

RED FLAG



OF THE FOUR Red Flag exercises held each year at Nellis AFB on the outskirts of Las Vegas, the first is the most challenging, drawing in all capabilities to best replicate air warfare in the 21st century.

The US, British and Australian units invited to Red Flag 17-1 between January 23 and February 10 were faced with the most difficult exercise to date with an adversarial threat of unrivalled sophistication and lethality – designed above all to push the F-35.

Having declared initial operating capability in August 2016, the 34th Fighter Squadron (FS) 'Rams' from Hill AFB, Utah, gave a statement of intent by deploying

13 of their 17 F-35As to Nellis.

Speaking in the second week of the three-week exercise, the squadron's commander, Lieutenant Colonel George Watkins, expressed surprise at how Red Flag had changed since he last took part:

"Previously, as an F-16 pilot, I've been to four Red Flags, and as recently as a year-and-a-half ago. I've never seen a Red Flag like this where they put up so many advanced threats against us.

"They've ramped up the level of the threat. It's a much more difficult adversary that we're fighting against here as a team than we would have fought against a year-and-a-half ago. They've stepped up the number

of aggressor aircraft fighting against us and the amount of jamming, as well as the skill level of the adversaries they're trying to replicate against us.

"There's a marked difference in this Red Flag that, I believe, is because of the integration with the F-22, the F-35 and all the fourth-gen players, and we're able to bring that all together for this fight. They needed to challenge all of us as we're fighting together."

SAM hunting

The defensive counter-air and air interdiction sorties flown by the 34th FS were similar to those of the other participants, but the dynamic targeting

missions – which involved the Lightning pilots seeking targets 'on the fly', detecting the threats and then striking them – saw the stealth fighter's unique capabilities come to the fore.

Lt Col Watkins continued: "Some of the advanced SAMs [surface-to-air missiles] that are out there, if we'd had anything like that in the scenario [in previous years] we'd concentrate on just going after that one SAM, and we'd put all our effort into that. We'd have to launch a lot of standoff weapons and peel it back from there.

"In this Red Flag we've seen three or four of those advanced SAMs in one scenario. We don't know necessarily where they're at, so we can't simulate hitting

LAG

The first participation by US Air Force F-35A Lightning IIs in Red Flag has driven planners to raise the complexity of the simulated warfighting exercise, as **Dylan Eklund** reports from Nellis Air Force Base, Nevada.

URNS UP THE HEAT



Top: Red Flag 17-1 was the first edition of the famous Nevada exercise for the US Air Force's expanding F-35A fleet. One of 13 Lightning IIs sent to Nellis from Hill AFB was serial 13-5075/'HL' seen here. *Dylan Eklund*
Above: One of the cornerstones of Red Flag 17-1 was integrating fourth- and fifth-generation assets. Typhoon FGR4 ZK321/'EG' was among the eight No 6 Squadron jets deployed from RAF Lossiemouth. *Dylan Eklund*

them with standoff weapons before the vul [vulnerability period] even starts.

"So we're locating them, and that's an integrated, cross-domain approach using cyber, using space and assets like the Rivet Joint and the Wedgetail, fusing all that information together to find a target location.

"Between the Block 50s [F-16s] and the F-35s we're finding that location and are able to use some of the F-22 standoff [capability] as well as the stealth capability of the F-35 to get close enough to those targets where we can drop on them.

"It would be impossible for even a Block 50 to target that missile system from their aircraft ◻

as it would be too dangerous for them to get that close."

Reserve personnel from the 466th FS 'Diamondbacks', an integral part of the 388th FW at Hill, deployed with the 34th FS to Nellis and were fully involved in the exercise play. Lt Col Dave DeAngelis, who, as commander of the 419th Operations Group Det 1, is the Reserve Detachment Commander at Hill AFB, echoed Lt Col Watkins' views: "At times there are some high-end threats on the initial 'maul' of Red Flag when we first start flying, so the F-35s and F-22s will go in initially and take out some of those threats: and that enables the fourth-gen aircraft to push when there are lower [end] threats out there."

"Against the complex integrated air defence systems [IADS] we're able to go out and find their general location before using our synthetic aperture radar to map to determine where the SAM site is. We carry two GBU-31 JDAMs [Joint Direct Attack Munitions], so can put a 2,000lb bomb on the site."

"In my previous experience as an F-16 guy we just used to try and shoot HARMs [AGM-88 High-speed Anti-Radiation Missiles], which have smaller warheads and are not necessarily as capable. Now, with the F-35, we're able to find the particular site and put down a 2,000lb bomb, which is usually more effective against an IADS."

The increased complexity of this latest Red Flag also brought benefits for the fourth-generation squadrons deployed, as Lt Col DeAngelis explained: "At times they gave us taskings on convoys, and we were able to go and neck that down and get into a smaller area and find where that particular convoy was."

"On our dynamic tasking vul, my number three ended up finding the convoy we were searching for, and we were able to [assign] some of our fourth-generation Typhoons who were able to take [it] out."

Kill ratio

For the national media congregating at Nellis to quiz a panel of selected spokespersons, the focus inevitably fell on the F-35 contingent. With the Lightning II returning to the headlines following President Trump's expressed concerns about the programme's costs,



Above: Royal Air Force Sentinel R1 ZJ692 returns to Nellis from an IADS hunt on February 1. *Nate Leong* **Right:** A 37th BS B-1B takes off from Nellis. As well as integrating with the F-35A for the first time, the 37th BS used Red Flag 17-1 to validate the Lancer's newly installed Link 16 system. *Dylan Eklund* **Below:** A trio of VAQ-134 'Garudas' EA-18Gs takes on fuel from RAF Voyager KC2 callsign 'Snow 01' for the very first time in an exercise scenario. *Kevin Bell*



Red Flag 17-1 participating units

Type	Squadron	Location
B-1B	37th BS	Ellsworth AFB, South Dakota
EC-130H	41st ECS	Davis-Monthan AFB, Arizona
E-8C	12th/16th ACCS	Robins AFB, Georgia
F-15C	159th FS/FL ANG	Jacksonville ANGB, Florida
F-16CJ	77th FS	Shaw AFB, South Carolina
F-16C	176th EFS/WI ANG	Truax Field ANGB, Wisconsin
F-22A	27th FS	JRB Langley-Eustis, Virginia
F-35A	34th FS	Hill AFB, Utah
HH-60G	55th RQS	Davis-Monthan AFB, Arizona
KC-135R	92nd ARW	Fairchild AFB, Washington
RC-135V	343rd RS	Offutt AFB, Nebraska
EA-18G	VAQ-132	NAS Whidbey Island, Washington
EA-18G	VAQ-134	NAS Whidbey Island, Washington

Royal Australian Air Force

C-130J	No 37 Squadron	RAAF Base Richmond
E-7A	No 2 Squadron	RAAF Base Williamtown

Royal Air Force

Sentinel R1	No V(AC) Squadron	RAF Waddington
Typhoon FGR4	No 6 Squadron	RAF Lossiemouth
Voyager KC2	Nos 10/101 Squadrons	RAF Brize Norton
Hercules C4	No 47 Squadron	RAF Brize Norton
RC-135V	No 51 Squadron	RAF Waddington



F-16Cs of the Wisconsin Air National Guard's 176th FS flew at Nellis as an Expeditionary Fighter Squadron, presumably ahead of deployment 'downrange' or as part of a TSP. *Dylan Eklund*



journalists were keen to obtain the current tally of air-to-air kills on the exercise.

"There are some threats out there that make it through because of the sheer numbers and the advanced missiles they're shooting at us, so we've had one or two losses so far in our training," said Lt Col Watkins. "Right now, we're counting a 15-to-1 kill ratio for aggressors to F-35s."

He was quick to put the figure in context: "The F-35 is currently limited to an internal missile load-out so we're not carrying as many missiles as the F-22 and we're also designed for the air-to-ground mission.

"We're doing very, very well but the kill ratio is not something that's going to shock anybody; we're not an air-to-air player."

Despite the caveats applied to the kill ratio, and the implication the figure was perhaps not as high as might be expected, the media were quick to

pronounce the superiority of the F-35; but, conversely, some observers suggested the figures were misleading. Arguably, a more telling statistic would have been how many aircraft were lost to SAMs.

After the successful completion of the exercise, the USAF announced that the 34th FS will deploy on a Theater Security Package (TSP). Major General Jerry Harris, Vice Commander, Air Combat Command, confirmed to the House Armed Services Committee that the initial TSP would be in the US Pacific Command (PACOM) area of responsibility.

Although no timeline was given, there appears to be a significant window of opportunity for the 34th FS. The unit's next scheduled exercises are not until August, when it will take part in Combat Hammer and Combat Archer from Hill AFB over the Utah Test and Training Range.

Royal Air Force

The RAF came to the exercise in force with the inaugural participation of both the RC-135W Rivet Joint and Voyager multi-role tanker transport.

One of each type joined a Sentinel R1, Hercules C4 and Typhoon FGR4s from No 6 Squadron, whose Officer Commanding, Wing Commander Billy Cooper, was keen to stress the benefits to personnel of the exercise.

"One of the big things for us is we're going to have this fourth/fifth-gen mix in the future and it's critical that we not only learn about the aircraft's capabilities but also about working together as individuals," he said. "It's important not to forget the human element of what happens here on Red Flag."

"We spend quite a bit of time looking at each other's cockpit displays in debrief to try and understand what level of situational awareness the other

participants have. So I have an idea what the F-35 pilot sees in his cockpit and he knows what I'm capable of doing from my cockpit in the Typhoon because we've had that level of integration here on Red Flag."

Based at RAF Lossiemouth, Scotland, No 6 Squadron deployed eight Typhoon FGR4s to Nellis, flying two waves of six aircraft each day, as Wg Cdr Cooper explained: "The majority of what we're doing is air-to-air fighting, but as a swing-role platform we're carrying bombs on some of the missions as well. Some of the time we've been using the F-35 to find some of the integrated air defence systems, and on occasion the Typhoon will be dropping the bombs on those targets."

"A lot of the time we're out at the front of the package providing air-to-air cover and quite often the F-35 is providing some of the Link 16 picture which we're able to use to generate situational awareness for us."

"These sorts of exercises are critical for us to gain the experience to be able to develop our tactics and operating procedures so that we'll be able to operate effectively in future."

And the No 6 Squadron CO was impressed with the Lightning II: "The capabilities of the F-35 are well documented, but to see it in practice on these very realistic exercises is really very exciting, and it's a fantastic future for the UK."

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