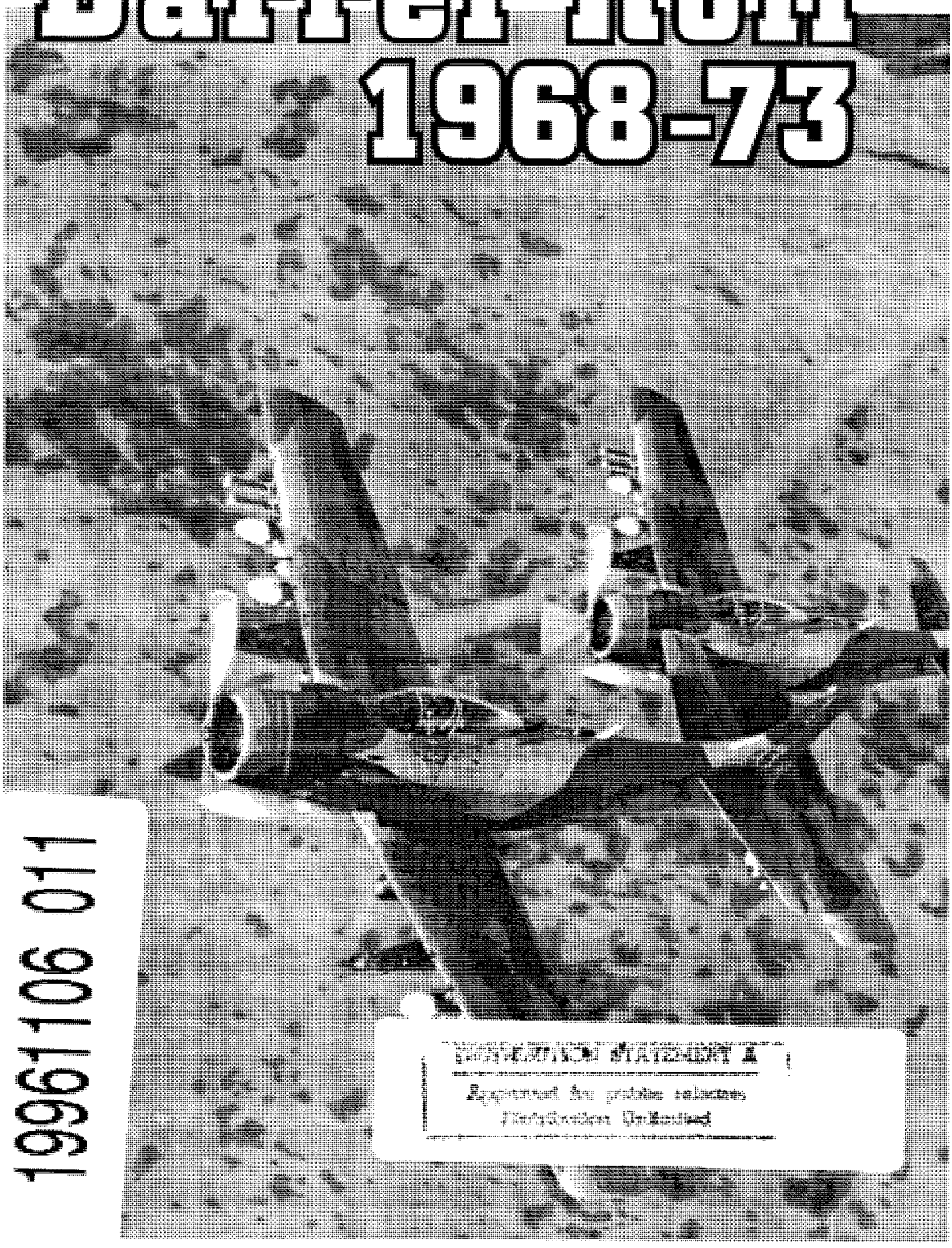
Barrel Roll 1968-73



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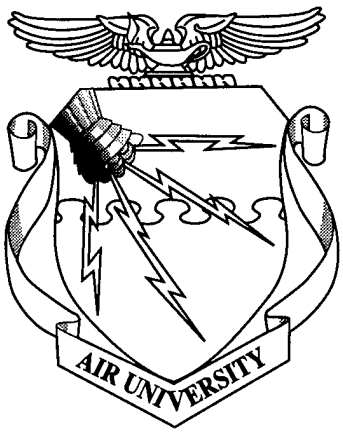
An Air Campaign in Support of National Policy

Col Perry L. Lamy, USAF



BARREL ROLL, 1968–73

An Air Campaign in Support of National Policy

PERRY L. LAMY
COL, USAF

Air University Press
Maxwell Air Force Base, Alabama

September 1996

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This publication has been reviewed by security and policy review authorities and is cleared for public release.

To my loving wife, Peggy

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Colonel Lamy has enjoyed a diverse career in bomber operations, acquisition, flight test, and overseas joint duty and as a staff officer at the academy, major command, and theater-headquarters. Following an operational tour as a combat crew member in B-52s, Colonel Lamy completed an Air Staff training assignment at Headquarters USAF.

In 1983 Colonel Lamy graduated from the USAF Test Pilot School and was selected as a project pilot for the B-1B flight-test program. In 1987 he attended Armed Forces Staff College followed by a joint assignment on the Combined Forces Staff in South Korea. Returning from overseas, Colonel Lamy became the program element manager for the B-1B at Headquarters Strategic Air Command. His most recent assignment was squadron commander of a 100-person test organization responsible for planning, executing, and reporting the 4,000-hour B-2 flight test program at Edwards Air Force Base (AFB), California. He is a command pilot with over 3,000 hours of flight experience in 25 different aircraft to include the B-1, B-2, B-52, FB-111A, A/T-37, and T-38A.

Following graduation from Air War College, Colonel Lamy became systems program director at the Sacramento Air Logistics Center.

Preface

Barrel Roll (1968–73) was the US air campaign conducted over northern Laos in support of the Royal Laotian Government (RLG). Although the campaign supported US national policy in Southeast Asia (SEA), it was constrained by US military strategy and objectives in South Vietnam and responded to North Vietnamese military strategy and objectives. The mission of Barrel Roll was to conduct air operations in support of the RLG by (1) interdicting enemy supplies moving through northern Laos and (2) providing air support for Laotian ground forces fighting the North Vietnamese and Pathet Lao. The last four years of Barrel Roll—from November 1968 to February 1973—hold especial interest due to changes in US national and military strategy in SEA. An examination of air operations relies on the "campaign model" found in Department of Defense Joint Publication 3-0, *Doctrine for Joint Operations*. It answers five questions: Why is the campaign conducted? What is to be accomplished? How will it be accomplished? How much resource is applied? and What are the results? Results are assessed in terms of effects and effectiveness of airpower. Effects are the direct or immediate outcome, for example, the destruction of a target. Effectiveness examines the indirect outcome at the operational or strategic level, including defeating the enemy in battle or achieving theater objectives.

From the perspective of achieving objectives, Barrel Roll was an effective air campaign in support of national, strategic, and operational objectives in SEA. Relevant lessons of Barrel Roll include the central control of airpower, employment of airpower in an undeveloped country, and use of airpower in unconventional combat. Cost is assessed in terms of attack sorties, ordnance delivered, and bomb damage assessment results. This data is listed in an appendix.

Acknowledgments

As with any research project, several people provided me assistance and encouragement. Principal among this group was Dr Alexander ("Sandy") Cochran of the Air War College faculty. As my research adviser, Sandy provided motivation and encouragement along the way and a critical review. He also gave me a new perspective and appreciation for America's war in Southeast Asia. My unofficial adviser, Col Jim Roper, USAF, Retired, provided the inspiration for the research question and thesis. Colonel Roper, a Raven forward air controller, furnished a first-hand perspective for the secret war in Laos that was invaluable. Both of these gentlemen are American heroes!

This project involved many hours spent in the Air Force Historical Research Agency at Maxwell Air Force Base. Without the help and advice of Joe Caver, I would not have survived the experience of combing through scores of reports and historical documents. Joe made the project fun and exciting and the research easy.

In addition, I want to single out Dr Richard Bailey at the Air University Press, College of Aerospace Doctrine, Research, and Education for special thanks. As editor, Dr Bailey transformed my passive English into a manuscript that was active and alive.

Finally, I wish to thank my family for their special contributions. My wife, Peggy, helped to compile the data that resulted in the report's graphs. I also appreciate the patience of my sons, Alex and Nicholas, during the many hours Dad spent either at the archives or in front of the computer.

Introduction

Laos was not all that . . . important.

—Chester Cooper

When US aid to Laos ended in 1975, 25 years of US military involvement concluded—most of it conducted secretly. Despite the publicity from presidential disclosure and congressional hearings in 1969, the scope of US operations continues to unfold from recently declassified US military records. However, most Central Intelligence Agency (CIA) and State Department records continue to be inaccessible. This lack of public awareness obscures the awesome US airpower effort: 551,552 fighter attack sorties—almost 60 percent of the "out-of-country" effort—and an additional 391,380 support sorties. The costs of this contest are equally staggering: 493 aircraft lost, more than 400 US military persons killed, 505 individuals missing in action, a generation of Hmong citizenry lost, and $1.4 billion in US military assistance spent.[1]

The conflict in Laos created a theater of operations separate from the rest of SEA. Terms including *out of country*, *up-country*, *extreme western demilitarized zone (DMZ)*, *over the fence*, and the *secret war* characterized US military involvement in Laos. After 20 years few chronicles have covered the covert war. They have mentioned almost nothing about the effectiveness of air operations in support of US strategic and national objectives in Laos.[2]

The war in Laos had a dual character: first, it was a struggle for the survival of Laos—basically, a civil war; and second, it was a spillover of the conflict in South Vietnam. Lacking the will to commit US ground forces to Laos, the direct US combat involvement was with airpower. Consequently, two distinct air wars resulted in the skies above Laos between 1964 and 1973. In the southern panhandle, Steel Tiger involved the interdiction of the Ho Chi Minh trail used by North Vietnam to prosecute their war in South Vietnam. In northern Laos a different war was fought. Barrel Roll provided air support for the ground forces of the RLG fighting communist insurgents. The survival of the RLG and ultimately Laos as a neutral country was the object of this war.[3] The impetus for US involvement in both of these air wars stems from US national policy and objectives in SEA. Air operations in Steel Tiger directly supported US military activities in South Vietnam and were conducted with consent of the RLG. Those in Barrel Roll directly supported the RLG and were the "price of admission" for US operations in Steel Tiger.

Objective

This paper focuses on air operations during the last four years of Barrel Roll, from 1 November 1968 to 21 February 1973. It answers five questions: Why did the US conduct Barrel Roll? What was it suppose to accomplish? How were US operations in support of Barrel Roll conducted? How much resource was applied? and What were the results? To answer the *why* questions, this research examines the development of US involvement, US national objectives, and military strategy. The *what* issue examines how the military strategy is transformed into a course of action. Next, the *how* concern analyzes the context of a campaign plan. Did Barrel Roll constitute an (implicit) air campaign plan? Finally, to address the *results* of Barrel Roll, this paper examines the costs, effects, and effectiveness of US air operations. Did US airpower as applied in northern Laos support US objectives in SEA? Was airpower effective? and What were the lessons learned?

Thesis

Airpower employed by the US in northern Laos between 1968 and 1973 supported US national policy in SEA, was constrained by US military strategy and objectives in South Vietnam (both policy and resources), and was responsive to North Vietnamese military strategy and objectives.

Approach

This writer uses a campaign analysis to examine Barrel Roll. Both the US Air Force's *JFACC Primer* and Joint Publication 3-56.1, *Command and Control for Joint Air Operations*, provide a useful model to observe the connection between national objectives and tactical action. Both describe the evolution of a campaign plan. Accordingly, this paper examines the employment of airpower in Barrel Roll at three levels: strategic, operational, and tactical. Objectives and results exist at each of these three levels and are part of the discussion. Figure 1 shows the hierarchical relationship between these three levels. The paper concentrates principally on the strategic and operational levels.[4]

Prior to conducting air operations, planners must have a strategic appreciation of the theater and conflict—the *why* for the conflict. Based on the strategic appreciation, the commander can formulate a course of action that defines what will be accomplished. The campaign plan states how to conduct the course of action. An air operations plan is devised to support the campaign. Finally, execution of daily operations (tactics, strikes, targeting, and bomb damage assessment) is performed by daily guidance that adjusts the plan based on the dynamics of the conflict.[5]

Airmen cannot appreciate campaign planning or the operational art without practice or experience. History offers a method to gain this insight. Using a campaign plan format to analyze a historic conflict provides a structured way to examine the conflict, along with an opportunity to exercise and appreciate the thought process of campaign planning. Table 1 outlines the approach used in this

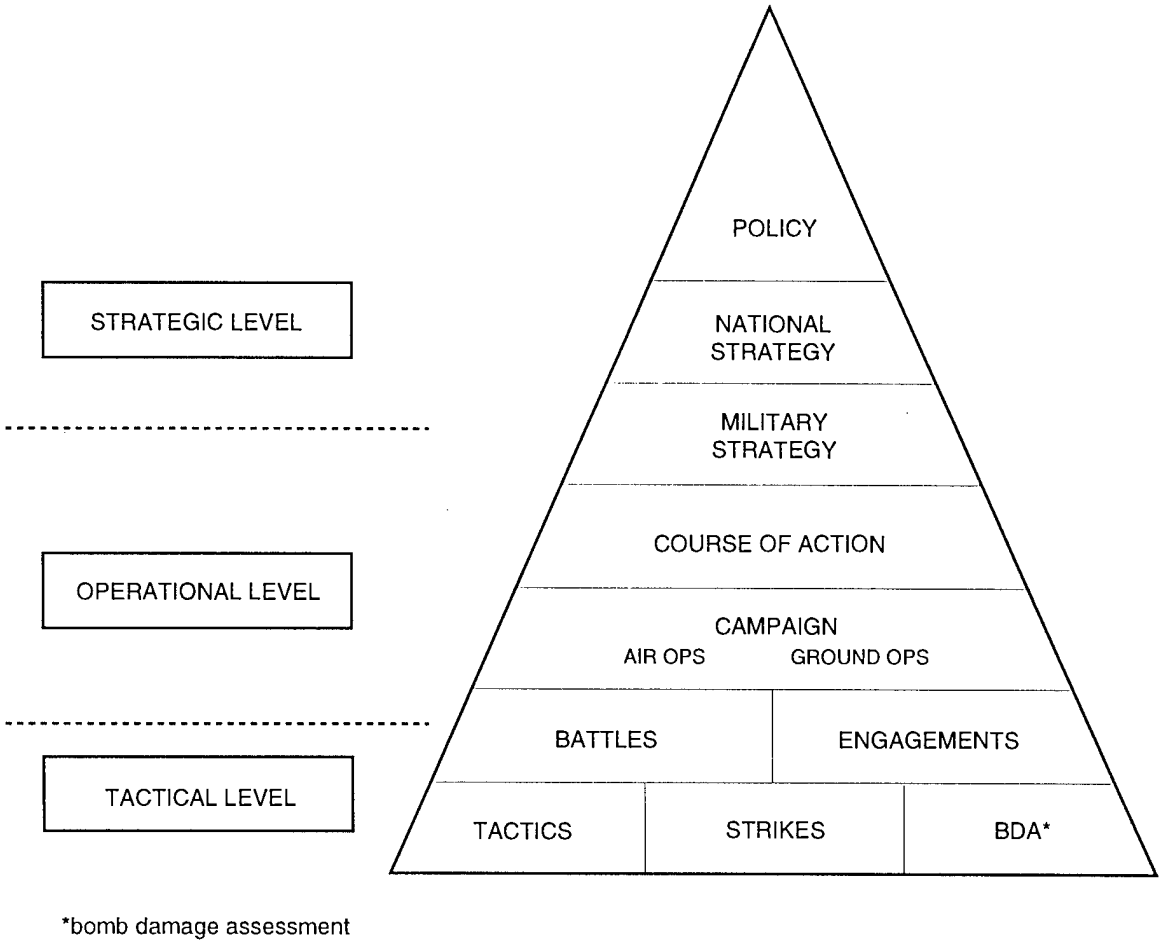

Figure 1. The Levels of War

paper to analyze Barrel Roll. This approach is offered as a model that can be used to analyze other campaigns historically.

Why examine Barrel Roll? An academic treatment of Barrel Roll awaits accomplishment. For now, the period November 1968 to February 1973 provides an interesting period during the war. The termination of bombing in North Vietnam, a new administration in Washington, declining aircraft resources, political constraints, changing objectives, and a unique theater which has not been previously scrutinized combine to produce a treasure of information for examination and analysis.

Table 1

Analysis Model and Roadmap

ANALYSIS QUESTION	ELEMENT	SECTION OF PAPER
Why the campaign is conducted?	Political Objectives National Strategy	STRATEGIC APPRECIATION
What will be accomplished?	Military Strategy Concept of Operations Course of Action	MILITARY SITUATION
How will it be accomplished?	Campaign Plan	THE AIR CAMPAIGN PLAN
How much resource is applied? What were the results?	Effort Effects Effectiveness Lessons Learned	ANALYSIS
Was Barrel Roll an (implicit) air campaign plan?	Objectives versus Campaign Plan	CONCLUSIONS

Notes

1. Senate, *United States Security Agreements and Commitments Abroad: Kingdom of Laos, Hearings before the Subcommittee on United States Security Agreements and Commitments Abroad of the Committee on Foreign Relations*, 91st Cong., 1st sess., 1970, p. 2 (hereafter cited as *Laos Hearings*). For Central Intelligence Agency and State Department classified documents, see Timothy N. Castle, *At War in the Shadow of Vietnam: US Military Aid to the Royal Lao Government, 1955–1975* (New York: Columbia University Press, 1993), xi. Sortie data come from the Air Force, "Summary of Air Operations in Southeast Asia," vol. 103, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, February 1973, 4-A-1 (for period 18 May 1965 to 28 February 1973). Attack and support sorties include US Air Force, US Navy, and US Marine Corps sorties and do not include B-52 sorties, Royal Lao Air Force, Vietnamese National Air Force, or US Army sorties. Southeast Asia sorties in support of combat outside of South Vietnam were considered out of country. These areas consist of North Vietnam, Laos, and Cambodia. See Capt Peter A. W. Liebchen, Department of the Air Force, "MAP Aid to Laos, 1959–1972," Project CHECO, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 25 June 1973, 171.

2. Two books provide a fresh examination of this conflict. Timothy N. Castle's *At War in the Shadow of Vietnam: US Military Aid to the Royal Lao Government, 1955–1975* (New York: Columbia University Press, 1953) gives a historical account of US military assistance to Laos from the early 1950s until 1975. It is a detailed study of events and provides an excellent overview of the conflict. The bibliography is exceptionally thorough and lists nearly every source available on the subject. However, the book does not offer an airman's perspective of the employment of airpower. See Jacob Van Staaveren, *Interdiction in Southern Laos: 1960–1968* (Washington, D.C.: Center for Air Force History, 1993) is a USAF Office of History account of the Steel Tiger campaign in eastern Laos. Both are highly recommended for studying the conflict in Laos.

3. Department of the Air Force, "Air War in Northern Laos 1 April–30 November 1971," Project CHECO, Maj William W. Lofgren, USAF and Maj Richard R. Sexton, USAF, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 22 June 1973, 2.

4. Department of the Air Force, *JFACC Primer*, 2d ed. (Washington, D.C.: Deputy Chief of Staff, Plans and Operations, Headquarters USAF, February 1994), 19–24; and Joint Publication 3-56.1, *Command and Control for Joint Air Operations*, 14 November 1994, A-1 to A-5.

5. Department of the Air Force, *JFACC Primer*, 36.

Chapter 1

Strategic Appreciation

The basic U.S. policy toward Laos is that of support for its independence and neutrality. The United States has undertaken no defense commitment—written, stated, or understood—to the Royal Lao Government.

—Amb William H. Sullivan, 1969

This is the end of nowhere. We can do anything we want here because Washington doesn't seem to know it exists.

—An American official, Vientiane, Laos
November 1960

To establish the purpose of Barrel Roll (the *why* question), understanding its strategic context is necessary. The environment, the national policy and objectives, and the national strategy provide the strategic appreciation for why the operation was undertaken.

Laos—the Country

Upon briefing president-elect John F. Kennedy, President Dwight D. Eisenhower identified Laos as the strategic key to Southeast Asia (SEA). Then within weeks, Laos became the principal focus of the Kennedy administration. Why did US policymakers regard Laos as so important? Part of the answer lies with the characteristics of Laos, its geography, people, and culture, and its politics, government, and history.[1]

Geography

The location and geography of Laos are the first aspect of its strategic significance. Laos occupies a key position in SEA as a land-locked country that borders six other countries. Three prominent geographical features play an important role in the Laotian conflict: the Annam Cordillera mountain range, the Mekong River, and the Plaine de Jarres (PDJ) or Plain of Jars. The Annamite chain forms the eastern boundary of Laos and extends from China south to the Gulf of Thailand, along the entire 1,324–mile border with Vietnam. The Mekong River, along the western border of Laos, flows from China south to Cambodia. The PDJ, located between these two features in the center of northern Laos, is a rolling grassland surrounded by high mountains.

The PDJ is particularly strategic as crossroads for trade and armies at war. Two major lines of communications run south through Laos. The first, on the west side of the Annamite chain and including parts of the Mekong River, becomes the Ho Chi Minh trail and the focus of the war in southern Laos. The second, the crossroads on the PDJ connecting China and North Vietnam with Cambodia and Thailand, forms the arena for the war in northern Laos. Figure 2 offers a map of Laos.[2]

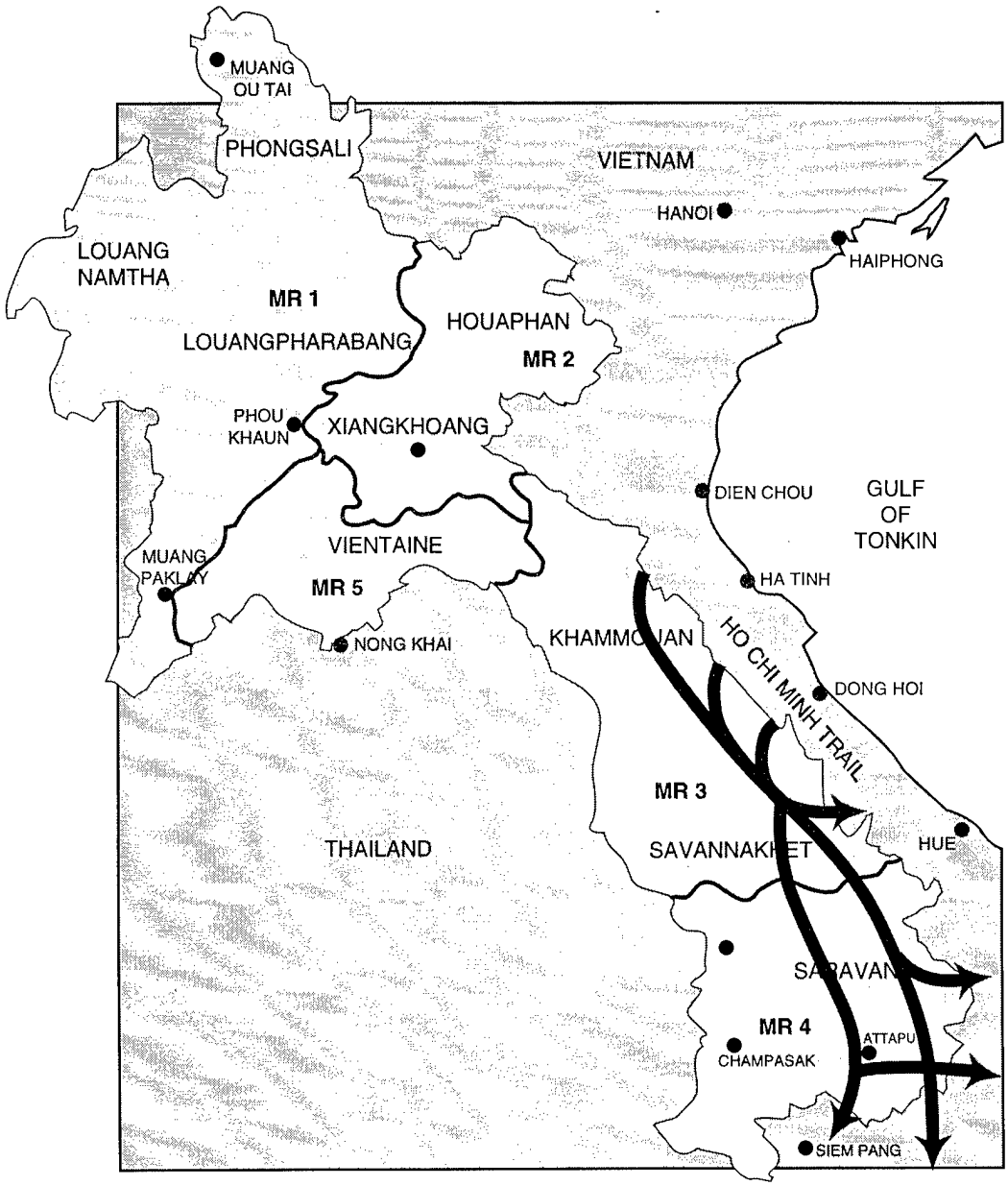

Figure 2. Map of Laos with Military Regions and Ho Chi Minh Trail Depicted

Climate

The seasonal weather pattern also plays a prominent role in the war. Laos is part of monsoon Asia. Between mid-September and March, the dry season coincides with a yearly communist offensive and logistics movement through Laos. At the same time, the period between May and September experiences heavy rains and the Royal Lao Government (RLG) counteroffensive. Eighty–five percent of the economy is agricultural. While rice is the principal crop, opium is a lucrative cash crop and a principal objective of external aggressors.[3]

People and Culture

Laos, about the size of Great Britain, is sparsely populated with approximately 3 million people from four ethnic groups: Lao Lum (45 percent), Lao Theung (30 percent), Lao Tai (20 percent), and Lao Soung (5 percent).[4] The majority group (the Lao Lum or Lao of the lowland valleys) are Theravada Buddhist and ethnically identical to people of northeast Thailand.[5] The Lao Lum are the best educated and the most influential people in Laotian society and government. The royal family is ethnic Lao Lum. The three minority groups share a common characteristic as animist. The Lao Tai (or Lao of the upper valleys) migrated into the area and have the same language. The Lao Theung or (Lao of the mountainside) are the slave tribes (Kha) of Laos and descend from the aboriginal inhabitants displaced by the Lao Lum. Finally, the Lao Soung (Lao of the mountain tops) are Hmong and Yao tribesmen who migrated from southern China. The Hmong grow opium poppy and comprise the natural warriors of Laos. Historically, the Lao Tai and Lao Theung suffered from mistreatment and discrimination by the Lao Lum. In contrast, the independent lifestyle and cash from the sale of opium permit the Hmong to escape the influence of the Lao Lum.[6]

Politics and Government

The RLG was a constitutional monarchy composed of a prime minister, council of ministers, and a national assembly. The elite lowland Lao Lum dominated the government, while the minorities—Lao Tai, Lao Theung, and Lao Soung—had little or no representation.[7]

A nationalist movement developed in 1945 to oppose the return of French colonialism. Two half–brothers played prominent roles in the movement. Prime Minister Souvanna Phouma, a neutralist, became a leading figure in the nationalist movement and RLG. Prince Souphanouvong, joined the communist Viet Minh in Vietnam and formed a nationalist guerrilla organization that evolved into the Pathet Lao (land of Laos).[8]

Communists in Laos formed the Neo Lao Hak Sat (NLHS, Lao Patriotic Front), which became the political party of the Pathet Lao and a front organization for the secret Lao People's Revolutionary Party (LPRP).

Principally the North Vietnamese comprised the LPRP, who reported directly to Ho Chi Minh.[9]

History before 1964

Laos shares a modern history similar to Vietnam. The French occupied the area from 1856 to 1954, with a brief intermission by the Japanese during World War II. The Laotian conflict began in 1953 as part of the First Indochinese War. The People's Army of Vietnam assisted by Pathet Lao troops attacked the French on the PDJ. They sought a psychological blow to the French and the capture of the opium crop to provide cash for weapons. But the monsoon rain prevented the continuation of a Vietnamese offensive. The French denied the Viet Minh their objective by buying the opium crop. French deployment to the outpost at Dien Bien Phu prevented future incursions into Laos. However, in May 1954 the French defeat there set up the agreements in Geneva.[10]

The Geneva Accords of 1954 made Laos an independent, neutral buffer between China and Thailand. Unlike Vietnam, Laos was not partitioned by the Geneva Accords of 1954. Instead, the provisions called for a cease-fire, the withdrawal of all external military attachments, and the establishment of a Pathet Lao administration zone in the northeastern provinces of Phong Saly and Sam Neua pending further negotiations.[11]

The Geneva Accords recognized the RLG and expelled French rule, but the Vietnamese never departed Laos as required by the accords. In support of the RLG, the US provided economic aid to assist the RLG to repel the communists. Thus, a nationalist struggle against foreign influence continued: the RLG fighting North Vietnamese infiltration and the Pathet Lao fighting US involvement.[12]

In November 1957 the first coalition government with representation from the NLHS and led by Prime Minister Phouma was formed. Unfortunately, the coalition was short-lived. Widespread corruption due to the influx of large amounts of US aid allowed the Pathet Lao to show substantial strength in the 1958 election. The RLG's flirtation with communism led to a cutoff of US aid and the coalition government fell in July 1958. A US-sponsored, right-wing government that was hostile towards Pathet Lao representation took control. A civil war erupted in May 1959. The RLG, with US-supplied arms, fought the Pathet Lao openly.[13]

In 1960 a neutralist coup followed by a right-wing countercoup created additional confusion. The civil war continued with neutral forces, allied with the Pathet Lao and supported by Soviet airdrops, fighting the right-wing forces supported by US aid. By the end of 1960, two legal governments took charge of Laos: Souvanna Phouma's neutral government supported by the communists and Prince Boun Oum's right-wing government supported by the US.[14]

In 1961 the new Kennedy administration called for a review of US policy in Laos. Despite favoring a diplomatic solution, Kennedy took a firm stand by

making US military aid to Laos visible to the Soviets and Hanoi. A confrontation between the superpowers began. In May 1961 a cease-fire was called and the three parties—Souphanouvong, Boun Oum, and Souvanna Phouma—negotiated a coalition government. Despite a discussion of Laos between President Kennedy and Soviet Premier Nikita S. Khrushchev in Vienna, talks in Geneva continued for more than a year. During this time, Kennedy increased covert operations in Laos.[15]

In 1962 a communist offensive advancing towards Thailand with implications of Chinese communist involvement caused Kennedy to deploy US forces to the area. The crisis ended and the three princes agreed to form the second coalition government in June. On 23 July 1962 the parties signed a new set of Geneva Accords and formed an international agreement of neutrality for Laos. In support of the Geneva Accords, the US immediately withdrew all 666 military personnel from Laos; however, only 44 North Vietnamese officially departed Laos. As for North Vietnamese presence in Laos, the US established a disguised military aid mission called the Requirements Office and staffed the office with retired military civilians; trained Laotian pilots in Thailand; and, supplied T-28s to the Laotian Air Force. By May 1963 the coalition government unraveled and again open conflict erupted in Laos. Fearful of North Vietnamese insurgents and unable to defend his country, Souvanna called on security measures offered by the US.[16]

Laos—the Conflict

For the next 11 years chaos characterized conditions in Laos. The Kingdom of Laos started the 1960s at the forefront of superpower confrontation only to become a "war in the shadow of Vietnam" and ultimately forgotten when the communists took over in 1975. Throughout the years of US involvement, many names colored the war in Laos. The *secret war* or the *CIA war* defined the participants: Department of Defense, State Department, and Central Intelligence Agency (CIA). *Sullivan's war*, still another name, denoted the covert nature of a war that required strict in-country direction by the US ambassador. Laos became the area out of country or over the fence for Americans stationed in SEA. US servicemen in Thailand referred to the area as up-country, while those in South Vietnam called it the extreme western DMZ. Still others called the war the *forgotten war*. This name reflected the secondary nature of this war to other US foreign policy issues.[17]

Combatants

The combatants were divided into two camps: forces supporting the RLG and forces supporting the NLHS. Supporting the RLG, the Royal Lao Army, also known as the *Forces Armée Royaume* (FAR), organized into five military regions (MR) with a warlord general in command of each region. These forces

proved only marginally effective throughout the conflict—thus a surrogate ground force was needed to fight for the RLG. Likewise, the North Vietnamese sought surrogates to advance their military agenda.

Both sides targeted the minority peoples of Laos as agents. The population provided a political base for future negotiations and a legitimate government. These people also formed a labor base for armed forces, food production, and supply porters. Consequently, control of the population in northern Laos was an objective of both sides. To maintain access to this labor pool during the conflict, each side had to move and protect large groups of people.[18]

US officials focused on the Lao Soung or Hmong tribesmen. Financing by the US and training by the CIA enabled special guerrilla units (SGU) or the clandestine armée of Hmong tribesmen to organize into an irregular army. In 1960 the US solicited the legendary Gen Vang Pao to lead the SGU against the communists. Subsequently, he commanded the Hmong SGU in military region 2 in northern Laos. It developed into the most effective anticommunist ground combat unit during the war. Additionally, the US employed Thai "volunteers" to fight in Laos.[19]

The Pathet Lao appealed to the discriminated Laotians—the Lao Tai and Lao Theung—for support. This appeal naturally pitted them against RLG forces dominated by the Lao Lum and the SGU, which were made up of Hmong tribesmen. The North Vietnamese Army (NVA) entered Laos early in the conflict and provided aid and manpower to the Pathet Lao. By 1970 approximately 80,000 North Vietnamese were in Laos.[20]

North Vietnamese Involvement

Early in their struggle for a unified Vietnam, the North Vietnamese realized the strategic importance of Laos. The North Vietnamese began their political and military presence in Laos immediately after WWII. Ho Chi Minh sent military agents to Laos in 1945 to ensure the security of the common border and keep the imperialist out. The fight against the French in 1953 culminated in Dien Bien Phu. In December 1960 North Vietnam decided to intervene in Laos as part of a strategy against South Vietnam. During 1961 the North Vietnamese presence transformed from a semicovert advisory role for the Pathet Lao into a full-blown operational theater. Although they never left Laos following the 1962 Geneva Agreement, they, like the US, refused to acknowledge their presence in Laos for the remainder of the war.[21]

To avoid the appearance of imperialist tendencies, beginning in 1955 the LPRP, Ho Chi Minh's secret communist party, hid behind the NLHS. Consequently, the NLHS became a front for the North Vietnamese communists, who actually made the important decisions. They viewed Laos as crucial to their security and as a conduit to spread their influence west into Thailand. The LPRP's ultimate goal was dominance of the Lao government and society. Meanwhile, NLHS participation in the coalition government was allowed as a tactical expedient to the LPRP's ultimate goal.[22]

Causes

Given the geographic, political, and military importance of Laos in SEA, the conflict reached its climax with US involvement in the 1960s. Table 2 lists the causes for this war. The war, disguised as a civil war, was actually an extension of the conflict in Vietnam. As the keystone of SEA, Laos provided communist access to Thailand, Burma, and South Vietnam.

Table 2

Causes of the War in Laos, 1962–1973

Primary Causes	Vietnam's traditional attempt to assert hegemony over SEA. North Vietnam's struggle to take over South Vietnam. Civil war between Lao communist (left) and anti-communist (right).
Secondary Causes	Communist capture of SEA strategic crossroads and keystones. Laotian desire for independence, free of foreign influence (neutralist). The cold war, US versus China and USSR. Control of Hmong opium harvest by Viet Minh. Class struggle between Lao Lum dominated society and Laotian minorities.

US National Policy for Laos

US policy toward Laos depended on US interests in SEA. Each administration dealt with Laos differently. The course selected by the United States resulted from objectives in SEA, particularly after the US became militarily involved in Vietnam. Initially, US interests sought to limit communist influence in SEA; however, following the Tet offensive in 1968, the Nixon administration viewed withdrawal and a negotiated settlement as policy. A broader understanding of the 1968–73 Barrel Roll campaign requires a knowledge of the evolution of US policy. The following data helps to answer the *why* question of Barrel Roll.

Containment

Through the Truman and Eisenhower administrations, the guiding policy with respect to Laos sought containment of communism. This view regarded communism as a threat spreading to the West, and SEA vulnerability was

considered as one of the dominos in Eisenhower's monolithic communist model. Eisenhower viewed the loss of Indochina to the communists as a severe strategic consequence. Unwilling to commit ground troops, he used economic and military assistance to fill the void left by the departing French and to support a pro-West/anticommunist government.

Neutralization

Kennedy's first international crisis occurred in Laos. With communist insurgencies threatening South Vietnam, Thailand, and Laos and a possible confrontation against the Soviets over Laos, he preferred a negotiated settlement to a direct military intervention. US policy changed from supporting a right-wing, anticommunist government to supporting a neutral Laos led by a coalition government that included the communists in control of the eastern part of the country. In addition, Khrushchev assured Kennedy that the USSR would not fight the US over Laos. As the keystone of SEA, Laos acted as a buffer in two dimensions between North Vietnam and Thailand and between North Vietnam and South Vietnam. The US viewed Geneva as offering a choice between which buffer would receive the most attention. Since Kennedy believed that South Vietnam, with military aid, counterinsurgency assistance, and air support, could defeat the Vietcong insurgents, the US chose a stalemate in Laos to protect Thailand. A neutral government in Vientiane, assisted by covert US aid, would maintain the buffer for Thailand.[23]

Military Solution

President Lyndon B. Johnson became focused primarily on US support for South Vietnam. He initiated a large military intervention—an air bombing campaign and introduction of ground forces—to coerce North Vietnam out of the south. Laos was an important part of the strategy for interdicting North Vietnamese supply lines to South Vietnam, which secretly began as Barrel Roll. The war in Laos was fought covertly due to the 1962 Geneva Accords, because of the tacit agreement with the Soviets, and to avoid the public appearance of expanding the war. Rolling Thunder was the air campaign against North Vietnam. But after three years, unable to coerce the North, Johnson terminated Rolling Thunder in October 1968. Air operations then focused primarily on interdiction of the Ho Chi Minh trail in eastern Laos.

Withdrawal

The Nixon administration brought a new policy to SEA. It shifted the burden for the war to the South Vietnamese accompanied by a slow withdrawal of US forces. This change increased the importance of the bombing campaign in Laos for several reasons. The cessation of bombing in North Vietnam provided untasked tactical aircraft for employment in Laos. In addition, bombing the trail played a critical role in protecting the flank for US withdrawal, and the air war in Laos changed from a support role to the main

effort. Consequently, maintaining access to the country of Laos became the primary motivator for supporting the RLG. This change in policy altered the purpose of Barrel Roll operations. Up to this point, Barrel Roll sought to keep Laos neutral; but with the war in Vietnam turning sour, Barrel Roll provided the US time to withdraw from SEA, and the outcome of events in Vietnam would determine the fate of Laos.

US National Strategy for Laos

In support of the national policy, each administration in Washington developed a national strategy for Laos that synchronized with US strategy for SEA.

Eisenhower

The US pursued its policy for containment of communism in Laos by providing economic and military aid to the country. Eisenhower viewed Laotian security as dependent on a strong army with a right-wing government in control. Unfortunately, the US poorly coordinated the strategy within its bureaucracies involved in Laos. The uncoordinated execution of the strategy produced graft, corruption, inflation, and finally the overthrow of the US-backed government in August 1960. A subsequent countercoup by right-wing army factions caused the country to erupt in civil war when the neutralists joined the communists.[24]

Kennedy

The switch in US policy to support a neutral Laos was a key to US strategy in SEA. The strategy removed the requirement for a military solution in Laos and created a buffer against communist infiltration of South Vietnam and Thailand. It also made South Vietnam an internal insurgency problem ideal for development and employment of counterinsurgency doctrine. Of course, this strategy assumed the North Vietnamese would abide by the terms of the 1962 Geneva agreement and depart Laos.[25]

Johnson

In early 1963 US intelligence estimates placed eight North Vietnamese army battalions, about 4,000 troops, plus 2,000 advisors, in Laos. Convinced that the North Vietnamese would not leave Laos, the US turned to a new strategy, counterinsurgency and guerrilla warfare. Not wanting to commit ground combat forces in Laos caused the US to enlist the aid of the CIA. The CIA got this task due to US desires to minimize any violation of the 1962 Geneva agreement and because the State Department believed that US military management would lead to greater pressure to introduce ground combat troops. The CIA employed the indigenous Hmong tribesmen, who it

organized and trained prior to the Geneva agreement, to fight the ground war while USAF Air Commandos trained Royal Laotian Air Force (RLAF) pilots in T-28s to support these ground forces. In addition, in 1964 the USAF began covert direct air support and interdiction of North Vietnamese supply lines. It employed this strategy in Laos until the end of the war.[26]

Nixon

Another policy change in Vietnam altered the strategy for Laos. The US employed massive air strikes against North Vietnamese supply lines. Not wanting to escalate the war in northern Laos, the US resorted to airpower in support of the ground forces to hold the North Vietnamese in place. The US leveraged airpower against each increase in North Vietnamese combat power on the ground. The war effort in Laos became a war of attrition: killing enemy trucks on the trail and destroying communist ground forces in the north. US strategy also continued with the financing of Hmong tribesmen to fight North Vietnamese conventional forces, providing military assistance to the RLG, employing US airpower to support the light ground forces, and interdicting communist supply lines.

Objectives for Laos—United States

The political end-state of US efforts in Laos signalled the withdrawal of the North Vietnamese and was followed by the reestablishment of the 1962 Geneva provisions. To accomplish this goal, US objectives sought to do the following:

1. Maintain an outward appearance of strict neutrality for diplomatic reasons (covert operations);
2. Maintain a relatively stable balance of political, military, and economic position between the communist and the pro-US factions in Laos (support for Hmong ground forces);
3. Maintain a friendly or at least a neutral government on the borders of Thailand, while providing strict control on the levels of aid and military effort in support of and consistent with objective 2 (support of government); and
4. Achieve maximum attrition and disruption of North Vietnamese logistics flow through the use of airpower (interdiction campaign).[27]

Objectives for Laos—North Vietnamese

The North Vietnamese, interestingly enough, had the following similar objectives:

1. Maintain access to the Lao panhandle as their support of the war in South Vietnam depended on using the Ho Chi Minh trail;

2. Balance the force used to maintain a foothold in northern Laos and avoid escalation of force which would cause the US to introduce ground troops in Laos;

3. Pressure the RLG militarily to seek a negotiated settlement and expel US presence from Laos; and

4. Maintain an appearance of neutrality and hide all involvement in Laos.

The primary objective for the North Vietnamese always centered on South Vietnam. Other objectives were subordinate to or in support of this goal. The North Vietnamese continued to hide their presence in Laos to avoid an overt violation of the Geneva agreements and Laotian neutrality. They also desired to maintain the illusion that the war in South Vietnam was a popular uprising.[28]

Notes

1. *The Pentagon Papers: The Senator Gravel Edition* (Boston: Beacon Press, 1973), 5:260.

2. The Plain of Jars takes its name from large stone jars believed to be ancient Chinese funeral urns. More than 100 of these jars, large enough to hold a small, squatting man, were found in meadows at the center of the plains. The jars were about 2,000 years old. The plain has an average elevation of 3,600 feet and resembles the dairy land of southern Wisconsin. See Arthur J. Dommen, *Conflict in Laos: The Politics of Neutralization* (New York: Praeger Publishers, 1971), 2–3. For additional information on the strategic value of Laos, see Dommen, 1–3; and Roger Hilsman, *To Move a Nation: The Politics of Foreign Policy in the Administration of John F. Kennedy* (Garden City, N.Y.: Doubleday & Co., 1967), 93–94.

3. Raphael Littauer and Norman Uphoff, eds., *The Air War in Indochina* (Boston: Beacon Press, 1972), xviii; and Dommen, 137–38.

4. The total population number is the popular estimate for the period. The first official census occurred in March 1985, and United Nations statistics listed it as just over 3.5 million. See Timothy N. Castle, *At War in the Shadow of Vietnam: US Military Aid to the Royal Lao Government, 1955–1975* (New York: Columbia University Press, 1953), 141, note 13. The principal difference between the ethnic groups—excluding language, history, and customs—were their societal status, living altitude, and method of agriculture. See Charles A. Stevenson, *The End of Nowhere: American Policy Toward Laos Since 1954* (Boston: Beacon Press, 1972), 11.

5. In fact, eight times as many Laotians live in Thailand than in Laos. Castle, 141, note 16.

6. Castle, 4–6; and Arthur J. Dommen, *Laos: Keystone of Indochina* (Boulder, Colo.: Westview Press, 1985), 3–6.

7. Castle, 4.

8. Prince Phetsarath and his two younger brothers, Prime Minister Souvanna Phouma and Prince Souphanouvong, organized the nationalist movement. They called their newly formed government the Lao Issara or Free Lao. However, the return of French rule in 1946 forced this government into exile. By 1949 the Lao Issara had dissolved, and the three brothers had gone their separate ways. See Dommen, *Conflict in Laos,* 18–36.

9. Dommen, *Laos,* 105–6.

10. Edward G. Lansdale, *In the Midst of Wars: An American's Mission to Southeast Asia* (New York: Harper & Row, 1972), 103–13; and Gary D. Wekkin, "The Rewards of Revolution: Pathet Lao Policy Towards the Hill Tribes since 1975," in *Contemporary Laos: Studies in the Politics and Society of the Lao People's Democratic Republic,* ed., Martin Stuart-Fox (New York: St. Martin's Press, 1975), 186–87. Also, Dommen, *Conflict in Laos,* 16–17.

11. The countries represented in Geneva included France, the Soviet Union, the US, the People's Republic of China, Great Britain, the Democratic Republic of Vietnam under Ho Chi

Minh, the Republic of Vietnam under Bao Dai, Laos, and Cambodia. Although the US did not sign the agreement, it recognized the importance of maintaining an independent Laos, Cambodia, and South Vietnam outside the communist sphere. From this viewpoint, President Eisenhower did not consider the US bound by decisions made at Geneva. See Castle, 11–12; Dommen, *Conflict in Laos,* 53; and *Pentagon Papers: Gravel Edition,* 5:249.

12. Stevenson, 9; and Dommen, *Laos,* 61–62.

13. *Pentagon Papers: Gravel Edition,* 5:250–58.

14. Capt Kong Le, an army battalion commander, frustrated by the direction of the right-wing government, seized control of the capital at Vientiane. Kong Le, a neutralist, called for an end to the civil war, an end to aid corruption, and removal of all foreign troops and foreign influences. After a brief period, he handed power over to Souvanna Phouma, who the king appointed as prime minister. Phouma attempted without success to establish a neutral coalition government, as existed in 1957. US pressure against this course caused Phouma to request assistance from the Soviet Union. Meanwhile, Col Phoumi Nosavan, supported directly by US military aid, staged a countercoup and established a right-wing government under Prince Boun Oum. See Dommen, *Laos,* 60–65.

15. Kennedy upgraded the US military mission to a full-scale military assistance advisory group (MAAG) with 400 personnel. The presence of US military personnel sent a strong signal to North Vietnam and the USSR of US and Kennedy's resolve. See *Pentagon Papers: Gravel Edition,* 5:260-65.

16. Ibid., 5:265-67.

17. *War in the Shadow of Vietnam* was taken from the title of Castle's book. Journalists used *secret war* and *CIA war* because northeastern Laos was off-limits to them during much of the conflict. Despite the common knowledge of the war among journalists, they found no one who would discuss operations. Jane Hamilton-Merritt, *Tragic Mountain: The Hmong, the Americans, and the Secret Wars for Laos, 1942–1992* (Bloomington, Ind.: Indiana University Press, 1993), xi–xviii. Stevenson (208–9), used *Sullivan's war* in referring to the conflict in Laos. William Sullivan was the US ambassador to Laos from 1964 until 1969 and acted as commander in chief of the ground and air campaigns in Laos. President Kennedy in 1961 gave the ambassador to Laos extraordinary powers over all US government agents in-country. Effectively, the US ambassador to Laos commanded US operations from 1961 until 1975. Castle titled his chap. 6 *William Sullivan's War* and provided a detailed description of Sullivan's role. Laotian Prime Minister Souvanna Phouma called the struggle in Laos *the forgotten war* because the Vietnam conflict overshadowed it. See Castle, chap. 6; and Paul F. Langer and Joseph J. Zasloff, *North Vietnam and the Pathet Lao: Partners in the Struggle for Laos* (Cambridge, Mass.: Harvard University Press, 1970), 1. Walt Haney calls it *the forgotten war* because the US government hid its existence from the Congress and the American people. See Haney's article in *Pentagon Papers: Gravel Edition,* 5:248.

18. Department of the Air Force, Headquarters 7th/13th AF End-of-Tour report of Maj Gen Louis T. Seith, USAF, 19 June 1968 to 27 May 1969, Udorn, Thailand, 25 June 1969, 1.

19. Dommen, *Conflict in* Laos, 295–96. Vang Pao was born in Nong Het, a village east of the Plain of Jars. At the age of 13, he fought against the Japanese as a resistance fighter. Alongside the French, he later fought the Viet Minh forces and in 1953 led a 300–man rescue attempt of Dien Bien Phu. Despite being a Hmong, he was commissioned in the Royal Lao Army and in 1960 took command of military region 2, which contains the Plain of Jars area. He was extremely loyal to the government, the king, and Laos. His leadership was paramount in SGU successes during the conflict in Laos. See also, Hamilton-Merritt, 89; *Pentagon Papers: Gravel Edition,* 5:273; and Castle, 30–31, 34–43, 57–61.

20. Castle, 6–7.

21. Department of Defense, *United States–Vietnam Relations, 1945–1967,* vol. 2 (Washington, D.C.: Government Printing Office, 1971), iv, A5, tab 4, 66–77.

22. Dommen, *Conflict in* Laos, 105–8.

23. Dommen calls Laos the *keystone of Indochina.* Department of the Air Force, oral history interview, Amb William H. Sullivan, Maxwell AFB, Ala., 91–92. Ambassador Sullivan was involved in the 1962 Geneva agreements. Interestingly, he described the general US strategy as two-fold: (1) to achieve protection for Thailand and (2) to achieve protection for South

Vietnam by a combination of the fighting capabilities of South Vietnam and US forces coming into Vietnam and cutting off the Ho Chi Minh trail on the ground in Laos. One has to wonder if this strategy would have been more effective had it been pursued when the US introduced ground forces into SEA in 1965.

24. Hilsman, 111–12, 114; and Col William Von Platten, USAF, Department of the Air Force, oral history interview, 10 May 1975, Maxwell AFB, Ala., 13.

25. Norman B. Hannah, *The Key to Failure: Laos and the Vietnam War* (Lanham, Md.: Madison Books, 1967), 33–34.

26. Department of Defense, *United States-Vietnam Relations,* vol. 2, iv, A5, tab 3, 62; Hamilton-Merritt, 123; and Douglas S. Blaufarb, *The Counterinsurgency Era: U.S. Doctrine and Performance, 1950 to Present* (New York: Free Press, 1977), 147.

27. William H. Sullivan, *Obbligato 1939–1979: Notes on a Foreign Service Career* (New York: W. W. Norton & Co., 1984), 209; and Seith, End-of-Tour report, tab B, 2.

28. John Morrocco, *Rain of Fire: Air War 1969–1973* (Boston: Boston Publishing Co., 1985), 26.

Chapter 2

Military Situation

We still must consider our interest in Laos . . . as the protection of the flank of Thailand.

—Amb William H. Sullivan, 1968

Instead of overt military aid or military intervention with US ground forces in Laos, the US decided to fight the North Vietnamese on their own terms by using an indigenous force employing guerrilla tactics supplied through a deniable system of paramilitary assistance and directed by a US country team. The CIA advised the ground forces to avoid the presence of US military advisors in Laos. Accordingly, the US military strategy consisted of three components.[1]

US Military Strategy

The US used military assistance to develop a RLG military capability and support active combat operations. This assistance provided the training and equipment for the CIA-led Hmong irregulars and Thai mercenaries. The CIA selected the Hmong due to their aggressiveness and location in northern Laos. These troops did the majority of the ground combat. In addition, the USAF provided training, equipment, intelligence, and maintenance to the RLAF. Project Water Pump at Udorn Air Base in Thailand trained Thai and Laotian pilots in the T-28 and AC-47 and instructed aircraft maintenance personnel. USAF advisors also provided aircraft maintenance to the RLAF and USAF reconnaissance and intelligence capabilities.[2]

US Air Support

The absence of a dependable road system in Laos and the need for mobility and fire support by the US-led guerrilla force created the need for flexible and accommodating air support. An air transportation system was developed by constructing a set of landing strips, called Lima Sites, throughout the country. In addition, Air America, Continental Air Transport, and Byrd Air—all financed by the CIA—provided contract airlift support. The USAF provided reconnaissance, close air support, and interdiction through tactical aircraft based in Thailand and South Vietnam.[3]

Covert War

A variety of reasons explains the need for covertness. The ruse of neutrality was primary, along with the US desire to avoid embarrassing the Soviets. Since Khrushchev and Kennedy had jointly agreed on Laotian neutrality in 1961, overt involvement by the US in Laos would have forced the Soviets to respond directly. Overt action or public disclosure of US involvement would have forced the Soviets to close ranks with their communist brothers. The Soviets were satisfied to look the other way to limit Chinese hegemony in SEA.[4]

William Bundy, assistant secretary of state for Far East Affairs, asserts the war was anything but secret. However, the Laotian desire to preserve an apparent neutral posture was paramount. Keeping the war secret served many interests. For the State Department, secrecy avoided a violation of the 1962 Geneva agreement. The Laotian government did not want to appear as a US puppet. Washington policy made South Vietnam the center of US activity and made public recognition of involvement in Laos appear as an expansion of the war effort. This covert aspect of the war was paramount in selecting the US team to control military activity out of the US Embassy in Laos.[5]

The Old Course of Action

The battlefield in Laos was divided into five military regions as shown in figure 2. Each MR had its own component of FAR ground forces who were led by a Laotian general.

Ground Operations

The war in northern Laos was primarily fought in military region 2. Operations in this area centered on a 130-mile-long contested battlefield with each side established in a stronghold at the ends. To the northeast in Sam Neua province were the Pathet Lao and NVA. To the southwest at Long Tieng were Maj Gen Vang Pao's CIA-financed Hmong forces. The battlefield between them was the Plain of Jars. Each dry season (September–March) found the communists on the offense pushing west toward the PDJ. As the offensive progressed to the west, long lines of communication became vulnerable to interdiction by air or guerrilla infiltration, causing the North Vietnamese to approach a culminating point and stalling their offense. The wet season (May–September) caused the initiative to go over to the RLG. The intractability of the roads, together with friendly air support, caused the enemy to retreat into its sanctuaries near the North Vietnamese border. The North Vietnamese spent the season building up supplies in preparation for the next dry season, when the cycle was repeated.[6]

During his tenure (1964–69), Ambassador Sullivan gradually increased operations against an aggressive North Vietnamese threat. The Hmong infantry grew to about 40,000. From 1965 until 1968 the war in northern

Laos generated a military stalemate. Each dry season saw the communist offensive across the PDJ followed during the subsequent wet season by an Hmong counteroffensive. Since the Hmong were lightly armed and depended on airpower for mobility and fire support, they opted for a defensive, guerrilla strategy, using time and space in defensive operations against enemy offenses. Civilian villages left behind enemy lines provided a valuable intelligence network against North Vietnamese location and supply routes. During enemy withdrawal, the Hmong exploited their advantage in mobility and fire support to attack the enemy. Sullivan's war depended on "good comm, rapid mobility, intrepid hill-fighters, and friendly village population." Despite a massive interdiction campaign in the panhandle, the US was unsuccessful in stopping the flow of North Vietnamese supplies. Neither could it force the North Vietnamese out of Laos. Consequently, a slow escalation in US aid resulted in a military stalemate and the slow attrition of its surrogate force, the Hmong tribesmen.[7]

Air Operations

In 1964 US involvement in Vietnam expanded dramatically. Intent on stopping the flow of supplies from North Vietnam to the south, the US began bombing the Ho Chi Minh trail in southern Laos. This operation was the first air campaign of the war and began as Barrel Roll on 14 December 1964. Barrel Roll continued through the duration of US involvement in SEA. Later, with the start of Rolling Thunder, Barrel Roll sought to punish North Vietnam and make continued support of the Vietcong insurgents unproductive. Operations conducted by June 1965 made it apparent that the limited bombing operations of Barrel Roll had failed to deter North Vietnamese transit through Laos. To meet its objectives, the operation was divided into two air campaigns. Operators designed Steel Tiger to interdict North Vietnamese supply routes to South Vietnam in the panhandle of Laos and Barrel Roll to support RLG ground forces fighting Pathet Lao and North Vietnamese regulars in northern Laos. In exchange for allowing these operations, the Souvanna Phouma government requested additional covert US aid and bombing operations in northern Laos.[8]

Air operations in Laos had a dual nature due to political and military considerations. Each operation required a different application of airpower. The first operation, Steel Tiger, was a war of interdiction waged by a military organization in support of the ground war in Vietnam. The other war, Barrel Roll, was direct air support of the indigenous forces waged by the ambassador. Both operations depended on the same USAF tactical air resources.[9]

A New Course of Action

By November 1968 complete chaos had engulfed Laos. The RLG held dubious control of the country and engaged itself in a five-year civil war

against the Pathet Lao and the North Vietnamese, who controlled about two-thirds of the terrain. The FAR barely defended itself let alone protect the kingdom. CIA-trained indigenous minorities, along with CIA-financed Thai mercenaries, took the fight to the enemy; however, the situation in northern Laos remained a military stalemate. Chinese road crews built a path across the northern part of the country. The war displaced thousands of refugees from their homes. Meanwhile, representatives from each side of the conflict conducted business in Vientiane as if the war did not exist.

On 31 October 1968 President Johnson suspended the bombing of North Vietnam, since he was unable to coerce the North Vietnamese out of South Vietnam. US policy shifted toward withdrawal and turned the fight over to the South Vietnamese. To protect US servicemen during the pullout and give the South Vietnamese time to assume a greater role in their conflict, the new US military strategy interdicted the flow of North Vietnamese supplies to South Vietnam. Accordingly, due to the increased availability of attack sorties, the focuses of the air war turned to Laos and the interdiction of the Ho Chi Minh trail. The US pursued a new military course of action.

Barrel Roll operations intensified to protect the northern flank of Steel Tiger and to maintain the *neutral* RLG that supported US operations in the panhandle. Despite its low priority, Barrel Roll competed for a share of diminishing tactical air resources until the end of the war. This scheme then became the US military strategy and the course of action pursued in Barrel Roll between 1 November 1968 and 23 February 1973.

With this background information on the conflict in Laos, along with an overview of the strategic elements (US policy, strategy, and military situation), the focus of this research turns now to the operational level of the conflict. This examination uses a campaign plan format.

Notes

1. Amb William H. Sullivan, *Obbligato 1939–1979: Notes on a Foreign Service Career* (New York: W. W. Norton & Co., 1980), 210.
2. Ibid.; and Douglas S. Blaufarb, *The Counterinsurgency Era: US Doctrine & Performance, 1950 to Present* (New York: Free Press, 1970), 160–61.
3. Jane Hamilton-Merritt, *Tragic Mountain: The Hmong, The Americans, and The Secret Wars for Laos, 1942–1992* (Bloomington, Ind.: Indiana University Press, 1973), 74–75.
4. Arthur J. Dommen, *Conflict in Laos: The Politics of Neutralization* (New York: Praeger Publishers), 305.
5. Blaufarb, xii; and John Morrocco, *Rain of Fire: Air War, 1969–1973* (Boston: Boston Publishing Co., 1985), 29.
6. Department of the Air Force, Headquarters 7th/13th AF End-of-Tour report of Maj Gen Dewitt R. Searles, USAF, 1 July 1971 to 8 September 1972 (Udorn, Thailand, 9 September 1972), 11.
7. Sullivan, 210–12.
8. Dommen, *Conflict in Laos*, 89.
9. Majs William W. Lofgren and Richard R. Sexton, Department of the Air Force, "Air War in Northern Laos, 1 April-30 November 1971," Project CHECO report, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 22 June 1973, 5.

Chapter 3

The Air Campaign Plan

A series of related military operations aimed at attaining common objectives, normally in a finite period of time and which can achieve strategic results.

—Definition of a campaign

A plan for a connected series of joint air operations to achieve the joint force commander's objectives within a given time and theater of operations.

—Definition of a Joint Air Operations plan

No single extant historical document constitutes the Barrel Roll air campaign plan. Instead, this author has assembled here fragments of historical evidence to indicate which elements of the air campaign plan existed. War planners initially formalized some elements of the air campaign, but most of these plans evolved over the course of the conflict.[1] By reviewing the historical data in context of the elements of the air campaign plan, readers can find an answer to the question, "Did Barrel Roll constitute an (implicit) air campaign plan?" Table 3 lists the five parts of an air campaign plan as defined in the *JFACC Primer*.

Table 3

Elements of a Campaign Plan

	Plan Name	
	Command Relationship	
I	Situation	*Strategic Guidance* *Enemy Forces* *Friendly Forces* *Allied Forces*
II	Mission	
III	Air Operations	*Strategic Concept* *Phasing* *Coordination*
IV	Logistics	
V	Command, Control, and Communications	*Command Communication*

Theater Air Campaign Plan: Barrel Roll (1 November 1968–21 February 1973)

The area of operation included principally northern Laos, but the campaign also included the area known as Steel Tiger West as shown in figure 3. The Steel Tiger East area involved the interdiction effort against the Ho Chi Minh trail and was not included in this campaign.

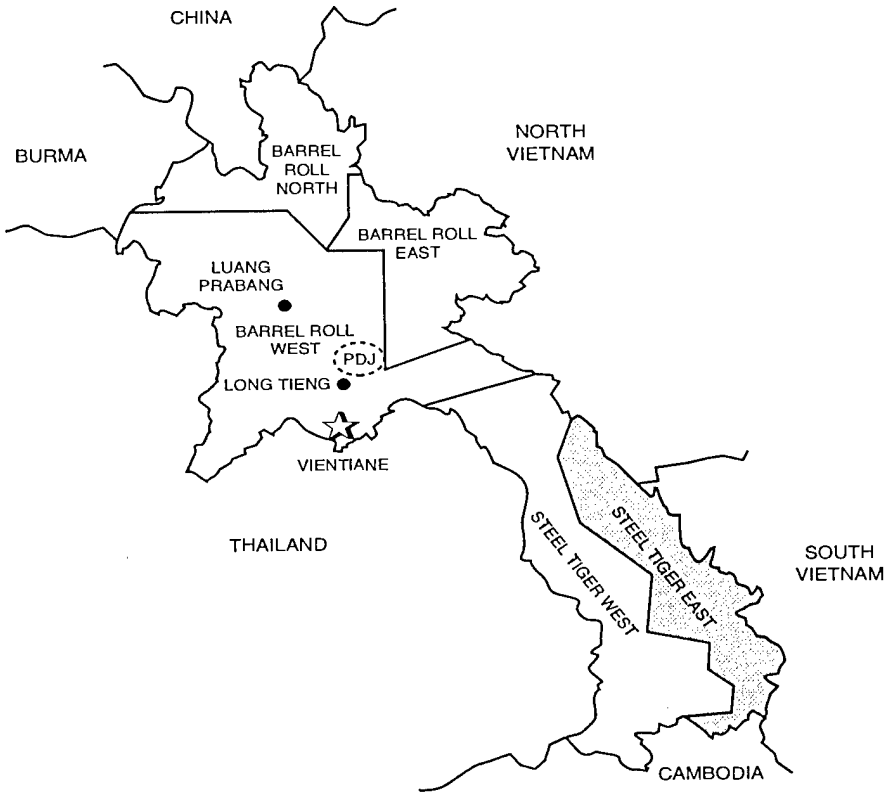

Figure 3. Barrel Roll and Steel Tiger Areas of Operations in Laos

Command Relationship

Figure 4 shows that a complex command relationship existed due to the military and political aspects of the campaign. USAF managed tactical air resources employed in Laos. USAF and Navy tactical aircraft operated under the control of Headquarters Pacific Air Forces (PACAF). PACAF exercised operational control through Headquarters Seventh Air Force, at Tan Son Nhut Air Base in South Vietnam and retained operational control of tactical air sorties flown into Laos, including Barrel Roll and Steel Tiger West. Meanwhile, Military Assistance Command Vietnam (MACV) exercised

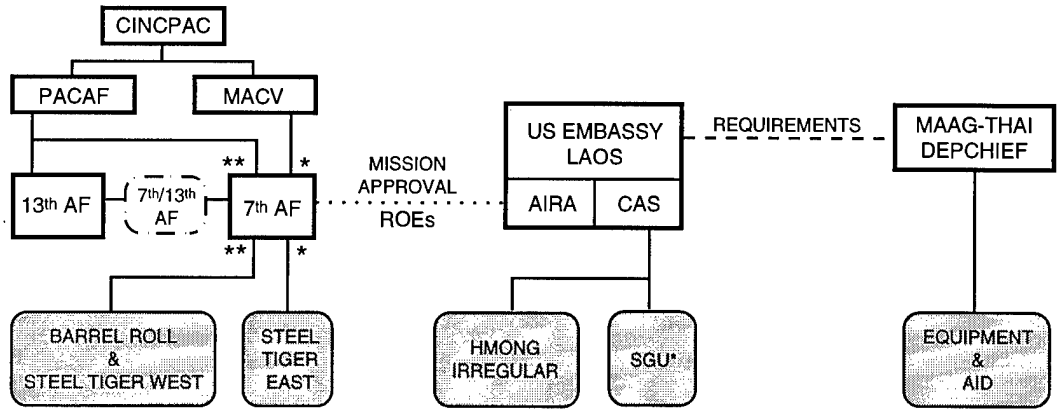

Figure 4. Command Structure for Laos Operations

operational control of tactical air sorties flown into South Vietnam and Steel Tiger East through the Seventh Air Force.[2]

A Kennedy directive in 1962 charged the US ambassador in Vientiane with US activities in Laos. The embassy and staff organized to conduct a covert war. The ambassador submitted and validated targets for strike and approved all strikes in Laos. He controlled the air war through a set of stringent rules of engagement (ROE). Several agencies within the embassy advised the ambassador on the war effort. The CIA assumed the pseudonym controlled American source (CAS). CAS directed the ground war by training and advising the Hmong and Thai SGU forces. The air attaché office (AIRA) advised the ambassador on the employment and use of airpower. Finally, the deputy chief, Joint US Military Assistance Advisory Group Thailand (DepChief), located in Bangkok, assumed responsibility for the military assistance program (MAP).[3]

The last organization, deputy commander, Seventh/Thirteenth Air Force at Udorn AB, exercised administrative control over Thai-based USAF units. Without operational control, it provided a conduit between the American Embassy and Headquarters Seventh Air Force.

Situation

The bombing halt of North Vietnam made interdiction of the Ho Chi Minh trail the principal military strategy for limiting enemy activity in South Vietnam. Consequently, access to the country of Laos was crucial to US

objectives in SEA. This access depended on a RLG favorable to US interests. Since the fate of Laos did not depend on a military solution in the air or on the ground in Laos and could only be decided by the outcome in Vietnam, winning the war against the North Vietnamese in northern Laos was not the objective. Instead, maintaining access to the country was paramount, and keeping the RLG in power became the primary objective of Barrel Roll.[4]

Strategic Guidance

The US desired to remain within the provisions of the 1962 Geneva agreement. In addition, the RLG desired complete deniability of US actions in Laos. Therefore, military involvement in Laos required all activity be conducted covertly. With limited control over the employment of air strikes and the need for deniability, the ambassador employed strict ROE to govern air operations in Laos. ROE helped to balance the application of force within the delicate political and military situation. The presence of Chinese and Russian diplomats, friendly villages, and refugees also dictated strict control over the use of force.[5]

Enemy Forces

The enemy held a limited capability to employ air in Laos. Following the cessation of US bombing in North Vietnam, MiGs provided an occasional but insignificant threat to US air operations in Laos. Ground forces offered the principal threat to US air operations. These threats consisted of antiaircraft defenses that targeted friendly tactical air and the capture of Lima Sites that denied air mobility to friendly forces.[6]

Ground forces consisted of Pathet Lao guerrillas operating principally in military region 2 and North Vietnamese regulars and advisors. By 1971 about two divisions of the NVA comprised of approximately 16,500 troops, positioned themselves in military region 2. The NVA had to porter their supplies. Estimates state that each man engaged in combat required four porters to sustain himself. Consequently, of the 16,500 troops, approximately 3,000 actually fought on the front lines. The North Vietnamese held the capability to employ sufficient combat power to defeat RLG forces; however, such an operation would have risked escalation of force by the US with the possibility of US ground combat troops. This scheme ran counter to NVA objectives. Accordingly, they employed only sufficient force to maintain at least a stalemate in northern Laos.[7]

As a conventional road-bound army, the enemy ground forces depended on resupply using long vulnerable lines of communications during the dry-season offensive. This tactic involved an enemy operational level center of gravity. To mitigate this liability, the enemy used North Vietnam, now safe from US aircraft, as a sanctuary to stockpile resources and continually upgrade the road infrastructure in Laos. These two actions indicated a new intent to sustain forward locations through the wet season.

Friendly Forces

The US provided the preponderance of attack sorties and airlift support for the war in Laos. It located the principal available USAF air assets in Thailand and South Vietnam. Carriers in the Task Force 77 provided limited US naval air support. At the start of the campaign in December 1968, approximately 700 USAF strike aircraft were in-theater and available for employment. During this period, consistent with the Nixon administration withdrawal strategy, USAF aircraft began to depart SEA. Consequently, available tactical air resources decreased throughout the four-year period of the campaign. During this drawdown, the RLAF assumed an increasing share of the attack sortie tasking. Table 4 shows the air order of battle at the start of the campaign in 1968, prior to the North Vietnamese invasion of South Vietnam in 1972, and near the end of the campaign in 1973.

As previously stated, suspension of bombing operations against North Vietnam provided more sorties for employment in the Laotian theater. Slow-moving aircraft were well suited for the kind of war encountered in Laos, but as air defense threats increased these aircraft became more vulnerable. In response, jet aircraft were employed for survivability with a corresponding trade-off of decreased effectiveness. USAF tactical aircraft used in Barrel Roll for strike operations included the A-1, B-57, F-105, F-4, F-100, and F-111. Such gunships as the AC-47, AC-119, and AC-130 were employed for truck interdiction and night air support to defend Lima Sites. The O-1, O-2, U-17, T-28, and OV-10 provided visual reconnaissance and strike control. B-52 Arc Light sorties were employed occasionally beginning in February 1970 against tactical targets with operational level results. Combat missions included interdiction, support of friendly ground troops, and armed reconnaissance. The Seventh Air Force, with a recommendation from MACV and Seventh/Thirteenth Air Force, determined apportionment of sorties for SEA.[8] No US ground combat forces were stationed in-country; however, about 200 military advisors assisted the embassy and RLG military.[9]

Allied Forces

The RLAF was equipped with T-28s and AC-47s. RLAF strike sorties tripled from 10,000 T-28 combat sorties in 1968 to more than 30,000 in each year from 1970 to 1972.[10]

Laotians provided ground forces that fought in-country. These ground forces consisted of the Royal Laotian Army, the Neutralist Army, Hmong irregulars, and Special Guerrilla Units. The Laotian and Neutralist Army's quality and motivation fell far short of the standard required to deal with Pathet Lao and NVA. These forces were unable to conduct offensive operations and reluctant to conduct guerrilla warfare. The brunt of the ground fighting was borne by the Hmong tribesmen and SGU, who became an air mobile guerrilla force. These forces were light but skilled in guerrilla tactics, collecting intelligence, and operating behind enemy lines. They were not suited to hold ground against a determined conventional attack.[11]

Table 4

USAF Attack Aircraft in Southeast Asia

Base	30 Dec 68	30 Dec 71	30 Dec 72
S. Vietnam			
Bein Hoa	60	–	5
Binh Thuy	4	–	–
Cam Ranh Bay	49	–	–
Da Nang	59	62	15
Nha Trang	9	–	–
Phan Rang	84	–	–
Phu Cat	3	–	–
Pleiku	22	–	–
Tan Son Nhut	–	9	–
Tuy Hoa	74	–	–
Total	364	71	20
Thailand			
Korat	54	52	122
Nakhon Phanom	56	30	–
Takhli	55	–	47
Ubon	76	101	119
Udorn	40	42	121
Total	281	225	409

Source: Data compiled from Department of the Air Force, "Summary of Air Operations," December 1968 to January 1972.

The allied ground forces contributed to the strategic objectives by performing the following tasks: sealing off the southern Mekong Valley, thus providing a buffer for Thailand; insulating the Vientiane government from direct communist threat; draining North Vietnamese manpower and resources; and, interdicting of the northern approaches to the Ho Chi Minh trail.[12]

The SGU depended on air support. The Pathet Lao and NVA outnumbered RLG forces; therefore, airpower provided a tactical equalizer against the enemy. It offered the ground forces mobility, static defense, reconnaissance, and long-range fire support. Airpower provided an operational center of gravity for the allied ground forces.[13]

Mission and Air Operations

US air forces sought to conduct air operations in support of the RLG by interdicting supplies moving through northern Laos and providing air support for RLG ground forces fighting insurgents in Barrel Roll and Steel Tiger West. RLAF forces assisted in support of FAR and irregular troops.[14]

The campaign sought to keep the neutralist government and political solution in place. It accomplished this goal by providing support to ground forces and interdicting enemy forces in northern Laos, thus preventing the destruction of irregular combatants and denying the Pathet Lao and NVA additional territory and population.[15]

Strategic Concept

Force applied had to be consistent with US objectives and balanced between two thresholds. Too much force would escalate the war beyond an upper threshold that would cause the North Vietnamese to further escalate its forces or lead to intervention by Chinese ground forces. In addition, escalation of the violence would force the RLG to seek a negotiated settlement with the Pathet Lao that would be unfavorable to the US and cause the subsequent termination of all air operations in Laos. Insufficient force, below a lower threshold, would result in the destruction of Vang Pao and RLG forces. Such a defeat would threaten the population centers of the Mekong Valley. In this situation the RLG would transform into a government with stronger representation or even dominance by the Pathet Lao. Likewise, this alternative would not favor the US for the same reasons. Therefore, the amount of force applied had to respond to the political and military situation in Laos, but remain between the two thresholds.

Phasing

Three distinct phases characterized the campaign. Not only did a different approach to achieving the objectives and the declining availability of US tactical air resources mark each phase, but so did the operational situation in Laos and South Vietnam.

Phase I (November 1968 to July 1970)—Offensive

During this period the USAF provided air support for the RLG ground forces to maintain the tempo of combat operations dictated by the traditional seasonal pattern. An escalation in force by both sides characterized the period. In 1969, assisted by a large increase in air support, the forces in Vang Pao's military region 2 made their deepest penetration into Pathet Lao/NVA territory. The NVA brought in additional forces and during the following dry season pushed the Hmong back past the PDJ and threatened Long Tieng, the military region 2 headquarters. War weary and facing a strong enemy conventional force, Vang Pao found it imperative to call up 13- and 14-year olds. The combination of US air strikes, B-52 bombing, and additional Thai mercenaries helped to break the siege of Long Tieng.[16]

From the summer of 1970 until the end of the war in February 1973, a tactical stalemate resulted on the battlefield along the original 1962 cease-fire lines. The Hmong defended against sieges around the Laotian tactical centers

of gravity, Long Tieng, and Luang Prabang. The NVA, with the benefit of an improved road structure and the safe supply lines within North Vietnam, continued the pressure around both sites. Only US tactical air kept the Hmong in the field and the RLG in power.[17]

Phase II (August 1970 to March 1972)—Defensive

The seasonal pattern of ground combat in northern Laos that had occurred every year since 1962 was broken in 1970. Instead of withdrawing to the east, the enemy held onto the territory it had gained during the dry-season offensive. A MACV concept paper in August 1970 initiated this phase of the campaign by reflecting a Washington SEA policy to disengage from direct offensive combat and thereby reducing US casualties. The document states that the US objective remained the maintenance of a neutral buffer in Laos between Thailand and North Vietnam/China; however, it recognized that the enemy could take over Laos and Cambodia. The loss of Cambodia held greater significance than the loss of Laos. Consequently, airpower was employed in Cambodia. Public awareness of US activity in Laos, due to congressional hearings and President Nixon's disclosure of the conflict, further limited the force that the US could apply.[18]

Despite Gen Vang Pao's desire to attack enemy positions (as in previous years), the ground situation became defensive. The US employed sufficient support to defend the area around the military region 2 headquarters (Long Tieng/Moui Soui) and the capital at Luang Prabang. When enemy strength on the ground increased, the US air forces surged to provide additional air support to maintain the ground held by RLG forces and to prevent further loss of territory.

The enemy offensive during the 1970–71 dry season grew stronger, and the NVA put enormous pressure on Long Tieng. US employment of air again broke the enemy's determination, and the site remained in RLG control.[19]

Political and fiscal decisions in 1971 further limited US air support in SEA. This decreasing pool of tactical air resources was thinned between South Vietnam, Cambodia, Steel Tiger, and Barrel Roll. The reduction in airpower made close coordination of air and ground operations vital to extract the maximum effectiveness from every sortie. Accordingly, more attack sorties were dedicated to Raven forward air controllers (FAC), who selected the targets and directly employed airpower. Some officers at Seventh Air Force felt this decision violated the doctrine of centralized control by making airpower reactive to the ground battle. Nevertheless, sufficient airpower was effectively employed to defend RLG positions throughout the phase.[20]

Phase III (April 1972 to February 1973)—Withdrawal

Once the US decided to begin withdrawing forces from SEA, it employed airpower to cover the withdrawal of US forces and to support renewed fighting in South Vietnam (by increasing the tempo of activity against the trail and by keeping pressure on activity in northern Laos).

The invasion of South Vietnam by NVA in March 1972 brought additional tactical air resources back to the theater. The US increased the tempo of air operations in Laos to support the defense of South Vietnam with the priority of air support going to North and South Vietnam, Cambodia, then Steel Tiger East. Following the reinitiation of US bombing in North Vietnam, the NVA in northern Laos lacked sufficient strength to reinitiate a strong offense against Long Tieng and Luang Prabang. However, they were able to hold territory and were well postured for the peace negotiations.[21]

Coordination. The target selection and approval process evolved over the course of the campaign. Initially, target recommendations for strike were submitted to the ambassador for approval. Approved targets were then forwarded to Seventh/Thirteenth Air Force. The mission was scheduled based on available assets and other SEA priorities. The process required up to five days to complete and did not exploit the flexibility of airpower. The number of organizations involved, the political sensitivity, and the covert nature of the war further complicated effective targeting and efficient use of strike aircraft. In response, several methods were devised to enhance the targeting process. These included the use of strike boxes, quick-reaction alert strike aircraft, and improved coordination between agencies.[22]

Administration and Logistics

The conduct of the Barrel Roll air campaign depended heavily in several aspects of logistics. These aspects included the Military Assistance Program (MAP), the use of Lima Sites, and contract airlift support.

Military Assistance Program

The US MAP provided the Laotian military with equipment and advisors. Between 1962 and 1973 MAP provided $1.4 billion in aid. To support US objectives in Laos the deputy chief of the Military Assistance Advisory/Group Thailand wanted to build "an effective Air Force within Laos, while simultaneously supporting active combat operations within the country." The American advisors did an effective job in training the Laotians in technical skills, for example, and in flying and aircraft maintenance. But, by 1970 the greatest deficiency in the RLAF centered around command, control, and middle management. The operational nature of the war dictated that US personnel perform these duties precluding RLAF personnel from learning on the job. Consequently, despite becoming an effective fighting force, the RLAF lacked some vital components necessary to continue the fight after US withdrawal.[23]

Lima Sites

The early 1960s witnessed the development of a system of almost 200 airfields. Throughout the war, these Lima Sites proved vital to the ground operations of the Hmong irregulars. These sites ensured the delivery of aid to

indigenous population and refugees and supplied Vang Pao's forces. The Hmong forces used these sites to employ guerrilla tactics—attacking the NVA rear and their lines of communication. Often built into mountain tops or along hillsides, the Lima Sites provided the ground forces with mobility and maneuver. Together with tactical air support, the airfields allowed these lightly equipped fighters to execute vertical operations in-depth.[24]

Contract Air Support

Air America, a contract airline, played a central role in the air campaign by providing airlift within Laos. As a private enterprise providing subsistence to the indigenous population, refugee evacuation, and search and rescue, Air America was not prohibited by the Geneva Accords. Obviously, other tasks, including the movement of guerrillas, intelligence gathering, and airlift of munitions and weapons, did not fall within the intent of the agreement. For this reason, Air America's involvement in the war was strictly covert. Nevertheless, the airlift provided by Air America and other contractors proved invaluable to guerrilla operations against the Pathet Lao and NVA forces and the movement of population loyal to the Hmong cause.[25]

Command, Control, and Communications

The US ambassador's responsibilities included the "overall direction, coordination, and supervision" of US military operations in Laos. The ambassador directly controlled the war in Barrel Roll and Steel Tiger West while delegating targeting and control of the war in Steel Tiger East to Seventh Air Force and MACV. Command and control of USAF tactical air relied on ROE, air operation centers, and Raven forward air controllers. Command and control underwent complications due to the command relationship, political sensitivity of the conflict, desire to limit civilian casualties, turnover of personnel in the many organizations providing support, and the unconventional nature of the war. The following excerpt from a USAF report on the war describes this command and control challenge:

> USAF FACs were flying secretly from Laos, under the control of the Air Attaché for a Meo [Hmong] ground commander advised by the CIA, to direct strikes by USAF planes based in Thailand under control of a command center in Vietnam.[26]

Rules of Engagement. The ambassador employed a well-defined set of ROE to restrict the employment of US tactical air. Each area of operation had different rules. In addition, he established free-strike zones, restricted areas, and special operating areas to provide more flexibility for the employment of tactical air.[27]

Operation Centers. Two sets of operating areas controlled the war in Laos. The ground and RLAF effort was divided into five military regions, each with its own ground forces and air force squadron. Each region had an air operations center (AOC) to control the employment of RLAF resources in that

military region. Each AOC was staffed with USAF advisors who coordinated the air-ground operations in that military region.[28]

The US tactical operating areas were subsets of Barrel Roll (that is, East, West, and North) and Steel Tiger (East and West) areas. Each area had specific ROE for employment of tactical air.[29]

Ravens. In 1968 the ambassador requested the deployment of combat-experienced USAF FACs to control the employment of US tactical air. Ravens were volunteers with 500 combat flying hours' (usually six months) experience as FACs in Vietnam. They were assigned directly to the air attaché and operated in Laos covertly for a tour length of six months. Small groups of Ravens were attached to the AOC of each of the five military regions. The Ravens exercised decentralized control of airpower by formulating their own plans and operations to support the ground campaign in each military region. Raven FACs assisted in the management and control of airpower in that area. Over the course of the campaign, they directly controlled and employed between one-third and two-thirds of the tactical air sent to Barrel Roll.[30]

This air campaign plan for Barrel Roll supported US strategy and policy in Laos and SEA. The operational level concept dictated tactical action and specific targets in support of US objectives. This information provided the *how* of Barrel Roll. The next task analyzes the results and costs of the campaign.

Notes

1. Primary sources were located at the USAF Historical Research Agency and the Air University Library. The interview of participants added valuable detail, and follow-on research should seek first-hand witnesses, participants, and decision makers for their perspectives.

2. Maj Gen Dewitt R. Searles, Department of the Air Force, Headquarters 7th/13th AF End-of-Tour report, 1 July 1971 to 8 September 1972, Udorn, Thailand, 9 September 1972, 1–7; Capt Peter A. W. Liebchen, Department of the Air Force, "MAP to Laos 1959–1972," Project CHECO, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 25 June 1978, 25–27; and, Department of the Air Force, Headquarters 7th/13th AF End-of-Tour report of Maj Gen Andrew J. Evans, Jr., USAF, 16 October 1970 to 30 June 1971, Udorn, Thailand, 30 June 1971, 2–3.

3. Majs William W. Lofgren, Jr., and Richard R. Sexton, Department of the Air Force, "Air War in Northern Laos, 1 April-30 November 1971," Project CHECO report, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 22 June 1973, 5.

4. Douglas S. Blaufarb, *The Counterinsurgency Era: US Doctrine and Performance, 1950 to Present* (New York: Free Press, 1977), 164; and *Laos Hearings*, 398.

5. Col Paul A. Pettigrew, oral history interview, USAF, Department of the Air Force, 5 March 1970, Maxwell AFB, Ala., 9–10.

6. An action in 1968 demonstrated the state of North Vietnamese capabilities to employ air in support of ground objectives in Laos. On 12 January 1968 two Soviet-built AN-2 Colt biplanes conducted an attack on Phu Pha Thi (Lima Site 85) with minimal results. The site was located about 20 miles from the North Vietnamese border and 160 miles west of Hanoi. It contained USAF navigation equipment used to help Air Force aircraft bomb North Vietnam. The AN-2 Colts dropped converted 120-millimeter mortar rounds, fired machine guns, and inflicted minor injuries and damage to the facility. Both airplanes were shot down, and the

damage inflicted to the site was minimal. One aircraft was shot down by an Air America UH-1 helicopter while the other crashed trying to evade. See Timothy N. Castle, *At War in the Shadow of Vietnam: US Military Aid to the Royal Lao Government, 1955–1975* (New York: Columbia University Press, 1993), 94–95; and Carl Berger, ed., *The United States Air Force in Southeast Asia, 1961–1973: An Illustrated Account,* 2d ed. (Washington, D.C.: Office of Air Force History, 1984), 126.

7. Lofgren and Sexton, 5–6; Arthur J. Dommen, *Conflict in Laos: The Politics of Neutralization* (New York: Praeger Publishing, 1971), 386; and Pettigrew, oral history interview, 34.

8. Ibid.; and Searles, 7–9.

9. As of September 1969, nearly 950 personnel were stationed in Laos as part of the US war effort. Amb William H. Sullivan, in testimony to a Senate foreign relations subcommittee in 1969, provided the following breakout.

On the embassy staff:

> Department of State, 59; Marine Guards, 15; direct hires for US Agency for International Development (USAID), 338; US Information Service (USIS), 19; and, Military Attaché, 127 for a total of 558. Contract personnel included 53 international voluntary service personnel; Air America, 207; and, Continental Air Service, 73 for a total of 333. The Military Attaché numbers included the Project 404 special forces augmentation, but did not include 91 additional military personnel on temporary duty for up to six months in Laos. These 91 plus the 127 attached to the Military Attaché result in 218 military personnel in-country during this period. See US, *Laos Hearings*, 369.

10. Data compiled from Maj John C. Pratt, *The Royal Laotian Air Force: 1954–1970* (Christianburg, Va.: Dalley Book Service, 1994), fig. 12; and Department of the Air Force, "Summary of Air Operations," January 1971 to December 1972.

11. Maj Gen Louis T. Seith, Department of the Air Force, Headquarters 7th/13th AF, End-of-Tour report, 19 June 1968 to 27 May 1969, Udorn, Thailand, 25 June 1969, tab E, 1, 5.

12. Blaufarb, 161.

13. Searles, 11.

14. Liebchen, Project CHECO, Hickam AFB, Hawaii, 24–26; Pratt, *Royal Lao Air Force*, xix–xx; Seith, tab B, 1; and Capt William R. Burditt, Department of the Air Force, *Rules of Engagement, October 1972–August 1973*, Project CHECO, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 1 March 1977, 9.

15. Blaufarb, 164; and Burditt, 9.

16. Blaufarb, 162–63.

17. See Department of the Air Force, "Air Support of Counterinsurgency in Laos July 1968–November 1969," Project CHECO, Pratt, USAF, et al., Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 10 November 1969; Department of the Air Force, "Air Operations in Northern Laos, 1 November 1969–1 April 1970," Project CHECO, Kenneth Sams, Lt Col John Schlight, USAF, and Maj John C. Pratt, USAF, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 5 May 1970; and, Department of the Air Force, "Air Operations in Northern Laos, 1 April–1 November 1970," Project CHECO, Lt Col Harry D. Blout, USAF, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 15 January 1971.

18. See Department of the Air Force, "Air Operations in Northern Laos, 1 November 1970–1 April 1971," Project CHECO, Lt Col Harry D. Blout, USAF, and Melvin F. Porter, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 3 May 1971; and Lofgren and Sexton, 29.

19. Blout and Porter, 5.

20. Budget limitations on air support to SEA were 10,000 tactical air, 1,000 B-52, and 750 gunship sorties each month. This was a 50 percent reduction from the previous year. See Lofgren and Sexton, 6, 34–35.

21. Department of the Air Force, "The Air War in Laos, 1 January 1972–22 February 1973," Project CHECO, Maj William W. Lofgren, Jr., USAF, Hickam AFB, Hawaii: Headquarters Pacific Air Forces, 15 October 1974.

22. From the ambassador's viewpoint, these criticisms did not reflect a big picture view of the world and the situation in Laos. In Ambassador Sullivan's opinion, the nature of the war in

Laos made these inefficiencies necessary to attain US objectives. See Maj Richard B. Clement, Air Force Historical Research Agency, Maxwell AFB, Ala., interview with Amb William H. Sullivan, April 1970, 10–15.

23. Liebchen, 171. Although MAP occupied a critical part of the US military strategy in Laos, the amount of aid and the number of organizations involved complicated coordination between each. See Pratt, "Royal Laotian Air Force," xx.

24. Col Harry C. Aderholt, USAF, oral history interview, 5 March 1970, Maxwell AFB, Ala., 116–19; and Jane Hamilton-Merritt, *Tragic Mountain: The Hmong, the Americans, and the Secret Wars for Laos 1942–1992* (Bloomington, Ind.: Indiana University Press, 1993), 103.

25. Liebchen, 21, 22; Lt Col Drexel B. Cochran, USAF, oral history interview, 20 August 1969, Maxwell AFB, Ala., 133; Hamilton-Merritt, 118–23; and Christopher Robbins, *Air America* (New York: G. P. Putnam, 1979) provide an anecdotal account of the airlift operation.

26. Blout, 5.

27. See Burditt for details of ROE during the October 1972 to August 1973 time frame.

28. Searles, 4.

29. Lofgren, 42.

30. Blout, 5; and Pettigrew, 60. For a first-hand account of Raven activity, see Christopher Robbins, *The Ravens: The Men Who Flew in America's Secret War in Laos* (New York: Crown Publishers, Inc., 1987).

Chapter 4

Analysis

The military student does not seek to learn from history the minutiae of method and technique. In every age these are influenced by the characteristics of weapons currently available and the means at hand for maneuvering, supplying, and controlling combat forces. But research does bring to light those fundamental principles, and their combinations and applications, which, in the past, have produced success.

—Gen Douglas MacArthur

The idea that superior air power can in some way be a substitute for hard slogging and professional skill on the ground is beguiling but illusory. Air support can be of immense value to an army; it can fight—and not only defensively—in the face of almost total air superiority.

—Air Marshal Sir John C. Slessor

At the time of the cease-fire at 2400 hours on 21 February 1973, the NVA controlled approximately two-thirds of the land area of Laos and one-third of the population—virtually the same situation that existed at the cease-fire in 1961. Over a four-year period, the expenditure of approximately 1.7 million tons of ordnance and 401,296 tactical air sorties resulted in no net gain in terrain or population from the enemy. However, the RLG remained in power as the legitimate government of Laos.[1]

Having focused on the *why*, *what*, and *how* of Barrel Roll, two questions remain: How much resource was applied? and Was Barrel Roll effective? The answer to these questions must consider the strategic objectives, the campaign objectives, the cost, and the results. This section analyzes the air campaign from a perspective of airpower effort, effects, and effectiveness.

Airpower Effort, Effects, and Effectiveness

To answer the questions of cost and results, consider the employment of airpower in Barrel Roll from the three aspects of effort, effects, and effectiveness. Each of these three dimensions has tactical, operational, and strategic components. Table 5 summarizes this concept and provides examples for each dimension.[2]

Table 5

Airpower Effort, Effects, and Effectiveness

		STRATEGIC	OPERATIONAL	TACTICAL
COST	EFFORT	National Resources allocated to the theater/conflict Type of weapon systems/ordnance committed	Theater assets allocated to a campaign Apportionment Allocation Losses	Resources allocated to a specific task Number of aircraft for a target or in a strike package Ordnance expended against a target Sorties flown
RESULTS	EFFECTS (direct)	Destruction/damage of a target with strategic level consequences *Target examples:* critical industry, government, National leadership, weapons of mass destruction	Destruction/damage of a target with opeational/ theater level consequences *Target examples: supply depots, corps headquarters*	TACC, C^3 nodes
	EFFECTIVENESS (indirect)	Achieves national objectives Enemy defeated	Achieves campaign objectives Enemy terminates a seasonal offensive	Decides outcome of a battle

Cost of Airpower

The cost of a campaign focuses on resource allocation and effort. With limited resources or competing military tasks, effort reflects priority. Effort translates available resources into the accomplishment of military tasks. Airpower effort considers the number and types of assets available for employment. In its simplest form, the number of tactical aircraft deployed to SEA defines the strategic effort. The number of sorties these aircraft generate indicates the priority of the objective. At the operational level, effort is measured in the amount of resources allocated for a campaign or to achieve theater objectives. The apportionment or allocation of sorties is an operational level measure of effort.[3] Finally, observers may view effort at the tactical level as the number of sorties leveled against a target or the number of aircraft in a strike package. The expenditure of resources on the battlefield determines the effort applied to meet an objective. One must compare effort to effects and effectiveness and vice versa because some minimum level of resource exist below which objectives, whether tactical, operational, or strategic, cannot be achieved.

Direct Versus Indirect Effects

The results of airpower strikes are both direct and indirect. The implication of direct results relates to the effects of airpower, while the indirect results include the effectiveness of airpower. Airpower effects involve the immediate outcome of the employing airpower against a target of significance to the enemy. The physical destruction or damage of the target focuses on a first-order result of airpower. Because targets fall into strategic, operational, and tactical categories, the destruction of the target influences the conflict at these three levels. For example, the destruction of a single tank is the tactical effect of airpower, but the destruction of a division of tanks removes that unit from the battlefield and has operational consequences. Likewise, the destruction of several operational targets results in strategic effects.

Airpower effectiveness is the second-order or indirect outcome of the employment of airpower. This outcome does not often manifest itself clearly as it deals with objectives. Similar to effort and effects, effectiveness plays at the three levels of warfare. If airpower decides or influences the outcome of a battle, it has tactical effectiveness. Take the destruction of the enemy's armor, for example. The destruction of eight tanks results from the effect of airpower, but if the loss of this armor forces the enemy to withdraw or terminate an offensive, that result measures airpower's effectiveness. Measuring effectiveness manifests itself in terms of objectives achieved. If a nation attains its objective through airpower, then it has obtained airpower effectiveness.

Because airpower operates in three levels of warfare, it provides a unique asset because tactical effort sometime results in strategic effectiveness. Analyzing Barrel Roll in terms of these three aspects assists in formulating a conclusion about the success and effectiveness of the air campaign.

Resource Allocation—Measuring Airpower Effort in Barrel Roll

The lack of complete historical records that delineate specific airpower apportionment data during the course of the campaign requires that we find an alternate measure. Effort is derived by examining the resources committed to the theater, the sorties generated, the sorties allocated by tasks, and the ordnance expended. By analyzing this data, we can draw a conclusion on the issue of cost and priority of the Barrel Roll campaign.

Resources Available

Table A-1 in the appendix shows the air order of battle for USAF strike aircraft in SEA during the period of analysis. Figure A-1 in the appendix displays this information graphically and shows a decline in total available USAF strike aircraft in SEA, which is consistent with the US policy of withdrawal. The data shows a significant decrease in the South Vietnam-based

attack aircraft, while the level in Thailand remained relatively constant until the 1972 North Vietnamese invasion of the south. The decline in aircraft meant that fewer resources were available in-theater and that we would assume a decrease in the attack sorties available for tasking to Barrel Roll.

Sorties Flown

Examining US sorties flown by theater focuses on one aspect of determining priority or effort of Barrel Roll within the context of the total SEA effort. Table A-2 illustrates these priorities in each phase of Barrel Roll by showing the relative distribution of attack sorties throughout SEA for each period. The table indicates that Barrel Roll was the third overall SEA priority until phase three, when the North Vietnamese invaded South Vietnam. Eighty percent of the tactical air employed in Vietnam occurred during phase three, and Barrel Roll occupied the lowest priority in SEA next to Cambodia. Another significant conclusion—that the amount of effort applied toward Laos during phases one and two of Barrel Roll—indicates the area's importance during this time frame. Overall, for the 52-month campaign, Barrel Roll received 10 percent of the total US tactical air effort of SEA. Thus, effort, in terms of attack sorties flown, shows Barrel Roll as a low-SEA priority during the four-year period.

Ordnance Delivered

Tables A-3 and A-3a provide a similar indication of effort. The available data does not distinguish between Barrel Roll and Steel Tiger; however, the trends are similar to the attack sorties flown. Nevertheless, looking at the ordnance expended provides another dimension to measure effort. The addition of B-52 strike sorties adds about 2 million tons of ordnance distributed across all theaters and phases and only a minor effect on priority. Laos turned out to be one of the most heavily bombed areas during the SEA conflicts—the large majority of ordnance employed along the trail in Steel Tiger East.

Sorties by Task

Some apportionment data for Barrel Roll was available for the period January 1970 through August 1971, thus making possible some conclusions. Sorties were tasked against three roles: interdiction of trucks and storage areas, distribution to Raven FACs for support of ground forces, and usage against enemy air defenses. Figure A-4a shows the distribution of US attack sorties. Interdiction loomed as the top priority between June 1970 and February 1971, with approximately 75 percent of the sorties dedicated to this effort. The periods from January 1970 to April 1970 and from February 1971 to June 1971 identify the support of ground forces. This period coincided with the seasonal enemy offensive. Deeper enemy starting positions characterized both periods. Something of this nature, along with the use of sieges around Long Tieng and Luang Prabang, had not occurred in previous years.

Barrel Roll—the Third Priority in Southeast Asia

Having examined the resources available, attack sorties flown, ordnance delivered by theater, and sorties by task within Barrel Roll, we identified this operation as third in priority behind South Vietnam and the interdiction effort in Steel Tiger. Once the NVA invaded South Vietnam during phase three, 83 percent of the attack sorties went directly to support the war in Vietnam, and Barrel Roll drew less than 5 percent of SEA attack sorties.

Within Barrel Roll, the air effort was divided between interdiction and support of ground forces with the preponderance of the air being dedicated to the interdiction effort against enemy supply lines. Since this was the enemy's center of gravity, it follows that interdiction of enemy lines of communication was consistent with trying to stop or defeat the enemy's offensive capability.

Bomb Damage Assessment—Measuring Airpower Effects and Effectiveness of Barrel Roll

Translating effort into effects is determined by examining targets destroyed in comparison to sorties flown or ordnance expended. In other words, how were the resources expended converted into enemy targets destroyed or damaged. In Barrel Roll, airpower effects were reported using bomb damage assessment (BDA).

What to Measure

BDA measured five target sets: vehicles, buildings, antiaircraft guns, bridges, and road cuts. BDA emanated from direct observation by the crew of the strike aircraft or the forward air guide (FAG)[4] or by poststrike reconnaissance aircraft or ground team. Figures A-4 and A-4a show the results for these targets. Except for the period from December 1969 to August 1970, BDA showed good trend correlation with attack sorties flown (also shown in figure A-4). The spring of 1970 was a precarious time due to the siege of Long Tieng, and many attack sorties focused directly on the support of ground forces. The effect of the interdiction effort against vehicles, buildings, bridges, and roads was reflected in these results. Likewise, the effort against enemy air defenses also correlated with the results.

Reporting Bomb Damage Assessment

Using reported BDA from historical records came with liabilities. Report of BDA in Laos suffered from the same affliction that the Army experienced with body count. The management influence of the USAF reduced each strike sortie to its contribution for the war effort. Truck kills became a measure of effectiveness. Inflated reports were common. During one year, the number of trucks damaged or destroyed exceeded the total number of trucks in North Vietnam almost by a factor of three. Other reports became equally inflated.

Accordingly, recorded BDA may not have provided a totally accurate measure of effects and must be used cautiously. Since it is the only measure available, BDA is used relatively to compare phases or roles. BDA may not be valid in the absolute. For example, it may not reveal how many trucks were destroyed during a given period.

Another problem in determining airpower effects concerns the lack of BDA report from the employment of airpower in support of ground forces. The source of the problem was twofold. First, observing enemy dead was more difficult than observing other targets. The second concern centered around the issue of accuracy as described above. The FAGs who helped to direct strikes often provided BDA following the attack. FAGs reasoned that a higher kill rate would look good for the pilot and FAG at headquarters. The standard BDA was a 100-body count, something headquarters began to question and later demanded a more realistic and accurate count. In one instance a US pilot received a BDA report from a FAG: "You killed ninety-eight bad guy[s]." The pilot replied, "Oh, come on Pogo. What do ya mean, ninety-eight?" After a short silence, Pogo responded with, "Okay, you kill[ed] one hundred and two."[5] Because of these problems, more often than not, only the second-order results of airpower or effectiveness became apparent when air was employed in support of ground forces; that is, the overall results of the engagement in terms of terrain held or taken, sieges broken, or enemy attacks repelled.

Congruence with National Policy—Measuring Airpower Effectiveness

The indirect results of force employment measure airpower effectiveness. Where airpower effects were most apparent at the tactical level (tanks destroyed or damaged), airpower effectiveness manifested itself principally at the operational or strategic level (battle won or objective achieved). To determine effectiveness one must examine how well airpower achieved the strategic and operational objectives of the campaign. Let us now describe an example of each level.

Tactical Level—The Siege of Long Tieng

In March 1970 North Vietnamese forced Hmong irregulars into military region 2 headquarters at Long Tieng. The enemy put intense pressure on the RLG forces hoping to capture the site. Loss of this installation would have seriously compromised the RLG's ability to maintain control of the country. As a tactical target, Long Tieng had operational level significance for the RLG forces. Airpower—tactical air and B-52s—was used in support of the ground forces attempting to hold Long Tieng. Although the effects of the employment of these strike sorties may reveal themselves immediately, airpower broke the siege, which was the tactical objective of employing airpower in the first place. Airpower's effect at the tactical level had operational and strategic level

effectiveness by achieving the objectives of supporting RLG forces and preserving the RLG.[6]

Operational Level—Allowed the Prosecution of the Trail War

Whether or not it was an effective strategy for the war in South Vietnam, interdiction of the Ho Chi Minh trail served as a primary objective of airpower in Laos during this period of the war. Given that objective, maintaining access to Laos proved critical to the US strategy and support of the neutralist government providing that access. Consequently, the second-order results of the Barrel Roll campaign focused on the ability of the US to conduct Steel Tiger. Since this campaign was executed in total, we conclude that Barrel Roll achieved its operational level objectives and was effective.

Strategic Level—Security of Thailand

Preventing the communist insurgency of Thailand by denying the Chinese and North Vietnamese access to Thailand was a strategic objective of the US. Although South Vietnam and Laos eventually fell, the security of Thailand was secured principally through the war in northern Laos. North Vietnamese forces were prohibited from using Laos as a sanctuary or a staging area for action against Thailand. Since Thailand remains free of communist insurgency today, we can conclude that Barrel Roll had some effectiveness in achieving this strategic objective.

Political Level—Royal Lao Government

Finally, maintaining the RLG in power was a political objective of US strategy in Laos. The government remained in power through the end of the Vietnam war, which allowed US access to the country to prosecute the interdiction campaign against the Ho Chi Minh trail. Consequently, while the US needed access to Laos to support the withdrawal of US forces from SEA, Barrel Roll helped to achieve this political objective. The original objectives of keeping Laos neutral had been previously abandoned and were not objectives of this period of Barrel Roll. The campaign's principal contribution between 1968 and 1973 centered around support of US interests and objectives in SEA, mainly South Vietnam.

Notes

1. Department of the Air Force, "Summary of Air Operations," February 1973, 1–1. Totals are shown for Barrel Roll and Steel Tiger during the period from 1 November 1968 to 28 February 1973. Ordnance total includes all US tactical air and B-52 but not Royal Laotian Air Force or Vietnamese National Air Force. The breakout by area of operations for the same period was 316,880 tactical air sorties to Steel Tiger and 84,416 tactical air sorties for Barrel Roll. Tactical air ordnance was 955,544 tons and B-52 was 743,703 tons. Data obtained from "Summary of Air Operations" for November 1968 through February 1973.

2. Mr Barry D. Watts and Dr Thomas A. Keaney provided the inspiration for these dimensions in *Gulf War Air Power Survey*, vol. 2, pt. 2 (Washington, D.C.: Government Printing Office, 1993), 27–57. They define airpower effects and effectiveness as described here. I expanded the concept to include effort along with the three dimensions of each of the aspects of cost and results.

3. Joint Pub 3-56.1, *Command and Control for Joint Air Operations,* 14 November 1994, defined apportionment as the determination and assignment of the total expected effort by percentage and/or by priority that should be devoted to the various air operations and/or geographic areas for a given period. It defined allocation as the translation of the apportionment into total numbers of sorties by aircraft type available for each operation/task.

4. Forward air guides were US or allied personnel who helped to direct attack fighter sorties to the target from the ground.

5. John Morrocco, *Rain of Fire: 1969–*1973 (Boston: Boston Publishing Co., 1985), 45.

6. Kenneth Sams, *Escalation of War in Southeast Asia, July–December 1964* (Hickam AFB, Hawaii: Project CHECO, Pacific Air Forces, n.d.), 1–4.

Chapter 5

Conclusion

The pronounced characteristics of the air war in Laos was that the USAF was reacting rather than acting in the employment of its air assets.

—Lt Gen James D. Hughes

U.S. tactical air has been the major factor in preventing wholesale reverses and making these friendly moves possible. USAF and the RLAF T-28 force have performed remarkably well in defense of friendly ground positions, in providing close air support for offensive moves, and in destroying enemy supplies, equipment and bivouac areas. But air forces cannot substitute for ground force; they can only supplement them and increase their fire power and maneuverability.

—Maj Gen Louis T. Seith

Having addressed the four aspects of the campaign analysis—the *why, what, how,* and *results*—this section examines the last question: "Did Barrel Roll constitute an [implicit] air campaign plan?" The answer must consider the tenets of a campaign. The *JFACC Primer* states a campaign should convey the commander's intent, define success, orient on enemy centers of gravity, phase a series of operations, provide direction, and synchronize joint forces.[1] In addition, the campaign must link strategic objectives with tactical actions. This section concludes by providing several lessons learned from the campaign.

Barrel Roll as an Air Campaign

Throughout the period from November 1968 to February 1973, Barrel Roll protected friendly centers of gravity, exploited enemy centers of gravity, and achieved the operational and strategic objectives defined during the course of the campaign. Despite complicated command and control, the use of airpower as long-range artillery, and questionable coordination between ground and air efforts, this phase of Barrel Roll accomplished US objectives in support of the overall SEA war effort, and the force employed (resource allocated) was consistent with US policy.

Friendly Center of Gravity

The fate of the RLG rested with the Hmong irregular forces' ability to remain in the field and engage the Pathet Lao and the NVA. The Hmong army occupied an operational center of gravity in Laos. Its defeat would have compromised the RLG with accompanying strategic ramifications—most of all, the loss of US access to the country for the mission of interdicting NVA supply lines into South Vietnam and supporting US objectives in Vietnam. Primarily, Barrel Roll supported the RLG forces. The US identified this support as a friendly center of gravity and used airpower to keep Gen Vang Pao's forces in the fight. Although airpower never could have won this war, the absence of airpower certainly would have resulted in the defeat of Vang Pao's forces and led to the fall of the RLG.

Tactically, the Lima Sites were centers of gravity because the Hmong used these centers to gather intelligence and to prosecute a guerrilla style war against the conventional NVA. Air mobility support by contract airlift and Lima Sites provided the Hmong an advantage over the road-bound NVA. The employment of gunships in defense of the Lima Sites demonstrated a recognition by the US of the importance of these airfields to the conduct of the ground war against the Pathet Lao and North Vietnamese.

The effectiveness of the Pathet Lao and NVA in identifying friendly center of gravity also must be discussed. The NVA focus on the Hmong guerrillas and their siege of Long Tieng demonstrates a recognition of importance of this site and friendly ground forces. The concentration on and capture of Lima Sites also shows an NVA understanding of how the Hmong utilized these facilities. Finally, the NVA identified the importance of airpower for the RLG forces. Attacking the Lima Sites disrupted the air mobility of the guerrillas and improving the road structure inside Laos minimized the effects of air interdiction against NVA supply lines by allowing the enemy to remain forward during the wet season and to negate the effectiveness of tactical air.

Enemy Center of Gravity Identified

The North Vietnamese had several vulnerabilities. Without a developed infrastructure in northern Laos, the NVA were constrained by long lines of communications for resupply. Without useable roads during the monsoon season, the North Vietnamese quickly confronted a culminating point and were forced to withdraw. In addition, the ability to use Vietnam as a sanctuary for supplies without the threat of interdiction also proved advantageous. The buildup of supplies prior to the start of the seasonal offensive allowed them to increase the level of force and violence in 1969 and 1970. With a larger cache of supplies and by weather proofing the roads, the NVA eventually were able to hold their gains and not be forced to withdraw during the monsoon season. The ability of the North Vietnamese to wage an offensive campaign depended on prepositioning supplies and maintaining year-round use of their lines of communication. These lines were the enemy's centers of gravity. NVA road improvements concentrated on the enemy's

effort to protect these vulnerabilities. Conversely, the US recognized the importance of interdicting the NVA lines of communication. The development and use of all-weather bombing techniques and the continued emphasis on interdiction throughout the campaign demonstrated a recognition of the enemy's center of gravity. When interdiction fell short of stopping the seasonal offensive as it did in 1970 and 1971, the US intensified its support for the ground forces in the besieged areas until it defeated the concentrated attacks of the enemy. Correctly identifying the enemy's centers of gravity and minimizing the friendly vulnerabilities made Barrel Roll an effective air campaign.[2]

Consistent Employment with United States Objectives and Military Strategy

Tactical actions supported US objectives and military strategy. The US did not seek to defeat the Pathet Lao or NVA in Laos but to support engaged irregulars and SGU while keeping the RLG in power. The US accomplished this objective through strict rules of engagement, covert operations, and airpower to make up for the ground force deficiency in firepower. Given the large amount of airpower available, the US carefully avoided escalating the conflict beyond the bounds determined by the enemy and the objectives. In addition, despite being a low priority for airpower with respect to other theaters in SEA, airpower was available when the US needed it to support the RLG.

Accomplished Objectives

From the standpoint of achieving objectives, Barrel Roll was an effective air campaign. It supported national, strategic, and operational objectives in SEA. In this regard, Barrel Roll supported the US withdrawal from Vietnam and the interdiction campaign against the Ho Chi Minh trail. Given the command and control structure, political constraints, number of agencies involved, and environment and geography, the employment of airpower carefully balanced these conditions to achieve its objectives.

Although the campaign succeeded in containing the conflict and forced a stalemate in Laos, it failed to accomplish the original policy objectives in Laos and the later withdrawal of all North Vietnamese from the country. The political end-state was defined as the restoration of the 1962 Geneva agreement conditions, that is, a neutral Laos. Neutrality never became a reality, as Laos fell to the communists in December 1975. Subordination of this campaign to a redefined US policy and objectives in South Vietnam resulted in modifying the military strategy and course of action in Laos.

With respect to Barrel Roll as an implicit air campaign, historical documents showed no record or description of a defined military end-state or success criteria. The lack of a military success criterion was a severe deficiency in the Barrel Roll campaign. Today's standard for campaign planning requires that these criteria are clearly identified and have a close

relationship to the political objectives. In this regard, Barrel Roll cannot be considered a campaign according to current doctrine.

Cost of the Conflict

This study would be incomplete without some mention of the cost expended in Barrel Roll. In terms of Hmong lives, aircraft loss, and US aircrew losses, this effort cost enormously. US military advisors and Ravens served finite lengths of time in Laos, six months to one-year tours. However, the Hmong fought this war until they died. An entire generation of Hmong men lost their lives in this conflict. Likewise, the RLAF aircrew flew until the war ended or they died. Several hundred thousand refugees lost their homes and were displaced. Ultimately, the cost to the Laotians was their country and the subsequent communist retribution taken against the minority people of Laos who fought the North Vietnamese. This punishment continued well into the 1980s.[3]

During the four-year period of this study, US air loses numbered 80 aircraft. Total aircraft losses for Barrel Roll, starting with the first sortie on 18 May 1964, were 131. Total attack sorties for the four-year period were 84,416, which was about 9 percent of the tactical air employed in Laos. As the data shows, the largest effort occurred with Steel Tiger against the trail. In dollars, although no breakdown of the cost by campaign exists, the US spent $1.4 billion in military aid for Laos.

Relevant Lessons

No analysis of a military operation would be complete without identifying the important lessons that may apply to future conflicts. Countless books have been written about the employment of airpower in SEA, but few have looked at the unique contributions of airpower as applied during Barrel Roll. The following four areas are most important to the prosecution of future conflicts the US may encounter.

Central Control of Airpower

Despite enormous pressure from the ambassador, who wanted operational control of airpower, the USAF resisted providing the embassy with its own private air force. To have done so would have violated the fundamental tenet of centralized control, decentralized execution. By maintaining operational control of USAF air assets, Seventh Air Force apportioned assets where they were needed most—in the theater. Several instances occurred when the embassy claimed it had insufficient air or the USAF lacked responsiveness, but given the environment—complex command and control, political restrictions, covert war, limitations on the amount of violence—airpower was employed based on prioritized needs as seen by Seventh Air Force. Future

conflicts may necessitate inefficient utilization of airpower, but the tenet of central control never should be compromised.[4]

Fighting in an Undeveloped Country

The lack of an airpower infrastructure in Laos, the need to operate from outside the country, the use of airpower in support of indigenous troops, and the covert employment of US forces all have relevance to future US military involvement in the world. The reduction of forward presence in today's world makes reflecting on the required infrastructure needed for operations and the ability to operate from outside the country a vital consideration. In addition, the current US aircraft inventory may not be adaptable to this type of situation. The difficulties posed by interoperability in an environment of different languages, culture, and unsophisticated weapons make the cause for a capable special operations capability, as well as, a way to project airpower from outside an area of employment. Africa, South America, and SEA are all areas the USAF could have difficulty conducting future operations due to poor airpower infrastructure.

Use of Air in Unconventional Ways

Many critics feel the US poorly utilized its airpower in Laos.[5] Principally USAF senior officers at Seventh/Thirteenth Air Force, these critics lacked a first-hand view or understanding of the situation in Laos. Employment of tactical air during Barrel Roll often did not conform to airpower doctrine. The criticisms of serving targets or use of air as long-range artillery were common in historical references examined. The nature of guerrilla warfare—its mobility and light firepower—may transform airpower into long-range artillery. However, in this manner the use of air for mobility and for fire support proved invaluable to the ground scheme of maneuver. What the critics overlooked was that a guerrilla force does not fight like a conventional army. Preplanned and coordinated operations in Laos conformed more frequently to the exception than to the norm. Accordingly, the employment of airpower had to be responsive to the politics and dynamics of the tactical situation.

The mobility provided to Gen Vang Pao's forces by airpower must not be overlooked. The ability of these lightly equipped forces to engage effectively a conventional and heavier equipped force was not only due to the fighting spirit of the Hmong but also to their ability to move around the battlefield. Unfortunately, the special airlift assets needed for this kind of conflict do not exist in the USAF inventory, but the US Army's helicopter force could provide the support needed in this type of environment.

Employment of Special Operations Forces

A principal success story involved the effectiveness of special operations forces in this unique environment. Air Commandos, through Project Water Pump, developed an air force, and ground commandos trained an effective

guerrilla force. The covert employment of special forces provided presence without visibility. Perhaps such employment in future operations, given the open media environment that now exists, is not possible; nevertheless, the use of special forces to train and advise foreign military units and governments may be more necessary today than during the cold war. The lessons of special forces' operations in Laos should be studied for relevant application in future situations.

Notes

1. Department of the Air Force, *JFACC Primer*, ed. Deputy Chief of Staff, Plans and Operations, Headquarters USAF, 19.
2. Maj Gen Dewitt R. Searles, Department of the Air Force, Headquarters 7th/13th AF, End-of-Tour report, 1 July 1971 to 8 September 1972, Udorn, Thailand, 9 September 1972, 17–20.
3. Jane Hamilton-Merritt's book, *Tragic Mountains,* focuses primarily on the Hmong people, who fought with the French, Royal Lao government, and Americans during the three Indochina wars. The book highlights the tragic plight of these people at the hands of the North Vietnamese Communist.
4. Amb William H. Sullivan, Department of the Air Force, oral history interview, 5–19; and Searles, End-of-Tour report, 3–9.
5. An example of this view is General Hughes' quote at the beginning of this section.

Epilogue

No one starts a war—or rather, no one in his sense ought to do so—without first being clear in his mind what he intends to achieve by war and how he intends to conduct it.

—Carl von Clausewitz

The Gulf War created new standards by which to judge future air campaigns; however, caution must be employed in light of potential future air wars. Today's world appears to be more unconventional than the type of war encountered during Desert Storm. The desert was a unique environment that favored airpower, unlike the conditions that existed in Laos during the 1960s and early 1970s. US military forces would be wise to remember the lessons learned in Vietnam, but should especially study those learned in Laos.

The application of airpower, at times, conflicting with the strict interpretation of Air Force doctrine, made a definite contribution in Barrel Roll. Like most conflicts—airpower alone was unable to completely defeat the enemy in northern Laos, but the lack of air support would have doomed the Hmong guerrillas early in the conflict. Air made the difference in keeping pressure on the North Vietnamese and maintaining the RLG in power. The political and geographical constraints of Laos ultimately resulted in a war of attrition both on the ground and in the air.

Unfortunately, the tragedy of this story focuses on the loyal Hmong tribesmen, who, having fought so valiantly for their beloved Laos, were left to wilt after the US departed. Like airpower, these individuals became a tool in achieving US objectives in Laos. Their attrition became part of US strategy to maintain the military stalemate. Sadly, this will remain forever the dark side of Barrel Roll and US involvement in the secret wars of Laos.

Appendix

The following tables and charts comprise a compilation of data obtained during the course of research for this project. The majority of the data was obtained from Headquarters Pacific Air Force, "Summary of Air Operations in Southeast Asia," archived at the Historical Research Agency, Maxwell Air Force Base. These documents are organized in 109 volumes, one for every month, beginning July 1964 and ending August 1973. The reports present a summary by theater (Laos, North Vietnam, South Vietnam, Cambodia) of sorties, ordnance, bomb damage assessment, and losses and an overview of the month's activity. Most of these reports recently have been declassified. They offer a wealth of data awaiting analysis.

The charts in this section provide information for the period of this study, mid-1968 to early 1973. Comparing the effort of air activity in Barrel Roll to other areas in SEA provides a good perspective for the priorities and utilization of available tactical air sorties. The data was plotted to support the analysis and conclusions of this study. Complete analysis and correlation await another study or paper. Nevertheless, this data provides an interesting perspective of the employment of airpower and relationship between theaters in SEA.

Table A-1

Air Order of Battle, USAF Attack Aircraft, July 1968–December 1972

SOUTH VIETNAM		31 Jul 68	30 Dec 68	30 Jun 69	30 Dec 69	30 Jun 70	30 Dec 70	30 Jun 71	30 Dec 71	30 Jun 72	30 Dec 72
Bien Hoa	A-1	3				2	2				
	AC-47	5	5	5							
	AC-119									4	5
	F-100	47	56	50	22	19					
Binh Tuy	AC-47	4	3								
Cam Ranh Bay	F-4	54	49	47	42						
Da Nang	A-1		2	3	11	9	2	2	2	2	
	AC-47	4	4	5							
	AC-119				6	9	8	4	5	3	15
	F-4	55	53	57	47	48	48	55	55		
Nha Trang	AC-47	7	9	13							
	AC-119			7							
Phan Rang	AC-47	3	3								
	AC-119			6	11	9	9	13			
	B-57	23	15	9							
	F-100	68	66	67	77	65	75	59			
Phu Cat	AC-47	4	3	3							
	AC-119				3	6	1				
	F-4			34	34	30	32	36			
	F-100	69	65								
Pleiku	A-1	18	18	17							
	AC-47	3	4	3							
Tan Son Nhut	AC-119			5	5	5	9	10			
Tuy Hoa	AC-119				4						
	F-100	88	74	86	88	86					
TOTAL, South Vietnam		455	428	417	350	288	186	179	62	9	20

THAILAND		31 Jul 68	30 Dec 68	30 Jun 69	30 Dec 69	30 Jun 70	30 Dec 70	30 Jun 71	30 Dec 71	30 Jun 72	30 Dec 72
Korat	A-7										67
	F-4		20	40	34	32	27	32	38	53	31
	F-105	55	34	18			11	12	14	30	24
Nakhon Phanom											
	A-1	33	39	54	70	47	25	25	19	16	
	A-26	12	17	16							
	F-105						5	7	11	8	
Takhli	F-4									96	
	F-105	55	55	54	70	65	55				
	F-111										47
Ubon	A-1					2	1				
	AC-130	1	4	4	7	3	10	8	18	12	13
	B-57						9	10	10		
	F-4	74	72	73	67	67	73	56	73	100	106
Udorn	AC-47			2	3						
	AC-119					3					
	F-4	39	40	35	35	34	27	37	42	104	121
TOTAL, Thailand		269	281	296	290	253	243	187	225	419	409

GRAND TOTAL	724	709	713	640	541	429	366	287	428	429

Table A-2

US Attack Sorties (Tacair) by Phase of Barrel Roll

	Phase 1 Nov 68-Jul 70		Phase 2 Aug 70-Mar 72		Phase 3 Apr 72-Feb 73		Total	
	Sorties	% of Total	Sorties	% of Total	Sorties	% of Total	Sorties	% by Country
South Vietnam	239,952	48.8	38,767	18.8	80,921	53.9	359,640	42.4
North Vietnam	867	0.2	1,702	0.8	44,431	29.6	47,000	5.5
Cambodia	9,266	1.9	25,065	12.2	5,479	3.6	39,810	4.7
Laos-Steel Tiger	186,755	38.0	118,038	57.4	12,087	8.0	316,880	37.4
Laos-Barrel Roll	54,986	11.2	22,179	10.8	7,251	4.8	84,416	10.0
Total	491,826		205,751		150,169		847,746	

Table A-3

US Tacair Ordnance Delivered by Phase of Barrel Roll (tons)

	Phase 1 Nov 68-Jul 70		Phase 2 Aug 70-Mar 72		Phase 3 Apr 72-Feb 73		Total	
	Tons	% of Total	Tons	% of Total	Tons	% of Total	Tons	% by Country
South Vietnam	471,825	45.0	87,908	20.2	201,933	50.6	761,666	40.4
North Vietnam	1,559	0.1	4,989	1.1	121,701	30.5	128,249	6.8
Cambodia	0	0.0	20,547	4.7	17,396	4.4	37,943	2.0
Laos	575,590	54.9	321,540	73.9	58,414	14.6	955,544	50.7
Total	1,048,974		434,984		399,444		1,883,402	

Table A-3a

US Tacair & B-52 Ordnance Delivered by Phase of Barrel Roll (tons)

	Phase 1 Nov 68-Jul 70		Phase 2 Aug 70-Mar 72		Phase 3 Apr 72-Feb 73		Total	
	Tons	% of Total	Tons	% of Total	Tons	% of Total	Tons	% by Country
South Vietnam	1,044,024	53.0	203,941	20.9	541,062	58.5	1,789,027	46.2
North Vietnam	1,559	0.1	4,989	0.5	230,588	24.9	237,136	6.1
Cambodia	21,384	1.1	76,856	7.9	45,305	4.9	143,545	3.7
Laos	902,223	45.8	688,935	70.7	108,089	11.7	1,699,247	43.9
Total	1,969,190		974,721		925,044		3,868,955	

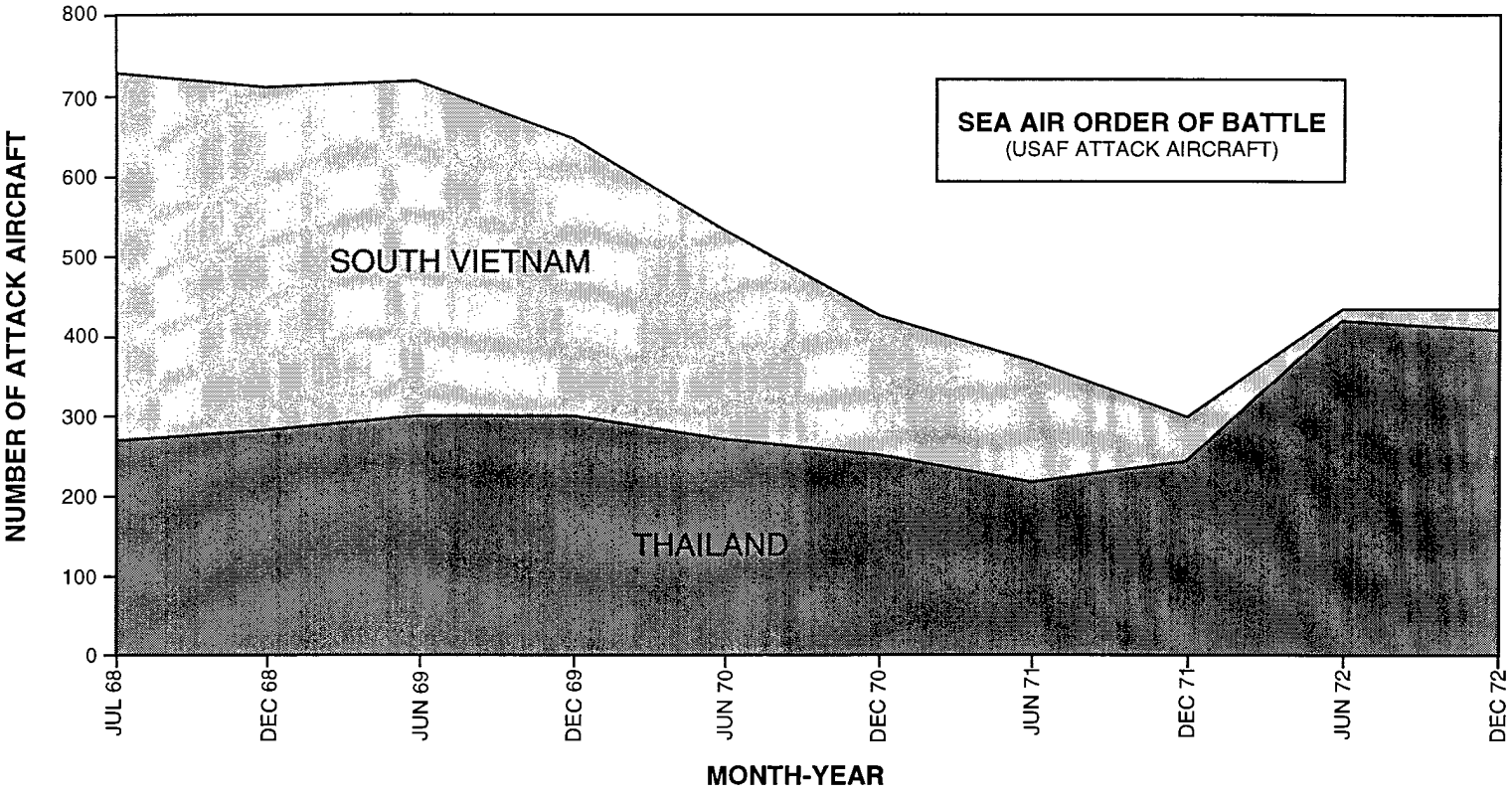

Figure A-1. Total USAF Attack Aircraft (distributed by country) during Barrel Roll, July 1968–December 1972

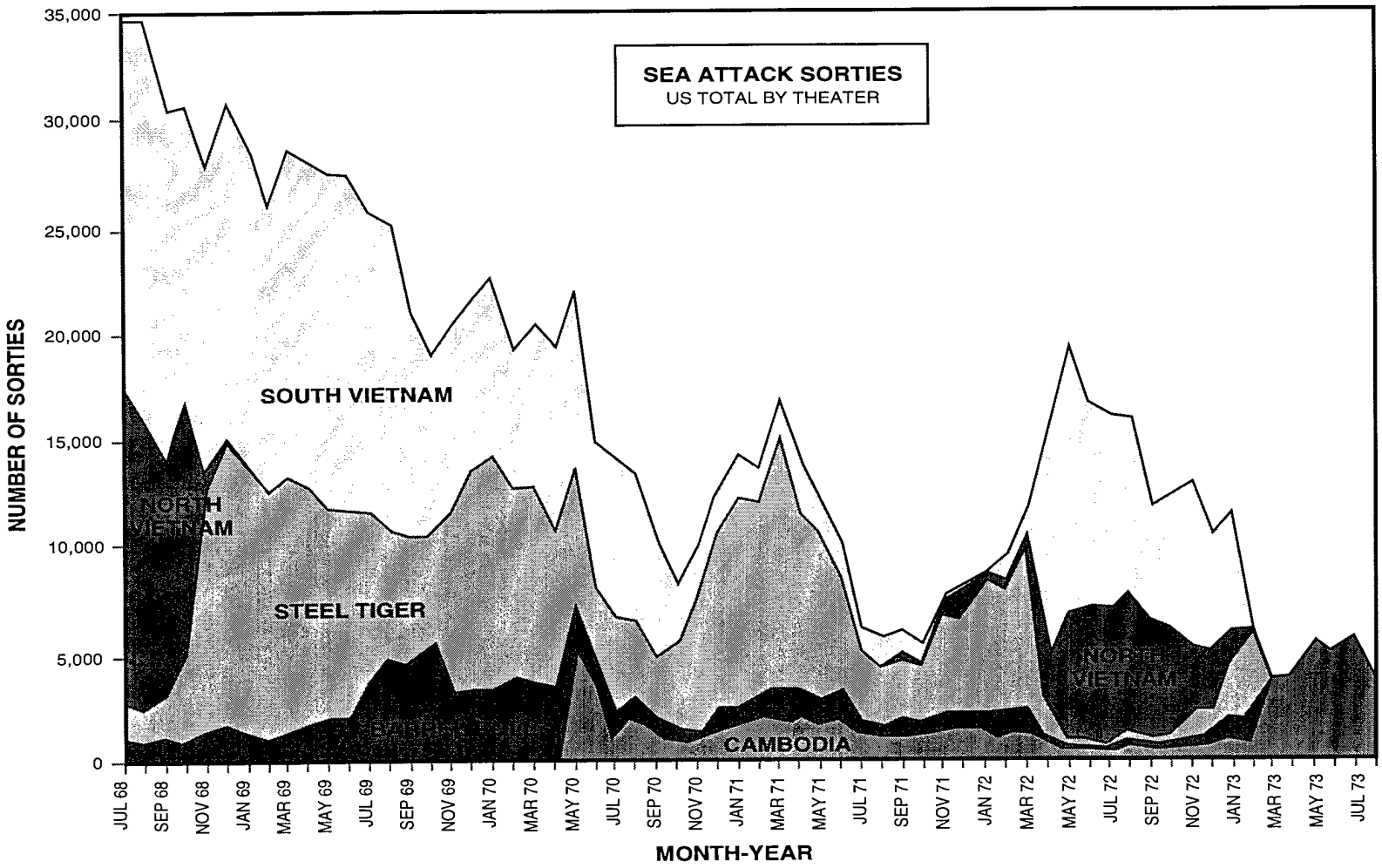

Figure A-2. Total US Attack Sorties by Theater, July 1968–August 1973

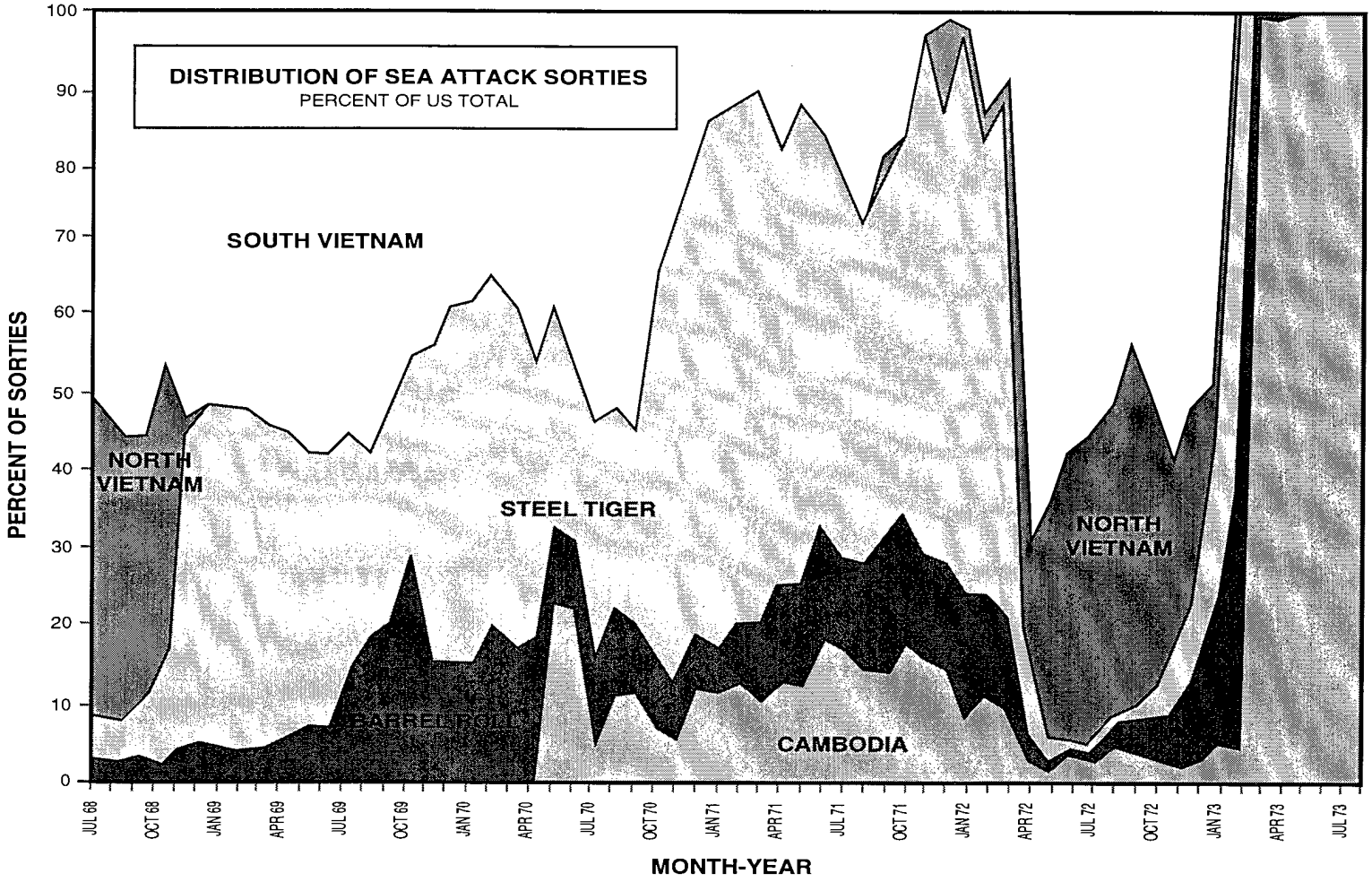

Figure A-2a. Distribution of Total US Attack Sorties by Theater, July 1968–August 1973

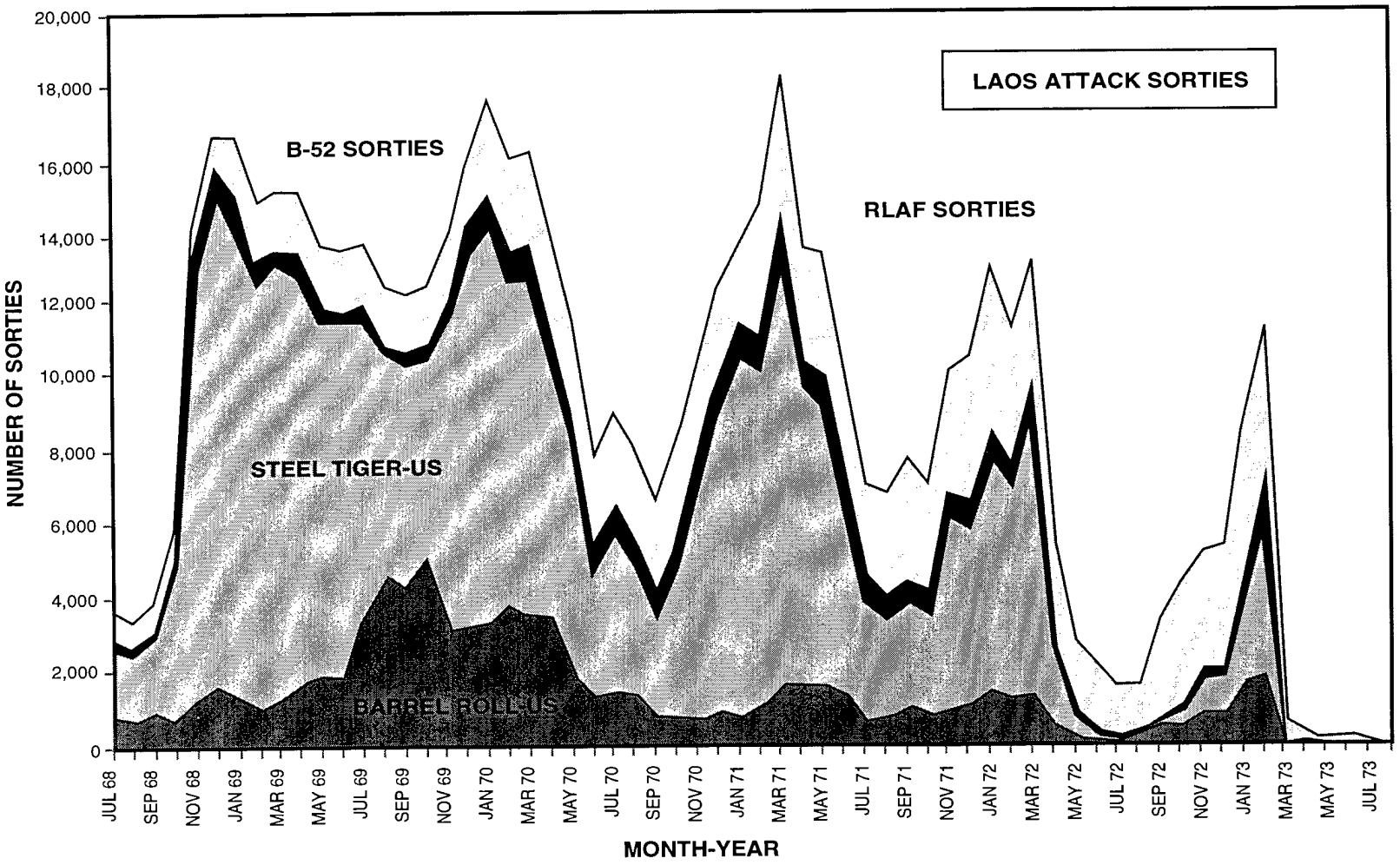

Figure A-2b. Total Attack Sorties (US, RLAF, and B-52) against Laos Targets, July 1968–August 1973

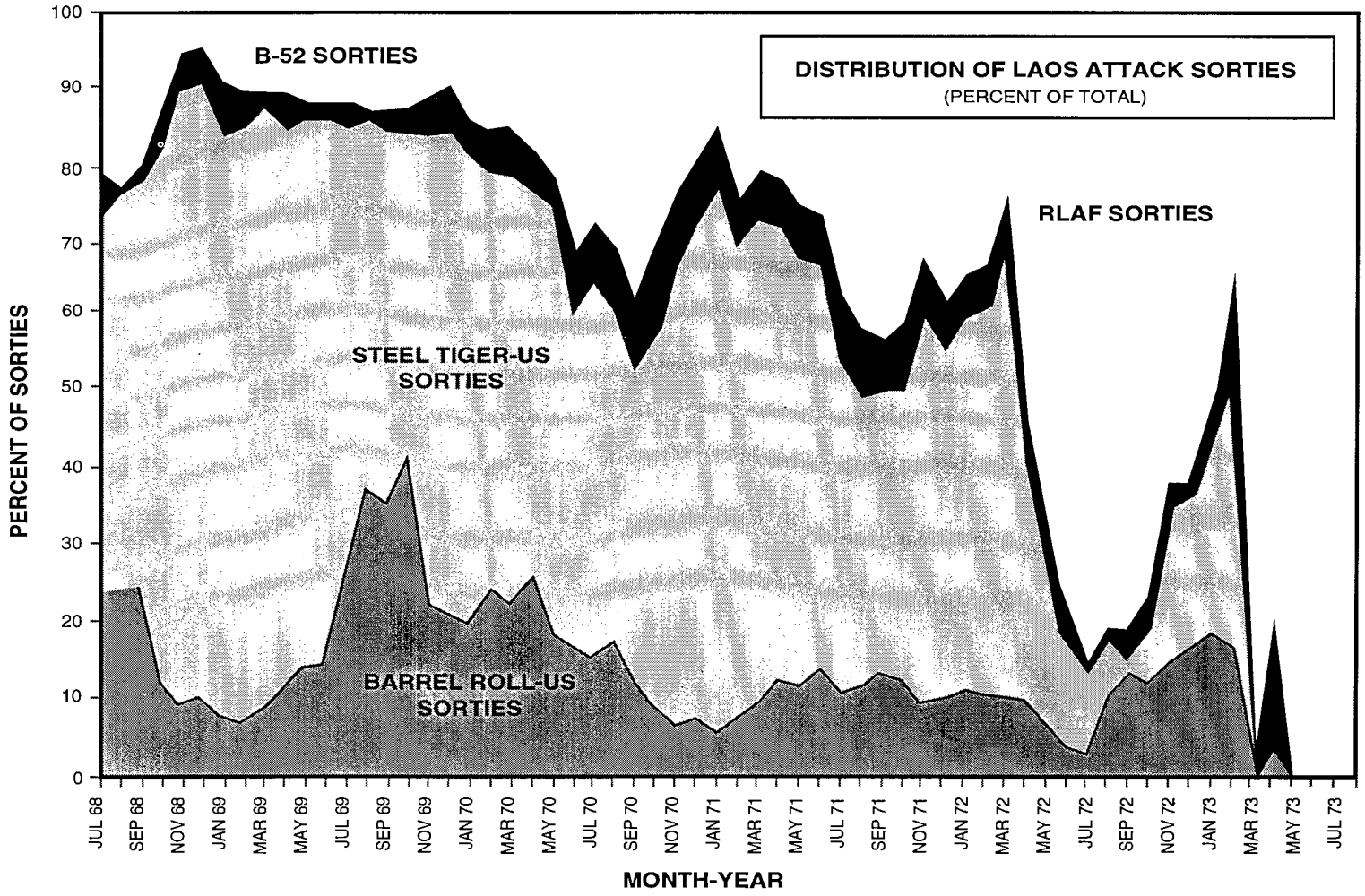

Figure A-2c. Distribution of Total Attack Sorties (US, RLAF, and B-52) against Laos Targets, July 1968–August 1973

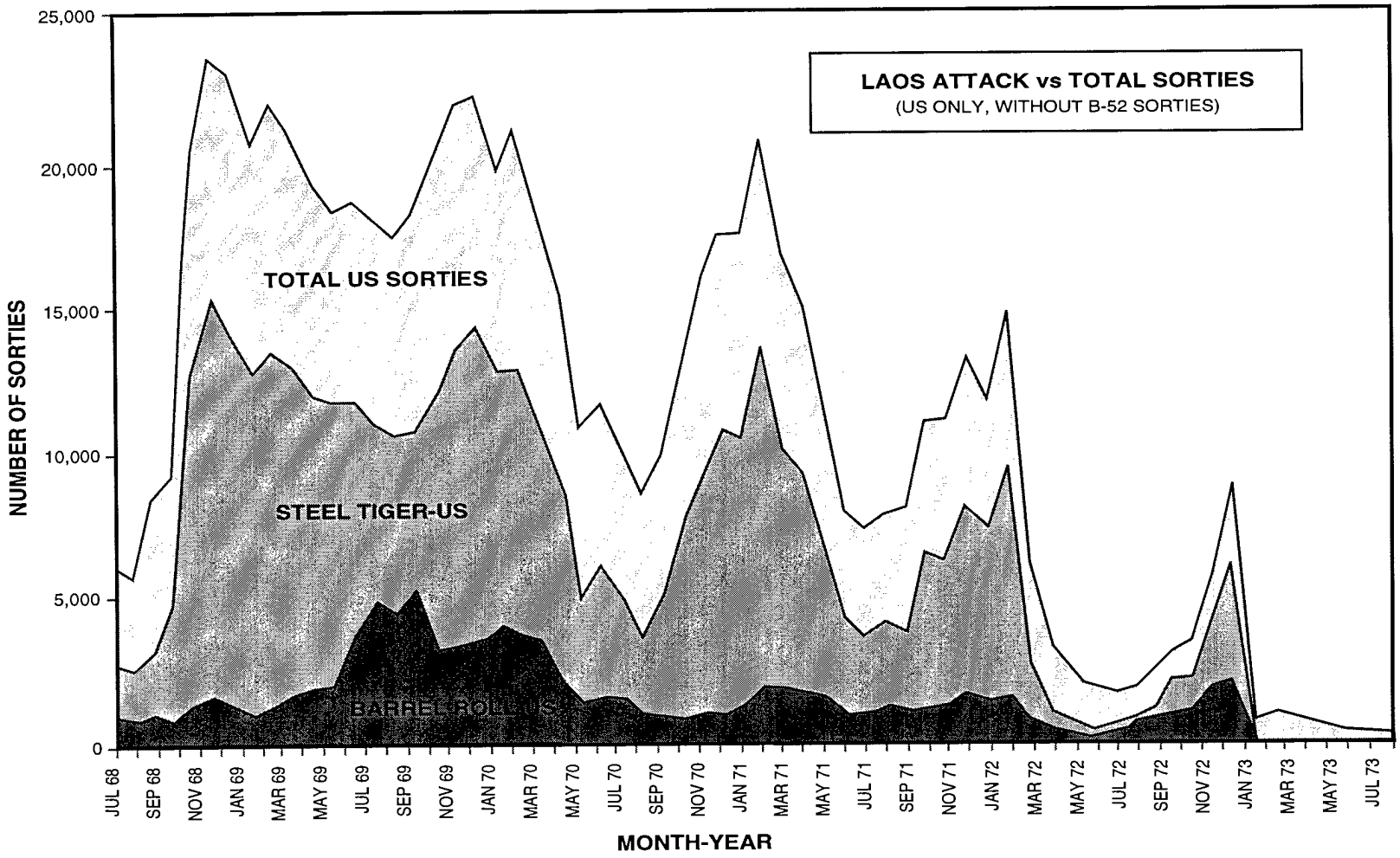

Figure A-2d. Comparison of US Attack Sorties against Laos Targets with Total US Attack Sortie for SEA, July 1968–August 1973

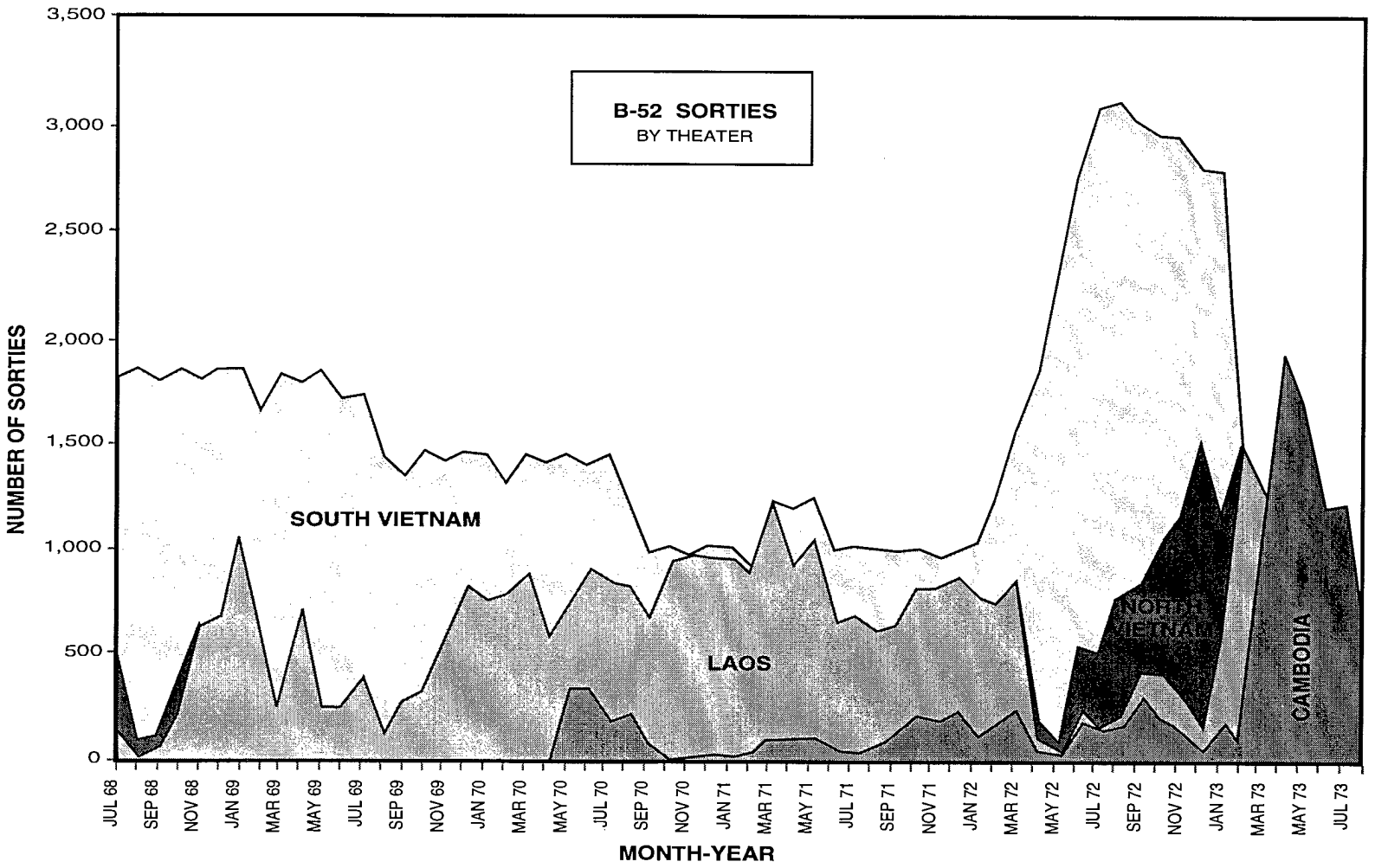

Figure A-2e. Total B-52 Sorties by Theater, July 1968–August 1973

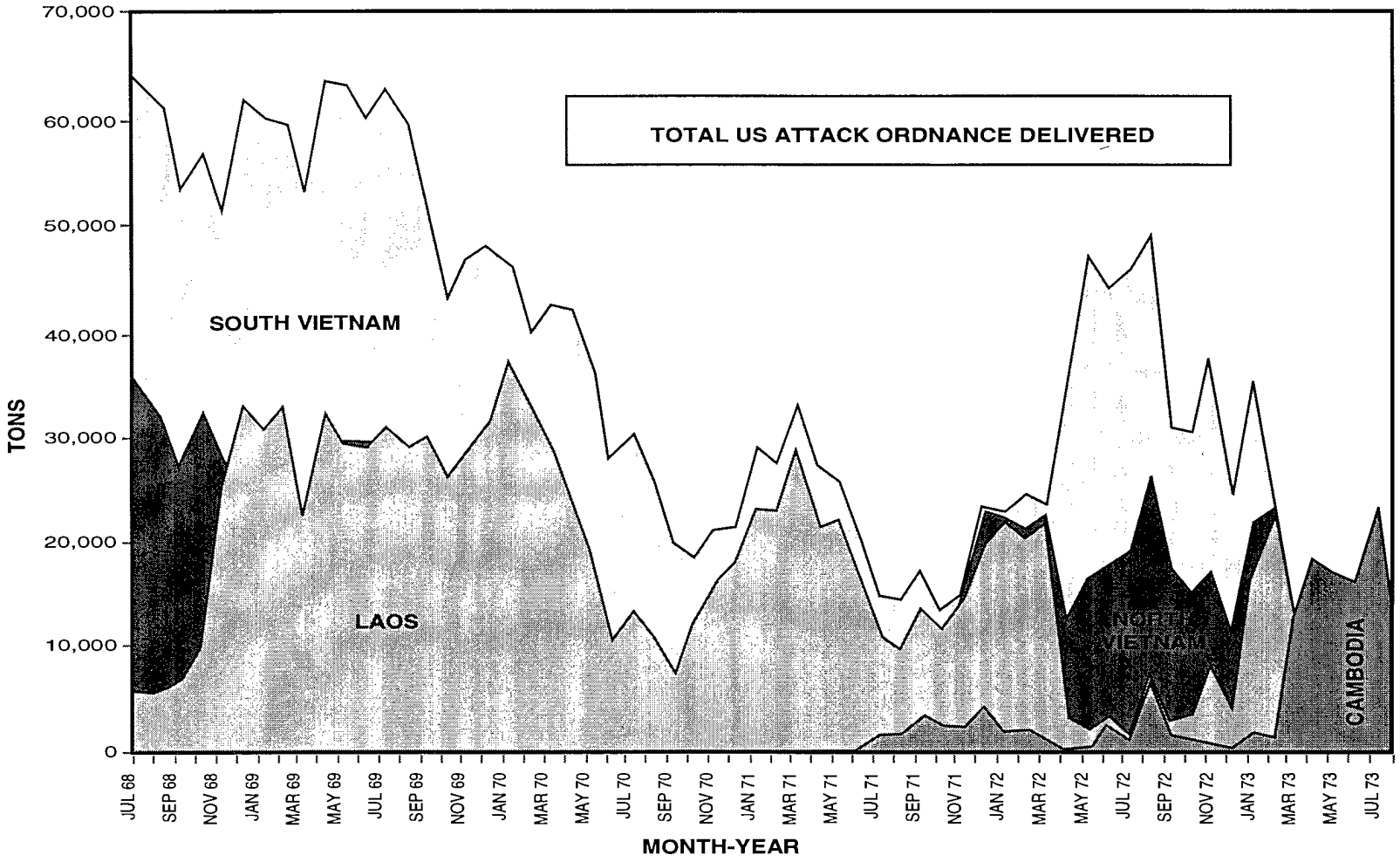

Figure A-3. Total US Attack Ordnance by Theater, July 1968–August 1973

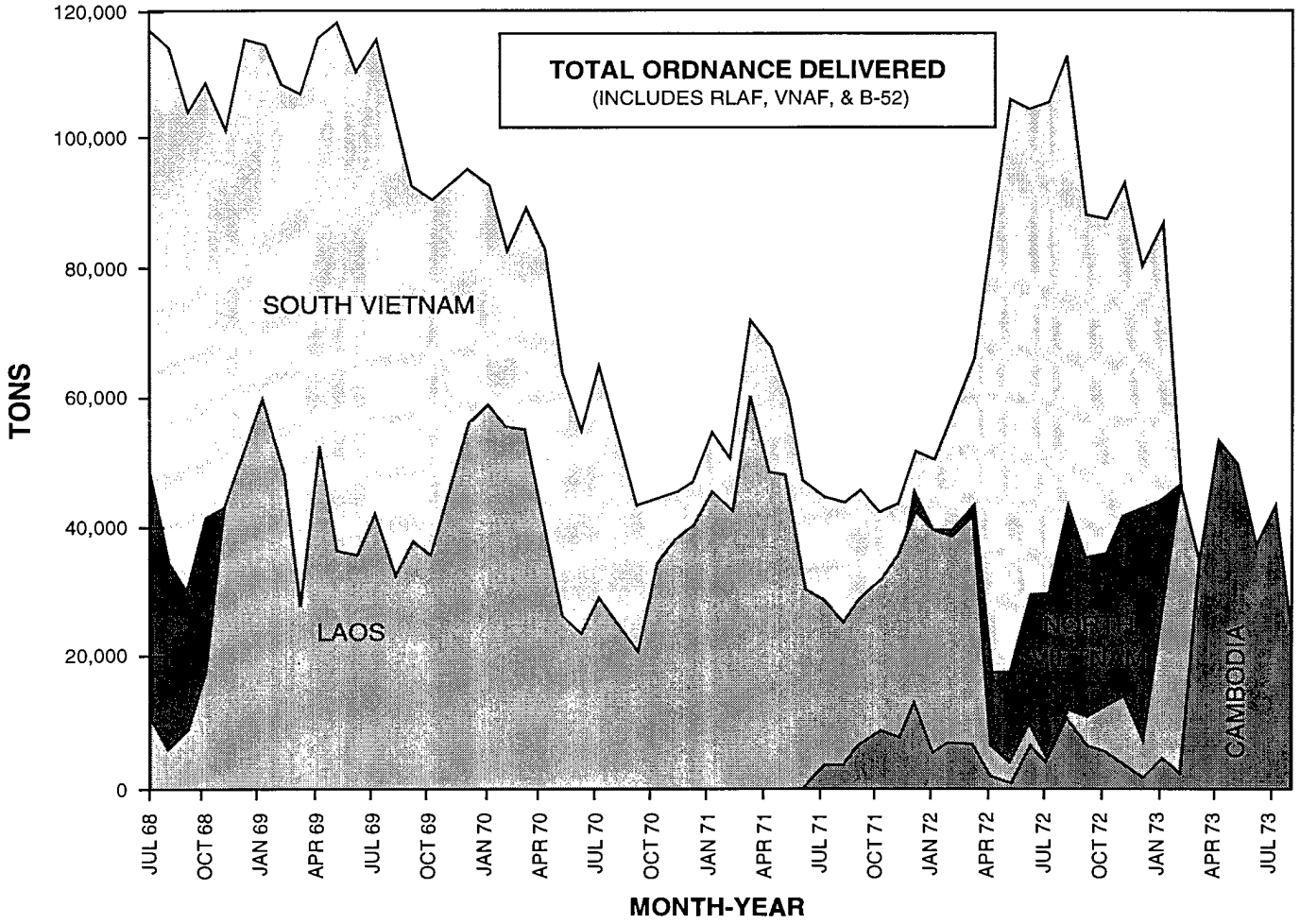

Figure A-3a. Total Ordnance Delivered (US, RLAF, VNAF, and B-52) by Theater, July 1968–August 1973

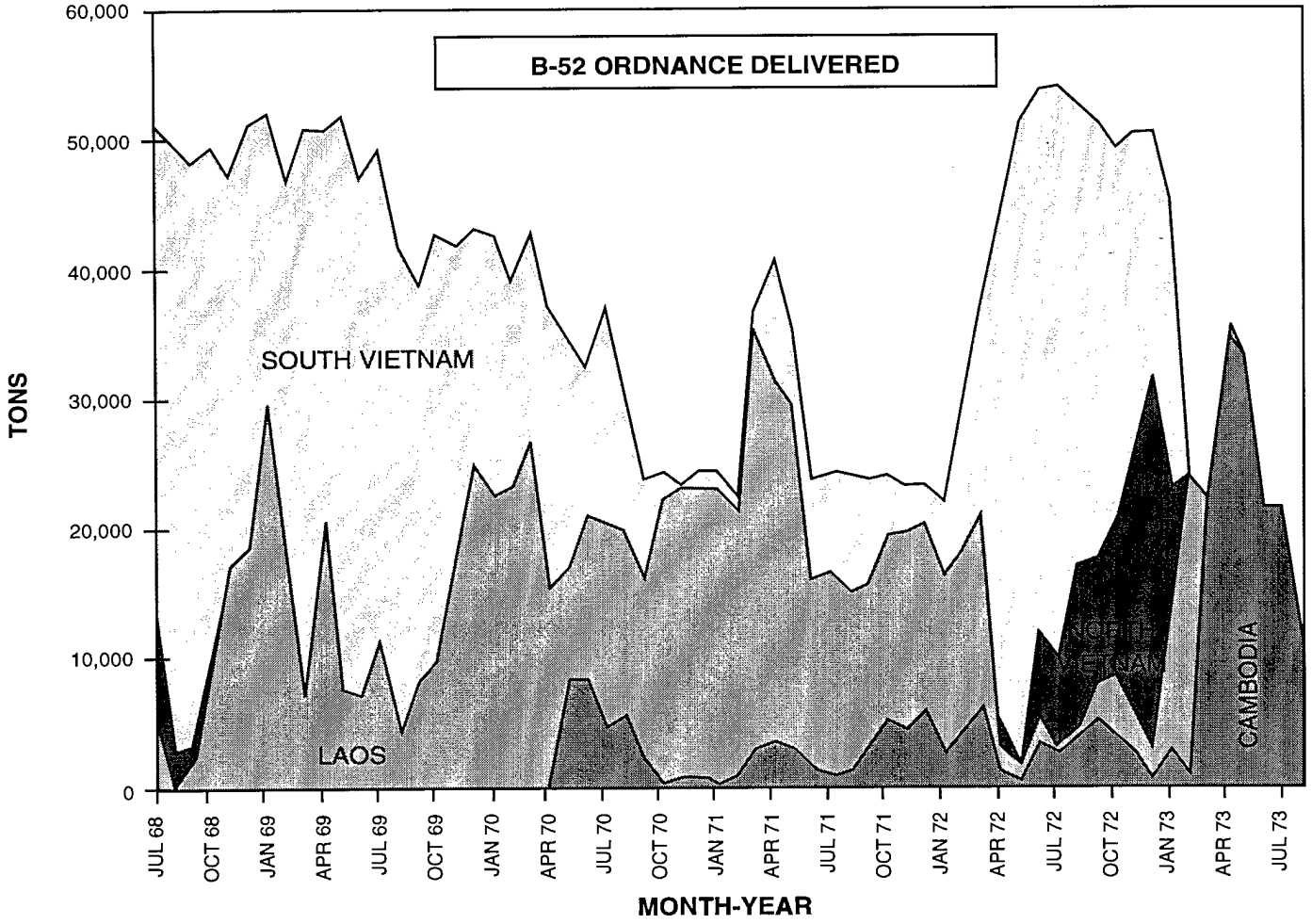

Figure A-3b. Total B-52 Ordnance Delivered by Theater, July 1968–August 1973

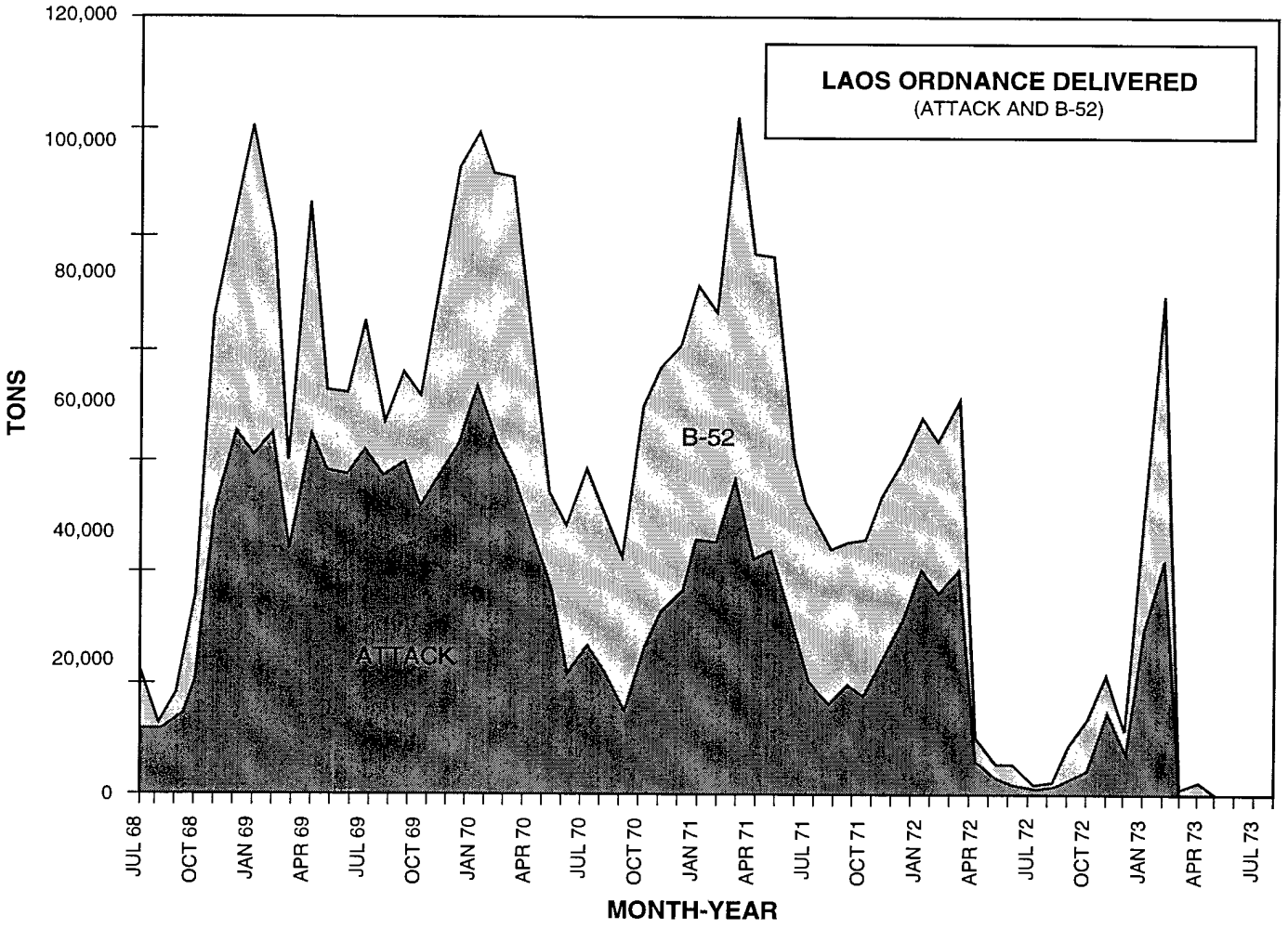

Figure A-3c. Total US Ordnance Delivered (Attack and B-52) against Laos Targets, July 1968–August 1973

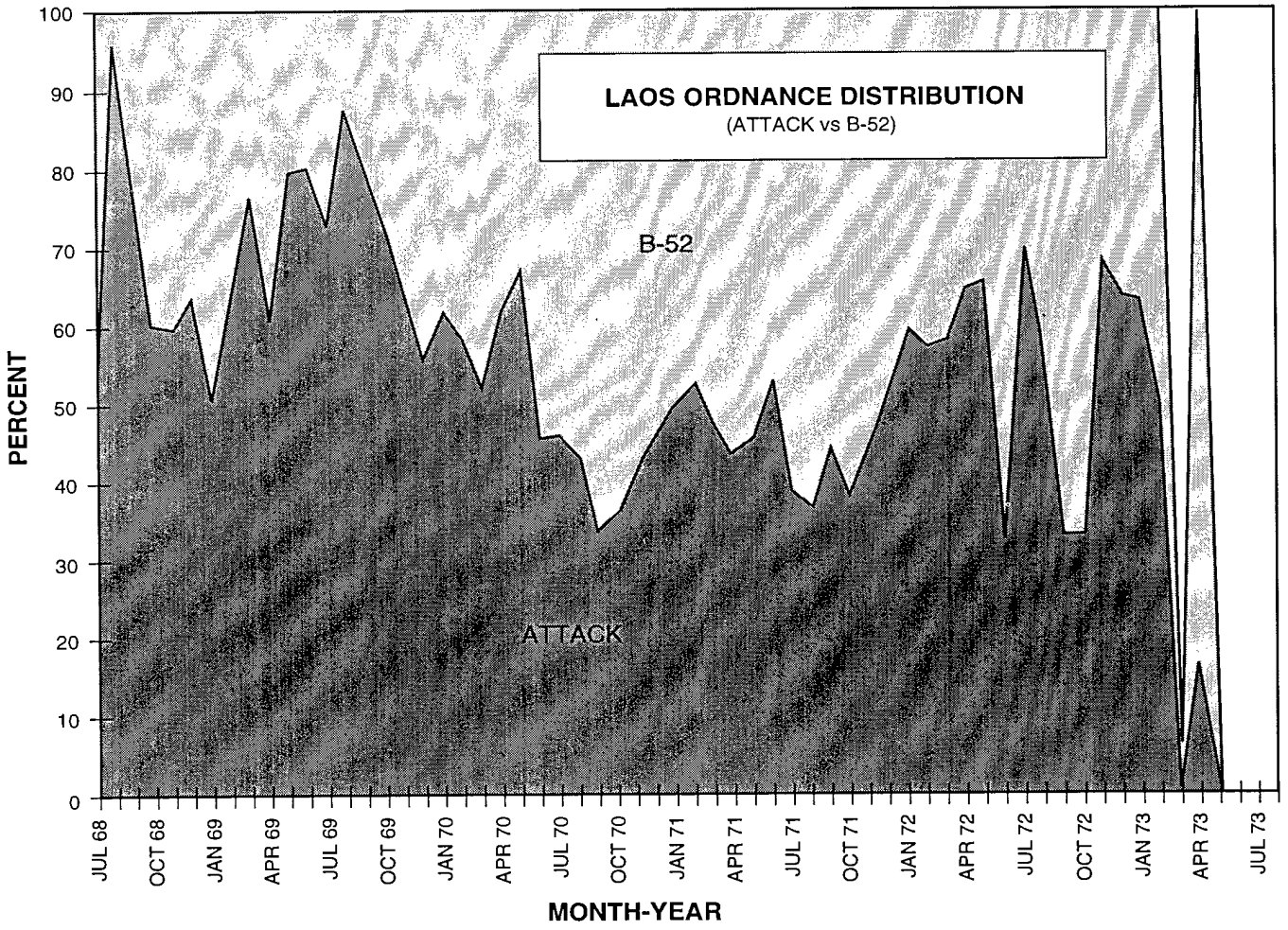

Figure A-3d. Distribution of Total US Ordnance (Attack vs B-52) against Laos Targets, July 1968–August 1973

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