

## Search and Rescue in Southeast Asia, 1961-1975

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The United States Air Force involvement in the wars of Southeast Asia (SEA) spanned a decade and a half, exacting a toll of 2254 USAF aircraft destroyed in combat and other operations. Aircrew members killed, captured, or missing totaled 1763. During that war the Aerospace Rescue and Recovery Service (ARRS) became the greatest combat aircrew recovery force in the history of aerial warfare, saving 3883 lives.<sup>1</sup> For those flyers who went down, whether in combat or by accident, the best hope for survival was in quick recovery by air-sea rescue forces. The effectiveness of the Air Force rescue effort depended on many factors, including when and where the shutdown occurred, geography, the time of day, enemy defenses, and the technological state of the art in aircrew recovery.

In 1964 when the first units of the Air Rescue Service\* reached Southeast Asia with Kaman HH-43B helicopters, they were not prepared for the unique challenges of combat aircrew recovery in the jungles and mountains of Vietnam and Laos. This state of affairs can be traced to the reduction in forces and equipment that occurred after the Korean War. In the late 1950s, because of the concept of massive retaliation, the military generally neglected conventional forces suitable for limited warfare. Accordingly, Air Rescue Service doctrine focused on providing peacetime search and rescue (SAR) for the continental United States, coverage along the overseas' air and sea lanes, and recovery of astronauts and space equipment.<sup>2</sup> In 1960, as North Vietnam began directing the communist insurgency in South Vietnam, the only aircrew recovery capability of the Air Rescue Service was a handful of Grumman SA-16 Albatross amphibians.

\*On 8 January 1966 the Air Rescue Service was redesignated the Aerospace Rescue and Recovery Service (ARRS).

October 1961, the Air Rescue Service integrated 70 local base rescue units into its structure, acquiring 69 H-43Bs, 17 older, piston-driven H-43As, 58 obsolete Sikorsky H-19Bs, and four even less useful Piasecki SH-21 Bs.<sup>3</sup> The Kaman H-43s, meant to augment the base fire and crash rescue capability, had no armor, no weapons, and a mere 75-mile radius of action. Still, they were destined to form the nucleus of the early aircrew recovery force in Southeast Asia.<sup>4</sup>

Detachment 3, Pacific Air Rescue Center, was organized at Tan Son Nhut Airfield outside Saigon on 1 April 1962, but it provided only a coordinating function. Having no rescue aircraft of its own, Detachment 3 was often hard-pressed to find Army or Marine Corps helicopters to make aircrew recoveries. Enemy fire in those early years, even though consisting mostly of small arms and heavy machine guns, took its toll of aircraft. These less sophisticated weapons proved more successful than anyone had anticipated. Nevertheless, in 1962 and 1963 geography and weather presented the most formidable challenges to Detachment 3.

The triple canopy on jungle trees rising 200 feet above the tangled bush, karst,\* mountains, and swamps, as well as the Gulf of Tonkin all required specific rescue tactics and specialized equipment that, in those early years, had yet to be developed. It is to the credit of men in rescue that the innovative methods they devised, prompted by the needs of the situation, led to early solutions of these problems. The forest penetrator, for instance, a plumbbob-like device that carried the hoist cable through the thick foliage to reach and then extract the downed aircrewmembers below, came into the inventory in early 1965.<sup>5</sup>

\*A limestone region marked by sinks, abrupt ridges, irregular protuberant rocks, caverns, and underground streams.

Due technology advanced rapidly from that point. With the introduction of the first Sikorsky CH-3C helicopters in July 1965, on loan from the Tactical Air Command, Air Rescue Service had a combat aircrew recovery force able to make pickups deep inside enemy territory.<sup>6</sup> Toward the end of 1965 when the rescue-

modified Sikorsky HH-3C/Es began reaching Southeast Asia units, rescue technology took the upper hand for the first time in the battle with man and the elements. (These choppers, painted with green camouflage, were dubbed "Jolly Green Giants.")

rain became a useful ally rather than a troublesome hindrance to combat rescue units with the proper equipment. The improved performance of the HH-3E and the HH-53, introduced in late 1967, enabled chopper pilots to use mountains, karst, and jungle canopy to their advantage. Enemy antiaircraft (AA) guns, which grew in number and caliber throughout the war, were limited by the same jungle that concealed them. Ground gunners could track their targets only within the confining limits of geographic features. Chopper pilots, using mountain ridges, karst outcroppings, and jungle trees were able to minimize the effectiveness of enemy gunners.

After the introduction of helicopters with better hovering characteristics and the forest penetrator, downed airmen could use jungle bush and foliage to conceal themselves while awaiting the arrival of rescue forces. If a pilot could fly his crippled craft to an isolated mountainous jungle region, or if he could head out over the Gulf of Tonkin, his chances for rescue increased. Some isolated jungle areas, called SAFE areas (Selected Area for Evasion) were better than those infested with enemy troops, like the Ho Chi Minh Trail. Still, heavy underbrush could and often did provide concealment even in the midst of heavy troop concentrations. Lieutenant Woody Bergeron evaded enemy troops in December 1969 for several days near Tchepone, Laos, an enemy transshipment point on the Ho Chi Minh Trail. During the days and nights he spent on the ground, Bergeron hid in the dense underbrush from the Pathet Lao and North Vietnamese troops looking for him as they rushed supplies toward South Vietnam.

After a massive SAR effort of several days, a task force managed to rescue the lieutenant.<sup>7</sup>

Although technological advances in rescue helped ARRS overcome some of the problems of geography and terrain, enemy defenses, which proliferated as they increased in sophistication, remained troublesome. These defenses shifted with the air war from North Vietnam to Laos and, to a lesser extent, to South Vietnam. They ranged from MiG interceptors and SA-2 missiles in North Vietnam, to an array of AA guns along the Ho Chi Minh Trail, to lighter AA weapons in the South, and, toward the end of the conflict, even to handheld, heat-seeking SA-7s. These enemy weapons accounted for 35 rescue aircraft lost in combat. Although most losses were attributed to smaller caliber AA guns and automatic weapons, MiGs posed a threat over North Vietnam and the eastern areas of northern Laos. In January 1970, an HH-53 was shot down by a MiG during a recovery mission in Laos.<sup>8</sup> Furthermore, the SA-2 missile, which first appeared in North Vietnam in April 1965, forced the slow and relatively vulnerable HH-3 and HH-53 helicopters to fly low--well within range of deadly antiaircraft guns of all calibers.<sup>9</sup>

Tactics evolved to meet changing enemy defenses. Perhaps the greatest innovation in rescue during the war was the search and rescue task force (SARTF). The origins of the SARTF can be found in World War II when Luftwaffe Messerschmitt-110 (Me-110) twin-engine fighters escorted Heinkel-59 (He-59) biplane amphibians on aircrew recovery missions in the English Channel.<sup>10</sup> During the Korean War, P-51s sometimes shepherded H-5 and H-19 helicopters on rescue missions behind enemy lines.<sup>11</sup> However, it was in Southeast Asia that the complex, coordinated search and rescue task force came into prominence. There, in the midst of war, many elements and units worked together to save lives.

Basically, the SARTF included a control aircraft, a fighter-bomber escort, and at least two choppers. Depending on the constantly changing factors involved in aircrew recoveries, forward air controllers, fighter escort for MiG combat air patrol (MIGCAP) and, toward the end of the war, even AC-130 gunships might be used. The kinds of aircraft in the SARTF changed as better airframes and improved equipment became available. Tactics used by the task force remained flexible to meet the variations of enemy defenses.

Airborne mission control aircraft was the nerve center of the SARTF. Originally, HU-16 amphibians, packed with communications gear, were used to control rescue operations. The HC-54, with greater range and altitude capabilities, replaced the HU-16 in this role in June 1965. Only an interim vehicle, the HC-54 was replaced within six months by the Lockheed HC-130 Hercules. A better equipped HC-130P airborne control platform

introduced in late 1967, became a refueler for the HH-3E and later the HH-53s. As airborne mission controller, the rescue coordinator aboard the HC-130 (called "Crown" and later "King") assembled the SARTF and directed the rescue force to the general location of the survivor.<sup>12</sup> Rescue escort aircraft, like the A-1 and, after November 1972, the A-7, made possible the recovery of airmen downed deep inside enemy territory.

Origins of rescue escort in Southeast Asia can be traced to August 1964 when President Lyndon B. Johnson ordered Air America civilian pilots in T-28s to escort rescue choppers on aircrew recovery missions in Laos.<sup>13</sup> In August 1965, Air Force A-1 Skyraiders took over this mission. The firepower, durability, slow speed, and excellent loiter capabilities made the Skyraider the finest rescue escort aircraft of the war. As a result of the Vietnamization program, the last A-1s left the inventory in late 1972 to be replaced by the A-7 single-engine jet. The A-7, faster than the A-1, could reach the survivor with protective firepower much sooner. However, this advantage was offset by its greater rate of fuel consumption and higher stall speed. Most chopper pilots felt that only another A-1 could replace the venerable Skyraider.<sup>14</sup>

As is well known, the rescue helicopter formed the heart of the SARTF in Southeast Asia. In late 1964 the HH-43F, a beefed-up version of the HH-43B, began arriving there. The HH-43F was only an interim rescue chopper and was replaced in the aircrew recovery role with the Sikorsky HH-3s beginning in mid-1965. The arrival of the HH-3E at Udorn Royal Thai Air Force Base in November 1965 meant that rescue forces had at last acquired a real combat aircrew recovery capability able to fly to the very heart of North Vietnam, if necessary, to make a pickup. Air refueling by the HC-130P extended the range and endurance of the SARTF.<sup>15</sup>

The first Sikorsky HH-53Bs, which reached SEA on 15 September 1967, continued the upgrading process. This chopper gave the SARTF greater speed, survivability and, with three miniguns on-board, firepower. Known as the Super Jolly Green Giant or Big Ugly Fiendly Fellow (BUFF),\* the HH-53 became the ultimate aircrew recovery helicopter. The air-refuelable HH-53 could fly as much as 18 hours at 140 knots and, if necessary, dash at nearly 200 knots. Armor plate protected the crew and all vital parts, making it practically invulnerable to light automatic weapon fire and also highly resistant to heavy machine guns. Communications included an array of VHF, HR, and FM radios. Electronic components, added as they became available, included low-light-level vision to give the SARTF a limited nighttime rescue capability. Toward the end of the war, radar homing and warning (RHAW) gear was installed.<sup>16</sup>

\*Aircrew members throughout the Air Force know the HH-53 affectionately as "Buff." It should not be confused with the B-52's proud handle of "BUF" or Big Ugly Fellow.

Traveling in pairs, with plenty of onboard firepower, these advanced aircrew recovery helicopters were able to make their own breaks in ticklish rescue situations after 1967. Close coordination with other members of the SARTF, flexibility in tactics, use of firepower, and great courage enable the SARTF to perform aircrew recoveries that would have been impossible for a helicopter flying alone. Nevertheless, warfare is a perpetual contest between offense and defense, and as enemy defenses intensified and became technologically more sophisticated, the SARTF found there were areas in which it could not operate.

Enemy opposition varied according to the period of the war and location. Overall, the intensity of antiaircraft fire was directly proportional to the number of aircraft shot down and inversely proportional to the number of aircrews recovered. The enemy, of course, concentrated their defenses around cities, airfields, and important military targets.

North Vietnam's Premier Pham Van Dong journeyed to Moscow late in 1964 seeking aid to build a modern air defense system. With Soviet help the North Vietnamese soon began constructing one of the best integrated air defense systems in the world.<sup>17</sup> By 1965 they possessed a formidable defensive combination that included MiG interceptors, SA-2 missiles, and a strangle of antiaircraft guns from 23-mm to radar-directed 100-mm weapons. Nevertheless, the enemy knew that Americans possessed technological superiority in airborne delivery systems and had the ability to absorb and replace losses. The North Vietnamese shrewdly decided against challenging U.S. air superiority; instead they concentrated on achieving "air deniability," that is, denying the use of the air to their adversary.

Under the strategy of air deniability, SA-2 missiles forced bomb-laden fighter-bombers to low altitude, where relatively simple AA guns (many of World War II vintage) and automatic weapons were more effective. Throughout the war, 23-mm, 37-mm, and 57-mm weapons, working in combination with heavy machine guns and large numbers of armed combatants, accounted for most of the U.S. Air Force's 1737 combat losses.<sup>18</sup> Because rescue helicopters flew at low altitudes, these weapons posed a large threat. The slow speed and bulk of rescue helicopters made them relatively easy targets for enemy gunners to track and hit. An HH-53, for instance, flying at low altitude and dash speed, remained in the theoretical fire envelope of a 23-mm gun for almost a full minute.<sup>19</sup>

As the Air Force shifted its air war, the enemy moved his AA resources. After President Johnson halted the bombing of most of the North Vietnam in March 1968, the Air Force focused on interdiction of the Ho Chi Minh Trail. Soon the North Vietnamese moved large numbers of anti-aircraft guns into Laos. By late 1968 the defenses along the infiltration corridors resembled those previously encountered in North Vietnam.<sup>20</sup> In spite of the reduction of missions over North Vietnam, Air Force losses continued at about the same rate; there were 421 Air Force combat losses in 1967 as compared to 392 in 1968.<sup>21</sup>

Rescue missions along the Ho Chi Minh Trail became almost as difficult as those in highly defended areas of North Vietnam had been. Aircrew members shot down over Laos had some advantages over those who were downed in the north, however. First, the density of enemy forces was concentrated along the infiltration corridors. If the flyer could stay with his damaged aircraft long enough to get even a short distance away from the trail, chances for concealing himself in the dense jungle underbrush were good. Second, Laos, and especially the Ho Chi Minh Trail, was closer to ARRS units at Nakhon Phanom and Udorn in Thailand and Da Nang, South Vietnam. The best opportunity for recovery was within the first 45 minutes after being shot down. The longer a survivor remained on the ground, the slimmer the chances for rescue. ARRS picked up a total of 739 aircrew members in Laos compared to 176 in North Vietnam.<sup>22</sup>

Throughout the war the majority of Air Force missions were flown in South Vietnam, where automatic weapons, heavy machine guns, and light AA guns shot down 651 Air Force aircraft—26 more than were brought down over the north.<sup>23</sup> However, chances for rescue were greater in South Vietnam, where ARRS choppers made 1500 combat aircrew recoveries, picking up crews from all services.<sup>24</sup>

The high number of rescues in South Vietnam can be attributed to the proximity of rescue forces. Each air base in South Vietnam and Thailand had at least two HH-43B/F local base rescue choppers. In the course of the conflict, these little helicopters picked up more downed aircrew members than any other chopper, taking 1029 men to safety.<sup>25</sup> In addition to the HH-43s, there were aircrew recovery HH-3Es and later, HH-53s available at Da Nang and other bases where ARRS had forward operating locations. Also, hundreds of U.S. Army, Marine Corps, Air America, and Vietnamese Air Force choppers made aircrew pickups on an informal and unofficial basis.

Air Force tactical strikes in Cambodia, which began in February 1970 and continued until the bombing halt of 15 August 1973, faced less enemy opposition. The North Vietnamese Army, encamped along the Cambodian-South Vietnam border did not possess the large number of AA guns that guarded the Ho Chi Minh Trail. The Khmer Rouge insurgents, scattered throughout the country in small units or guerrilla bands, remained a force armed with light, automatic weapons to the day they took power. Consequently, in the air war over Cambodia the Air Force suffered only 35 combat and three operational losses.<sup>26</sup> Since the Khmer Rouge traveled and fought in small bands, they did not offer the highly orchestrated opposition that rescue forces encountered in many areas of Southeast Asia. Of 61 Air Force personnel who went down in Cambodia, 27 were rescued, 12 were listed as killed, and 22 were counted as missing (as of November 1973).<sup>27</sup> None were thought to have been captured.

Air war in Southeast Asia shifted often, varying in intensity, location, and focus as Americans fought enemy forces that ranged along the warfare spectrum from insurgency to protracted and, finally, conventional action. Rescue forces remained flexible to counter each threat and met every challenge. Wisely, ARRS never followed hard and fast rules nor established rigid regulations defining how much effort was enough. The rescue crews gave

each mission all they had. Nevertheless, when enemy antiaircraft fire was intense, there was only so much the helicopters—even the giant HH-53s—could take. For instance, in the Linebacker II operations of December 1972 (bombing of North Vietnam's heartland,) not one aircrewman was picked up from that country because the targets were in densely populated, highly defended areas. However, during that operation ARRS choppers did pick up 25 aircrew members from Laos and Thailand. These people were rescued because they were able to fly damaged aircraft away from the highly defended areas of North Vietnam.<sup>28</sup>

The inherent limitations of the helicopter, slow speed and large size, make it highly vulnerable in a high-threat environment. Operations at Koh Tang, an island off the Cambodian coast, during the *Mayaguez* incident in May 1975, illustrate some of these limitations. Fifteen helicopters, eight HH-53s from the 40th Aerospace Rescue and Recovery Squadron, and seven CH-53s from the 21st Special Operations Squadron (both at Nakhon Phanom), landed and then evacuated over 200 U.S. Marines from that Khmer Rouge-infested island. An entrenched enemy force there, armed with automatic weapons, a few heavy machine guns, rocket launchers, and perhaps one mortar, destroyed four helicopters and damaged nine others, at least five seriously. The Khmer defenders held the advantage because the helicopters had to approach the island across open ocean and then hover above an open sandy beach. Hiding in the adjacent jungle bush, the Khmers had a clear field of fire.<sup>29</sup>

Almost every modern military organization has, at one time or another, been accused of attempting to fight its current war as it had fought the last one. If true, it would seem that we should ignore the lessons history and concentrate on discovering inventive alternatives to previous tactics and policies. But one should study history to learn from rather than repeat the past.

Those involved in search and rescue can learn valuable lessons from the Southeast Asia experience. The most important lesson can be summed up as readiness. Peacetime rescue forces must be *ready* to perform combat SAR in a variety of situations. Perhaps too much has been made of the lack of preparedness in Air Rescue Service prior to the Vietnam War. Search and rescue was no less ready for the very different and difficult kind of warfare in Indochina than any other organization in the Air Force or the entire military. Nevertheless, it appears the old Air Rescue Service precept that combat SAR was an extension of peacetime operations was finally obsolete by events. In addition, the search and rescue task force evolved to overcome the problems of combat aircrew recovery peculiar to Southeast Asia. As a team, the SARTF triumphed over natural obstacles as well as the enemy to save hundreds of aircrew members downed in the jungles of Vietnam, Laos, and Cambodia. Many of the tactics employed by the SARTF in that conflict could be used again should the Air Force find itself involved in operations against lightly armed forces fighting in an area with similar geographic features.

The usefulness of the SARTF in future conflicts will be determined by such factors as the geographic and demographic nature of the battlefield and, of course, the state of the enemy's defenses. It is questionable that an armada of HH-53s, A-7s, HC-130s, and forward air controllers would be able to operate in the highly defended, relatively open areas of Europe, over the flat sands of the Middle East, or over the barren hills of Korea. A future enemy could possess technologically advanced air defenses including modern jet fighters (able to detect and destroy aircraft flying at low altitudes), SA-3s, SA-6s, and a host of smaller, handheld missiles such as the SA-7, and the deadly ZSU-23-4 radar-directed, fully mobile antiaircraft gun. These weapons would prove vastly more formidable than those of the 1950s vintage the Air Force faced in North Vietnam.

The Aerospace Rescue and Recovery Service was ultimately-successful in Southeast Asia in saving 3883 people from death or captivity because innovation and imagination brought rescue techniques from the SA-16/HC-54 era to the search and rescue task force of the late 1960s. Imagination and innovation within a system receptive to change brought improvement through the introduction of novel tactics and new equipment. Flexibility and readiness in the peacetime SAR force will be the key to future success in combat rescue. That flexibility will require a continuation of the same spirit of innovation and ingenuity that made combat rescue successful in Southeast Asia.

*Hq USAF*

## Notes

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5. Interview, author with Major J. F. Guilmartin, 2 August 1978.

6. Berger, pp. 235-36; and Donald Little, "Chronology of the Aerospace Rescue and Recovery Service," unpublished manuscript (Scott AFB, Illinois, 1977), pages unnumbered. 7. Colonel John Schlight, *Rescue at Ban Phanop* (Hq PACAF: Project CHECO, 15 February 1970), pp. 8-11.

8. See Walter F. Lynch, *USAF Search and Rescue in Southeast Asia, 1 July 1969-31 December 1970* (Hq PACAF: Project CHECO, 23 April 1971), p. 71; and USAF Management Summary, Southeast Asia, 28 September 1973, p. 14.

9. Berger, p. 74.

10. Adolph Galland, *The First and the Last: The Rise and Fall of the German Fighter Forces, 1938-1945* (New York, 1954), p. 33.

11. Robert F. Futrell, *United States Air Force Operations in the Korean Conflict, 1 November 1950-30 June 1952* (USAF Historical Division, 1 July 1955), p. 249.

12. See B. Conn Anderson, *USAF Search and Rescue in Southeast Asia, 1961-66* (Hq PACAF: Project CHECO, 24 October 1966), p. 43; and Berger, p. 239. 13. *The Pentagon Papers as Published by the New York Times* (New York: Quadrangle Books, 1971), p. 362.

14. Interview, author with Colonel Herbert R. Zender, former ARRS squadron commander and Son Tay raider, 22 April 1978; Captain David G. Francis and Major David R. Nelson, *Search and Rescue Operations in SEA, 1 April 1972-30 June 1973* (Hq PACAF: Project CHECO, 27 November 1974), pp. 42-44; and Steve Birdsall, *The A-1 Skyraider* (New York, 1970), pp. 20-21.

15. Berger, p. 239.

16. Major James B. Overton, *USAF Search and Rescue, November 1967-June 1969* (Hq PACAF: Project CHECO, 20 July 1969), pp. 9-11; and interview, Guilmartin, 2 August 1978.

17. Colonel Dave Richard Palmer, *Summons of the Trumpet, U.S.--Vietnam in Perspective* (San Rafael, California, 1978), pp. 74-75.

18. USAF Management Summary, Southeast Asia, 18 September 1973, p. 14.

19. Major Richard A. Durkee, *USAF Search and Rescue, July 1966-November 1967* (Hq PACAF: Project CHECO, 19 January 1968), Appendix II.

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20. USAF Management Summary, Southeast Asia, 24 September 1969, p. 38.

21. *Ibid.*, 27 July 1973, p. 23.

22. *Ibid.*, 28 September 1973, p. 14.

23. *Ibid.*, p. 23.

24. *Ibid.*, 30 November 1973, p. 23.

25. See Tad Szulc, *The Illusion of Peace, Foreign Policy in Nixon Years* (New York, 1978), p. 683; and USAF Management Summary, Southeast Asia, 30 November 1973, p. 23.

26. USAF Management Summary cited above.

27. Interview, Guilmartin, 2 August 1978; USAF Management Summary, Southeast Asia, 24 July 1972, p. 25; and USAF Management Summary, Southeast Asia, 23 February 1973, p. 27.

28. See Major A. J. C. Lavallo, editor, *Fourteen Hours at Koh Tang*, USAF Southeast Asia Monograph Series (Washington, D.C., 1977), vol. 3, pp. 95-151; Message, 56 SOW to CINCPACAF 192100Z May 75, Appendix, p. 43; and 3d ARRGpJRCC Log Book, 14 January 1975-15 May 1975, see also 14-15 May entries.

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