

INCOMING VIETNAM VETERANS OF AMERICA CHAPTER 535



Website: www.vva535.org

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VIETNAM VETERANS OF AMERICA CHAPTER 535 PRESIDENT'S MESSAGE March 2024

Hello VVA 535 members.

Meeting time is 5PM.

A special treat from Jose Gonzalez---Quesadillas will be prepared.

March 29 National Vietnam War Veterans day. Thank you, to each you for your service.

SB 1160

On February 14, 2024 in Sacramento, California Senator Portantino from Burbank California introduced SB 1160, a measure that would require gun owners to annually register their firearms with the California Department of Justice.

SB 1160 would require every firearm in the state to be annually registered with the Department of Justice. An annual fee would be deposited into a special fund for the purpose of carrying out the administration and enforcement of the firearm registry. The bill would require the department to establish and

maintain a system for the annual registration of firearms and make the registration information available to other law enforcement agencies. SB 1160 also requires that reasonable efforts be made to notify firearms dealers, owners, and the public about registration requirements. The amount of the annual fee was not stated in the Bill.

Ray James President

"Every Day is a Chance to Be Better." I do not know who coined that phrase, but over time there have been many take-offs with the same intent. We can do more.

Each of us can do more and this is a plea, a calling, for several in our VVA 535 Brotherhood to step up and carry our torch into the future as an Officer or as a Director of our esteemed organization.

Some are weary of serving and it is time for relief. Movement from one chair to another is not relief. Do something that your future self will thank you for. Volunteer to become our next President, VP, Treasurer, Secretary or Director. The opportunity is before you.

Bart Ruud

VVA Chapter 535 Mission Statement

To foster camaraderie among members and assist those with disabling mental and physical injuries, to promote the welfare of our brethren affected by the war, and to engender public understanding of the sacrifice, patriotism, and bravery of those who served, those who gave all, and those left behind.

Veterans Crisis Line

DIAL 988 then PRESS 1 Or text 838255

(Put these numbers into your phone)

Attention

If you do not drive and need a ride to a meeting or any VVA-535 function, please contact Bart Ruud or any local VVA-535 member and we will do our best to arrange transportation for you.

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Upcoming Events

NCCVC Meeting – March 7, 2024 VVA Chapter 535 Meeting – March 7, 2024 Nominations for 2024-25 officers - 3/7/2024 National Vietnam War Veterans Day - 3/29/2024 CSC: April 5 - 7, 2024 – Visalia Election of 2024-25 Officers & Directors 5/2/2024 May 18, 2024 – Nevada County Airfest; Armed Forces Day

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Committee Chairs

FinanceRalph Remick & Kent Holley
Parade and Honor Guard Dick Corn
Membership AffairsRic Sheridan
Newsletter Interim Editor Bart Ruud
Victorian ChristmasCancelled for 2022; 2023
Nominations Ralph Remick & Dick Corn
Veterans Assistance Ray James
NCCVC Dick Corn
Speakers Bureau Ray James
Web Master Ralph Remick
Quartermaster Dick Corn
Facebook Master Mike Laborico
Nevada County Fair Open
CA State Council Rep Interim: Bart Ruud
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(530) 913-5046 (Cell phone) "Walk-In" opportunities are available M – F.

Placer County Veterans Services Officer Richard "Steve" Johnson: 916-780-3290. 1000 Sunset Blvd., Suite 115, Rocklin, CA

Mon. – Fri., 8:00-12:00 and 1:00-5:00 p.m. The Auburn office, at 11562 B Avenue, Auburn, CA 95603, is open every Tuesday 8:00 a.m.-12:00 p.m. and 1:00 p.m.-5:00 p.m. The Carnelian Bay office, at 5252 N Lake Blvd, Carnelian Bay, CA 96140, is now open every 3rd Monday (excluding Holidays) 9:30 a.m. -12:00 p.m. and 1:00 p.m.-3:00 p.m.

County VSO Resource Closet Needs

Sleeping bags, duffel bags, small lightweight tents, socks, briefs, bras, tee shirts (white/olive drab), sweatshirts, sweatpants, jeans, shoes, boots, hygiene supplies, grocery store gift cards, gas cards, blankets.

These kinds of items will become components of life packs to assist those in need that are seen by staff at VSO David West's office. Thank you for your assistance with this project.

Guest Speaker: Jim Delaney will present his "Second Courage" story. Thank you, Jim.

Matters of Interest as outlined at our meeting of February 1, 2024

The Senior Communications group facilitated by Mike Hauser, American Legion Post 130 Adjutant, is working with the South Yuba Club to develop a financially feasible program for Veterans.

By consensus, the VVA 535 meeting time was adjust to 5:00 p.m. on a three-month trial basis, beginning March 7, 2024.

Steve DeSena, Chairman of the Board of *Welcome Home Vets*, is recruiting new faces to assist *Welcome Home Vets* as it moves into a new phase of service following loss of County funding.

Dale Ferguson will explore opportunities for setting up pop-up shelter exposures on the Grass Valley walking mall or at other sites.

HOW CARGO HAULERS TURNED INTO GUNSHIPS RAINED FIRE ON THE ENEMY IN VIETNAM

Unassuming AC-119 aircraft became the fearsome "Shadows and Stingers" of the Vietnam War.

By Barry Levine. History Net. 1/22/2024



William Dawson of the 71st Special Operations Squadron trains his AC-119's night observation scope during a mission in April 1969. (San Diego Air and Space Museum)

In the words of one gunship navigator, Fairchild AC-119s "resembled a black and green Hostess Twinkie with wings." Some nicknamed the aircraft the "Dollar 19." The Air Force called them fixed-wing gunships. Enemy forces in the war feared these "dragon ships" with their tremendous firepower. However referenced, AC-119G "Shadows" and AC-119K "Stingers" were C-119 cargo aircraft converted to gunships in the late 1960s. Flown by skilled airmen and supported by exceptionally dedicated ground crew, these aircraft were highly effective during the war.

HOW THE DRAGON SHIPS BEGAN

The roots of the Shadow and Stinger gunships go back to Sherman Fairchild, an entrepreneur

from the Golden Age of Aviation who founded many companies, including Fairchild Aviation. Fairchild produced aircraft such as the C-82 Packet, designed to replace early World War II transport aircraft such as the Douglas C-47 (the military version of the DC-3). Packets were redesigned with bigger engines and the cockpit moved towards the nose, becoming known as the C-119 "Flying Boxcar."

First flown in 1947, over 1,100 were built with production ending in 1955. Boxcars had a 109foot wingspan, two Wright R-3350-85 Duplex Cyclone engines (similar to those used in B-29 Superfortresses), a cruising speed of 180 knots, and a range of 1,600 miles. C-119s saw action in numerous unique missions, such as dropping prefabricated bridge components to U.S. Marines fighting their way out of North Korea's Chosin Reservoir in 1950. Boxcars air-dropped French paratroopers at Dien Bien Phu in 1954 and completed midair retrievals of capsules containing spy satellite film of the Soviet Union in the early 1960s. As newer cargo aircraft such as the Lockheed C-130 became available, the C-119's days appeared to be numbered—but one more mission, not foreseen by Fairchild's engineers, remained.



A haunting illustration by Jack Fellows shows an AC-119G Shadow on a nighttime mission over the highlands of the Vietnam/Laos border—an area through which portions of the Ho Chi Minh Trail snaked. (©Jack Fellows/ASAA)

Independent of C-119 development, the military considered using fixed-wing gunships. Lt. Fred Nelson unsuccessfully promoted side-firing

machine guns from an aircraft in the 1920s. In 1942, Lt. Col. Gilmour MacDonald revived the idea and promoted gunships for years, but the military remained unconvinced. Finally, Capt. Ronald Terry (often referred to as "the father of the gunship") was given permission to test the concept in August 1964. The successful results led to Terry and Lt. Edwin Sasaki briefing Air Force Chief of Staff Gen. Curtis LeMay. LeMay approved further tests in Vietnam although most of his staff was opposed to the idea.

Other aircraft converted to gunships in Vietnam were the Douglas C-47 and Lockheed C-130. Secretary of the Air Force Harold Brown wanted to use the older and slower C-119 for this purpose, as he needed C-130s for transport duty. Seventh Air Force Commander Gen. William Momyer was opposed, as introducing AC-119s to Vietnam would require additional logistical support. Also, C-119s had a reputation for mechanical problems such as landing gear and engine mount failures, with some describing Boxcars as "thousands of rivets flying in loose formation." Nevertheless, Brown contracted with Fairchild Hiller to modify 26 Boxcars to AC-119G Shadows by adding four 7.62mm Gatling guns. Fairchild modified another 26 Boxcars as AC-119K Stingers that added two multibarrel 20mm M61 cannon, a fire control system using an analog computer. night observation devices, and infrared equipment to search out targets.

Two jet engines were added to supplement the propeller engines on AC-119Ks, increasing the Stinger's chances of returning home if a propeller engine was lost. The added thrust also allowed for higher maximum takeoff weight (thus more ammunition) as well as enabling the flight engineer to reduce the power setting and the fuel mixture richness for the piston engines, curtailing the exhaust plumes and making optical tracking difficult for enemy gunners.

"SCREW THE F-4S, GET ME A SHADOW!"

Training for the AC-119 aircrews included gunship equipment, attack techniques, and basic understanding of the Vietnamese and Thai civilian populations. A "Shoot Down Board" at jungle survival school contained the names of Air Force personnel who were shot down or forced to abandon their aircraft over Southeast Asia. Instructors found that the board helped students focus on the matter at hand—especially as there were two blank panels on the wall to list additional names. Once in country, AC-119Gs were based at locations such as Phu Cat, Phan Rang, Da Nang, and Tan Son Nhut.

Missions included providing close air support for troops in contact with the enemy, and attacks against the enemy and supplies on the Ho Chi Minh Trail and Cambodia. American and South Vietnamese convoys would be protected by AC-119 gunships, while Forward Air Control aircraft would look for enemy troops preparing ambushes. Enemy forces often would not fire on the AC-119s as they knew the fire would be returned. Forces on the ground appreciated the work of the Shadows and Stingers. In one instance, a Special Forces commander on the ground, when advised of Phantoms coming to assist, shouted into his radio: "Screw the F-4s, get me a Shadow!"



Both the AC-119G Shadow and AC-119K Stinger featured four 7.62mm rotary miniguns, though the later Stinger also boasted two 20mm M61 cannons. (U.S. Air Force)



A gunner loads one of the miniguns, which were fired by the pilot. (U.S. Air Force)

Flight altitudes varied based on many factors; firing at enemy personnel would often occur from about 2,500 feet Above Ground Level (AGL) using their miniguns and at about 5,000 feet AGL with 20mm cannon against vehicles. The AC-119s were busy. In 1969 alone they saw 3,700 sorties, 14,000 combat hours, and 35 million rounds of ammunition expended. Antiaircraft fire was a constant risk—gallows humor on board referred to enemy fire going between the tail booms and horizontal stabilizer as "field goals." While focused on the target, pilots used aircraft intercom to direct the gunship crew and the radio with ground forces. Extensive monitoring of all radio and intercom traffic was required and all on the gunship looked for antiaircraft fire.

NIGHT MISSION EQUIPMENT

AC-119Gs typically had six crew on board for day missions or eight for night missions. AC-119Ks often flew with 10 airmen—a pilot, copilot, flight engineer, table navigator, Night Observations Sight (NOS) operator (who would amplify any available light and send coordinates to the fire control computer) and Forward Looking Infrared (FLIR) operator (both manned by navigators), gunners that loaded and maintained (but did not fire) the weapons, and an Illuminator Operator (IO).

The IO operated the flare launcher and the 1.5-million-candle power light (white light and infrared) at the rear of the aircraft and served as a jumpmaster if the crew needed to bail out. All guns were mounted on the left side of the aircraft, requiring the crew to fly in a continuous left bank orbit around the target; crews often preferred the term "orbit" to "circle."



A Fairchild AC-119K Stinger stands ready for action in Vietnam. The high-powered guns of the AC-119K and AC-119G Shadow, both modified Fairchild C-119 "Flying Boxcar" cargo airplanes, provided potent ground support for U.S. troops in war zones. (San Diego Air and Space Museum)

Vertigo and target fixation were serious dangers for pilots while flying the firing circle. The FLIR sensor was used to search for intense spots of infrared energy—which could be enemy soldiers or large animals. When the gunners weren't loading or repairing guns, they supplemented the IO to spot anti-aircraft fire as "scanners."

The first AC-119 unit in country was the 71st Special Operations Squadron (SOS), composed of Air Force reservists who were stationed at Indiana's Bakalar AFB. Gunship training for these airmen was completed at Ohio's Lockbourne AFB. In December 1968, the 71st began deploying to Southeast Asia. This deployment represented the first time since the Korean War that Air Force Reserve personnel conducted flights inside a combat zone; missions began in early 1969. Some of the AC-

119s, given their somewhat limited fuel capacity, took almost a month to make the flight from Lockbourne to South Vietnam.

During its six-month deployment in the theater, the 71st completed over 6,200 combat flying hours on over 1,500 sorties. Members of the 71st earned numerous awards, including an Air Force Outstanding Unit Award, which mentioned the Reservists firing a relatively "sophisticated weapons system being battle tested for the first time, working often under intense ground fire, in periods of inclement weather, and almost totally during hours of darkness." When the 71st returned home, about 65% of the personnel transferred to the activeduty 17th SOS, which flew AC-119Gs. The third unit seeing extensive action was the 18th SOS, operating with AC-119Ks.

CREW LIFE

Numerous firsthand accounts are available that add perspective to crew life, both in the air and on the ground. Virtually all accounts mentioned how teamwork, technical know-how, and communication were essential in successfully completing the missions. In one example, Flight Engineer Jay Collars recalled when his AC-119 "took a .50 caliber hit through the right propeller oil line, severing the line and causing a runaway propeller. The aircraft immediately rolled and yawed left and began losing altitude....While the pilots struggled to gain control, I (as flight engineer) began running the emergency checklist. Needless to say, for a few minutes there was a lot of scrambling on the flight deck." Nevertheless, Collars' crew managed to safely land the aircraft.



The Super Sow was an AC-119K Stinger of the 14th Special Operations Wing—hence the "SOW" moniker. (U.S. Air Force)

Copilot Wayne Laessig described attacking ground targets. After completing the "Strike Checklist," a pilot would say, "Copilot, you have the pitch." The pilot controlled firing the weapons, using a pylon turn flying technique (a constant 30-degree turn), resulting in concentrated fire at ground targets. The aircraft commander/pilot flew rudder and ailerons, the copilot flew pitch, and the flight engineer worked the throttles and monitored the gauges—a three-man effort requiring extensive coordination. Laessig noted, "There wasn't a single crew member on the airplane you didn't need (for) the whole mission. Learning that was the best thing in my whole career."

The often-undermanned maintenance crews routinely worked 12-hour shifts and may have taken shortcuts to get the job done, given the high mission tempo. Crew Chief Jesse Lau wrote that occasionally the crew would "clean our engine up the 'extremely unsafe' way...the POL truck would pull up and we would fill up the tanks on both wings. After I'd get done fueling on the left wing, I would shoot the fuel from the hose into the engine and clean the engine that way. That's extremely unsafe, dangerous, and guaranteed to get you a court-martial and jail time if you ever got caught doing that stateside. But...we ran into time constraints (as) there was a war going on."

MISSION RISKS

Gunners had a very challenging role. Everett Sprous, a gunner on AC-119Ks, loaded and repaired the 20mm Vulcan cannon (firing 2,500 rounds per minute) and 7.62mm miniguns (6,000 rounds per minute). Sprous recalled the noise: "The gunship was shaking so hard that vou believed at any second the aircraft would come apart. The noise and smoke were so intense that it would take a couple hours after a mission to clear your brain. Gun barrels would turn red, then white, from bullets being fired at such high rates." Reloading the 20mms required using a drill-like device weighing between 30 and 40 pounds while the aircraft might be in a steep banking maneuver. Scanners were always alert for incoming AAA and their calls for evasive action saved many aircraft and crew.

Midair collisions were another risk, especially as numerous night missions were flown. On station over Cambodia, pilot John Windsor's crew was talking to a FAC who claimed he was about 10 miles away. "Suddenly an OV-10 filled our windscreen," he later described. "He crossed directly in front of us from left to right, and at our same altitude. He was flying with his exterior light off and was so close I could actually read his instrument panel....To this day, I don't know how we didn't hit him with our right propeller....This clown drove right across our nose at our altitude." That FAC was ultimately shipped out.

Two of the best-known missions were Stinger 41 and Stinger 21 (representing the aircrafts' call signs). Both were representative of the challenges faced on any AC-119 flight—including enemy action, mechanical malfunction on the aircraft, and/or bad weather. On May 12, 1972, an AC-119K mission over South Vietnam ("Stinger 41") was flown by Capt. Terence Courtney. This was a high-risk daylight mission near An Loc. Stinger 41 was heavily damaged by AAA fire, causing the loss of both right engines and a fire in part of the right wing. Courtney and copilot Lt. Jim Barkalow kept the heavily damaged aircraft aloft, allowing seven crew to

bail out (and later be rescued), but the aircraft crashed.

Courtney was posthumously awarded an Air Force Cross for sacrificing himself and allowing most of the crew to survive. In addition to Courtney, Capt. David Slagle and Staff Sgt. Kenneth Brown could not get off the aircraft in time and died in the incident. The Air Force Cross award stated in part: "Control of the aircraft had become so difficult that Captain Courtney had to use all his strength to maintain control. [Courtney] wrapped his arms around the yoke to keep the aircraft's nose from pitching down. When he could no longer control the aircraft, he ordered his crew to bail out.... His courage, gallantry, intrepidity, and sense of responsibility towards his fellow men overrode any desire...for his own self-preservation."



Bombed-out enemy trucks speak to the gunships' effectiveness. Both airships provided critical close air support; the AC-119K in particular gained a reputation as an excellent truck killer. (U.S. Air Force)

Stinger 21 involved a May 1970 mission commanded by Capt. Alan Milacek, who along with his crew were awarded the Mackay Trophy for the most meritorious flight of 1970 when their heavily damaged AC-119 was flown safely back to base. Hit by ground fire, the aircraft was about 90 minutes from Udorn, Thailand, with a series of mountain ranges to cross, including a 9,300-foot peak, on the return.

Milacek ordered the crew to toss out everything they could to reduce weight. Milacek and copilot Capt. Brent O'Brien nursed the plane back to Udorn. Inspection of the damaged aircraft revealed that more than 14 feet on the leading edge and more than 17 feet on the trailing edge of the right wing were missing, with damage to the right outboard aileron and to a fuel tank at the end of the wing. Milacek was heard over the intercom as the aircraft went onto the taxiway at the end of the runway: "Thank you, Lord, thank you."

A CHANGING WAR

While the AC-119s and their crews were compiling a distinguished combat record, the war itself was changing. As American participation in the war wound down, President Nixon's Vietnamization program began turning the war over to South Vietnam. Part of that effort included AC-119 personnel training their Vietnamese counterparts, such as Air Force Capt. Hoa Ngoc Bach. He later fled from the South after the communist takeover and came to the U.S. as a refugee at Camp Pendleton, California.

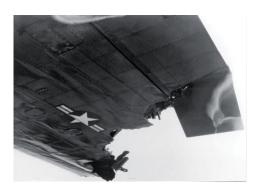
With the assistance of navigator William Gericke, Bach secured housing, learned to drive, and became an American citizen. Changing his name to Harold Hoa Bach, he sponsored 21 family members in coming to America, and had a 28-year career in the auto industry.



Minigun mounts on an AC-119K Stinger. (U.S. Air Force)



As one crewman reported, when the gunships fired, the "noise and smoke were so intense that it would take a couple hours after a mission to clear your brain". (U.S. Air Force)



In May 1970, Capt. Alan Milacek was able to land his Stinger even though chunks of his wing had been shot off. (San Diego Air and Space Museum)



Capt. Terence Courtney was awarded the Air Force Cross for sacrificing his life during 1972's Stinger 41 mission. (AC-119 Association)

As the war concluded, AC-119 crews returned to the U.S. while the aircraft remained behind. The military record of the AC-119 was assessed in a Contemporary Historical Examination of Current Operations report, which concluded that the AC-119G was an extremely useful weapon system, performing a variety of missions above and beyond its primary mission of close air support. The AC-119K was an excellent truck killer and proved equally useful in providing close air support for troops in contact. AC-119 crews "performed assigned tasks with resourcefulness, overcoming equipment limitations through operator skill."

What the air crews and ground support personnel accomplished was remarkable. Seventeen airmen that were part of the Shadow and Stinger missions were killed in action. These personnel all demonstrated a high level of courage, skill, and dedication to duty while completing these missions, flying aircraft originally designed as cargo haulers.



A Shadow flies over South Vietnam in 1971. (U.S. Air Force)

While popular and political support for the war was dwindling, the crews, whatever their rank, maintained a high level of camaraderie, teamwork, and desire to successfully complete the missions, while saving countless lives of those on the ground.

Barry Levine works at the Henry Ford museum in Dearborn, Michigan, volunteers at the Yankee Air Museum in Belleville, Michigan, and writes on a variety of aviation and history topics. His most recent book is Michigan Aviation: People and Places that Changed History.

This story appeared in the 2024 Winter issue of Vietnam magazine.

What are some little-known facts from World War II that fascinate you?

They were called *Wehrmachtskanisters* by the Germans during World War II. They were robust steel containers invented in Germany at the behest of Adolf Hitler to provide a way for transporting fuel by hand.

It is said the *Wehrmachtskanister* features a clever design for several reasons.

It has three handles that allow one person or two people to carry. Moreover, it can be passed like a bucket along a human chain in case of putting out a fire. When a container was empty, the three handles allow two other similar containers to be placed side-by-side. The handles also enable a person to carry two *Wehrmachtskanisters*, one in each hand. The cross design on the side of the container helps strengthen the body of the can and allows the liquid contents to expand. An air pocket was located under the handles. A cam lever release mechanism and short spout with an air-pipe to the air pocket allows smooth and accurate pouring of its liquid content.



(Image courtesy of Google)

The Wehrmachtskanister's clever design was reverse-engineered by the Allied Forces to create their own robust fuel containers and put them into service to replace their existing fuel canisters that were said to be prone to punctures and damages. The Allies called these new containers Jerrycans in reference to the Germans whom they sometimes called Jerry.



(Image courtesy of Google)

Over the years, the Jerrycans have undergone a variety of designs. The image of the blue Jerrycan above is one of several design variations. People would usually see Jerrycans today made of hard plastic whereas during World War II they were made entirely of hard tin.

It would be good for people to know the color codes used with Jerrycans so they don't mistake using their liquid content.

As far as I'm aware, there are 12 color codes for Jerrycans with their corresponding content in use by various industries: (1) Red - unleaded petrol; (2) Orange - ethanol; (3) Olive Yellow - diesel; (4) Bottle Green - two stroke 25:1; (5) Shamrock Green - drip torch; (6) Bluebell Blue - AdBlue; (7) Bright Blue - chain and bar oil; (8) Powder Blue - kerosene; (9) Mist Blue - water; (10) Pipeline Grey - two stroke 50:1; (11) Black - oil; and (12) Nut Brown - biodiesel.

Applying for a CalVet Veterans Home

https://www.calvet.ca.gov/VetHomes/Pages/apply.aspx

If you meet the eligibility requirements, you should apply to one of our Homes. Your application can be transferred to a different Home later if you decide another Home is a better fit.

Basic Admission Requirements:

Veterans

To be eligible for admission, you must be:

- 55 years or older, homeless, or disabled.
- A veteran, having served on active duty.
- A California resident.
- Discharged or released from active duty under conditions other than dishonorable.
- Covered under a medical insurance policy.

You must also provide proof of military service by submitting **one** of the following:

- A DD214.
- Equivalent documentation of a DD214 from the <u>U.S. Department of Defense</u> (<u>DOD</u>) or the <u>U.S. Department of</u> <u>Veterans Affairs (VA)</u>.

Note: some veterans are given priority for admission and are strongly encouraged to apply:

- Medal of Honor recipients.
- Former POWs.
- Veterans experiencing homelessness.
- Veterans with 70% or more service-connected disability ratings.

Note: You may be subject to more requirements based on your care needs and personal background. For more information, refer to the Laws and Regulations section. Check the website noted above for the CalVet information in full.

New 4-year cloud-seeding pilot program hopes to make it rain in Santa Ana River watershed

By Sara Carding Staff Writer – L.A. Times January 13, 2024



An illustration shows how releasing silver iodide particles into storm clouds maximizes precipitation during a storm.(Courtesy of SAWPA)

Using meteorology and chemistry to help prod Mother Nature, water officials have begun seeding storm clouds throughout the Santa Ana Watershed to boost regional water supplies by enhancing the rain and snowfall produced during storms.

Started in November as a four-year pilot under the <u>Santa Ana Watershed Project Authority</u> — a joint powers authority comprising five public agencies, including Orange County Water District and others in the Inland Empire, San Bernardino and Riverside — <u>the project</u> aims to increase precipitation levels anywhere from 5% to 15%.

Officials estimated in a 2020 feasibility study that, on the southwest end of the watershed in Orange County, cloud seeding could add .59 inches of seasonal rainfall, amounting to nearly 450 additional acre-feet of natural streamflow, or a 9.7% increase.



Cloud seeding relies on automatic high-output ground seeding (AHOGS) systems that release silver iodide particles through flares placed in high altitudes.

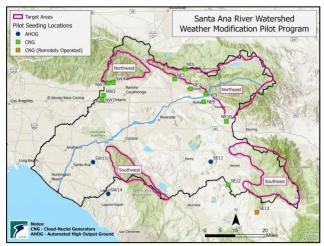
Cloud seeding involves releasing particles of silver iodide into the air during a storm event — in this case, not from airplanes but from about 15 ground-based seeding systems installed on high ridges to the north and south of the watershed's natural basin.

Issued from flares, in which acetone combusts to help the particles take flight, the floating silver iodide acts as a nucleus or form, to which supercooled water molecules in the air can attach. Its snowflake-like structure encourages molecules to condense into water droplets or ice inside a cloud system.

Two such installations in remote but protected locations in Lake Forest and the city of Orange make up the southwest component of the project, operated by Utah-based contractor North American Weather Consultants. Particles from these stations will ride air patterns that jet from the Pacific toward the northeast rim of the watershed.

SAWPA General Manager Jeff Mosher said the basic idea is to augment the naturally occurring precipitation flowing into the 2,650-square-mile watershed's dams and basins, replenishing the overall supply, which serves 6 million residents across four counties.

"This doesn't create clouds," he said Wednesday. "What it does is help ice and snow formation in the existing storm clouds. It enhances that process, so more precipitation falls."



A map explains aspects of the Santa Ana River Watershed Authority's Weather Modification Project. (Courtesy of SAWPA)

The Nevada-based Desert Research Institute will compile rainfall data and mathematically determine the increase in precipitation in four target areas around the watershed during each rainy season of the project's four-year span to see where the water ended up. Seeding would be paused, via remote control, during high rain events to prevent flooding.

Although the idea of releasing chemicals into the atmosphere sounds environmentally questionable, data compiled from areas where cloud seeding has long been employed indicate the process produces minute amounts of silver iodide and carbon dioxide, the latter being a byproduct of vaporized acetone.



A ground-based seeding system mixes silver iodide particles and acetone, which is vaporized and released into the atmosphere. (Courtesy of SAWPA)

"Because silver iodide is so inert, it doesn't have much of an impact on the ecology or on public health," he said. "In Santa Barbara, where it's gone on for 30 or 40 years, there's been no increase in silver iodide backup in the soil where they cloud seed."

The cost of SAWPA's four-year pilot is roughly \$1.2 million, roughly half of which was funded by a grant from the California Department of Water Resources, according to Mosher. The remainder was split evenly between the agency's five member districts.

Once the program is complete and the numbers have been crunched, districts may choose to extend or expand their participation and financial involvement or opt out altogether.

Bruce Whitaker, who serves on the <u>Orange</u> <u>County Water District</u> Board of Directors and chairs SAWPA's Board of Commissioners, said the prospect of enhancing local water recovery is appealing.

"In most years our potential for rain is limited to several weeks, at most, so our ability to maximize the potential capture during that short rainy season is very significant," he said Thursday.

If cloud seeding brings more water in the county's groundwater basin, agencies who use those resources may eventually be able to rely less on imported water from regional Metropolitan Water District stores — obtained from Northern California's diminishing sources — at a fraction of the cost.

"The potential cost savings are really very large," Whitaker said. "Northern California doesn't like to ship their water to us in Southern California. In years of drought they keep reducing the amount they give us. To be resilient, we have to create more water sources."

Mosher said making more rain and snow would not only increase regional water reliability today but help build better climate resilience in the years ahead.

"The main objective is reduced reliance on imported water and becoming more reliant on locally produced water," he added. "If it provides us with a 5%, 10% or 15% [increase] that's more water to store in aquifers — it's a hedge against climate change."

Writing Your Story for INCOMING

(Ongoing repeat solicitation)

Ideas for your story:

- Think about what you appreciated about the Vietnam experience. There is surely a means to segue into that with very little reflection on the negative aspects of war.
- What did you appreciate about the Vietnamese people during your deployment?
- Can you steer away from the bad stuff and reflect on the best experience you had in the Nam?
- Surely you had a close buddy and you supported each other. Maybe there is a story in that.

- What really got you through the day-to-day anxieties and fears? There might be a positive recollection in that regard.
- How did your experience instill in you a sense of patriotism that you possibly express every day of your life.

So far we have heard from Ruud, Epps, Chaix, Hamer, Chuck Holmes, current Marine LCpl. Jesse Hernandez, Kent Hawley, Mike Laborico and Dave Johnson. (Thank you!)

No writer needs to dwell on the negatives of war. Each of us who was there lived the negatives, and all of us are better people for having served, especially when we look at how we matured as a result of our experiences. Each of us has derived a sense of being and an energy that is different from what it might have been had we not been sent across the pond.

Do share with us, in your own words, something of that chapter of your life. And, thank you for your service.

Forward your story to Bart Ruud at bruud45@gmail.com or hand deliver to Bart.

VVA 535 Member Biographies

Do you know
Now, our readership and Brotherhood knows better than we might ever
have known this man, this leader.
Who will be next to share?

Application for Membership

VIETNAM VETERANS OF AMERICA, INC., CHAPTER 535

P.O. Box 37, Grass Valley, CA 95945

Membership is open to U.S. armed forces veterans who served on active duty (for other than training purposes) in the Republic of Vietnam between February 28, 1961, and May 7, 1975, or in **any duty location** between November 1, 1955 and May 7, 1975.

Name:	Date of Birth:
Mailing Address:	
City:	State: Zip:
Home Phone: ()	Cell Phone: ()
Email Address:	Gender:
(Optional) Chapter Number: _	Sponsor:
I am already a VVA member and	I I want to become a Life Member. My VVA Number is
Membership : Individual Life	Membership: \$50. (Effective Oct. 20, 2018)
ATTENTION New members: this application and dues payr	You must submit a copy of your DD-214 form along with nent.
Payment Method:Check	Money OrderCredit Card (Visa, MasterCard, AMEX, Discover)
Credit Card Number	Exp. Date
Signature	
Return your completed application, pa	

Vietnam Veterans of America, Inc., Chapter 535 P.O. Box 37 Grass Valley, CA 95945

Revised: January 2022

February

2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				NCCVC VVA-535 Board & General Meeting	2 Groundhog Day	3
4	5	6	7	8	9	10
11	12	13	Ash Wednesday Valentine's Day	15	16	17
18	19 President's Day	20	21	22	23	24
25	26	27	28	29		

March

2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7 VVA-535 Board & General Meeting	8	9
10 Daylight Savings Time begins	11	12	13	14	15	16
17 St. Patrick's Day	18	19 First Day of Spring	20	21	22	23
24 Palm Sunday	25 Medal of Honor Day	26	27	28	29 Good Friday National Vietnam War Veterans Day	30
31 Easter Sunday						

April

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 April Fool's Day	2	3	4 NCCVC VVA-535 Board & General Meeting	5 CSC Visalia	6 CSC Visalia
7 CSC Visalia	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

May

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	NCCVC VVA-535 Board & General Meeting	3	4
5	6	7	8	9 Ascension Day	10	11
12 Mother's Day	13	14	15	16	17	Armed Forces Day (USA) Nevada County Airfest
19	20	21	22	23	24	25
26	27 Memorial Day (USA)	28	29	30	31	