

AIR FORCE IROQUOIS 'BUSHRANGER' GUNSHIP EVOLUTION

By BRIAN DIROU, DFC

THE BUSHRANGER STORY

'... and so, a Gunship was born'



by Wing Commander Brian Dirou, DFC (Retired)



Foreword

This story describes the development and introduction to operational service of the Royal Australian Air Force 'Bushranger' Iroquois helicopter gunship during the Vietnam War, a derivative of the Bell UH-1H that was unique in the world.

The first-hand account of this project by Wing Commander Brian Dirou, DFC (Retired) records a highly successful and enterprising endeavour accomplished within No. 9 Squadron to provide a very effective intimate close air support weapons capability that reflected typical Australian ingenuity.



The story graphically depicts several action events to demonstrate the need for the gunship capability and the effectiveness of the Bushranger concept, also the operational discipline and intimate teamwork necessary in very close quarters engagements with the enemy. Australian and New Zealand Air Force, Navy and Army personnel involved in these actions are also mentioned.

Humorous and sad anecdotes balance the story and some moving poetic tributes are also included.

The tale reflects appreciable credit upon the Air Force.

The story is an ebook of 65 pages embracing 102 illustrations (no audio).
The name of the file is 'TBS FirstEdition Rev2021.pdf'. Its size is 34MB
and it is available for download at <https://bit.ly/TBS-PDF>

Introduction

THE BUSHRANGER STORY originated a few years after the Vietnam War when I was approached to generate an article for Army Journal, a text only narrative titled '**...and so, a Gunship was born**'. About 2007, illustrated versions were published on CD but there was a somewhat low interest in purchase of discs.

In 2021, I decided to revise earlier editions and make both PDF and EPUB versions freely available via links on the internet. The EPUB link has been discontinued and THE BUSHRANGER STORY still seems broadly unread. Click <https://bit.ly/TBS-PDF> to read the story.

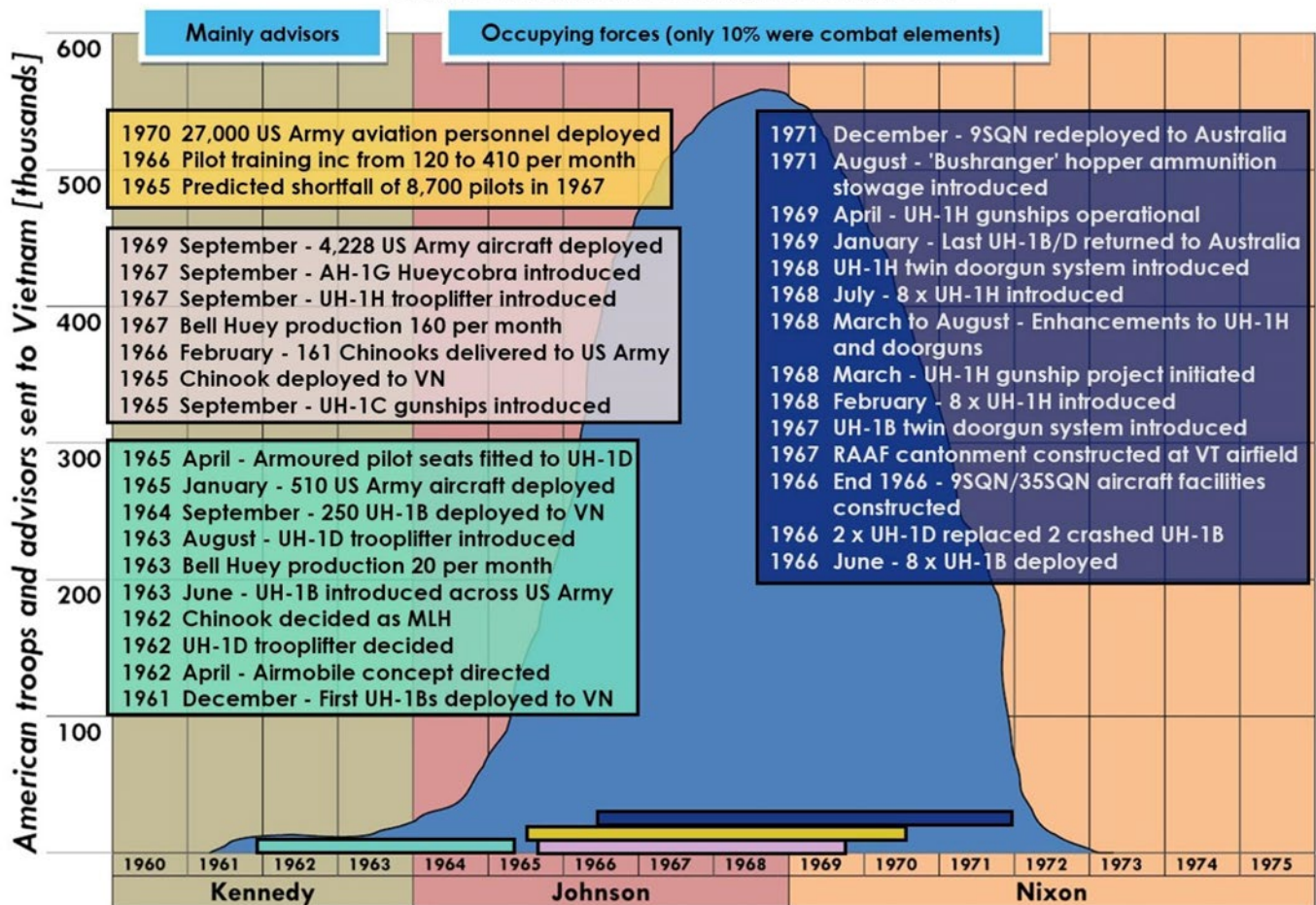
Background

THE BUSHRANGER STORY mainly describes technical considerations concerning acquisition of some weaponry and how it was ultimately adapted to a UH-1H model Iroquois to create a unique gunship version. This narrative elaborates more on the origin of the gunship project and some organizational/operational considerations.

As outlined in THE BUSHRANGER STORY, US Army gunship support for 1ATF operations was generally pretty satisfactory but availability became a problem due to demand on gunship resources as US forces in Vietnam grew to around 550,000 near mid-1968.

American Involvement in Vietnam

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RAAF Helicopter Force Emergence

Early 1960s, the RAAF opted to acquire 8 Bravo model Iroquois to replace crash boats for local search and rescue at some flying units and these aircraft began arriving late 1962/early 1963. The Australian Army then stampeded Canberra into acquiring another 16 of that model even though the US Army had already discovered them inadequate for support roles. Production of larger cabin Delta model Iroquois began in 1963 and more powerful Hotel models in 1967, as illustrated in the preceding chart.

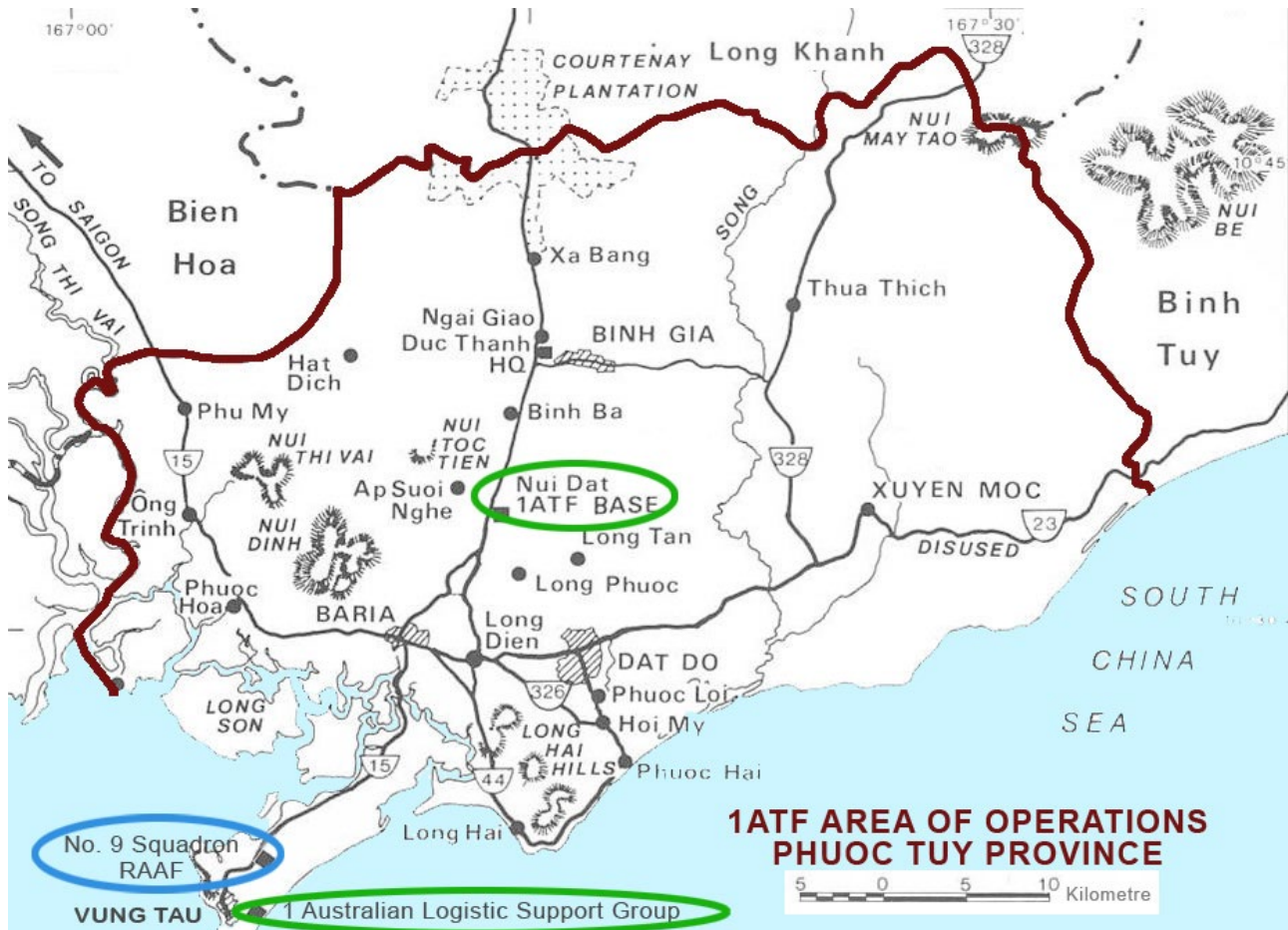
The Air Force was committed to providing the Australian Army with helicopter support and had to somehow find the resources to establish training and maintenance systems plus personnel for an enlarged helicopter component. While building this embryonic helicopter force, the Australian Government prematurely tasked the RAAF in 1964 with providing Iroquois support for the Australian Army during the Malayan emergency and this small force was further deployed to Vietnam mid-1966 and expanded.

There was much bigoted and unjustified criticism by Army entities and other ill-informed prominence seekers during the first few years of Air Force helo force development and some so-called historians erred through inadequate research. Combat preparedness of the embryo helo force was criticized without regard for the huge demand on resources due to massive American force increases ongoing from mid-1966 at beginning of 9SQN involvement in the Vietnam War. For example, demands for sufficient aircrew personal protection equipment could not be satisfied until 1968 and increased Hotel model rescue hoist availability until 1970.

During the 1960s, other force restructuring was ongoing within the RAAF and aircrew resources to man the expanding helicopter force were limiting. 8 former RAF pilots were

recruited, 2 of them assigned to Caribou and 6 to Iroquois. 8 RAN pilots were seconded to 9SQN and 16 RNZAF pilots also served with the unit during the 2,000 days of Vietnam involvement. Air Force pilot training began catching up with demand in the late 1960s.

The Air Force was roundly criticized by Army entities for sensible basing of 9SQN at Vung Tau where US Army aviation support facilities were located, just 15 minutes Iroquois flight time from Nui Dat. Conversely, the Nui Dat Army base selected by then 1ATF Commander Brigadier Jackson (and confirmed by General Wilton in Canberra) was a planning fiasco, ultimately with 13 plus kilometres of weakly defended perimeter after 1 Australian Task Force (1ATF) was created.



The Chief of Army's Military History Conference 2002 (which I attended) was titled 'The Australian Army and the Vietnam War'. The Generals opined that basing of the Task Force at Nui Dat in lieu of Vung Tau was a mistake (Page 40 of proceedings).

Air Power was not a conference topic although massive air support was unquestionably the major impediment to enemy operations during the 6 years of Australian involvement.

Joint Operations and Organization

In accord with adopted British Joint Planning doctrine, a Joint Operations Centre was normally established for major exercises in Australia, but **Army avoided any joint planning for Vietnam deployment.**

The RAAF nominated a Group Captain as Task Force Air Commander (TFAC) plus a Squadron Leader with staffing for a small Air Transport Operations Centre (ATOC) within the 1ATF Command Post. It is unclear whether these functions were adequately recognized in any Army organizational directives.

Initially, the Group Captain resided mainly at Nui Dat and 9SQN was the only Air Force element under operational control of 1ATF for his TFAC role. Later, he functioned principally

as OC RAAF Vung Tau, arguably a superfluous appointment as an Air Commodore (COMRAAFV) was based at nearby Saigon.

The key Task Force Air Support Officer (TFASO) function was performed in limited de facto fashion via rotation of senior 9SQN pilots residing at Nui Dat as 9SQN Liaison Officers who were later termed TFAC Representatives.

Hotel Model Iroquois Gunship Conception

In 1967, the Americans were dissatisfied with enemy casualty statistics resulting from 1ATF operations and insisted on employment of SAS squadrons in ambush roles. This resulted in more contested patrol extractions that were hazardous due to Bravo model Iroquois performance limitations and rescue hoist inadequacies.

On occasions, expected US Army gunship support did not arrive at Nui Dat and potential loss of SAS patrols if gunship support was unavailable was a concerning factor. Ammunition resupply and casevacs in contested situations also necessitated gunship support.

The capabilities of helicopter gunships are realistically limited to relatively light fire support in close quarters combat situations. They mostly do not have heavier weaponry capabilities of fixed wing platforms.

Need was seen by 1ATF and 9SQN for an integral gunship capability and representations were made to Department of Air in Canberra although history regarding the origination of a project is foggy.

As an interim measure, 9SQN developed a twin doorgun system to improve firepower but this was limited to 1 or 2 aircraft due to shortage of weapons.

Early in 1968, gunship components for an obsolescent XM-16 system were borrowed from the combined US Army/RAN outfit at nearby Camp Blackhorse. This hardware was temporarily fitted to a Bravo model Iroquois to gain some systems knowledge. A later XM-21 system embracing flexible miniguns was fitted to American Charlie model Iroquois gunships.



*Ernie Moore, Bob Thompson, Jim Cox, Ted Maxwell
Bravo model A2-1025 fitted with borrowed XM-16 weapon system and twin doorguns*

There was no intention of developing a UH-1B gunship capability as the model had already proven inadequate for that purpose in US Army operations. All 9SQN Bravo and 2 Delta models (replacements for crashed Bravos) were to be progressively returned to 5SQN in Australia as 9SQN re-equipped with the much more capable Hotel model Iroquois.

Weaponry and Gunship Project Initiation

I cannot recall any personal thought of helicopter gunships while serving at 5SQN in Australia preceding my posting to 9SQN Vietnam.

On 8Mar68, I arrived at 9SQN Vung Tau at around 1400 hours local time and within an hour was co-pilot to Squadron Leader Jim Cox inserting a SAS patrol somewhere in Phuoc Tuy Province! On task completion, he informed me that I was appointed unit Air Weapons Officer.

Early next morning, before opportunity to check Unit Standing Orders to ascertain whether I had a Duties Statement, I was fronted by then Sergeant Ernie Moore, NCO in charge of Armament Section claiming: *'Sir, we have some weapons issues!'*

He first mentioned 9mm pistol ammunition being faulty. We may have gone somewhere quiet on the airfield and popped off a few rounds that were hitting the ground not very far from the pistol muzzle. The back of the brass was stamped 42 and 43 so it was old Owen Gun ammunition from WW2.

Back at the hangar I asked Ernie: *'How much of this ammunition do we have?'* and he replied: *'A few boxes'*. I then said: *'Keep one box, load the rest on that aircraft that is apparently going seawards for gunnery training and dump it in the South China Sea.'* Ernie responded: *'What then?'* I replied: *'Just requisition some new stuff from US sources'* and his face lit up!

Weaponry and ammunition were under control of the Squadron engineering component and I had no authority to direct Ernie as done; but the unit had been in Vietnam for around 22 months and some positive action was necessary to eliminate the problem.

Ernie Moore also informed me of major design issues with the XM-23 doorgun system fitted to Hotel models and inadequacy of clapped-out AR-15 Armalite weapons carried in 9SQN aircraft. We initiated projects to successfully remedy these problems.

Within 24 hours of arrival in country, I was again crewed with Jim Cox in Bravo model A2-1025 temporarily configured with obsolescent XM-16 gunship armaments engaging a known enemy camp location in the nearby Nui Dinh hills. After those interesting missions, Jim very surprisingly informed me that I was being appointed Project Officer for prospective Hotel model Iroquois gunship development.

Why me? I was never told and have only deduced decades later that the Air Force must have ascertained from psych tests or whatever that I had an innovative streak, some weapons delivery experience on Sabres perhaps also being a beneficial consideration.

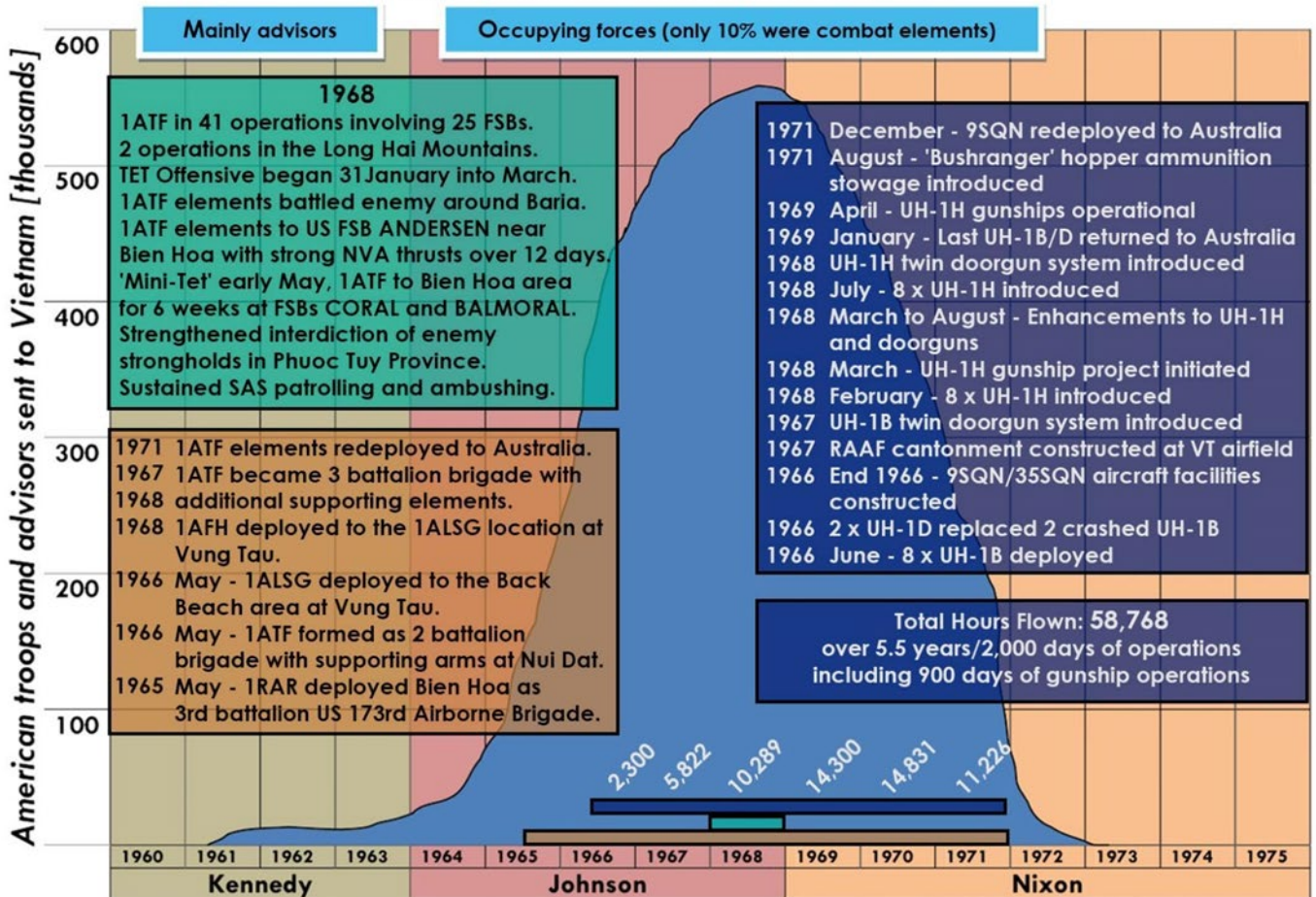
Contrary to mythology that the gunship project was just cobbled together, it obviously emerged via dialogue between 9SQN and Department of Air in Canberra. There was no funding for gunship hardware so devious means of acquiring kit for prototype development were seemingly unofficially condoned. Very modest funding of just **AUD95,000** for purchase of 4 x XM-21 system kits was only approved by Minister for Defence Malcolm Fraser after successful Hotel model prototype development taking 9 months.

Operational Considerations

The following chart reflects the scope of 1ATF operations during 1968, arguably the most intense period of combat activity during the 2,000 days of 9SQN involvement in the Vietnam War.

American Involvement in Vietnam

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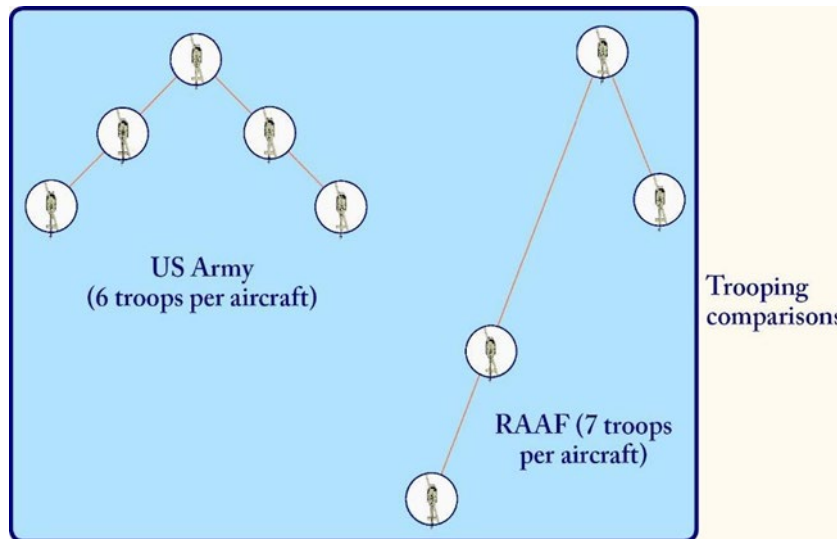


This peak of activity allowed observation of wide-ranging US forces support activities. Delivery of 16 Hotel model Iroquois in 2 tranches was scheduled during 1968 and when these aircraft were in service, 9SQN would assume primary trooplifting responsibility for 1ATF which eventuated early August 1968.

About 10 unit pilots did short exchanges with the combined US Army/RAN Assault Helicopter Company to observe their operating practices. The Australian Army was somewhat enamoured with US Army Aviation operating concepts but some shortcomings were apparent to RAAF aircrew.

Formation Flying

The Americans flew Iroquois in close formation at about half a rotor diameter spacing which was really tiring and dangerous as evidenced by 3 subsequent catastrophic mid-air collisions at nearby Camp Bearcat. We opted to base 9SQN formation flying standard operating procedures on longstanding practices in fighter flying and I was tasked with updating of SOPs. The basic differences were as illustrated.



Landing Zone Preparation

The US Army generally performed landing zone preparation signalling to the enemy where troop insertions would eventuate. This usually involved artillery where available and gunship ordnance delivery preceding landing of troop lifter aircraft. **This was an unwise procedure and better to have fully armed gunships loitering nearby for quick reaction to any enemy action.**

Aerial Rocket Artillery

The unguided 2.75 inch (70mm) Folding Fin Aerial Rockets (FFAR) carried on most gunship versions were of limited value for intimate close air support being much less accurate than cannon/minigun weaponry with FFAR 17 pound HE warhead lethality radius exceeding 50 metres. In comparison, 20mm HE cannon rounds are lethal within 5 metres with fragmentation effects out to 20 metres.

FFAR were also logistically cumbersome requiring Chinook external loading of pallets of rocket motors and warheads that had to be assembled. The rocket motor solid propellant could become cracked during transportation causing the missile to fly wildly as evidenced by some Australian troops killed and wounded during a US Army gunship firepower demonstration at Nui Dat.

Hueycobras

Hueycobras (callsign 'Playboy') were introduced at Saigon early 1968 and occasionally appeared to support 1ATF. The Hueycobra 2 man crew could not see and hear groundfire sources to the same degree as Huey gunship 4 man crews. Offset shooting of turreted weaponry on target breakaway was often inaccurate and hazardous as the brains of the pilot and gunner were not connected. Early versions firepower capacity was about equal to the Bushranger gunship when developed and 271 Hueycobras were lost during the Vietnam War.

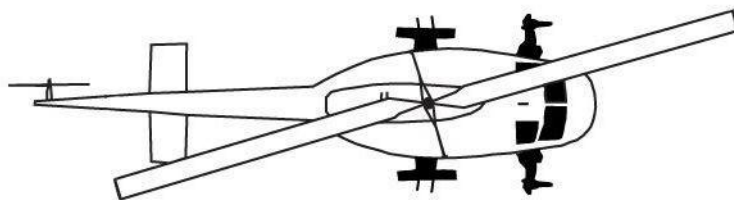
Gunship Project Parameters

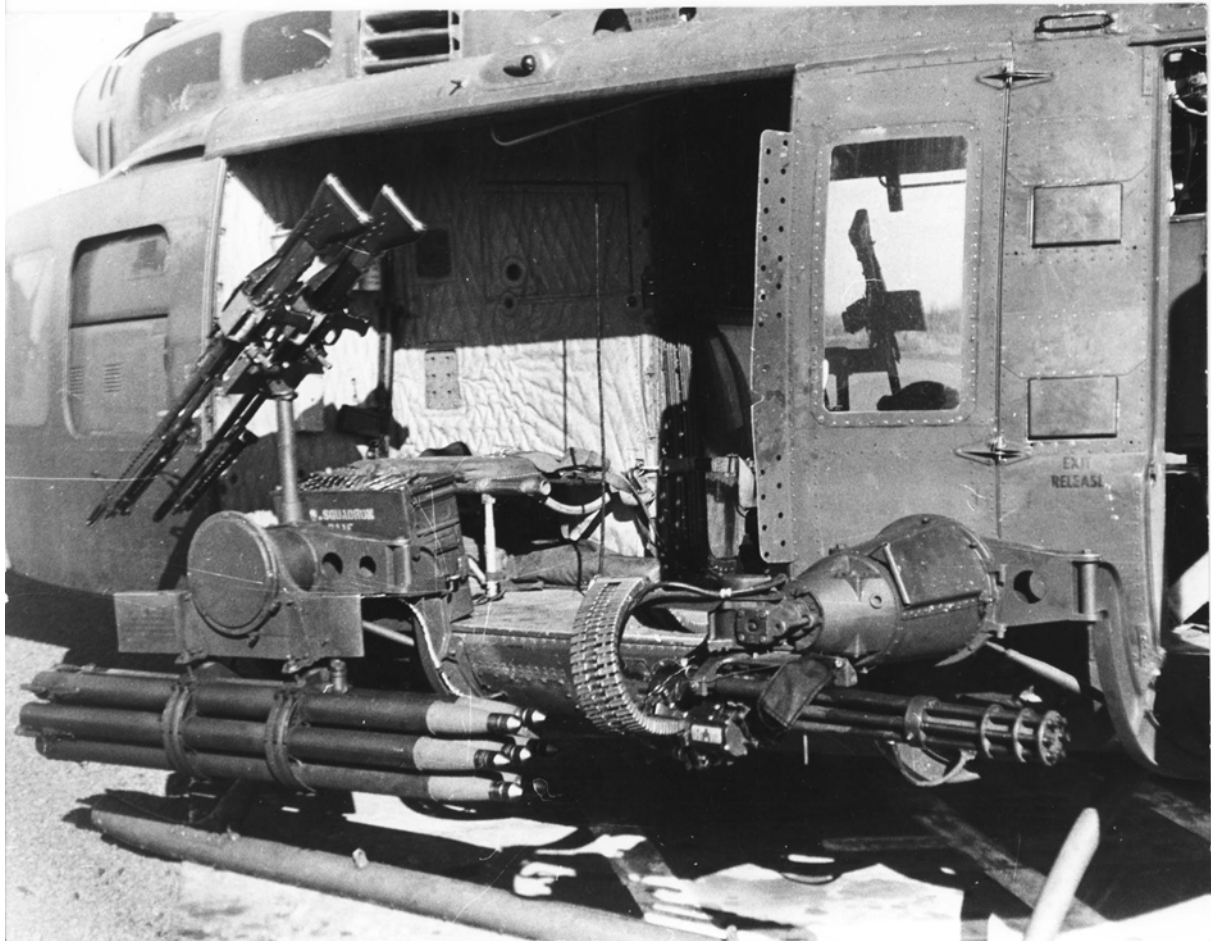
Although the Hotel model Iroquois gunship project was seemingly originated through 9SQN and Department of Air collaboration, I was not given any direction regarding parameters. The most suitable kit available for prospective adaptation to a Hotel model Iroquois was the XM-21 system as fitted to US Army Charlie models which became central to the gunship project.



US Army Charlie model with XM-21 weapon system

Formal RAAF approval for operational introduction of a weapon system would still ultimately be necessary with some configuration changes and modifications as eventually decided. The configuration developed for the Bushranger Hotel model Iroquois gunship was as illustrated with reasons detailed in THE BUSHRANGER STORY.





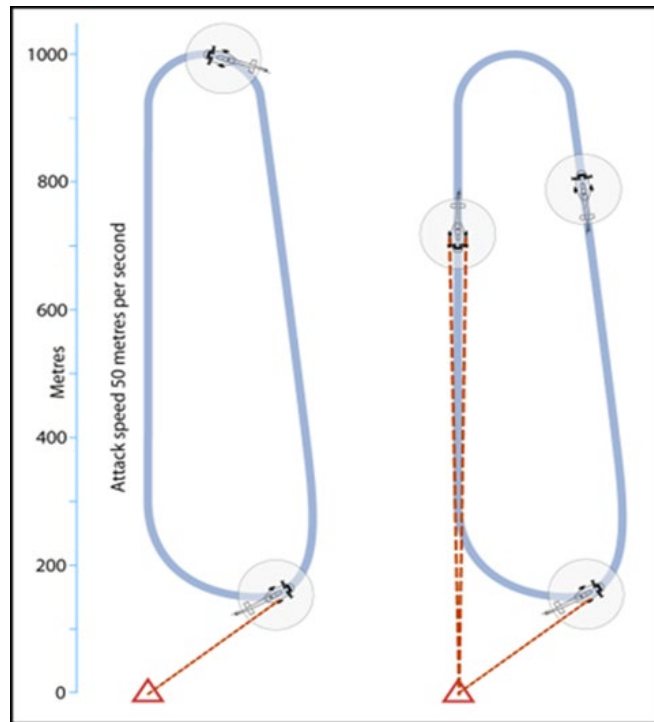
Some combat situations required danger/close ordnance delivery around 10 metres from friendlies so pilot controlled high density 7.62mm minigun fire support was essential.

My personal preference was to replace the rocket launcher armaments with low recoil 20mm cannon but sourcing of compatible weaponry would then have been difficult with foreseeable approval complications involving RAAF Support Command and Aircraft Research and Development Unit.

Even though need for an integral gunship capability had become more pressing in 1968, it still took 14 months to develop and introduce the Bushranger version on 21Apr69 and involvement of Australian authorities would likely have caused further delay in project progression.

2 and 3 Gunship Operations

It was obvious that a pair of gunships, a Light Fire Team in US Army parlance, could not maintain continuous fire on a target necessitating 3 gunships as illustrated.



Normally, 13 of 16 9SQN aircraft were available online daily, 8 being required as trooplifters and 1 for Army command and control requirements, so 4 aircraft were potentially available to provide gunship support.

9SQN mostly operated 3 Bushranger gunships online plus a configured spare aircraft from introduction on 21Apr69 to my cessation of Flight Commander role on 3Jun69. This added 50 percent in available firepower but more importantly enabled continual enemy suppression.

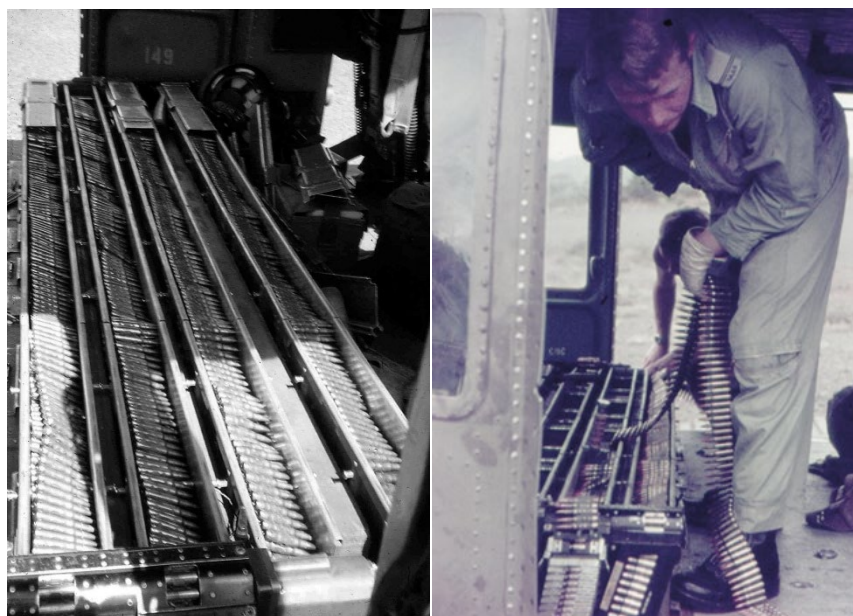
Some Bushrangers were lightly damaged by groundfire and one needlessly lost after forced landing on a beach due to battle damage. RAAF hierarchy at Vung Tau reputedly declined an Army offer for APC towing of the aircraft above high tide level and the Bushranger was submerged by rising sea level.



I believe damage by groundfire may have been negligible had the Squadron persisted with operating flights of 3 gunships plus a configured spare online.

Bushranger Ammunition Stowage

The extended XM-21 system minigun ammunition stowage was the weak point of Bushranger design and required prompt modification to enhance operational efficiency.



There was a changeover of 9SQN Commanding Officers on 21May69 but I never had any dialogue with the incoming CO until a single Bushranger flight on 01Jun69, 2 days before leaving, when I mentioned need for this important weapon system upgrade. I volunteered to briefly extend my tour to manage this requirement but was very bluntly told: *'You are going home!'*.

Alas, there was a 2 year delay before introduction of a highly successful modified loading system as illustrated enabling refuel and rearming within about 10 to 15 minutes.





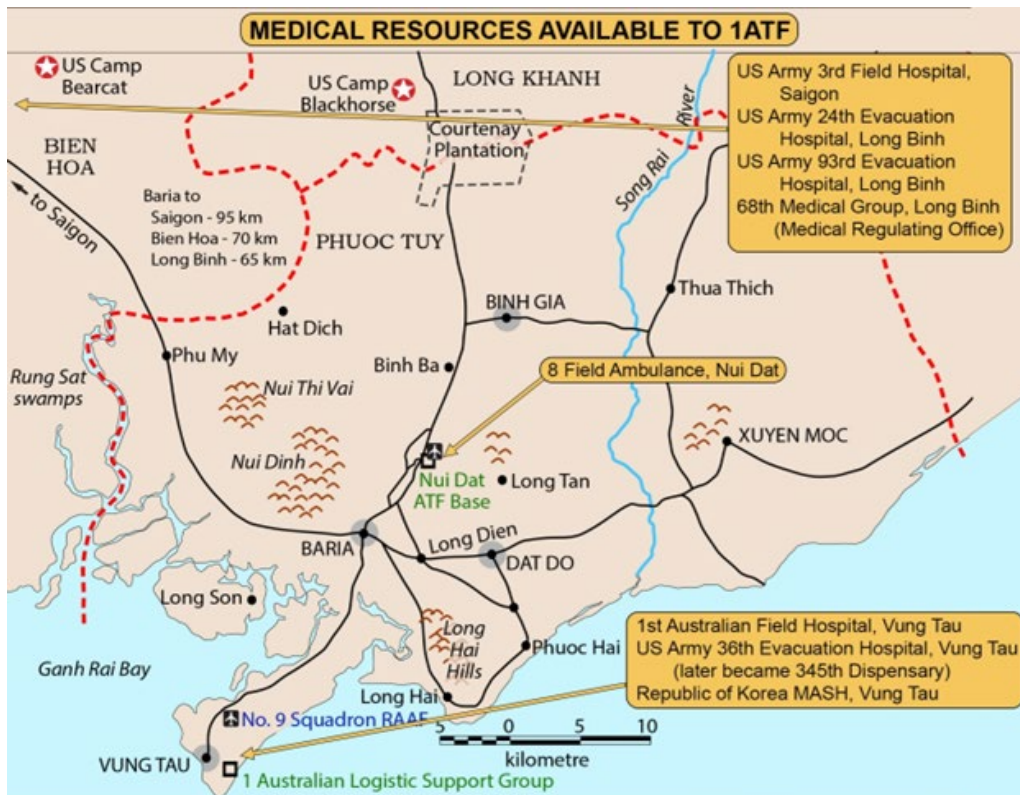
In 2002, I was asked by a group of junior pilots who had served at 9SQN in 1969, would I attend that CO's 75th birthday party on the NSW South Coast. I had no affinity with the guy but agreed to the younger bods request. I was standing quietly on a balcony apart from proceedings when he wandered out and proclaimed without any prior discussion: *'You know I was not a fan of gunships!'* No more conversation before he was called back inside where the former 'boggies' presented him with a print of THE BUSHRANGERS master painting!

The need for an integral gunship capability had been recognized at higher levels but dislike of gunships by that CO may have been a factor in the 2 years delay for essential Bushranger ammunition storage improvement.

Online Aircraft Availability

Political need arose to provide a permanent casevac standby aircraft at Nui Dat from 01Nov70 due to US winding down of forces reducing 9SQN online availability to 12 aircraft for other roles.

Casevacs/Medevacs



Bushranger gunship support was often necessary for casualty evacuation in close quarters combat situations.

The overwhelming majority of the 4,357 casevacs/medevacs of Australian, New Zealand, US, and Vietnamese military and civilians effected by 9SQN were performed by the nearest available aircraft for expediency so US Army Dustoff aircraft were often not used if present at Nui Dat. Over 98 percent of casualties delivered to 1 Australian Field Hospital at Vung Tau within 30 minutes of injury survived.

Over the 5.5 years (2,000 days) of 9 Squadron RAAF Vietnam involvement, around 550 of 4,357 casevacs and medevacs were at night, luckily without any engine failures that had occurred occasionally in daylight due to engine defects and low-quality contractor overhauls.

Apache Attack Helicopters

The very expensive (**AUD84million Year 2025 unit cost**) and extremely maintenance intensive Apache attack helicopter platform emerged principally to combat armour which is fast becoming an obsolescent means of warfighting with the advent of drones.



In my view, Apache is not well-suited for the intimate close air support function that was performed by Bushrangers.

Armed Blackhawk

An armed Blackhawk has been certified and is now in operational service with the UAE. This is intended as a cost-effective version of so-called attack helicopters that can be reconfigured to versatile aircraft status without much difficulty, a la the Iroquois Bushranger concept.



UAE Blackhawk with NC621 20mm cannon pods fitted to inner pylons



Hueycobra with (white) 7.62mm minigun pod

A simplified Blackhawk version with low recoil NC621 20mm cannon and 7.62mm minigun pods fitted to stub wing pylons would provide an adequate intimate close air support capability for Australia's foreseeable regional needs, although arguably less suitable than a conceptual Huey II Bushranger.



C-130 deployable conceptual Huey II Bushranger gunship with NC621 20mm cannon pods

The entire ADF fleet of 24 Hotel model Iroquois could have been upgraded to as new Huey II at overall cost of just one failed MRH-90 or Tiger platform and were virtually infinitely supportable, but those well-proven cost-effective Iroquois assets were unwisely discarded by Canberra in 2008. Rapid C-130 deployability of Iroquois was invaluable regionally whereas not practicable for Blackhawk.

Intended acquisition of 29 AH-64E Apache to replace the failed Tiger acquisition is potentially yet another wasteful unnecessary procurement costing taxpayers billions of dollars considering Australia is also now acquiring 40 UH-60M Blackhawks through 2024/25 that could provide a sufficient intimate close air support capability.

An interesting question is does Department of Defence in Canberra envisage Army Aviation assuming some Air Force offensive air functions with Apache?

Epilogue

It has been said by some that I drove the Bushranger Hotel model gunship project, but it was just a task I was given and not a fixation.

I did conceive the design configuration and co-ordinate the progression of various trials, but the bulk of the development work was done by the troops in the hangar. I was virtually fully occupied coping with my operational pilot roles.

I sought to have the SNCOs who were involved in gunship development work recognized for their efforts but was rebuffed by the Senior Engineer Officer. Apparently, there were no commendations relating to the gunship project.

Bushranger gunship operations were conducted for 900 of the 2,000 days that 9SQN served in Vietnam and the 58,769 total hours flown overall well exceeded the flying effort by other RAAF units in any campaign in the entire 100 years plus of Air Force history.



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March 2025

