

Jungle warriors



Dirk Jan de Ridder visits the Brazilian Army Aviation Command in the heart of the Amazon, 30 years after it permanently started operating helicopters from the capital of the rainforest

Main image: An HM-4 Jaguar (EC725) flying over the convergence of the Rio Negro and Amazon. All images Dirk Jan de Ridder unless stated. Insert: Patch of the 4th Army Aviation Battalion.

“Before starting my briefing on the 4th Army Aviation Battalion, let me ask you to imagine a group of soldiers being attacked by guerrillas at the border of the country in a remote area of the rainforest and your helicopters are located 3,600 kilometres away. You will be incapable of providing air support to the conflict.” Not many briefings start like a Tom Clancy thriller, but this Black Hawk captain certainly knew how to draw a crowd’s attention. He described the events that actually formed the beginnings of the 4th Army Aviation Battalion in the early 1990s.

His story was related to how the Brazilian Army Aviation Command’s first combat operations took place in 1991 in the Amazon region. Some 40 Colombian FARC rebels had illegally crossed the border.

They surprised 17 Brazilian soldiers and stole weapons and other equipment from their border detachment. In a time when the Brazilian Army only operated small helicopters, two AS350 Écureuil (designated HA-1 Esquilo) and another pair of AS365 Panther (HM-1 Pantera) helicopters were deployed to Manaus, the capital of Brazil’s Amazonas state, to

co-operate with the 1st Jungle Infantry Battalion. The detachment became known as the 1st Manoeuvre Helicopter Company.

They went after the rebels – actions which eventually left seven of them killed.

The operation contributed to the army establishing the first rudiments of the 4º BAvEx (4º Batalhão de Aviação do Exército, or 4th Army Aviation Battalion) in 1993 and later purchasing larger transport helicopters.

Army helicopter pilots initially operated from temporary facilities provided by the Brazilian Air Force at Manaus-Ponta Pelada airport



before more permanent facilities were built across the runway.

Over the Amazon

The Black Hawk captain's briefing continued to emphasise the need for helicopters in the Amazon: "If you look at a map of Brazil, the east is much more developed than the west, where we are. As a result, there is more infrastructure, more roads connecting the cities, more airports and even better communication infrastructure.

"In the Amazon, we have very little infrastructure to connect the cities and villages. We say the rivers are the real highways in

the Amazon since we have more rivers than roads. But although the rivers may look fairly straight on a map, in reality they twist and turn, they are not navigable during the whole year, and there may be multiple waterfalls. Also, the distances are immense.

"For example, if we travel just within the Amazonas state from our base to the border with Peru, that would be 995 miles. Further than from London to Rome! As the army, we need to travel those long distances without roads, and there are usually only one or two airfields along the way with a runway,

aviation fuel, internet and other resources that allow support."

Brazil is home to about 60 per cent of the world's largest rainforest, with the other part divided between eight other countries. Having first flown from Manaus in 2004 and with a combined total of some 2,000 flying hours on the HA-1 Esquilo, HM-1 Pantera and HM-2 Black Hawk, Colonel André Luiz Grenteski, commander of the 4^o BAvEx, certainly knows about operating helicopters in the jungle.

He said: "The Amazon jungle is a unique and still extremely unknown environment. Weather

conditions change at an absurd frequency. In the morning, we may have sunny weather; 15 minutes later, the clouds close in with a big thunderstorm, the temperature drops, and then we will have sunny weather again. Operations in the Amazon require accurate planning well carried out, because a meteorological wall, a large formation of clouds, has an impact on the route and movements. Pilots [must] decide to continue, return or find a village that allows a temporary stopover to wait for the bad weather to pass. The

constant heat and humidity do not combine well with electronics and mechanics. They interfere with our equipment, requiring more accurate maintenance and care of the aircraft.”

The 4th Army Aviation Battalion is the youngest of four helicopter battalions, which are based in three locations: the 1st and 2nd in Taubaté, São Paulo; the 3rd in Campo Grande, Mato Grosso do Sul. The primary responsibility of the 4th is to provide air transport in the Amazon, a state larger than France, Germany and the United Kingdom combined with a population the size of Moldova.

HM-1 Pantera

As all Brazilian Army helicopter bases do, the battalion in Manaus operates the HM-1 Pantera (AS365K2 Panther), 36 of which were delivered in 1990 and 1991. It is the second most numerous and also the fastest helicopter type in service with the air arm. The HM-1 is operated by the 1ª Esquadilha de Helicópteros

de Emprego Geral (1st General Purpose Helicopter Squadron).

Over the previous decade, the helicopter was upgraded to K2 standard and officially renamed HM-1A, although the additional A is not widely adopted. The designation painted on the tail of each helicopter still shows ‘HM-1’. The upgrade involved the installation of new Turboméca Arriel 2G2-CG turboshaft engines with 40% more power, a full glass cockpit, new weather radar, a communications suite, a four-axis autopilot system, night-vision goggles capability and a new tail rotor to reduce its acoustic signature. The Pantera can be armed with a pair of cabin-mounted FN MAG 58M 7.62mm or FN M3P .50-calibre machine guns.

HM-2 Black Hawk

Four S-70A Black Hawk helicopters entered service for Brazil’s role in the United Nations MOMEF military observation mission, which was established in 1995 to oversee the border dispute

between Ecuador and Peru. The Black Hawks are designated HM-2 in the Brazilian Army. Their delivery flights took place from the United States straight to Ecuador and were carried out by Brazilian pilots. When the UN mission ended in 1999, Manaus became the type’s home base.

The Black Hawk is the only helicopter type operated solely by 4º BAvEx; at least two bases use all other Brazilian Army helicopter types. Operated by the 2ª Esquadilha de Helicópteros de Emprego Geral (2nd General Purpose Helicopter Squadron), the Black Hawk can be fitted with the same 7.62mm machine guns as the Pantera. It can also carry up to four external fuel tanks to increase its range to an impressive 2,000km. Depending on take-off weight, the helicopter can reach every part of the Amazon without refuelling, although it would need a fresh load of fuel for the return journey from the most distant corners of the rainforest.

The Black Hawk is affectionately



Even close to Manaus, roads are scarce in the rainforest and if there is one, it is usually unpaved and in bad condition. Suitable landing spots are even harder to find in the impenetrable jungle

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Training flights

It takes the battalion's pilots anywhere between two and ten minutes of flight time in any direction to be flying over the rainforest. A map in one of the briefing rooms shows nearby landing spots in the jungle suitable for helicopters, only a handful of places within half an hour's flight time. This lack of places to land results in the battalion training a lot for techniques like helocasting, inserting troops into the water near the area of operations, and fast-roping. Another important aspect is night flying. Manaus has almost 12 hours of darkness per day, all year round, and navigating over a dark jungle has its challenges, even with night-vision goggles, as Colonel André Luiz Grenteski, commander of the 4º BAvEx, explained:

"Flying with equipment to amplify light that doesn't exist remains really complicated. When you fly away from Manaus and there is no residual clarity from light by the stars or the moon it is very, very difficult. On a really dark night, the goggles start to flicker and it becomes impossible to fly with them.

"Great care is taken for their use, for planning and checking the weather conditions, in order not to risk a flight having to return. Pilots maintain their basic qualifications like landing, taking off, emergency procedures, navigating and flying instrument flight rules with night-vision goggles here in the vicinity of the aerodrome and around the city of Manaus itself, using the training bases of the Jungle Warfare School as support points. Then throughout the missions and operations, pilots and crews end up flying further away employing all the techniques learnt. Learning and practise is constant."



Above: HM-1 Pantera landing at one of only a handful of training locations in the jungle near its home base Left: An HM-4 Jaguar has landed at one of only a handful of training locations in the jungle Below: The HM-1 Pantera is loved by its pilots for its acceleration, manoeuvrability and top speed





An HM-2 Black Hawk, starting up for another training flight from its home base, Manaus João Paulo Moralez



The HM-1 Pantera is the only helicopter type to be operated at every Brazilian Army helicopter base



With its capability to fly with up to four external fuel tanks, the Black Hawk can reach any corner of the Brazilian Amazon without refuelling João Paulo Moralez

known as *Acari-bodó* (sucker-mouth catfish) by its crews due to the similarity in shape with this typical Amazon River fish. It was the Brazilian Army's first helicopter with night-vision goggle capability. Since then, all helicopters either had this capability on delivery or were upgraded to be night-vision goggles capable.

The Black Hawks are starting to show their age, and at the time of the author's visit, all four helicopters were grounded.

They are coming close to the

point where a decision will have to be made on whether to modernise them or buy new airframes. A study group is looking into this.

HM-4 Jaguar

In 2008, Brazil's ministry of defence and Eurocopter signed a deal to deliver as many as 50 EC725 Caracal helicopters to the air force, army and navy. Sixteen were destined for the army, about half based at Manaus. The 3^a Esquadilha de Helicópteros de Emprego Geral (3rd General

Purpose Helicopter Squadron) was established to fly the new helicopters, enabling 4^o BAvEx to say farewell to its HM-3 Cougars.

It is named HM-4 Jaguar in Brazilian Army service and has a full suite of self-protection systems, including chaff and flare dispensers, a laser warning receiver, a missile approach warning system and a radar warning receiver. The armoured cabin can be equipped with a pair of FN MAG 58M 7.62 machine guns, like those operated by

the Pantera and Black Hawk. The cabin size of the Jaguar is considerably larger than that of the Cougar. While the latter can transport up to 20 troops, the Jaguar has room for a maximum of 28 seated troops. It also carries twice as many stretchers compared with the Black Hawk, which can have six. This makes the Jaguar the preferred choice for combat search and rescue and medical evacuation missions, although the Black Hawk also fulfils the medevac role.

Supporting the community

Not all the battalion's operations are purely military. Operations to combat illegal mining and deforestation are frequently carried out and always in conjunction with agencies linked to the Brazil Ministry of Justice or the Ministry of the Environment, for example with environmental police officers on board.

When there is an inter-ministerial demand requesting support of the armed forces, the battalion receives an issuing order and acts jointly with these bodies, in support of their demands. Missions may concern the identification of an issue, the destruction of a mine

or forestry equipment, identification of offenders and penalising lawbreakers, even up to arresting them. The battalion also flew many dozens of hours providing logistic support to vaccination programmes in isolated indigenous villages, even already before the COVID-19 pandemic. Manaus became one of the hardest hit cities due to a shortage of hospital beds and oxygen, combined with its isolated position. Without the helicopters it would have been impossible to carry out the entire COVID vaccination programme in a timely manner, after the virus hit hard.



4^o BAvEx operates the HM-1 Pantera, HM-2 Black Hawk and HM-4 Jaguar João Paulo Moralez



Fixed-wing requirement

Despite massive distances in Brazil in general and the Amazon in particular, the Army Aviation Command has never operated any fixed-wing aircraft. Having fixed-wing aircraft to operate longer distances from and to places with runways would free up lots of flying hours for the helicopters of the 4th BAvEx to actually do what they are good at: making inaccessible places accessible.

There was a plan to buy up to eight used C-23 Sherpa aircraft from the US Army, which was actually approved in late 2019, but for some reasons unknown to the people the author spoke to, it ended up being frozen. Other options included aircraft like the C-212 Aviocar, DHC-6 Twin Otter, Ce-208 Grand Caravan and the M-28 Bryza. Colonel Grenteski could not confirm what happened, other than that the C-23 purchase was frozen, but he insisted a fixed-wing aircraft is still “very important for this region”. It will take time – but as they have the beginning and continue to do now with their helicopters, the aviators of the 4th Army Aviation Battalion do not need much time to prove the value of aircraft in the Amazon region – rotary or fixed-wing.

As happy as the Brazilian Army is with the HM-4, it would be too easy for Col Grenteski to say the Jaguar is the helicopter of choice for any complicated mission in contested territory. He added: “I’m not going to say that one helicopter is better than the other. The helicopters have capabilities that complement each other, and here in the Amazon environment, flexibility is an important characteristic for operations. All helicopters operate in favour of incoming operations and they all

have their characteristics that end up complementing the other.”

Attack capability

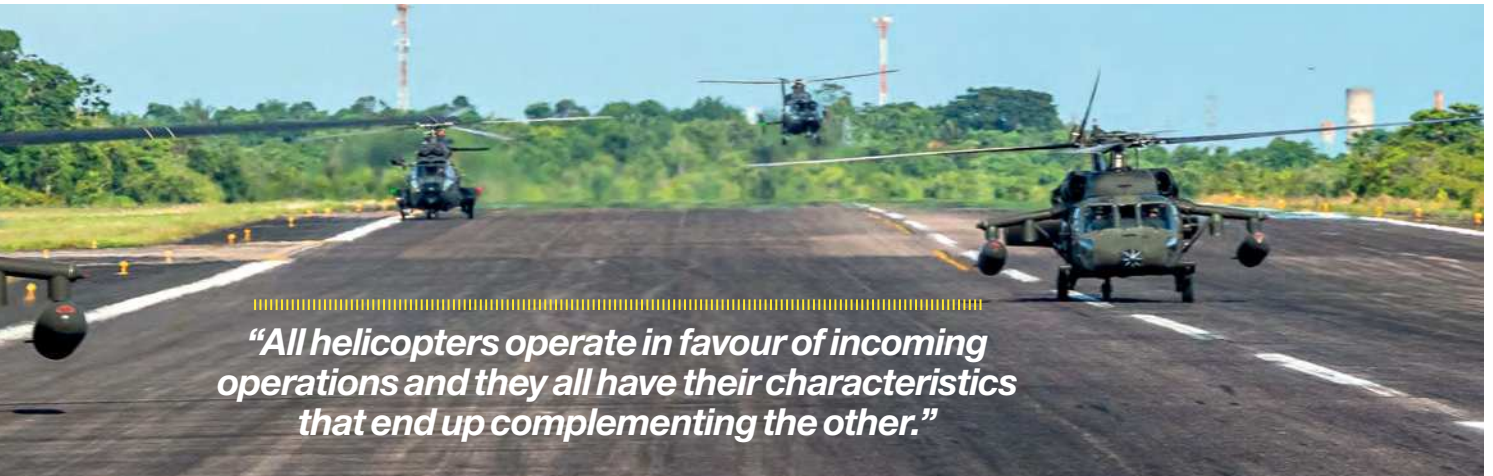
Due to their limited range and single-engine design, the AS350 Esquilo and AS550 Fennec (both named HA-1 in Brazilian Army service) are not the best-suited helicopters for the Amazon. They operated alongside the Pantera and Black Hawks during the early years of the battalion, but have now made room. A disadvantage of that decision

is that it leaves Manaus as the only helicopter base without an in-house reconnaissance and attack capability.

Col Grenteski added: “Today, our lack of capability is an armed helicopter, with the ability to provide security and armed reconnaissance. We do miss this capability. I wouldn’t say we miss the aircraft itself, but the ability to have an armed helicopter that provides security for air convoys and that also provides armed reconnaissance

with shooting activities, this is a really necessary capacity, that in the near future we hope to get.

“The HA-1 Esquilo operated here in the battalion in early 2000, but its characteristics and the difficulties of the Amazon, meteorology, few support points and the little autonomy of the aircraft, combined with the lack of a weather radar, ended up leading to the decision to leave the aircraft operating in the regions of Campo Grande and Taubaté. In case of any eventuality, they can be moved here.” **afm**



“All helicopters operate in favour of incoming operations and they all have their characteristics that end up complementing the other.”