NDIA

National DEFENSE

SPECIAL OPERATIONS OUTLOOK

SPECIAL REPORT

U.S Special Operations Command "is focused squarely on the implementation of the national defense strategy," SOCOM Commander Army Gen. Richard Clarke said in his first speech at the Special Operations Forces Industry Conference (SOFIC) in Tampa, Florida, shortly after taking the reins of the command in 2019.

Next-generation intelligence, surveillance and reconnaissance dominance, next-generation mobility, precision fires and effects, data and networks and biotechnology are among the command's top priorities as attendees at the show learned.

Defense Dept. photo

One year later, SOCOM will take part in the first Virtual SOFIC, which was set up by the command and the National Defense Industrial Association to protect attendees from the COVID-19 virus.

Training and readiness is expected to be a major theme.

"The foundations of [SOCOM] readiness is our superior assessment, selection, training, education and talent management," Clarke said.

As the articles in this eBook show, SOCOM is eager to take advantage of high-fidelity training as well as trends in advanced computing. The command could utilize data science to anticipate trends in the recruiting environment and help manage readiness, Clarke added.

Air Force Special Operations Command is also interested in light-attack aircraft for a potential armed overwatch program, and manufacturers are eager to show the command their platforms.

And finally, *National Defense* traveled to Cannon Air Force Base in New Mexico, to learn about AFSOC's deployed aircraft ground response (DAGRE) teams.

Take the time to read how these "Dagger" teams became known as the command's "pointy tip of the spear."

Stew Magnuson
Editor in Chief
National Defense

Table of Contents

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Special Operations Budget Outlook 2021

BY JON HARPER

U.S. Special Operations Command could see reductions in modernization investments in the coming years as the Pentagon focuses on great power competition.

President Donald Trump's fiscal year 2021 budget request included $2.3 billion for procurement for SOCOM, a reduction of about 12 percent compared to the enacted amount for 2020, and 26 percent less than what it was allocated in 2019, according to budget documents.

It also included $732 million for research, development, test and evaluation, about 14 percent less than the $852 million it received in 2020. However, that would still be well above the $613 million it received for RDT&E in 2019, providing more money to develop next-generation systems.

"The FY 2021 budget for [Special Operations Forces] investments procures, modernizes, and/or modifies SOF-peculiar aviation, mobility, and maritime platforms, weapons, ordnance, and communications equipment," the Pentagon said in its budget overview. "The FY 2021 budget sustains SOF growth and readiness, and increases lethality through modernization and recapitalization, and investing in new technologies."

Special Operations Command declined to provide topline numbers for projected modernization investments over the course of the future years defense program, saying the information was "pre-decisional."

Steven Bucci, a defense analyst with the Heritage Foundation and a former Special Forces officer, said SOCOM might see its budgets trimmed in the coming years as the Pentagon's main focus turns toward great power competition with China and Russia and away from counterinsurgency and counterterrorism.

"It's kind of inevitable," he said. "The world has changed."

However, there are still counterterrorism and counterinsurgency challenges out there, he noted, and SOF also has a role to play in great power competition.

"Now we're going to have to have a lot more scrutiny so that the equipment buys and equipment usage that we come up with is going to have to be useful in both fights," Bucci said. "That's the only way SOCOM is going to maintain the capability that it needs to do both" missions.

SOCOM's total funding request for 2021 was $13 billion — about $700 million, or 5 percent, less than was enacted for 2020.

Requested procurement funding for 2021 includes: $211 million, an 18 percent increase, for rotary-wing platform upgrades and sustainment; $34 million, a 70 percent increase, for unmanned intelligence, surveillance and reconnaissance systems; $243 million, a 4 percent bump, for precision strike packages; $163 million, a 14 percent boost, for AC/MC-130J gunships; and $101 million for a new Armed Overwatch aircraft program.

Other procurement requests include: $21 million, a 64 percent cut, for underwater systems; $292 million, a 29 percent decrease, for ordnance; $111 million, a 5 percent reduction, for intelligence systems; $33 million, a 71 percent cut, for tactical vehicles; and $293 million, a 13 percent decrease, for warrior systems.

SOCOM spokesman Navy Lt. Cmdr. Tim Hawkins said the command now has six top capability areas where it is focusing its science-and-technology efforts. They are: biotechnologies/human interface; hyper-enabled operator; network and data management; next-generation effects/precision strike; next-generation mobility and advanced technology solutions for air, ground and maritime forces; and next-generation ISR and tactically relevant situational awareness.

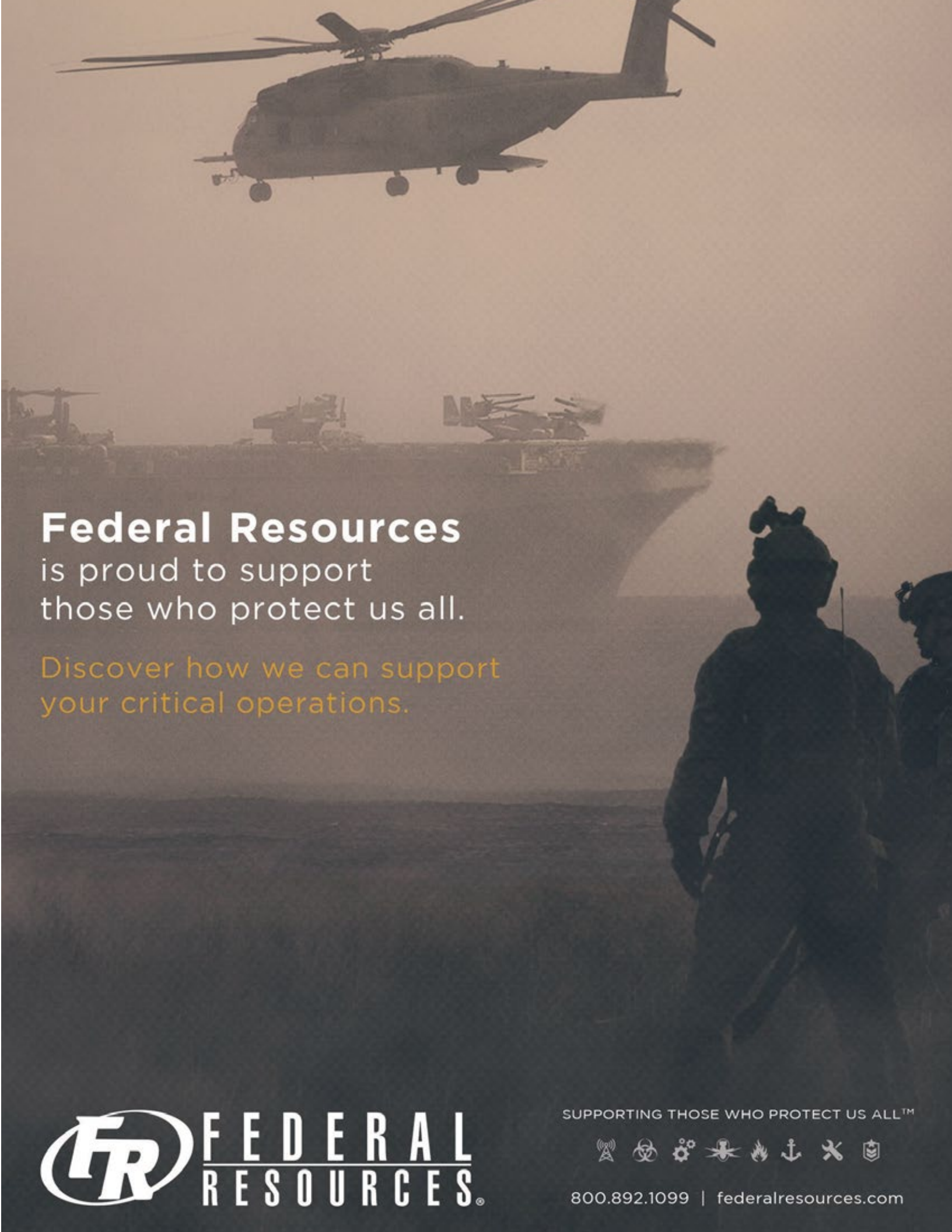
The hyper-enabled operator effort "focuses on improving the speed and quality of operator decision-making by providing the benefits of advanced data analytics at the edge in contested and denied environments," Hawkins said in an email.

Network and data management initiatives will help ensure connectivity for communications and navigation in contested or denied areas, he noted.

Next-generation precision strike efforts are focused on "enhancing SOF lethality and ensuring dominance in denied and future operating environments by developing technology, scalable effects weapons, and cyber/electronic attack effects with increased range," Hawkins said.

Next-generation ISR and situational awareness initiatives will include the development of cutting edge, autonomous systems that will reduce operators' cognitive load and support "rapid, on-the-move ability to learn and communicate knowledge in all domains," he added. ND

Air Force photo by Airman 1st Class Joseph P. Leveille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DAGRE TEAMS

AFSOC'S POINTY TIP OF THE SPEAR

BY SCOTT R. GOURLEY

In its recently released "Strategic Guidance" document, Air Force Special Operations Command leadership articulates the principle that "AFSOC's human capital is our competitive advantage."

One set of tactical organizations where that human capital stands in the spotlight are AFSOC's deployed aircraft ground response element, or DAGRE — small teams within the Air Force's security forces that receive specialized training to support the command's assets and personnel in austere locations around the globe.

The DAGRE program was implemented in 2008, and reflected the realization that security for AFSOC assets was not being properly protected under the previous force protection plan set forth by anti-terrorism officers.

Prior to the implementation of DAGRE — pronounced "dagger" — most of the command's platforms were expected to be protected by users, who were generally the same personnel operating and maintaining the asset. However, planners assessed that security could not be just an extra duty for pilots and maintainers. A dedicated, highly trained team of security specialists was needed so that aircrew members and other personnel could give the utmost attention to their critical primary duties.

The implementation and expansion of the DAGRE program over the last decade has reflected the need to maintain security as a high priority for transitioning AFSOC aircraft and personnel.

DAGRE operations currently fall under AFSOC headquarters. Units in the Continental United States belong to a security forces squadron while at home station but continue to meet the requirements of headquarters and supported overseas units while deployed.

Although unable to discuss units' specific "deployed structure" due to operational security issues, members of one DAGRE team associated with the 27th Special Operations Wing at Cannon Air Force Base, New Mexico, recently explained to *National Defense* that the structure of DAGRE teams generally includes a non-commissioned officer in charge, serving as team leader, along with an assistant team leader and "remaining team members."

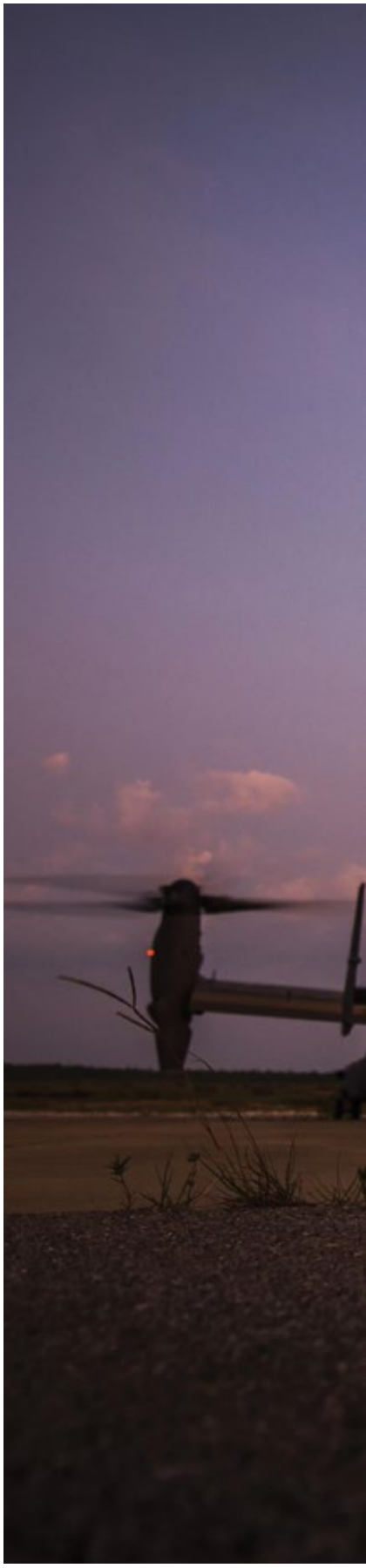
According to a team leader, Technical Sgt. Cory Irvin, DAGRE is a specialty within Air Force security forces, or military police.

The program is open to all security forces airmen within the ranks of senior airman to master sergeant who meet the AFSOC physical and professional standards. Once qualified, team members have the ability to stay within the DAGRE sections for an extended period of time. Alternately, they can also go back to the broader security forces community.

The "DAGRE pipeline" is located at Hurlburt Field, Florida, under the 371st Special Operations Combat Training Squadron. While at Hurlburt, members learn different skill trades, including tactical casualty combat care, defensive driving, tactical communications, tactical security details, land navigation and a wide variety of firing courses. Additional training courses and qualifications that DAGRE personnel are able to obtain range from air assault to certain leadership courses like Ranger school.

"As a DAGRE team leader, I look for individuals that are highly competent, critical thinkers who have great communication skills and have the flexibility/adaptability to execute any task that may be required in a multitude of environments," Irvin said. "They must be skilled shooters who always increase their abilities and strive for perfection. They must be physically fit, since all DAGREs must maintain above a 90 percent [Air Force physical fitness test] score to be considered deployment eligible."

Physical fitness not only enables DAGREs to endure the strains and pressures of the job, but a physically fit team presents a psychological security deterrent, he added.



Air Force photo by Senior Airman Christopher Callaway

"Ultimately, a security forces member who wants to be DAGRE needs to do so for the right reasons. With the high tempo and strenuous training, the member must be selfless and a great team player who is always looking out for the men and women they work with and protect," he said.

Irvin reiterated that the DAGRE core mission is security, elaborating, "That equates to protecting AFSOC aircraft or personnel on the ground safely by ensuring proper force protection measures are met when aircraft are transiting through austere locations."

DAGRE teams can be tasked to perform fly-away security, which involves protecting aircraft on the ground. While there, they also can perform "site security and conduct airfield threat assessments for future planning."

Asked to elaborate on some past scenarios, one team member said some recent fly-away security missions have involved "protecting high profile individuals" in multiple countries as these members traversed from different airfields. Additionally, in austere locations, they noted that DAGRE teams have previously provided security for detainee transfers and have taken part in voting ballet transfers during critical elections within some countries.

Acknowledging the broad skill sets required for such diverse operational profiles, Irvin said that team proficiency is maintained by the fact that DAGREs are in a state of constant training.

"One of the biggest differences between DAGRE and conventional security forces is the required need of ever-revolving training cycles that enable us to keep our core skill set that consists of mandatory evaluated tasks current," he said. "Through communication with [AFSOC headquarters], a basic framework is developed of what future operations may exist and training is constantly tailored to meet the needs of the area of operations that we will be in."

The training also includes participation in a wide range of exercises, including multiple Special Operations Command humanitarian assistance/disaster relief events, combat search-and-rescue scenarios, and joint services recovery operations.

Recent exercise involvement has included the Jaded Thunder joint service exercise, Exercise Flintlock in Africa, and the annual Emerald Warrior — a Defense Department event focusing on irregular warfare and designed to hone special operations forces air and ground combat skills.

Describing team activities and host nation interaction in "the deployed environment," Irvin said, "It is essential for the DAGRE team leader to develop priorities of work and work-rest cycles for his/her team," adding that "assessing the level of host nation security available as well as building rapport with the host nation's forces enables a more tailored security posture."

A host nation's security forces might have the capability of providing physical barriers — such as fencing, jersey barriers, ropes or cones — or lighting to the team, which could enhance and extend the DAGRE's security posture, he said.

In terms of their own equipment, DAGRE teams use a variety of materiel solutions not necessarily found in broader Air Force inventories.

"DAGREs are outfitted to be more of a lighter, leaner and lethal asset," said one team member. "The main goal is to continuously improve DAGRE's equipment based off evolving technology and modernized mission changes. Communications equipment will include multiband handheld radios. We also use night vision equipment. As for mobility platforms, DAGREs have been known to operate off-road vehicles and light armored vehicles."

Irvin highlighted the teams' impact as potential force multipliers.

"DAGREs are experts at their trade and are able to adapt to any situation that might arise," he said. "Being flexible has always been a key mindset within DAGRE operations. With security always being a necessity, DAGREs bring a unique perspective and have the ability to work with all special operations forces."

Meanwhile, recent incidents around the world, like the January 2020 Islamist extremist attack on a small military base in Africa used by U.S. and Kenyan troops, is likely to prompt a greater appreciation in some circles for the teams and their capabilities.

DAGREs are responsible for conducting defensive operations, enhancing force movement, providing operational force protection, providing security for operational forces, sustaining deployed forces and protecting the force, Irvin said.

"They are 'tip of the spear' security forces subject matter experts that bring anti-terrorism/force protection advisement to deployed mission commanders," he said. "Their ability to tailor security to any environment and mission set is second to none and would be of great benefit to any SOF command across the Department of Defense."

Asked how he envisions the DAGRE program might evolve over the next five years, Irvin said, "I see the program focusing their training to near-peer adversaries. As the demand for DAGREs grow, I also see the selection and training process becoming more metrics based and selective in nature to ensure that quality DAGREs continue to be developed in line with the SOF truths that 'quality is better than quantity' and that 'SOF can't be mass produced.'" ND

AFSOC photo

Air Force Special Ops Command And Great Power Competition

Air Force photo

BY JON HARPER

NATIONAL HARBOR, Md. — Air Force Special Operations Command has spent the past two decades fighting low-tech insurgents in the Middle East. But the organization is nevertheless primed to take on advanced adversaries like China and Russia, according to its top officer.

Military leaders have leaned heavily on special operators during the post-9/11 wars. However, the 2018 National Defense Strategy called for the Pentagon to pivot its focus from counter-insurgency to great power competition and the possibility of a large-scale war against peer competitors. In this new era, there will still be an important role for special ops, said Lt. Gen. James Slife, commander of AFSOC.

"Over the course of AFSOC's history, most people have tended to put the emphasis on the SOC part of AFSOC. They tend to identify us as the Air Force component of U.S. SOCOM. But frankly, service components are always best for their combat command when they're closest to their parent service. And so at AFSOC, one of the things that I want to do is put the emphasis on AF," he said Sept. 18 during a panel at the Air Force Association's Air, Space, Cyber conference at National Harbor, Maryland.

Air Combat Command Commander Gen. James "Mike" Holmes noted that other nations have developed advanced sensing and long-range precision fires capabilities that the U.S military used to have a monopoly on — a development which will change the future operating environment.

"As you talk about fighting in a contested environment [and] power projection forward, there are places where AFSOC can contribute capabilities to theater air component commanders and joint force commanders that would be useful based on our experience and our organizational competencies," Slife said.

The command has a great deal of practice deploying small forces with a light logistics footprint in very austere areas, and moving around quickly on the battlefield, he noted.

The organization can conduct missions across the spectrum of conflict with varying degrees of visibility and attribution, he added. Those are skill sets that can be brought to bear against advanced foes.

AFSOC forces are already exercising routinely with Air Combat Command and regional combatant command air components, and strengthening organizational ties across the force, he noted.

While the ability to operate stealthily and gain access to critical locations is useful in the fight against violent extremist groups, it's even more applicable for a competition with other nation states, Slife said. However, other commands may not be fully aware of the capabilities that AFSOC can bring to the

table, he added.

"What we need to do is kind of open the curtain a little bit on that to the warfighters like these [regional commanders] on the stage so that they understand what capabilities are available to them through the forces that AFSOC provides," Slife said.

The command can throw a heavy punch when it comes to firepower, he noted, citing modifications made to C-130s as an example. The AC-130 gunship is a heavily armed variant of the C-130 cargo aircraft, and carries a wide range of weapons, sensors and other equipment for attack operations. That type of platform could employ long-rang precision fires against great power adversaries, Slife said.

"We've built an open architecture battle management system [on some of the command's C-130s] that allows us to add any munition you want, any sensor onto the platform to employ lethal fires. And so it's not a big step to go from where we are today to go to ideas like palletized munitions and other abilities to use a very large cargo box to provide high capacity precision fires," he said. "This is something that I'm very interested in pursuing."

AFSOC is keeping an eye on what the Air Force is doing to develop hypersonic weapons, which can travel at speeds greater than Mach 5 and are highly maneuverable, Slife told *National Defense*.

"I'm interested in it in the sense that I'm interested in everything that is in the realm of the possible," he said. However, the command has not yet made it a formal requirement to add that type of capability to its aircraft, he noted.

"As soon as I say I want a hypersonic weapon on a C-130, it closes a bunch of doors for other things that might be available. Or as soon as I say I want a cruise missile or, you know, a ballistic missile or something that can be deployed from the cargo compartment, it really starts closing doors. And so for me, I'm more interested in what's in the realm of the possible that we can do here and now, innovate, iterate and experiment. But … hypersonics is certainly part of that realm of things," he said.

AFSOC can leverage Special Operations Command's reputation for rapid acquisition practices to serve as a kind of test bed or "pathfinder" for technologies and concepts that could later be scaled and employed across the Air Force writ large, he said.

Holmes said Slife's ideas are currently being looked at by leaders of the Air Force Warfighting Integration Center.

Experimentation and prototyping is important, but AFSOC wants to avoid the trap of pursuing technologies that are too exquisite to be fielded in a timely manner, Slife noted.

It would be nice to have a teleportation machine equipped with an invisibility cloak that can sequence DNA from low-Earth orbit, he joked. "But at the end of the day we're going to spend the next 20 years chasing that thing. What I would really rather do is field whatever is available now and put it in the hands of operators," he said. ND

AFSOC's Pursuit Of an Armed Overwatch Aircraft

BY YASMIN TADJDEH

In October of 2017, an infamous ambush near the village of Tongo Tongo, Niger, left four American and four local soldiers dead after taking enemy fire from militants from the Islamic State in the Greater Sahara.

The tragic event was "emblematic of the type of environment where we have people on the ground that need to be supported," said Lt. Gen. James C. "Jim" Slife, commander of Air Force Special Operations Command.

AFSOC is now pursuing a new fixed-wing aircraft program, known as Armed Overwatch, to provide a capability that could change the outcome of that type of ambush scenario in the future, he said.

The command is looking for a deployable and sustainable manned aircraft system that can fulfill close-air support; precision strike; and intelligence, surveillance and reconnaissance missions in austere and permissive environments, according to a SOCOM industry day announcement released in February.

While SOCOM has the acquisition authority for the aircraft, Air Force Special Operations Command is drafting and providing input into the program's requirements, Slife said during a media roundtable at the Air Force Association's annual Air Warfare Symposium in Orlando, Florida.

"They may change that, they may modify it," he said. But direction from leadership, including SOCOM Commander Gen. Richard Clarke, "up to this point has been to really kind of take the cue from AFSOC."

The command has been pondering what is required to fill capability gaps, Slife said. "What SOCOM needs is a platform that it can operate from austere regions and provide surveillance and precision fires in support of small disaggregated ground teams."

Special Operations Command has been toying with the idea of an Armed Overwatch platform for a decade or so, Slife said, but the concept really started to gain steam over the past three years.

"When Gen. Clarke took command in the early spring of last year, 2019, this was one of the things that he brought to the table," he said.

Driving SOCOM's vision for the aircraft is great power competition with Russia and China, which the National Defense Strategy identified as top threats, he said. High-end platforms that have aided special operators in counterinsurgency missions may be needed to take on advanced adversaries.

"As the larger joint force pivots towards great power competition and so forth, … we probably won't enjoy the same support necessarily for those small disaggregated SOF teams because there will be higher priority things that the airplanes that have been performing this kind of mission" need to do, Slife said.

As Special Operations Command continues to battle violent

Air Force photo by Senior Airman Dennis Spain

extremists, it needs an affordable aircraft that can give its operators the right amount of support, he said.

"Using F-22s to support small disaggregated SOF teams is probably not a cost-effective way to do that," he said. "So, what are the other ways that we can do it?"

SOCOM has been mindful to try and not be overly descriptive about its requirements for the platform because it wants industry to come forward with its best ideas, Slife said.

The command currently uses the U-28 Draco for manned ISR missions. While that aircraft has been effective, SOCOM will at some point move away from the U-28 to the Armed Overwatch system, he added. Commandos will still need close-air support during the transition.

"We use things like AC-130 gunships or A-10s or F-16s or a host of other platforms that can employ these precision fires. And so, the question is: 'How do we find a low-cost, simple airplane that can ... provide capability in both of these areas in a single airplane from a pretty austere operating footprint?" Slife said.

SOCOM envisions an adaptable system. One day it might be used heavily for ISR missions similar to the U-28. Another day it might perform like a light-attack airplane, he noted.

"The ability to kind of tailor the ... capability of the airplane based on what the mission requires is kind of a key part of what we're going to be looking for," he said.

The command is also thinking about the type of pilots it will need for the new aircraft, with fighter pilots potentially making the list.

"The question of how you provide precision fires … matters because if your idea is that the way you're going to provide that looks a little bit like the way a fighter is employed — strafing, dive bombing, high-G maneuvering, that kind of thing — then you might need a crew force that … has some fighter pilot expertise in it," he said.

However, until the command figures out what the platform will look like, Slife said there is no way to know if SOCOM will need to recruit fighter pilots.

"My intent would be to not exacerbate the Air Force's fighter pilot shortage by fielding something that requires a high degree of … fighter pilot expertise," he said. "I'm open to it, but … I don't want to create an additional demand signal that the Air Force would have to fill."

The command plans to purchase 75 Armed Overwatch aircraft, Slife said. That number is based on SOCOM's concept of force presentation, how many airplanes will be deployed at small sites and the amount needed to train the force.

"It's really just kind of a math problem as we look at ... how do we generate the force on a repeatable basis?" he said.

In President Donald Trump's fiscal year 2021 budget request, Special Operations Command asked for $101 million in procurement funding for Armed Overwatch, which would cover the purchase and fielding of five initial aircraft as well as initial spares and required support equipment. Over the future years defense program, it plans to spend $893 million to buy the planes.

The service also asked for $5 million in research, development, test and evaluation funding in fiscal year 2021 for the program, which would go toward development, integration, prototype demonstrations, testing of SOF-unique capabilities and air worthiness efforts, according to budget documents.

SOCOM plans to pursue technologies via rapid prototyping and rapid fielding mechanisms, when appropriate, and is targeting flight demonstrations in fiscal year 2021, according to budget documents.

"The demonstrations will inform a best value decision for [a] follow-on production contract," the documents said.

Following a prototype demonstration facilitated by other transaction authority, the command plans to issue a follow-on indefinite-delivery/indefinite-quantity contract with a five-year base ordering period and a two-year option ordering period for 75 aircraft with associated support, according to the SOCOM industry day announcement.

Operational test awards are scheduled to occur in the fourth quarter of fiscal year 2020, said Air Force Reserves Maj. Amanda Reeves, chief of operations for AFSOC's public affairs department. A timeline for procurement will be dependent on the platform selected, she said in an email.

Slife said he was confident the program was fully funded in the president's budget request.

"We think there are a host of vendors that have platforms that would allow us to get to a 75-airplane fleet within the funding that we have available," he added.

Special Operations Command held an Armed Overwatch industry day in early March, just missing a large swath of event

cancelations prompted by the COVID-19 pandemic.

Representatives from 50 different companies attended, according to Navy Lt. Cmdr. Tim Hawkins, a spokesperson for the command. As of late March, there had been no notable impacts to the program due to the emergence of the novel coronavirus, he added.

It is expected that companies that participated in the Air Force's OA-X light attack experiments — which the service recently declined to move forward with in a program of record — will be interested in Armed Overwatch, said Richard Aboulafia, vice president of analysis at the Teal Group, an aerospace and defense market analysis firm based in Fairfax, Virginia. They include companies such as Sierra Nevada Embraer, Textron/Beechcraft and Air Tractor.

Aboulafia was a staunch critic of the Air Force's light attack effort, saying such platforms lacked survivability.

"There's a reason that absolutely no country, no air force in the developed world operates these planes, not a one," he said. Such aircraft — which fly slowly at low altitudes with light armor — make for easy targets, he added.

The countries that use such aircraft are typically ones that cannot afford anything better, Aboulafia said.

However, an Armed Overwatch platform could possibly come in handy for Special Operations Command, he said.

"You never know when you might find yourself in Chad and there's that mission that maybe is a little too distant for a helicopter and maybe a bit more target rich than you could deal with with drones," he said.

Such aircraft could only be employed in environments with very minimal air defenses, and where adversaries had no man-portable, anti-aircraft systems or anything heavier than 12.7 mm weapons, he said.

While 75 aircraft is "a stretch," it's unlikely that SOCOM will have trouble acquiring the platforms, Aboulafia said.

The command is known for relatively rapid acquisitions compared with other elements of the Defense Department.

The "procurement mechanisms at SOCOM are different and easier and they can generally get a small number of anything they want," Aboulafia said. If "you look at what's in their menagerie, it's pretty extraordinary and money isn't much of an issue. Procurement rules aren't much of an issue."

The aircraft themselves should be inexpensive, costing about $12 million to $14 million per plane, he added.

To increase survivability, it is feasible that SOCOM could look into adding an autonomy package to the aircraft, Aboulafia said.

"Some sort of mechanism that allowed people to operate it via remote control … would be good," he said. "It's going to take some time. … It might be a 10-year story, but it's conceivable." ND

SOCOM Maps Out Artificial Intelligence Strategy

BY CONNIE LEE

TAMPA, Fla. — Advancements in technology are spurring Special Operations Command to examine how it can improve its artificial intelligence capabilities on a data-driven battlefield.

"We really wanted to focus on growing the discipline," David Spirk Jr., the organization's chief data officer, said during a speech at the Special Operations Forces Industry Conference hosted by the National Defense Industrial Association. This "applies to people, applies to technology and applies to the culture and those changes in the formation to get there."

To do this, the command is crafting a new artificial intelligence and machine learning strategy to inform its future spending, he said. These advancements are expected to improve technologies across the core military services as well, he noted.

"Data-driven technologies can be used in every function that we have," Spirk told National Defense on the sidelines of the conference. "We hope to demonstrate the capability and then allow that to just grow in the services where, naturally, it should."

The Defense Department earlier this year released an AI strategy geared toward advancing the technology to counter peer competitors such as Russia and China.

SOCOM's roadmap is being created using ideas such as Jeff Bezos' strategy for developing Amazon, trends in industry and lessons learned through the Joint Artificial Intelligence Center, Spirk said during his speech.

The command is "taking those data principles and recognizing that it's really about freeing your data — it's about open [application programming interfaces]," he said. "It's not about closed block technology or systems. We've modeled our data strategy out of that."

The blueprint will help SOCOM determine asset allocation for AI as it builds its program objective memorandum for fiscal years 2022 to 2026, Spirk said.

"We're going to start the crafting of a real roadmap," he said. "This will help the command … talk about the investments we need to make and the resources that we're going to need."

iStock illustration

All of the SOF components will gather at a symposium in September to begin developing the new strategy, he noted. The meeting will be limited to the military, which will first establish its goals for investing in AI and machine learning before reaching out to academia and industry for input, Spirk said

"We're not bringing industry and academia in there yet," he said. "What we're going to do is we're going to establish our requirements, we're going to set what that roadmap is, and then we'll probably have a follow-on [event] where you can talk to everybody about what our conclusions were and the direction that we're going."

SOCOM has not decided if the entire report will be publicly releasable, he added.

The "crux" of the roadmap will be based on a "three-six-five" strategy that has three lines of effort, six focus areas and five collective outcomes, Spirk said.

The lines of effort include having an AI-ready workforce, AI applications and AI outreach, according to his presentation slides.

The command has pilot projects in the works that are "maturing to the point that we're ready to showcase them," he noted. At the end of the first three years, the goal is to be able to measure the progress it has made in this technology, he noted.

"We'll understand programmatically where we need to put resources, where we need to invest, where we might need to divest and the opportunity to transition," he said.

SOCOM needs to have personnel that are focused on artificial intelligence and machine learning initiatives, he noted. The command must show that there is a financial benefit to working in these fields "and let the nerds get promoted," he said.

"The modern AI-ML workforce is really where I worry about the delivery and sustainment of some of these initiatives," Spirk said. "We need to talk about how do we make this a career opportunity to continue developing what really amounts to ... almost a language-type skill."

The six focus areas of the strategy will be: perception and action; planning and maneuver; communication resilience and cyber protection; recruiting, training and talent management; predictive maintenance, logistics, planning and forecasting; and vendor contract and budget management, according to the slides.

Technologies within the focus areas could potentially be combined into an algorithmic warfare cross-functional team similar to the one executing Project Maven, a Defense Department initiative focused on using AI and machine learning to sift through drone video footage and identify items of interest to warfighters, Spirk said.

Technologies that SOCOM is eyeing include "artificial reality," intelligence, surveillance and reconnaissance capabilities, and identity management, according to the presentation.

"You can see how we're beginning to fuse those technologies, fuse those data sets to build smart systems that are capable of improving our operators' capability to execute successful operations at a rate of precision and speed that has never been accomplished before," Spirk said.

The collective outcomes that the strategy aims to achieve are: established cloud-empowered data and services; ubiquitous use of agile practices in unclassified and classified software development environments; normalized acceleration of procurement; a recognized talent acquisition, development and coaching pipeline; and a codified transition plan to a sustained digitally-enabled future, the presentation stated.

When operating in a data-driven battlefield, the command will not be able to rely on having large amounts of information about an adversary, Col. Mike McGuire, director of the combat development directorate for SOCOM, said during a panel discussion. Instead, the command will need to focus on predicting the adversary's next move in order to react faster, he noted.

"When we look at things at the tactical level, how can we predict … and mitigate those risks that come with acting early?" he said. "I don't think we're ever going to win if we all wait for perfect information. … We want to get the right information to the right person at the right time and in the right for-

mat so they can actually take some kind of action."

The command is also examining how it can leverage artificial intelligence to improve how it trains its warfighters, Spirk noted. AI could help SOCOM recruit potential candidates as well as improve the performance of its operators, he said.

"How do we tailor our training so that we can maximize their effort and grow them at a faster rate and hold them in the force?" he said. AI can also be used to measure performance, he noted. "This is where we can turn to technologies that already exist in the sports world, that already exist in some of our medical professions."

Additionally, data-driven technology could be used to predict maintenance issues before they arise, he noted. The command is currently experimenting with this idea using the 160th Special Operations Aviation Regiment and plans to expand that work to the Air Force Special Operations Command's fleet of CV-22 Ospreys, he said.

"I think we're going to start to make some pretty good progress against that over the coming 12 months," he noted.

All special operators will need to understand how data can be used on the battlefield, McGuire noted. Similar to how commandos must know basic skills such as putting on a tourniquet, each one must learn how data applies to the current fight, he said.

"It doesn't take a force full of PhDs," he said. "It just takes everybody to have a little bit of understanding quickly."

This would reduce the need to outsource tasks such as structured query language databasing, which is used to retrieve data and interface with databases, he said.

"Fifteen years ago we already had a decision point within our organization where you can either hire some company to build an SQL database for you or you could teach your people to do SQL databasing and own it forever," he said.

To develop and explore new technologies, the command is building a digital data mission management team at SOCOM headquarters at MacDill Air Force Base, Florida, Spirk said. Professionals will be brought in to either manage programs or work on the technologies themselves, he noted.

"This is where we'll be able to programmatically begin applying and advocating for policies and the technologies that currently exist," he said. "But we need to infuse [those] inside our own workflows and the headquarters."

He is also working with SOCOM Acquisition Executive Jim Smith to draw up requirements for future technologies and "to ensure that everything we're bringing in now … works together and isn't the closed, old block technology," Spirk added.

The command will need to examine the time, expense and complexity associated with data technology gaps, which will help leaders decide if they can be filled in-house or if they need to outsource work to industry, he noted. SOFWERX — the command's initiative that fosters technology experimentation with nontraditional partners — will be used to bring data experts together, he said.

"What we've determined is, we don't need to be everywhere. What we need to make sure is that we're connecting everywhere," he said. ND

SOCOM's Training and Simulation Wish List

BY CONNIE LEE

ORLANDO, Fla. — Special Operations Command wants to work more closely with the conventional force on simulation technologies, according to service officials.

"As we fight in the synthetic environment — as well as the real live battle space — we have to be able to connect and we have to be able to discern where our issues are," Randy Jackson, SOCOM chief of mission preparation, said Dec. 5. "There's very few operations that SOF conducts only within SOF without the assistance of the conventional force."

The comment came during a panel at the annual Interservice/Industry Training, Simulation and Education Conference in Orlando, Florida, about how the military services can be interoperable in their push to develop simulation technologies. The conference is hosted by the National Training and Simulation Association, an affiliate of the National Defense Industrial Association.

Maj. Gen. Robert Karmazin, SOCOM J3, said the inability to connect to service-provided simulators for special operations training and mission rehearsals is one of the command's primary concerns. SOCOM already explored this problem at an acquisition summit in October 2016, where the focus was on examining ways to improve modeling and simulation systems interoperability, he noted.

Current system configurations need to improve their connections so multiple simulators can work together, he noted. The command is working with the Pentagon on a solution, he said.

"It just requires a systematic approach and involves the acquisition training model and [situation reports] from the services, under secretary of defense, and joint staff, and combatant commands to address the issues and to come together," he said.

Jackson said the National Geospatial-Intelligence Agency is working with the Open Geospatial Consortium to ensure that conventional Army and Special Operations Forces simulators are interoperable. SOCOM expects to see progress on that effort within the next year and a half, he noted.

There is already some connectivity between the Air Force and its special operations component, Jackson noted. For instance, SOCOM is requesting the Air Force provide intelligence, surveillance and reconnaissance and close-air support in a synthetic environment for a Bold Quest exercise that may "come to fruition" in spring 2021, he noted.

"The bottom line is yes, we understand that SOF is a joint force, a microcosm of the joint force," he said. "As the [National Defense Strategy] says, we are refocusing our

Defense Dept. photo

direction on the great powers, near peer competitors. So to get us there more quickly, that connectivity has to occur."

However, the challenge to develop interoperable simulation systems is not limited to Special Operations Command, Karmazin noted.

"SOCOM has similar challenges that many agencies across the Department of Defense have," he said. They must develop "the ability to rapidly assemble modeling simulation training systems," he noted.

Fred Drummond, deputy assistant secretary of defense for force education and training in the office of the assistant secretary of defense for readiness, said earlier in the conference that OSD is working to develop policies that will provide strategic guidance on the issue. Drummond said his office is working on potentially issuing publications addressing the topic, but did not provide a timeline on the work. ND

The Quest for the 'Cyber-Secure' Hyper-Enabled Operators

BY CONNIE LEE

ANNAPOLIS, Md. — Special Operations Command is working to ensure that its hyper-enabled operator concept will be "cyber secure," a top science and technology official said Oct. 23.

In 2018, the command announced an initiative to enhance its warfighters with technologies that would provide them capabilities such as improved situational awareness.

Now, in an era when adversaries are building up their electronic warfare abilities, the command is examining how it can safely field these technologies with a cyber-secure network, said Lisa Sanders, the director of science and technology for Special Operations Forces, acquisition, technology and logistics.

SOCOM is considering questions such as: "Is it something [that requires] an algorithm on top of the communications node in order to make that cyber secure? … Is there a way to throw an encryption key on top of it so that I don't lose it?" Sanders said.

Many of these technologies fall within the commercial domain, she said during the National Defense Industrial Association's Expeditionary Warfare Conference in Annapolis, Maryland.

For example, the Android tactical assault kit uses the same processing board that comes with the smartphone instead of one that's specific to SOCOM, she said. The device sits on the operator's chest and provides them with additional situational awareness.

"We're playing with those commercially available tools to try to understand where does the system break down," Sanders said. The command will then work to address capability gaps, she added.

SOCOM must experiment with these technologies because — unlike the commercial market — warfighters may face instances in which adversaries attempt to jam their network.

That's something the command "does a lot of — just trying things to see how they work," Sanders said.

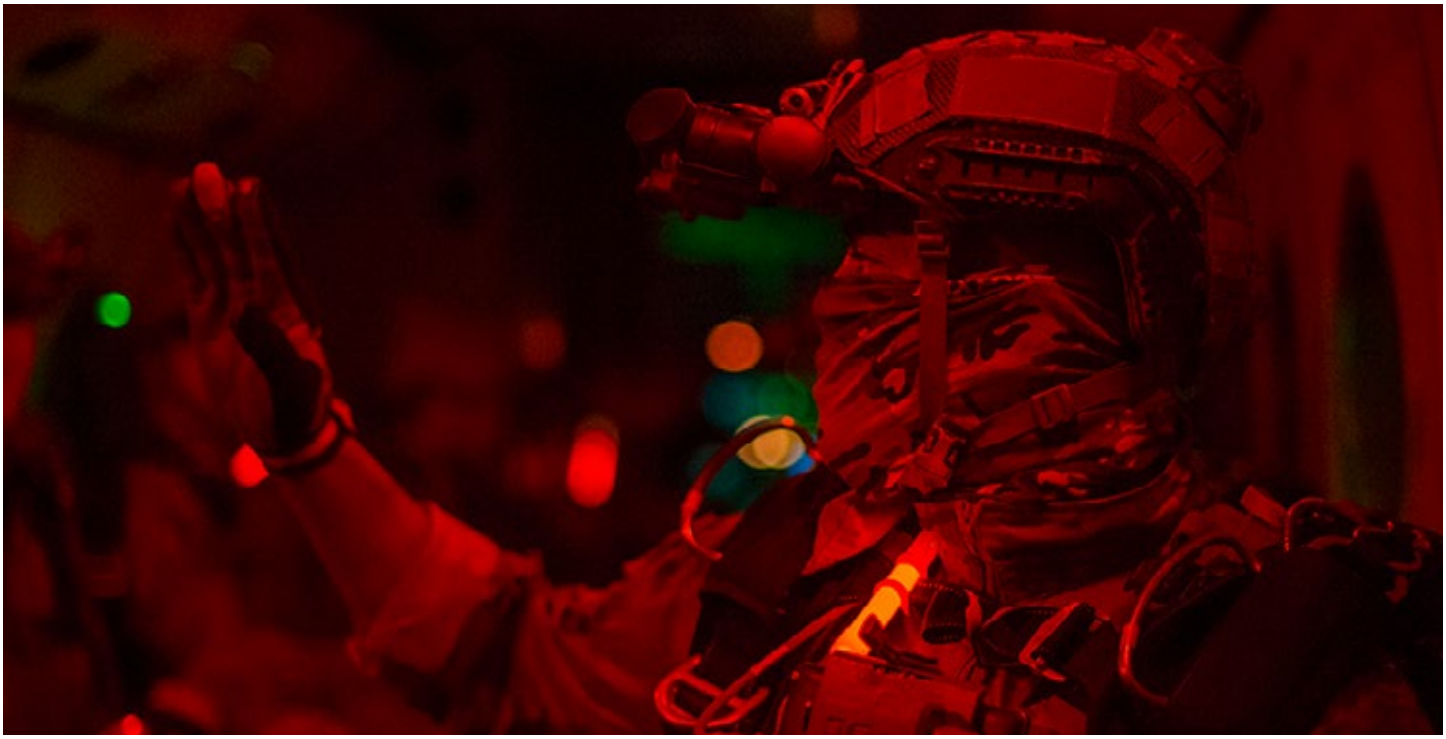
Some of this experimentation will include determining how much communication is needed, she noted. SOCOM has become used to working in uncontested environments where it can perform actions such as sending full-motion videos. Now, it must consider the possibility of having no connectivity. Additionally, it is particularly difficult to communicate underseas, she noted.

"What does that do to my ability to achieve that mission?" she said. "We'll play with all [the] extremes of it, ranging from fully available satcom, what's a commercial network look like to 'Hey look, you've got nothing.'"

However, SOCOM will not be able to operate without an electronic signature, she noted.

"The world is different than it was in the past, there's just too much that's out there," she said. Going forward, operators will need to consider what type of signatures they use and how long they can use it without being detected.

"That's going to become more relevant," Sanders said. ND



Navy photo

Special Operators Embrace 'Wildcat' Calibers

BY SCOTT R. GOURLEY

One phenomenon that has emerged from the U.S. special operations community over the last 10 to 12 years involves exploration and acquisition of small arms in new ballistic calibers.

Rather than the better known weapon designs in 5.56 mm, 7.62 mm, .50 caliber, and even the U.S. Army's emerging 6.8 mm Next Generation Squad Weapon, the community has embraced calibers like the .300 AAC (Advanced Armament Corporation) Blackout (.300 BLK), 6.5 Creedmoor, .300 PRC (Precision Rifle Cartridge), and both .300 and .338 Norma Magnum.

Often created as so-called "wildcat" rounds, prior to their broader acceptance and expanded production availability, these new caliber cartridges each provide a staggering array of design and performance specifics, experts said.

Recent requests for information released by U.S. Special Operations Command have identified specific command interest in a compact personal defense weapon chambered in .300 BLK.

"We're dealing in whole different types of mission sets," explained C.J. Dugan, vice president of business development at Maxim Defense, which has developed its own personal defense weapon designs. "The old way was, if you were doing 'low vis' close target reconnaissance or protection, you really only had an MP5 [9x19 mm Parabellum], which is hard to deal with these days because of parts. The only other answers you had were a pistol or a Mk18 [M4A1 (5.56x45 mm NATO) with a Close Quarters Battle Receiver variant with 10.3-inch barrel]. So trying to deal with a weapon system that would give you the right combination of distance and accuracy, and then trying to maneuver in a civilian vehicle with either only a pistol

Scott R. Gourley photo

or 'a 10.3,' which you then had to keep out of sight, and then deal with and try to react to something, you kind of had limited expectations."

Crediting the early development work done by Advanced Armament Corp., Dugan offered a general description of the .300 BLK design, which included "taking a 5.56 [mm] case and necking it out to a .30 cal projectile, but utilizing pistol powder inside of that, which gives you a lot of muzzle velocities that you were losing in a short barrel with a rifle round.

"In my opinion, that was the genesis of why the 300 Blackout became popular in the SOF community," he said. "Because now, with the 300 Blackout — a .30 cal projectile loaded in a 5.56 case and burning pistol powder — you're now getting 2,000 feet per second out of a five-and-a-half-inch gun."

"Take a PDW for what it is — a personal defense weapon," he summarized. "If you are pulling that thing out, things have gone really bad. … And if I am going to make a decision to engage a threat, I want to make sure that I have the best possibility for the terminal ballistics to eliminate that threat. So I combined all of that and we sat down and worked through a product deal with Fort Scott [Munitions], and I took their projectile and we put a bunch of it through our weapons and optimized different calibers for our weapons, both in the five-and-a-half-[inch barrel] and eight-and-a-half variants."

In addition to its own PDW designs, Maxim Defense has also introduced an ammunition line and is one of more than two dozen U.S. manufacturers that currently produce a .300 BLK option.

Dugan noted that the Maxim .300 BLK is based in part on the "tumble upon impact" designs of Fort Scott Munitions, which continue to "tumble" at ballistic speeds down to 500 feet per second.

Many of Dugan's observations were echoed by Lanse Padgett, chief executive officer of PCP Tactical LLC and Gorilla Ammunition Co.

"Gorilla Ammunition was established in 2013, and basically was founded on .300 Blackout," he said. "We started making .300 Blackout right out of the gate, when it was just coming on the scene."

The company has recently worked with Northrop Grumman, current operators of the government-owned Lake City Army Ammunition Plant, to manufacture "some Blackout loads for military testing."

Describing the .300 BLK as "a phenomenal cartridge for engagements inside of 200 yards," Padgett offered, "It is excellent for [close quarters battle]- type operations — room clearing/house clearing/building/clearing — where you can take a short barrel rifle and have almost the same ballistics as a long barrel rifle. But it makes it so much more maneuverable. And you have a much bigger projectile going at the intended target.

"For instance, the 5.56 round was designed for an M16 that had a 20-inch barrel. But now everyone wants to shoot it out of a 10-inch barrel or an eight-inch barrel and you have lost so much velocity by shaving all those inches off your barrels. So you're now shooting a projectile that was designed to be shot at a certain velocity at much, much less velocity and you don't have the same terminal effects that you had. … But with .300 Blackout, you're able to shoot shorter barrels with more lethality. That's really where I think you gain the advantage."

Barrett photo

Recent SOCOM requests for proposals have also identified interest in weapon designs chambered in 6.5 Creedmoor, with one recent announcement identifying a desire for a lightweight assault machine gun in 6.5 Creedmoor as a possible replacement to the current MK48 assault machine gun chambered in 7.62x51 mm NATO.

Introduced by Hornady Manufacturing Co. around 2007, Padgett said that 6.5 Creedmoor is one of five calibers of polymer cased ammunition currently manufactured by PCP Tactical, along with .50 caliber, .338 Norma Magnum, 7.62x51 mm NATO, "and some work with .260 Remington for the SOF guys."

It was best to compare the 6.5 Creedmoor to the "traditional" 7.62x51 mm NATO round, he said.

"My ballistician would say this much more eloquently, but basically to get a better 'ballistic coefficient,' you want a longer, skinnier projectile," he explained.

"The 6.5 Creedmoor offers just that in a package that is the same overall length as a .308 (7.62x51 mm) cartridge case. But now you're getting increased velocity and a better ballistic coefficient, which means you're going to have increased engagement distance. It's not going to drop as fast. It's not going to be affected by wind as much as the traditional 7.62. You're gaining engagement distance and lethality with the extra benefit that it works in existing 7.62 length chambers. So it's basically a barrel swap to take existing guns and turn them into 6.5 Creedmoor guns."

Few programs more clearly reflect the embrace of new calibers better than SOCOM's acquisitions of bolt-action sniper rifles over the past 10 to 12 years.

An example can be found in its 2009 solicitation for the Precision Sniper Rifle. Planners called for a weapon that could be switched between calibers that would include 7.62x51 mm NATO, .300 Winchester Magnum (Win Mag), and .338 Lapua Magnum. By the time that the subsequent Advanced Snip-

er Rifle solicitation was released in May of 2018, it specified 7.62x51 mm, .300 Norma Magnum and .338 NM — not the same as .338 Lapua.

It is broadly understood that the .338 NM represents the anti-materiel solution, the .300 NM represents the anti-personnel solution, and the 7.62x51 represents a training option that could also be applied to shorter range urban settings.

In March 2019, Barrett Manufacturing announced that its Multi-Role Adaptive Design system had been selected for the Advanced Sniper Rifle, subsequently designated as the MK22 Mod 0.

The MK22 Mod 0 is one of two Barrett sniper rifles currently being provided to special operations customers. A similar weapon, identified as the "DoD" system, is also being provided to a community element chambered in a Hornady-developed caliber identified as .300 PRC.

"Around November 2016 the Department of Defense issued a procurement for a direct and immediate warfighter capability for the .300 PRC," said Joel Miller, director of global military sales for Barrett. "It was essentially to provide operators some greater capabilities in stand-off distances and to ensure overmatch."

Asked about ballistic comparisons between the .300 PRC and the .300 Norma Magnum included on the ASR, Miller deferred to Hornady Manufacturing, which developed the .300 PRC.

According to Neal Emery, senior communications manager for Hornady, all of the other "big 30s" have some type of inherent design issues and the development of the .300 PRC reflected an attempt "to have something that will easily handle the long, heavy, high performance style, .30 caliber bullets with the greatest consistency possible for extended long-range shooting."

Another long-range projectile that has been embraced by SOCOM over the last few years is the .338 Norma Magnum, with the design of both the .300 NM and .338 NM credited to ballistician Jimmie Sloan in the 2006 to 2007 timeframe.

Community acceptance of the rounds not only contributed to the change in evolution in sniper rifle requirements noted above, but has also been reflected in Special Operations Command — and Marine Corps — interest in belt-fed machine gun designs in .338 NM.

In response, General Dynamics Ordnance and Tactical Systems has been exhibiting its .338 NW Lightweight Medium Machine Gun design for the last few years.

And in January, SIG Sauer announced the safety certification and delivery of a number of its own new "338 MG" systems for special operations combat evaluations.

According to Jason St. John, director of government products in SIG Sauer's defense strategies group, both the .338 NM and .338 Lapua reflect a sniper community desire for a flatter trajectory, larger bullet, more wind-resistant long-range capability to extend the battlefield for the sniper.

"The .308 [7.62x51 mm] was limited at about 800 meters; 1,000 to 1,200 meters for .300 Win Mag; and they wanted to push it a little bit further," he said. "That grew into an extended range capability to have standoff with your enemy from an anti-personnel perspective."

Noting that the .338 NM design results in a 300-grain projectile traveling at 2,900 feet per second, he credited the cartridge with "a tremendous anti-materiel capability" delivered from a 20-pound package.

"The M2A1 [.50 caliber] is an 80-pound machine gun," he asserted. "We're looking at a system that's 60 pounds lighter and actually combines an anti-materiel solution and anti-personnel solution in one trim package."

He acknowledged "some challenges" in direct comparisons with a .50 cal that has different specialized projectiles, adding, "However, when you're looking at something like steel penetration with a .338 compared to steel penetration with a .50 cal, they are comparable at 1,200-plus meters, and in some aspects the .338 is superior in mild steel penetration at comparable distances."

As noted earlier, the representative samples cited here are not intended to serve as complete ballistic profiles. Rather they are intended to highlight the unique characteristics of special operations missions and some of the ballistic overmatch solutions available to Special Operations Forces. ND