

Stenographic Transcript
Before the

Subcommittee on Airland

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

HEARING TO RECEIVE TESTIMONY ON ARMY UNMANNED
AIRCRAFT VEHICLE AND AIR FORCE REMOTELY PILOTED
AIRCRAFT ENTERPRISES IN REVIEW OF THE DEFENSE
AUTHORIZATION REQUEST FOR FISCAL YEAR 2017 AND THE
FUTURE YEARS DEFENSE PROGRAM

Wednesday, March 16, 2016

Washington, D.C.

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U.S. Senate

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Subcommittee on Airland

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Committee on Armed Services

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Washington, D.C.

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The subcommittee met, pursuant to notice, at 2:33 p.m.

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in Room SR-222, Russell Senate Office Building, Hon. Tom

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Cotton, chairman of the subcommittee, presiding.

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Committee Members Present: Senators Cotton

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[presiding], Rounds, Ernst, Sullivan, Lee, Manchin,

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Gillibrand, Donnelly, and Heinrich.

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1 OPENING STATEMENT OF HON. TOM COTTON, U.S. SENATOR
2 FROM ARKANSAS

3 Senator Cotton: The hearing will come to order.

4 The Airland Subcommittee meets today to consider the
5 Army's unmanned aerial systems and the Air Force's remotely
6 piloted aircraft enterprises in the context of our review
7 and oversight of the fiscal year 2017 defense budget
8 request.

9 I welcome our witnesses: the Commander of Air Combat
10 Command, Air Force General Herbert "Hawk" Carlisle; the
11 Commander of Training and Doctrine Command, Army General
12 David Perkins; and the Director of Defense Capabilities and
13 Management for the Government Accountability Office, Ms.
14 Brenda Farrell. Thank you all for your service, and we
15 appreciate your attendance at the hearing today.

16 Unmanned aircraft systems are incredibly valuable, yet
17 in short supply. These aircraft greatly increase the
18 ability of commanders to gain situational awareness,
19 exercise command and control, and provide strike
20 capabilities over the modern battlefield.

21 Our combatant commanders have repeatedly testified to
22 the importance of and the increasing but unmet demand for
23 these aircraft. Most recently General Breedlove, the
24 Commander of U.S. European Command and Supreme Commander of
25 NATO, testified that definitely below 10 percent of his

1 command's intelligence, surveillance, and reconnaissance, or
2 ISR, requirements are currently being met. The story is
3 similar around the world.

4 The Pentagon has long faced challenges with integrating
5 and assimilating unmanned aircraft for both ISR and kinetic
6 strike missions into its concepts of operations, doctrine,
7 training organizations, and personnel processes. Another
8 challenge is cultural, namely, moving from primarily manned
9 aviation to a big increase in unmanned aircraft.

10 The Army and Air Force have taken different approaches
11 to integrating unmanned aircraft in their services based on
12 their unique competencies, roles, and mission requirements.

13 First, the Army employs their UAV systems in support of
14 tactical units and key battlefield functions. Most are
15 organized into platoons and are organic to brigades and
16 divisions. Others are organized in larger formations to
17 support corps and theater commanders.

18 The Air Force uses remote split operations to employ
19 both their medium- and high-altitude remotely piloted
20 aircraft primarily in a theater operational role.

21 Second, the Army uses enlisted UAV operators,
22 supervised by warrant officers and commanded by officers,
23 while the Air Force tasks their rated officer pilots to fly
24 their remotely piloted aircraft organized like a traditional
25 flying squadron.

1 Despite literally dozens of reviews, task forces,
2 studies, and reports on unmanned aircraft enterprises by the
3 Department and the GAO, much room for improvement remains.

4 For instance, then-Secretary of Defense Robert Gates
5 remarked in April 2008 that he had been trying to get more
6 ISR assets into the CENTCOM theater and, quote, because
7 people were stuck in the old way of doing business, it has
8 been like pulling teeth. End quote.

9 Secretary Gates, therefore, established the ISR Task
10 Force during which the Air Force presented a plan to reach
11 50 combat lines of MQ-1/MQ-9 aircraft by 2011 and 65 combat
12 lines by 2013. Nevertheless, several years later, the Air
13 Force still has an enterprise that is undermanned,
14 overworked, and demoralized while facing a potential mass
15 exodus of pilots and insufficient training infrastructure to
16 replace these losses.

17 While I do not personally have fixed or preconceived
18 notions about the right policy for either service, it is
19 plain that the Department is still struggling with the
20 transformation. I am keenly interested, as I know members
21 of the committee are as well, in exploring the main issues
22 facing the Army and the Air Force and how Congress can
23 assist in this critical warfighting area.

24 I look forward to the witnesses' testimony.

25 I would note that several other subcommittees are

1 meeting at this time, so we do expect Senators to be coming
2 in and out, to include my ranking member. We will give him
3 an opportunity to make his statement, should he arrive in
4 the statement period.

5 At this point, we will turn to General Carlisle.

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1 STATEMENT OF GENERAL HERBERT J. CARLISLE, USAF,
2 COMMANDER, AIR COMBAT COMMAND

3 General Carlisle: Chairman Cotton, Senator Rounds,
4 thank you very much for having me today for this what I
5 think is an incredibly important hearing. I am grateful for
6 the opportunity to participate and give you my views and
7 hear your thoughts so we can move forward in the Air Combat
8 Command.

9 As the Commander at ACC, I have the privilege to lead
10 roughly 140,000 of our Air Force's most successful airmen
11 and civilians. The air power they provide for our great
12 Nation is both immense and absolutely indispensable. Air
13 Combat Command is responsible for organizing, training,
14 equipping, and the in-garrison employing of our Air Force's
15 RPA enterprise.

16 The RPA mission is instrumental to achieving decision
17 advantage against our adversaries. It is a powerful asset
18 to our national decision-makers and our national security
19 and is the backbone to the success of our current fights.

20 I am grateful that the committee shares our interests
21 in the success of the RPA enterprise, and I know our
22 combined concern, collaboration, and action will help
23 advance the results this enterprise provides to our country.

24 As you stated, Chairman, our Nation's combatant
25 commanders employ our Air Force RPAs across a range of

1 military operations, and they are incredibly high in demand.
2 They are employed in a very distinct way. Here again, as
3 you stated, Chairman, they provide theater-level air power,
4 primarily focusing their potent capabilities on strategic
5 and operational functions. They deliver battlefield effects
6 crucial to the conduct of our Nation's current fights and
7 their mission is perfectly suited to our agile and amazing
8 Air Force crews operating them.

9 We recognize our RPA's unique mission and its
10 staggering importance to our national defense. Our RPAs can
11 find themselves conducting a wide array of missions, again
12 as you stated, Chairman. They can provide operationally
13 strategic effects by monitoring and identifying and
14 eliminating high-value targets, and they can deliver
15 tactical air power during close air support engagements and
16 in troops in contact situations, again often used in that
17 way as well.

18 Our warfighters' demand for persist attack and
19 reconnaissance through the use of RPAs has skyrocketed. To
20 meet this demand, our RPA enterprise has expanded at an
21 unprecedented rate over the past 10 years. In 2007, we
22 started with seven CAPs. 8 years later, we had 65 in 2015,
23 over a fivefold increase in that time.

24 ACC does have a vision and an executable plan for our
25 RPA enterprise's future to ensure continued success and, as

1 importantly, take care of our airmen and their families.

2 First and foremost, we need more manpower in the RPA
3 enterprise. Frankly, we are short and we have to plus that
4 up. We are increasing our investments in our RPA airmen,
5 their mission, and their resources to achieve the stable
6 force the Nation requires within that enterprise. Our
7 aircraft upgrades and acquisitions will allow us to provide
8 this force with the most capable systems possible for the
9 use in the joint warfight. The end result is RPAs
10 delivering exactly what our combatant commanders are asking
11 for now and in the future. No breaks, no reductions, just
12 theater-level air power from this enterprise.

13 Mr. Chairman, I truly appreciate this committee's
14 dedication to our armed forces and in particular in this
15 case, the RPA enterprise. I look forward to continued
16 cooperation and the success that I know that our
17 collaboration can bring to this enterprise.

18 I thank you for the opportunity to participate in this
19 hearing today and to share our ideas and advance ways that
20 we together can make this better. I welcome any questions
21 from the chairman and the members of the committee, and I
22 ask that my written testimony be entered into the record.
23 Thank you, Mr. Chairman.

24 Senator Cotton: Your testimony and all other written
25 testimony will be written into the record.

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[The prepared statement of General Carlisle follows:]

1 Senator Cotton: We will now pause on witness
2 statements and turn to the ranking member, Senator Manchin.
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1 STATEMENT OF HON. JOE MANCHIN III, U.S. SENATOR FROM
2 WEST VIRGINIA

3 Senator Manchin: First of all, thank you all for your
4 service and thanks for being here today.

5 Mr. Chairman, I want to also extend a welcome to all of
6 our witnesses and thank you for holding this hearing today.

7 And our witnesses this afternoon will help us
8 understand the issues surrounding a growing capability that
9 many only dreamed about, unmanned aircraft systems. We only
10 have to read the headlines about so-called drone strikes to
11 understand that these systems have become an important
12 element of modern warfare.

13 We have all been concerned about supporting the
14 combatant commander requirements that result in a need for
15 65 combat air patrols, and this has led to placing
16 significant strain on the Air Force's RPA operator
17 community.

18 Last fall, Secretary Carter approved an Air Force MQ-
19 1/9 RPA combat air patrol reduction from 65 to 60 CAPs. He
20 said that this reset would allow the Air Force to redirect
21 operational MQ-1/9 pilot manning to ameliorate schoolhouse
22 manning challenges. And Secretary Carter also announced a
23 number of other changes that I hope we will be able to
24 discuss today.

25 The Army operates, among other unmanned systems, the

1 MQ-1C, which is the Gray Eagle UAV. I know from the
2 prepared testimony that General Perkins also has problems,
3 including having the expand the capabilities of the UAV
4 school to meet increased manning requirements. This has
5 caused a Gray Eagle operators and maintainers.

6 So in the interest of time -- I will turn my phone off.

7 [Laughter.]

8 Senator Donnelly: You can blame it on me, Joe.

9 Senator Manchin: I am so sorry.

10 So in the interest, I am going to stop there, and I
11 look forward to hearing all you all's testimony and our
12 questions to follow up.

13 Senator Cotton: Thank you, Senator Manchin.

14 General Perkins?

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1 STATEMENT OF GENERAL DAVID G. PERKINS, USA, COMMANDING
2 GENERAL, U.S. ARMY TRAINING AND DOCTRINE COMMAND

3 General Perkins: Chairman Cotton, Ranking Member
4 Manchin, and members of the subcommittee, I appreciate the
5 opportunity to be here today to discuss the Army unmanned
6 aerial systems, or UAS, as we refer to them.

7 The United States Army organizes, trains, and employs
8 our unmanned aerial systems primarily as an organic support
9 asset to the ground commander to provide assured forward-
10 based organic support to the maneuver commander from the
11 platoon to division level.

12 On September 11, 2001, the U.S. Army UAS force
13 consisted of a little less than three companies and less
14 than 200 soldiers. Since then, the United States Army UAS
15 force has grown to over 700 medium and large UAS and over
16 6,500 small UAS operated by more than 7,000 soldiers.

17 To address this rapid expansion and continued growing
18 demand, the Army is executing a comprehensive strategy to
19 ensure that UAS formations are capable of meeting the
20 challenges now and in the future.

21 We have made great strides over the past year
22 implementing changes that will result in higher levels of
23 UAS readiness across the total Army. I will share a few
24 examples of those here.

25 UAS are now fully integrated into Army doctrine and

1 regulations. Our aviation brigades now have training
2 oversight of the Shadow UAS platoons and then brigade combat
3 teams to improve standardization, safety, and operational
4 capability. We now also have lieutenant platoon leaders
5 assigned to each brigade combat team Shadow platoon. We
6 have assessed more than 100 former OH-58 Delta pilots as UAS
7 tech warrant officers. And we have improved the UAS and
8 aviation warrant officer basic course to reflect these best
9 practices.

10 All of our Army training standards are in compliance
11 with the basic UAS qualification training requirements
12 directed in Chairman of the Joint Chiefs of Staff
13 instructions 3255.01.

14 To improve the training of our leaders, we have
15 established an air cavalry leaders course, a UAS platoon
16 leaders course, and UAS leaders course.

17 The Forces Command Commander has integrated UAS
18 training into his training guidance and readiness reporting,
19 and the Army places high priority now on UAS readiness and
20 readiness reporting.

21 Our division commanders and aviation center are closely
22 collaborating to assure integrated UAS home station training
23 that encompasses the maneuver units they support, ranges,
24 airspace, frequency management facilities and airstrips.

25 In short, we have done much to improve our state of UAS

1 training and readiness since 2014, and I am optimistic that
2 the improved readiness results will rapidly become apparent.

3 I look forward to working with this committee to
4 address your concerns about Army UAS readiness and
5 appreciate the opportunity to speak with you today. And all
6 of us in the Army appreciate the support that we get from
7 each one of you in a collective body. Thank you very much.

8 [The prepared statement of General Perkins follows:]

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1 Senator Cotton: Ms. Farrell?
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1 STATEMENT OF BRENDA S. FARRELL, DIRECTOR, DEFENSE
2 CAPABILITIES AND MANAGEMENT, GOVERNMENT ACCOUNTABILITY
3 OFFICE

4 Ms. Farrell: Thank you, Mr. Chairman.

5 Chairman Cotton, Ranking Member Manchin, and members of
6 the subcommittee, thank you for the opportunity to be here
7 today to discuss some of the unmanned aerial systems, or
8 UAS, pilot challenges that DOD faces. Let me briefly
9 summarize my statement.

10 The size, sophistication, and cost of DOD's UAS
11 portfolio has grown considerably, as has the demand for
12 trained pilots. In our prior work, we found that the Air
13 Force has not provided a sufficient number of UAS pilots to
14 meet requirements due to several factors, including most
15 notably the increase in demand for intelligence,
16 surveillance, and reconnaissance. As a result, the UAS
17 workload has been performed by fewer pilots working more
18 hours to accomplish the Air Force mission.

19 My statement today is based primarily on reports we
20 issued in April 2014 and May 2015. We made 10
21 recommendations to DOD to improve the Air Force management
22 of UAS pilots, address Army pilot training challenges, and
23 enhance DOD coordination of UAS training. For this
24 statement, we followed up with DOD officials to determine
25 what actions they had taken in response to our

1 recommendations.

2 My statement is divided into three parts.

3 The first part addresses the actions that the Air Force
4 has taken to strengthen management of its UAS pilots. We
5 found the Air Force has undertaken a number of actions but
6 has not fully addressed the issues related to identifying
7 pilot requirements, recruiting and retention difficulties,
8 evaluating the potential use of civilians as pilots,
9 ensuring pilots complete the required training, moving
10 pilots through the training pipeline and analyzing UAS pilot
11 promotion rates.

12 For example, in our April 2014 report, we found that
13 the Air Force had not accurately identified the number of
14 UAS pilots required to accomplish its mission, nor had it
15 established a minimum number of pilots needed. Indications
16 are that it needs more pilots.

17 As of March 2016, the Air Force had not updated pilot
18 requirements, and until it does, the Air Force will not know
19 if it is assuming unacceptable levels of risk to
20 accomplishing the mission and ensuring safety.

21 The second part of my statement addresses training
22 challenges that the Army faces. In 2015, we found that the
23 Army had challenges related to pilots completing their
24 training, tracking training, and its use of less experienced
25 instructors, which could affect training quality.

1 For example, we found that a 2015 Army review showed
2 that pilots in most Army Shadow units did not complete
3 training in fiscal year 2014. The study found that Army UAS
4 pilots in 61 of 65 Shadow units that were not deployed in
5 fiscal year 2014 have flown an annual unit average of 150
6 hours of training, which is about 200 hours less than the
7 minimum amount required. We corroborated the Army's
8 findings in focus groups, discussions with Army UAS pilots,
9 and in responses to a questionnaire that UAS unit commanders
10 also provided.

11 Finally, the third part of my statement addresses
12 coordinating the training of UAS pilots within DOD. In
13 2015, we found that some coordination was occurring among
14 the services with respect to UAS training, but potential
15 benefits exist.

16 For example, we reported that coordinated training
17 between services could help shorten the amount of time the
18 services spend acclimating to each other once deployed and
19 would allow an easier transition to working together during
20 missions.

21 Also, a senior OSD official stated that the services
22 may have valuable lessons to share with one another because
23 the services fly similar UAS. He cited similarities between
24 the Air Force's Predator and the Army's Gray Eagle.
25 However, we found that no DOD-wide training strategy

1 existed, and we recommended that DOD issue a Department-wide
2 UAS training strategy that addresses if and how the services
3 should coordinate with one another to share information on
4 training UAS pilots. Without such a strategy, the services
5 will not be positioned to capitalize on training
6 opportunities and may waste scarce resources.

7 In summary, Mr. Chairman, the Army and the Air Force
8 have taken action to implement the recommendations that we
9 made to address some of the workforce challenges. However,
10 none of the recommendations have been fully implemented.

11 We look forward to working with the Air Force and the
12 Army to continue to monitor the actions that they have taken
13 in response to our recommendations.

14 Thank you, Mr. Chairman. That concludes my statement.
15 I will be pleased to take questions when the subcommittee so
16 desires.

17 [The prepared statement of Ms. Farrell follows:]

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1 Senator Cotton: Thank you all.

2 General Carlisle, as I mentioned in the opening
3 statement -- and you touched on some of the same points in
4 your written statement -- the Air Force has faced some
5 challenges normalizing the integration of unmanned aircraft
6 into institutional processes. Now, perhaps platforms like
7 the MQ-1 and MQ-9 were viewed as emergency urgent fixes
8 during the early phases of the war on terror or something
9 that might decline as combat operations declined in their
10 OPTEMPO. And certainly the Air Force, like all services,
11 have been underfunded in recent years, which puts you on the
12 horns of a dilemma trying to meet all of your increasing
13 requirements while also meeting the warfighting demands.

14 That said, unmanned aerial vehicles are an increasingly
15 potent resource on the battlefield and much of the next
16 chapter of the Endeavor war is going to be written by them.

17 The Air Force has a history and a culture that is
18 deeply rooted in fighter operations over the skies of
19 Europe. Do you think there is some kind of cultural
20 aversion within the Air Force that has hindered it from
21 fully integrating unmanned systems into its doctrine and its
22 operations?

23 General Carlisle: Chairman, thanks for the question.

24 I do not. I will tell you that what our RPA crews do
25 -- and it is across the spectrum, obviously, MQ-1/9, RQ-170,

1 the RQ-4 and what is going to be MQX and RQX in the follow-
2 ons. The use of those systems, the employment of those, the
3 weapons school and how they stand up and integrate in all of
4 our exercises into the training between the Army and the Air
5 Force at both Green Flags and Army warfighter assessments --
6 we spend a lot of time making sure that we get this right
7 and we do that integration.

8 I will tell you I do not think, if you talk to anybody
9 in the United States Air Force, they would tell you that
10 RPAs are not part of our future. They are a huge part of
11 our future. Today it is the largest mission design series
12 in the United States Air Force on the MQ-1/MQ-9 side, and
13 they will continue to grow.

14 And so the challenge that we faced -- and again, I
15 truly believe, Mr. Chairman, that it was not cultural. It
16 was the demand signal accelerated so rapidly and we were
17 trying to meet the demands of the warfighter, which we had
18 to do to win the Nation's wars today that we are fighting.
19 We just started this ramp of increasing those combat lines,
20 or combat air patrols, per day, and we did not have time to
21 build what is a normal process to develop and take care of
22 that enterprise.

23 An example of it. Between the MQ-1 and 9, we have
24 flown 3 million hours -- over 3 million hours -- in those
25 two weapon systems. Over 2.8 million hours of that time has

1 been combat, which means the formal training unit, the test
2 and the continuation training are a mere fraction of the
3 amount of time we have flown, and it is because of the
4 demand signal.

5 The purpose of the "get well" plan and the culture and
6 process improvement program is to step back -- and we have
7 done that. The GAO report was fantastic in helping us do
8 this -- look at what we need to do to get this right,
9 determine those numbers, fix the training pipeline, and then
10 put the right amount of force and the right amount of work
11 into the RPA enterprise because it is going to be with us,
12 we see it, indefinitely. It is a huge part of our future.
13 And we are working hard to normalize that. And it is not
14 the cultural part. It is the training and to try to meet
15 the demand of the combatant commanders and the warfighters.

16 Senator Cotton: Why do you think there is such an
17 unmet demand signal? When I meet with combatant commands,
18 theater commands, whether here in Washington or downrange,
19 one consistent theme I hear -- I suspect the members of this
20 committee will hear the same thing -- is we cannot get
21 enough unmanned aerial coverage in our theater.

22 General Carlisle: Sir, I think the demand signal is
23 incredible. And clearly what the RPAs provide with respect
24 to all the way from situational awareness and intelligence,
25 surveillance, and reconnaissance -- another part of that

1 that is behind the scenes that they do not necessarily see
2 but is a big part of that is the processing, exploitation,
3 and dissemination of that information that is done via both
4 Air Force and Army DCGS, or distributed common ground
5 system.

6 It is a demand for ISR. It is the desire for that
7 unblinking eye in their entire theater so they know what is
8 going on 100 percent of the time everywhere. And that is
9 the demand signal.

10 We have to get better at how we do this. We have to be
11 more predictive in our intelligence. We have to machine to
12 machine. We have to get learning systems that can think
13 ahead of the adversary and try to address that in more
14 modern and technologically advanced ways, which goes to
15 Secretary Carter's third offset, is how do you get inside of
16 that information. So the demand signal is totally
17 understandable because they are the ones -- the combatant
18 commanders are the ones that are given the job to execute
19 the war plans, if required to, and they need that
20 information. And we are trying to meet it.

21 But there is also across all the services -- and again,
22 Chairman, you know this. There is still demand in bombers.
23 There is still demand in airlift. There is still demand in
24 fighters. There is strike capability. There is still a
25 demand in space and cyber and nuclear deterrent capability.

1 So it is the balance act that you referenced in your opening
2 statement.

3 Senator Cotton: So let us assume that the demand
4 signal from downrange is accurate and needed. Let us just
5 assume that. What is the biggest bottleneck in meeting that
6 demand? Can you not turn out the pilots quickly enough?
7 Can you not retain them? Can industry not make the aircraft
8 enough? Are we not providing enough money to do any of
9 that? Do you not have enough analysts on the backend? What
10 is the main bottleneck in this process?

11 General Carlisle: Everything. Seriously, sir, I think
12 the first thing that we had to address was training pipeline
13 and the FTU at Holloman and the money and resources we are
14 putting into that to expand that is a big part of it. And
15 then the manpower and the resources to do it. We have to
16 grow the enterprise to continue to try to meet the demands.

17 I do believe there is technology that can help us to
18 meet some of that demand across the entire ISR enterprise so
19 we can get better at that.

20 But we started with the training enterprise and the
21 fact that the pipeline was not big enough or doing enough to
22 produce the capability we needed. And then the resourcing
23 challenge of balancing that demand signal with all the other
24 demand signals -- clearly, BCA did hurt us significantly
25 with respect to manpower and resources to do things. But we

1 are addressing those. We are trying to work on those.

2 I think the idea that we could -- you know, I mean,
3 there are other ways to do this -- not other ways. There
4 are ways to take advantage of the RPAs, other forms of
5 intelligence, predictive capability, on-orbit capability,
6 other systems that are coming on. Even within the MQ-9,
7 there are new systems on the sensor side that give us
8 ultimately more capability like Gorgon Stare, which is a
9 great capability. We are deploying in that. Downrange it
10 is doing fantastic, but the back end of that is the
11 processing, exploitation, and dissemination to take all that
12 information and get it out. Is there machine-to-machine
13 ways that we can do that better? Is there learning
14 algorithms that we can do to take advantage of that? And,
15 Chairman, we are working on all of that right now.

16 Senator Cotton: Thank you, General.

17 Senator Manchin?

18 Senator Manchin: Thank you, Mr. Chairman.

19 I thank all three of you for your service and for being
20 here today.

21 General Perkins, if I may ask you. You rely almost
22 exclusively on enlisted UAV operators. Correct?

23 General Perkins: That is correct, sir.

24 Senator Manchin: Are you having a problem or the same
25 problem that the Air Force is having? I am just trying to

1 find out if there is a way we can help each other.

2 General Perkins: Sir, I understand.

3 We man our unmanned aerial systems very similarly to
4 the way we man all our other systems in the Army, whether it
5 is a tank or an artillery piece or mechanized infantry
6 carrier. And that is part of a formation. Most of our
7 weapon systems are operated and manned by non-commissioned
8 officers and soldiers, and then they are commanded by
9 officers. And so the way we operate our unmanned aerial
10 systems is a similar way. They are organic to a brigade.
11 They are organic to a division. They are part of that
12 formation. And therefore, the majority of them are operated
13 and manned by our sergeants and soldiers, and they are
14 overseen by our warrant officers and officers.

15 So right now, our biggest challenge, based on our force
16 structure, is not the manning of those. It is, as the GAO
17 report stated, what I would call our home station training
18 as we are building up that capability.

19 Senator Manchin: And, General Carlisle, it seems like
20 you all are only looking at the enlisted operators for the
21 Global Hawk fleet, when the severe shortage of operators are
22 with the Predator and the Reaper.

23 General Carlisle: Sir, the shortage of operators in
24 Predator and Reaper was not because we did not have the
25 people coming into it. We did not have the training

1 pipeline to put them through as that demand signal grew.
2 When we went from seven CAPs to 65 CAPs, we did not, at the
3 time, expand the training capacity, open the undergraduate
4 RPA training and the MQ-1/9 training fast enough to generate
5 the amount of people that the demand signal --

6 Senator Manchin: The platforms, General Carlisle, that
7 you are working versus maybe General Perkins -- do you all
8 have the same type of equipment? Are you using different
9 equipment? Is it more sophisticated what the Air Force
10 might be needing for the training that they have to have?

11 General Carlisle: Sir, there are two parts to the
12 training. There is undergraduate RPA training, which is the
13 basic, how do you fly RPAs. We have marines going through
14 our URT right now and that is similar.

15 The MQ-1C, the Gray Eagle, and the MQ-9 Predator are
16 totally different systems. The tactics, techniques, and
17 procedures doctrine would be similar, but the actual
18 training on the system between the MQ-9 and the MQ-1C are
19 significantly different. The MQ-1C is much closer to a
20 Predator, an MQ-1, which the Air Force --

21 Senator Manchin: I think Senator Cotton had asked --
22 basically I think you are having more of a licensed pilot,
23 basically a trained pilot, on some of these platforms. Do
24 you all use trained pilots, General Perkins?

25 General Perkins: Sir, what we do with our unmanned

1 aerial system operators is -- as General Carlisle said,
2 there is a significant difference in the technology and how
3 they are operated. It is point and click from the ground
4 station. There is not a stick and rudder. They are not
5 flying them. And they are automatic takeoff and landings.
6 And those are very difficult skill sets to train somebody
7 with. So ours is automated from that point of view.

8 And so as we train our operators, what we do is they
9 all go through a basic initial 8-week course, and they take
10 the FAA written exam kind of the ground week, but then they
11 do not actually have to take what would necessarily be
12 considered flying pilot training because they are not
13 actually flying it. So the basic part -- it is the same as
14 what you might call ground week and they are FAA-certified
15 for their ground week portion. They just do not have the
16 air time because they are not pilots.

17 Senator Manchin: General Carlisle, despite the fact
18 that Congress provided the Air Force authority to provide
19 higher bonuses to the RPA pilots up to \$35,000, you have
20 chosen to provide only the bonus level that is authorized
21 for all Air Force pilots of \$25,000. Knowing that you have
22 this shortage, why did you all make that decision?

23 General Carlisle: Yes, sir. So we appreciate -- and
24 again, we appreciate certainly the Senate and this
25 committee's support for that.

1 The sister services in the Department of Defense, the
2 Office of the Secretary of Defense have to have an
3 implementing guidance as part of the fiscal year 2016 NDAA.
4 And so we are still waiting on that.

5 Senator Manchin: What I am saying is it was not by
6 accident that happened. We knew you were having some
7 challenges there and we thought we would give you the tools
8 to close that gap. But then you all have not decided to use
9 it.

10 General Carlisle: And again, we truly appreciate the
11 support on that.

12 A couple of factors that I would throw in that. And we
13 truly appreciated it and as we get that implementing
14 guidance -- as a matter of fact as we come back in fiscal
15 year 2017, we are going to ask -- we brought back some
16 economic data and some information to the Senate for
17 support. We would like that authority across all of our
18 rated career fields.

19 Senator Manchin: I am sure you would. I am sure of
20 that, sir.

21 [Laughter.]

22 General Carlisle: But, sir, I am 511 fighter pilots
23 short today. So our whole entire rated career field is
24 being challenged.

25 Senator Manchin: I am running out of time here, but on

1 your fighter pilot, their pay scale is much different than
2 the person that you might be training for this and a bonus
3 to get into the system.

4 General Carlisle: No, sir. There is no hiring bonus
5 to come in and fly airplanes. We have done some changes.

6 Senator Manchin: Well, you have the \$25,000 ones.

7 General Carlisle: Once they reach the end of their
8 training commitment.

9 Senator Manchin: Right, to keep them.

10 General Carlisle: And now we are going to give that to
11 our RPA pilots as well. We would like all of those to be
12 raised, and we are asking for that in the fiscal year 2017.

13 Senator Manchin: You are saying \$25,000 will not do
14 the job.

15 General Carlisle: Sir, it is not competitive. We have
16 some studies. RAND did a study about what it takes. The
17 bonus and the flight pay has not changed since 1999. So it
18 is 17 years old. And the draw from the airline hiring has
19 reignited at a phenomenal level. So our ability to keep our
20 entire rated force in is one that we believe that we need a
21 higher bonus capability to keep those folks in the Air
22 Force, across all of them, RPAs as well as the rest of the
23 rated career fields.

24 Senator Manchin: Thank you, General.

25 Senator Cotton: Senator Rounds?

1 Senator Rounds: Thank you, Mr. Chairman.

2 General Carlisle, how many pilots are you short right
3 now with regard to the unmanned aerial vehicles, UAVs?

4 General Carlisle: Sir, we are currently about 83
5 percent manned in the RPAs.

6 Senator Rounds: 83 percent manned?

7 General Carlisle: At the 10-to-1 for the current
8 system. So let me expand a little bit on that in accordance
9 with the GAO. And Ms. Farrell pointed out these points, and
10 we have taken them to heart and we are working on them.

11 So the first thing we did was the 10-to-1 crew-to-CAP
12 ratio. We are not there yet because of the continual surge,
13 nine surges in 8 years, and the rapid increase in the number
14 of combat air patrols. We got down as low as 7-to-1, and
15 that was way too low. So the first thing we have to do is
16 get back to the 10-to-1 crew per combat line, or CAP.

17 But the next thing we have to do is -- and I kind of
18 alluded to in the statement about the 3 million hours versus
19 2.8 million hours during combat. We have no dwell in the
20 RPA enterprise. So every mission they fly from the day they
21 come out of training and they show up at their unit is
22 combat. That is unsustainable. So we have to build more
23 capacity into the RPA enterprise so that a portion of the
24 force can do continuation training, can do other things, can
25 improve the system, can take some non-combat time during a

1 tour. So the 83 percent is reference 100 percent combat and
2 no dwell.

3 Senator Rounds: I am just going to go back to what the
4 GAO finding was, and that was that at the time, if I
5 understand it correctly, you could not tell them how many
6 pilots you needed. What is the total pilot count that you
7 need to do the mission today?

8 General Carlisle: Sir, if you said stay at 60 CAPs --

9 Senator Rounds: What you would need today.

10 General Carlisle: And that part of the discussion on
11 that, Senator, is the demand signal. And so I think the
12 reason we were unable to tell them is we really did not know
13 what the end result of the demand signal was.

14 So the total number of pilots we need across the whole
15 enterprise is about 1,000, and we are about 83 percent
16 manned. But that is only to do 100 percent combat. What we
17 are trying to build to is about a third to a fourth of the
18 force in dwell. So if there is a 1,000 requirement today --
19 and I think that may be under by a little bit. Sir, I will
20 get back to you with the exact numbers. Maybe 1,084 or
21 something to that effect. Then I would probably need
22 another 300 so that I could have a third --

23 Senator Rounds: So you need 1,400, in that
24 neighborhood.

25 General Carlisle: Yes, sir.

1 Senator Rounds: So really you are probably closer to
2 about maybe 70 percent of what you really need right now?

3 General Carlisle: Yes, sir.

4 Senator Rounds: Can you share with me -- and General
5 Perkins, I would like your thought on this as well -- the
6 difference between the mission that a pilot operating one of
7 these aircraft -- tell me if there is a difference in the
8 mission between that, which is a mission flown by a United
9 States Air Force officer, and a warrant officer flying a
10 mission for an Army mission. Could you tell me the
11 differences between them?

12 General Carlisle: Yes, sir. Sir, from the Air Force
13 perspective, it is a theater asset doing theater-level air
14 power. When he takes off, he probably takes off with a pre-
15 designated mission. It is launched. He is probably doing
16 it remote split op. So he is doing it from either Ellsworth
17 or Whiteman or Creech or Holloman where some of the many Air
18 National Guard units are doing fantastic work for us. And
19 he will probably fly that mission. He could well do an
20 entire different set of mission sets across that time. He
21 could do close air support. He could do solely ISR. He
22 could do strike. He could do personnel recovery. He could
23 do interdiction. He could do interdiction and targets in
24 the deep fight.

25 So the missions that our RPAs fly -- it is a theater-

1 level asset given to the joint force commander for his
2 allocation to meet the theater-level missions that he is
3 trying to do. And it is in coordination with either the
4 land component or the maritime component, if it happens to
5 be a maritime mission like in the Arabian Gulf. So it is in
6 coordination with them, but it is under the control of the
7 joint force commander and the Air Force --

8 Senator Rounds: General Perkins, you have heard that
9 explanation. How would a mission flown by one of your
10 pilots differ?

11 General Perkins: Sir, I will compare it to our
12 helicopter pilots in the Army, both our warrant officers and
13 commissioned officers. Really two parts to it. One is the
14 actual process of flying the aircraft and the flight
15 dynamics. Obviously, with our Apaches, Black Hawks, and
16 Chinooks, the pilots, the warrant officers, the commissioned
17 officers are actually flying them dealing with the dynamics,
18 as they say, stick and rudder and all of that, and so there
19 is great skill involved with that, from that portion of it.

20 With our unmanned aerial systems, they are completely
21 automated. So it is automatic takeoff, automatic landing,
22 and then they just point and click in the ground station.
23 So that is why we referred to our unmanned aerial systems
24 are really being operated by our sergeants, soldiers, and
25 warrant officers doing a great job. But the actual physical

1 activity is significantly different.

2 With regard to the mission profile itself and how it
3 reacts to the formation, our unmanned aerial systems -- the
4 great majority of them are organic to our maneuver brigade
5 combat teams. So they are working, generally speaking, for
6 a battalion commander or brigade commander, of which they
7 are organic to that organization.

8 With our aviation assets, our Apaches or even Black
9 Hawks, they are not organic to a maneuver brigade. They are
10 generally out of a combat aviation brigade, are supporting
11 the entire division. So the level of supervision is not the
12 same as well because they are not organic to the maneuver
13 force.

14 So I think both the way that they are organized within
15 the maneuver force, as well as the requirements to actually
16 operate it, there are some significant differences.

17 Senator Rounds: Thank you.

18 My time has expired. Thank you, Mr. Chairman.

19 Senator Cotton: Senator Heinrich?

20 Senator Heinrich: Thank you, Chairman. I want to
21 thank you for holding this hearing.

22 General Carlisle, as you know, Holloman Air Force Base
23 in New Mexico serves as our Nation's premier formal training
24 unit for the RPA enterprise. And I am very proud and I know
25 you are proud of the work that they do to help give our

1 airmen the skills and training to go on and carry out what
2 we have heard repeatedly is a critical and growing mission
3 set.

4 I have long called for actions to alleviate the stress
5 on this force, to rectify personnel shortfalls, and to
6 improve the quality of life for our airmen. And I
7 specifically want to thank you for the outreach that you
8 conducted last year and the important announcements that you
9 made in December as a result of that.

10 In your testimony, you said that the sustained high
11 tempo and high levels of stress is, quote, robbing, unquote,
12 our airmen of quality of life. You have mentioned the RPA
13 pilots simply want time, time to spend with their family or
14 go to school, to train, to take a vacation, et cetera.
15 These are important to anyone's quality of life in their
16 career. And airmen throughout the Air Force are obviously
17 busy, of course, but the service seems to have done a better
18 job of balancing and, for that matter, creating sustainable
19 schedules in other career fields.

20 So can you talk a little bit about -- describe for the
21 committee why an RPA pilot's daily duties and schedule are
22 so different from other Air Force career fields.

23 General Carlisle: Yes, sir. And I think it probably
24 stems from born in combat and then the pace at which the
25 demand increased. So the RPA pilots, central operators --

1 and actually it is a crew because it is the pilots, central
2 operators. It is a communication specialist that has to
3 make sure the remote split ops is working properly and the
4 ground control station is adequately connected to the
5 forward capability of the airplane flying forward. So it is
6 in-garrison combat ops.

7 And so what our RPAs are doing is 24/7/365. And when
8 we say 60 CAPs, that means 24/7/365 days a year that all of
9 those CAPs are flying. And today that is 100 percent of our
10 force. There is no other part of the Air Force that does
11 that. There is no other part of the Air Force that has 100
12 percent of their capability engaged 100 percent of the time
13 without any continuation training.

14 Senator Heinrich: So, obviously, we have got to grow
15 the pipeline in terms of training. But what are we going to
16 do to adjust those schedules so that that is sustainable in
17 the long term and we can keep these folks within that career
18 field?

19 General Carlisle: Yes, sir. That is exactly what
20 Senator Rounds asked, and that is we need to build capacity
21 within the RPA enterprise so that we have some that are what
22 we would call dwell, just like we have deploy-to-dwell for
23 our soldiers, sailors, airmen, and marines that go
24 downrange. Something we have to come to grips with is in-
25 garrison combat operations. So folks that are doing the

1 combat mission, in the case at Creech and Ellsworth and
2 Whiteman and many of our Guard units, where every day they
3 go to work, they brief up the mission, they fly a combat
4 mission and nonstop, and then they come home. And their
5 schedules change from they are doing the days, the mids, the
6 swings. So they are doing different schedules usually they
7 are there 10 to 12 hours. So they are there most of the
8 day, middle of the day to the middle of the night, or all
9 night in that schedule.

10 And that is something that I think as a military and
11 certainly as an Air Force, in-garrison combat operations --
12 we need to build that dwell time in, which we have not done.
13 And that is the 25 to 30 percent increase in the size of our
14 RPA capability. So some portion of that force is working a
15 day schedule, is doing continuation training, is going to
16 weapons school, is taking vacation, going to school and
17 relief from the continuous combat operations.

18 Senator Heinrich: You mentioned that ACC is examining
19 the possible expansion of the RPA community to a number of
20 potential new bases or even overseas locations.

21 I wanted to bring up the fact that given -- you know, I
22 know at Holloman, for example, we have what used to be the
23 Force Space Control Squadron that is 64,000 feet of prime
24 real estate that is secure and currently not being used for
25 anything. So before we create new capacity, I think it is

1 going to be important to look around the Air Force and make
2 sure that we inventory those places where this could be just
3 a natural growth with facilities that are sort of ready and
4 waiting.

5 General Carlisle: Sir, most definitely. And when we
6 look at those new bases, we will follow the strategic basing
7 process that the Air Force utilizes. I will tell you I
8 truly believe that Holloman will be very competitive in
9 that. We will see what the basing process comes up with.

10 Senator Heinrich: Mr. Chair, thanks again for holding
11 this hearing.

12 Senator Cotton: Senator Ernst?

13 Senator Ernst: Does anybody have any questions while I
14 am getting my stuff together?

15 Senator Cotton: Senator Sullivan?

16 Senator Ernst: Thank you.

17 Senator Sullivan: Thank you, Mr. Chair.

18 General Carlisle and General Perkins, I want to ask a
19 little bit about the issue of -- you know, one of the things
20 that we have seen with regard to the combatant commanders
21 and different executive agencies is almost an insatiable
22 appetite for the ISR capability. And to me, that kind of
23 poses two questions at that theater level, which is where
24 the Air Force is very focused on that, what support or other
25 capabilities, General Carlisle, do you see that you need to

1 meet that demand, which is very, very large, as you know.

2 And then, General Perkins, has the Army looked at
3 expanding the role of its platforms beyond the organic
4 maneuver sphere to help in some ways meet the broader
5 theater-wide demand that I think all of us see as so highly
6 needed and requested?

7 General Carlisle: Sir, from the Air Force standpoint,
8 I believe that if you look at the American way of war and
9 what we are doing today, that information, situational
10 awareness, intelligence, surveillance, and reconnaissance, I
11 totally agree with, understand. When I was an air component
12 in the Pacific, I wanted all the information all the time.
13 We do.

14 So in trying to meet that, I do believe that it is a
15 question of how do you do that and what can you do with
16 respect to the whole ISR enterprise, whether it is on-orbit
17 capability, whether it is other platforms that we are
18 modernizing, it is RQX, whatever that is, MQX, whatever that
19 is. I think the RPA enterprise has come so far. I think we
20 need to elevate it to that capability in predictive
21 intelligence and some of those things that we can do in a
22 cooperative environment between all the services and all
23 their ISR capability.

24 And I will tell you that we have great interaction with
25 our Army counterparts, for example, in the distributed

1 common ground system. The Army and the Air Force -- we do a
2 lot of time cross-talk on how we process that information.
3 So I think the demand signal is appropriate, given what we
4 are asking the combatant commanders to do. We as the
5 organize, train, and equip folks in support of those joint
6 warfights and being a force provider -- I have to figure out
7 better ways to do that using technology as well as the
8 innovative spirit of our soldiers, sailors, airmen, and
9 marines.

10 Senator Sullivan: General Perkins, are you looking
11 outside that organic maneuver mission in terms of supporting
12 the broader theater demand?

13 General Perkins: Senator, exactly. As I had said,
14 most our assets are organically organized within the brigade
15 or the division. But we have -- based on this requirement,
16 on this very large demand kind of at the enterprise level,
17 the Army is now being funded for and fielding four
18 additional echelon-above-division Gray Eagle units. So
19 those are our most capable ones.

20 Our most recent one just stood up last month at Fort
21 Wainwright and is going in and will have its first flight
22 next month.

23 So we are in the process of bringing on four additional
24 Gray Eagle companies to help with this enterprise demand
25 from the combatant commanders. They will actually be a

1 little bit larger than the ones that are organic to the
2 division so that organic platoons can operate in a split-
3 base manner so that we can provide, again, a better product
4 because our demand tends to not be in one place but
5 dispersed around the world. And what we are doing now is,
6 as we are growing those additional Gray Eagle companies,
7 putting them in between divisions so we kind of balance,
8 providing an organic -- the one going in at Wainwright is a
9 division asset, but we have one echelon-above-division, one
10 already in that has already deployed because it is kind of
11 like General Carlisle says, as soon as we build it, we want
12 it. And we have three more others that we are building
13 right now.

14 Senator Sullivan: Let me ask kind of a follow-up. You
15 mentioned the Gray Eagles coming to Fort Wainwright. And
16 General Carlisle, you have a lot experience serving up in
17 Alaska. The joint training opportunities at JPARC,
18 particularly given our kind of hub of air combat power that
19 is happening -- every platform in the Air Force is up there
20 but also the Gray Eagles and the two brigade combat teams
21 that we have at Wainwright and JBER. Do you view JPARC as a
22 premier place in the Nation to help with some of not only
23 the training that the Air Force does but also the joint
24 training that could be very, very useful, particularly as
25 the Army is looking to move these more kind of strategic-

1 focused Gray Eagle units?

2 General Carlisle: Sir, I would defer a little bit to
3 General Robinson and General Brooks, who are the component
4 commanders for the Pacific, as they operate out of there.

5 But I will tell you that JPARC to me is a national
6 asset. We had the Chief of Staff of the Republic of Korea
7 Air Force with us up in Alaska, and we showed him the JPARC.
8 And we overlaid the Korean peninsula, and JPARC is twice as
9 large as the entire Korean peninsula.

10 Senator Ernst: Mr. Chairman, we are used to those kind
11 of large comparisons in Alaska.

12 General Carlisle: But the airspace, the lack of
13 encroachment problems, the ability to operate with our Army
14 brethren, and the strategic assets we have up there with the
15 F-35's coming before too long, combined with the F-22's,
16 command and control with the AWACS, bringing our partners
17 over -- I will tell you the one thing that I am pushing for
18 -- and General Robinson and I have spent a lot of time
19 talking about this.

20 In the past, we have kind of used Red Flag Alaska
21 predominantly to train our Pacific partners. I think that
22 is shortsighted. I would like the Europeans to train with
23 us I think in the future. I think for partners they need to
24 train at both Red Flag Nellis and Red Flag Alaska. I think
25 they need to do both because both of them offer incredible

1 experiences, incredible capability and different. And for
2 the joint warfight and the coalition warfight, it is
3 important. JPARC is -- two assignments in Alaska, and I
4 will tell you it is some of the greatest airspace you can
5 imagine. So it is very valuable, sir.

6 Senator Sullivan: Thank you, Mr. Chairman.

7 Senator Cotton: Senator Ernst?

8 Senator Ernst: Thank you, Mr. Chair.

9 Thank you very much for being here today, Ms. Farrell
10 and General Perkins. Thank you.

11 General Carlisle, I have lots of questions for you,
12 sir.

13 As you are probably aware, as RPA units were moved into
14 the Air National Guard, there is an issue surrounding
15 whether or not the RPA mission is an aeronautical mission in
16 nature, as defined by the Federal Aviation Administration.
17 And this lack of defining RPAs as an aeronautical mission is
18 causing risk to airports' grant assurances across the
19 country, not just in Iowa. I know that the chairman has a
20 similar situation existing in Arkansas as well.

21 And late last year, our Governor wrote to the two
22 Departments to intervene on behalf of the 132nd Fighter Wing
23 to help resolve the long-simmering issue of the FAA's threat
24 to withhold the Des Moines International Airport's grant
25 assurances.

1 So what specific steps has the Air Force taken to
2 resolve this issue or when will it be resolved?

3 General Carlisle: Ma'am, we are working very closely
4 with the FAA. I think the "see and avoid" capability of the
5 RPAs and the technology that we are putting into the RPAs
6 for that "see and avoid" -- obviously, being a pilot, having
7 spent a lot of hours flying an airplane, you cannot always
8 see it in an airplane either. There are instrument
9 meteorological conditions.

10 So we are working closely with FAA for them to fully
11 understand how the RPAs are utilized, what the safety
12 factors are, how they operate in airspace. I think we have
13 the Air Force moving out. I think we also have the academia
14 world spend a lot of time on the things that we are doing
15 with respect to technology and how we operate these
16 airplanes within airspace.

17 Currently, what we are doing in stateside and flying
18 within CONUS is we generate memorandums of agreement
19 corridors for how we can use our RPAs in the safest manner
20 possible and not send any jeopardy to the manned flights or
21 any other flight or aviation that is going on. And I
22 believe that we will continue to advance both the technology
23 and the platforms and our ability to ensure safe flight
24 between both manned and unmanned.

25 I will tell you, ma'am, my biggest concern is the

1 rampant commercial market and what is going on and how we
2 control things that have happened with RPAs that are not
3 regulated by either the Army or the Air Force that are
4 causing what I think is the biggest hazards. And I believe
5 that is where the FAA's concern is predominantly resting
6 with is that commercial enterprise and sportsmen enterprise
7 with respect to RPAs.

8 Senator Ernst: Well, certainly there is a lot of
9 division in this issue.

10 Because we have a new mission, we do not have F-16's
11 based out of our Des Moines International Airport any
12 longer. This has created quite a rift in determining what
13 is an aeronautical mission and what is not -- what is, what
14 is not. So the Air Guard is in a difficult position right
15 now. The Des Moines Airport is in a very difficult
16 position, and it has created a rift between the two
17 different groups and within our community because we do not
18 have an answer from the FAA or the Air Force on this issue.
19 It grows daily.

20 General Carlisle: And, ma'am, we are working it. We
21 fully understand that. And we have examples in other States
22 where we have worked with the FAA and resolved the issues.
23 I truly believe we will do the same thing in Des Moines in
24 the fact that we -- we have done it yet. You are right. We
25 should have been ahead of this by a bit, I would say, that

1 we have not done. But we are working hard to have those
2 dialogues and come to those agreements so we can resolve
3 this issue. Ma'am, I believe we will get there. I truly
4 do.

5 Senator Ernst: And I do hope so, General. And if you
6 can communicate that as well, I would certainly appreciate
7 it. It is an issue that we will continue to work on, and if
8 we do not see resolution coming from the Air Force or the
9 FAA, this is something that we will act on legislatively,
10 which is not what I would like to do.

11 General Carlisle: Ma'am, we will attack it.

12 Senator Ernst: Thank you.

13 General Carlisle: Yes, ma'am.

14 Senator Ernst: And also, General Carlisle, from 1941
15 to 2013, the 132nd air wing of the Iowa Air National Guard
16 flew manned aircraft, as I stated. We had F-16's. In 2013,
17 after 72 years of manned flight, this unit transitioned to
18 an RPA unit, and the pilots learned how to fly aircraft
19 remotely.

20 And I understand you have discussed already the fighter
21 pilot shortage. It is around 500. I think you might have
22 stated 511 fighter pilots you are short.

23 General Carlisle: Yes, ma'am.

24 Senator Ernst: Are some of these shortages brought by
25 transitioning those fighter pilots into those RPA units?

1 General Carlisle: Ma'am, I think you bring up a great
2 point, and that is we got to utilize the assets we have and
3 the capabilities and the trained folks we have.

4 The reason the transition occurred was because of the
5 drawdown in the force. So we lost the airplanes. So it was
6 the mission which we could take advantage of those aviators.
7 And so the challenge with the fighter pilot shortage is we
8 do not have enough airplanes to absorb young pilots and
9 train them. And so the reason that Des Moines transitioned
10 is because we retired at one point 250 airplanes in 1 year,
11 250 fighters in 1 year. And so that reduction in the size
12 of the force is what has led to this problem with respect to
13 the 11F shortage.

14 I do believe there is capability as we move into the
15 future in the size of the force that taking advantage of
16 those folks that had previously flown fighters is one that
17 we are looking to keep the 11F experience within the Air
18 Force and take advantage of it.

19 Senator Ernst: We had a panel the other day. General
20 Holmes was here, a number of others. And they stated that
21 they are short pilots, they need more pilots, and they were
22 thinking of moving some of these assets to the Air Guard and
23 Air Force Reserve. And my thought was, well, why did we
24 transition these folks into RPA units then.

25 But I do not know whether that was shortsightedness on

1 the part of the Air Force to underestimate what they needed
2 as far as fighter capabilities.

3 General Carlisle: Ma'am, it was a balance. You know,
4 it is what we talked about earlier. The RPA enterprise was
5 growing at a phenomenal rate, so we needed the RPA
6 capability. The drawdown in the fighters was driven by a
7 variety of factors, including balancing with other
8 portfolios, whether it was the space portfolio or the
9 bombers or ISR and other realms in the big wing ISR. I
10 believe that it is that balance that we have talked about.
11 How do we balance the force and provide all the capabilities
12 that the combatant commanders want? The RPA enterprise is
13 one that is in high demand. We are in high demand for
14 fighters as well. So the tradeoff between those two -- we
15 do not have enough of either.

16 Senator Ernst: No doubt. And I do appreciate the fact
17 that we have that ISR capability and that we do have the RPA
18 unit now in Des Moines replacing the F-16's. But it seems
19 to be such a waste of taxpayer dollars maybe to have
20 transitioned fighters out, replace it with an RPA unit. Now
21 we are saying we do not have enough of those fighter
22 capabilities.

23 So we had a lot of pilots that left Iowa because they
24 were seeking opportunities to fly and not fly an RPA. So I
25 do think it was a bit shortsighted, but I do not know who is

1 at fault there.

2 But I do appreciate your answers today and want to
3 thank you for being here. General Perkins, Ms. Farrell,
4 thank you very much.

5 Thank you, Mr. Chair.

6 Senator Cotton: We have at least one more Senator en
7 route. And fortunately, I have several questions to fill
8 the time until that Senator arrives or more Senators.

9 In particular, Ms. Farrell, we have not yet heard from
10 you. You have been involved in many studies and
11 assignments. You have extensive experience in this field.
12 Can you please just give a high-level summary for the
13 committee of the most important challenges you see in the
14 UAS/RPA enterprise, the recommendations GAO has made to the
15 Department, and the progress the Department is making in
16 implementing these solutions?

17 Ms. Farrell: Certainly.

18 Our report had 10 recommendations that I mentioned.
19 Seven were to the Air Force. Two were to the Army, and one
20 to OSD.

21 Of the ones to the Air Force, there were four that
22 focus on improved management of the UAS pilot community.
23 Those dealt with requirements, setting the optimum crew
24 ratios, setting the minimum crew ratio, exploring
25 alternatives for pilots such as enlisted or civilians, and

1 then developing a tailored recruiting and retention strategy
2 for the UAS pilots.

3 The key recommendation is truly about the crew ratio.
4 It keeps coming up. These shortages that are related to
5 instructors or the training pipeline, quality of life,
6 people overworking -- it always goes back to do you have
7 enough pilots.

8 And the 10-to-1 crew ratio was developed very quickly
9 in 2008 by the Air Force Manpower Agency. When we looked at
10 that ratio, the Manpower Agency agreed with us that it was
11 missing some key elements that we touched upon earlier, that
12 being launch and recovery, as well as some other key
13 administrative tasks such as evaluating flight safety.

14 When we looked at Air Force documentation of, well,
15 what are they actually flying, we found it was even less
16 than the 10-to-1 ratio. We found ranges in documentation
17 from 7-to-1 to 8.5-to-1, meaning seven pilots flying for a
18 near continuous 24-hour presence in a particular geographic
19 area. When we talked with Air Force officials about, well,
20 what happens when you do go below the 10-to-1, since you
21 already know that 10-to-1 is probably low, there were times
22 that they denied requests for the UAS support, but sometimes
23 those denials were overturned by Joint Staff because they
24 needed them to perform the mission. We were told that at
25 times the ratio was as low as 6-to-1.

1 So determining what that ratio truly is under optimum
2 conditions, as well as a minimum acceptable level, is key to
3 the Air Force determining how they go about recruiting the
4 right numbers and thus retaining the right numbers. And
5 then it spills over to the training pipeline.

6 So we would encourage them to be very aggressive with
7 that crew ratio. We know they are working on it, but we
8 think that they should be very aggressive in that area.

9 For the Army, the Army has taken actions also on our
10 recommendations. A key one was the waivers for
11 prerequisites for training instructors. We have heard that
12 the Army is working on mitigating those risks to waiving
13 certain prerequisites such as the number of flying hours,
14 and we think that that is a good step to look at how they
15 can best mitigate those circumstances. The key is also
16 going back and providing training for those instructors that
17 did not meet all the requirements to become instructors and
18 making sure that in some way they are prepared to continue.

19 Senator Cotton: Thank you.

20 General Carlisle, any thoughts on Ms. Farrell's
21 observations?

22 General Carlisle: No. Mr. Chairman, the GAO report
23 was really well done. Ms. Farrell's points are exactly
24 right.

25 In cases where the demand signal went up and our crew

1 ratio was dropping, the term was "surge." We needed to
2 surge. We ended up doing nine surges in 8 years, which
3 forced us into some of those crew ratios that were down in
4 that seven. I do remember going below seven. I am not sure
5 we ever got to six, but it was bad.

6 So the point that we are making -- I think the first
7 study came out with reference to the crew ratio and it was
8 9-to-1. We relooked at it and said 10-to-1.

9 There are two things additionally that we have done
10 that I think would go to what the GAO is talking about. One
11 is we believe that the LR squadrons, launch and recovery,
12 need to be separate squadrons and not embedded in the crew
13 ratio for the mission control elements. We have already
14 done one of those squadrons that we have broken out that
15 have unit tasking codes to go downrange. So when you break
16 out LRU, that frees up in the current status about 32 crews,
17 which gives you a crew ratio -- the 10-to-1 is a more truly
18 10-to-1 because you do not have to break out the launch and
19 recovery. So that is one thing that we are doing, again, to
20 speak to the comments that GAO made.

21 And then the second thing is the dwell time. So 10-to-
22 1 is based on combat, 60 combat lines per day, or CAPs. So
23 if we continue to grow this force, which we are trying to
24 do, and we have some in dwell, then the combat crew ratio is
25 10-to-1, but the actual crew ratio for the overall

1 enterprise will give us that much more, which allows us to
2 do all those things that she talks about, the administrative
3 tasks, the time off, the schools, the continuation training,
4 and all those things that every unit has to do as part of
5 their unit organization and what they do to accomplish the
6 mission.

7 So, again, I truly agree with what Ms. Farrell said.
8 And then we have taken it to heart. We have looked hard at
9 it, and we are sharing that as we build that manpower so
10 that we reach a crew ratio that is executable, sustainable,
11 and supportable.

12 Senator Cotton: Senator Manchin?

13 Senator Manchin: I just have one question and it could
14 be for both of you.

15 The Federal Aviation Administration has been very
16 conservative in deciding how to manage routine operations of
17 government-owned UAVs in the national airspace system.
18 Until roughly 5 years ago, each flight of a DOD-owned UAV in
19 the national airspace system had to go through an
20 extraordinary approval process that could take several
21 months for DOD to receive clearance.

22 Periodically we have received reports on the rate of
23 progress in integrating unmanned aircraft systems into the
24 national airspace. While there has been progress, I am told
25 it has been very slow.

1 So for the flights with the DOD-managed airspace over
2 DOD-controlled real estate, we understand there is not a big
3 issue at all. We understand that. However, with the Global
4 Hawk and the Predator/Reaper aircraft having
5 intercontinental range and with Army or Marine Corps' ground
6 forces not collocated with the Air Force RPA aircraft, I
7 basically suspect the Air Force will have to routinely fly
8 RPAs in the national airspace system.

9 So I guess I would ask both of you, maybe General
10 Carlisle, General Perkins, are you all experiencing
11 difficulty in operating, General Carlisle, the
12 Predator/Reaper or Global Hawks in the national airspace
13 system?

14 General Carlisle: Yes, sir, we do. And it is a
15 challenge for our training for crews that are stateside.
16 For both our launch and recovery crews, we in most cases
17 were able to either -- we were fortunate enough in the case
18 of places like Holloman where we do a predominant amount of
19 our formal training -- is it sits inside of government-
20 controlled airspace. So it becomes less of a challenge for
21 training.

22 But in places where that does not occur, then we work
23 with the FAA. In many cases we will spiral an airplane up
24 inside of the airspace that we control, usually the TFR that
25 exists over the airfield, and then we will build a corridor

1 we can come in agreement with the FAA to fly the aircraft to
2 the training airspace.

3 I think total use of the national airspace system by
4 RPAs is some period of time off. I think the FAA has issues
5 with it. I think they are probably more confident in
6 government and certainly the military's procedures on how we
7 do things. I think what concerns the FAA most is the
8 commercial enterprise or sportsmen or uncontrolled RPAs that
9 are less governed by the regulations and rules that we use
10 in the United States Air Force and the United States Army.

11 So it is a challenge. We are working very closely with
12 them. We spend a lot of time. And we have FAA
13 representatives in many of our bases. We have one at
14 Holloman that works with them all the time. We have one in
15 Arizona that works --

16 Senator Ernst: General Perkins, how is it with you?

17 General Perkins: Sir, you are correct. This has been
18 a difficult challenge that we have faced I think mainly
19 because as it came on, new technology was not something that
20 our system was necessarily set up to deal with.

21 We have had to deal with it very similar to as General
22 Carlisle has highlighted. First of all, we had to work very
23 closely with FAA. You have to gain, I think, a level of
24 understanding on both sides what their safety parameter is
25 and what our capabilities are.

1 And so what we started doing is exactly as he said. We
2 would establish a corridor, have a memorandum of agreement.
3 These are the corridors we use, say, between training areas,
4 et cetera. We would set times that we would use it to de-
5 conflict from the civilian air. And then because these are
6 by definition unmanned, just as we spoke earlier in the
7 hearing, we would have to use -- we started using a chase
8 aircraft. So you would have to follow the unmanned aerial
9 system with a Black Hawk or an Apache to provide that visual
10 if something were to go on. Of course, that is doubling or
11 tripling your overhead to operate.

12 We are now, as the Air Force is, going down and
13 procuring and working with sense and avoid radar. And so if
14 we have areas that we want to operate in the national
15 airspace, we can set up a sense and avoid radar, which
16 precludes us from now having to put twice as many aircraft
17 in the air to trace it down.

18 So I think we are making progress, but this will not be
19 solved easily because, as we have said also, the
20 proliferation of the privately owned ones there, I think
21 concern is going up rather than going down. But we have
22 made dramatic progress from when I was first involved in
23 this, but we have a long ways to go.

24 Senator Manchin: Thank you.

25 Senator Cotton: Senator Lee?

1 Senator Lee: Thank you, Mr. Chairman.

2 In early December, I sent a letter to Secretary Carter
3 regarding the process that drone operators, commanders, and
4 ultimately the White House use to initiate drone strikes.
5 Specifically, I was interested and remain interested still
6 in certain aspects of the process.

7 According to the U.S. policy standards and procedures
8 for the use of force put out by the White House, the United
9 States will use lethal force only against a target that
10 poses a continuing imminent threat to U.S. persons.

11 Yet, media reports, based off of leaked documents, seem
12 to suggest that the amount of time between when a target is
13 identified, the President authorizes the use of lethal force
14 on a target, and the execution of that strike can take a lot
15 of time, a lot of time that we do not commonly associate
16 with the word "imminent." In fact, it can take several
17 months.

18 So, General Perkins and General Carlisle, can you
19 confirm the accuracy of these reports about the length of
20 time between the identification of the target and the
21 execution of the order?

22 General Perkins: Sir, I will discuss it from my
23 experience and how we operate.

24 Again, Army unmanned aerial systems are generally
25 organic assets to a tactical formation, and having commanded

1 an infantry division in Iraq where I had these assets, as
2 long as I was operating underneath my rules of engagement,
3 it was somewhat instantaneous.

4 Now, you may be referring to some strategic targets
5 that have different planning parameters, which I am not
6 involved in that process. So I would not comment.

7 But I will tell you at the tactical level, it was not
8 an issue once the rules of engagement were established that
9 I had to struggle with.

10 Senator Lee: General Carlisle?

11 General Carlisle: Yes, sir. Thank you very much for
12 the question.

13 I would offer that if you would like at some point in
14 the future in a classified environment, we could take this
15 discussion probably to a different level. To get more
16 probably to the question you are really asking but in an
17 open forum, there are some things that we probably should
18 not discuss here.

19 But having said that, I think there are a couple of
20 things. One is custody of a potential target, and how you
21 do that in time, again that would go under the classified
22 piece. And then both the ID and continuous ID is part of
23 that custody, as well as collateral damage estimates and how
24 you deal with those. Again, those are things that when you
25 talk about strategic targets and the things you are talking

1 about, at a higher classification level, we could go into a
2 deeper discussion about what we provide and what the Air
3 Force does in accordance with how we do that.

4 I do believe truly that with respect to rules of
5 engagement and rules and laws, that we in the United States
6 Air Force follow all of the rules of engagement and follow
7 all of the laws in accordance with the law of armed conflict
8 and the appropriate laws that pertain to that, sir.

9 Senator Lee: Thank you.

10 A number of members of this committee are concerned
11 about cybersecurity issues across the Department of Defense,
12 as state and non-state actors alike seem to be increasing
13 their threat capability in this area.

14 Drones rely completely on wireless technology, of
15 course. That is what makes them valuable. It is what
16 enables them to do what they do, the use of wireless
17 technology to be connected with their operators in other
18 parts of the world. And this creates an obvious area of
19 security concern.

20 I would like to know how is the Department of Defense
21 working to protect the operational security of unmanned
22 vehicles from crippling cyber attacks and potentially a
23 cyber hacking incident that could compromise their security
24 here.

25 General Perkins: Sir, that is a major concern across

1 that whole domain. I will address it initially with our
2 unmanned aerial systems. Right now, without getting into
3 too many details in this forum, our number one modernization
4 issue, specifically with our Shadow and the Gray Eagles as
5 they come out, is encrypting and protecting that
6 communications link I guess is the best way to say it and
7 the data protection. And so that is our number one
8 modernization issue right now with our Shadows is to protect
9 it from the type of threat that you talked about.

10 General Carlisle: Yes, sir, Senator. Again, same
11 thing. We are looking hard at all the different ways, and
12 there is cyber protection and there is the way that you make
13 it more difficult for them to get into those nodes via
14 encryption, via directional, via the type of waveform, and
15 the capability you are using with respect to directional
16 data links and things like that. But there is, again, a
17 level, if you would like in a future environment, we can
18 come and spend time at a classified level talking about the
19 things we are doing for cyber protection.

20 But I think in general for the United States Air Force
21 in particular is we all know that everything, almost to an
22 item, that we employ has cyber challenges and
23 vulnerabilities that we have to protect. And we are looking
24 hard at what cyber operations in the future and cyber
25 protection of all systems in the future look like and how we

1 are doing that. And that is one of the big areas that we
2 are moving forward on in the Air Force as part of our cyber
3 defense.

4 Senator Lee: Mr. Chairman, I have got one more follow-
5 up with General Carlisle if that is all right.

6 On January 20th, the "Washington Post" reported that
7 the Air Force RPA force has been experiencing an increase in
8 electrical and in mechanical failures, causing the
9 destruction or sustained damage to 20 large drones last
10 year. This includes 10 MQ-9 Reapers which, when fully
11 equipped, cost \$14 million to replace.

12 So, General, can you tell us what the Air Force is
13 doing to investigate the common causes of these types of
14 accidents and how you are working to make the RPA fleet more
15 sustainable?

16 General Carlisle: Yes, sir. It has generally been
17 centralized on the starter generator, which is the problem
18 in the MQ-9 community. The new MQ-9's and the block 5
19 MQ-9's that we are producing now have a different electrical
20 system. So it does not have the same starter generator. It
21 does not have the same problem.

22 With the older block 1 MQ-9's, the starter generator is
23 a problem. We have worked with the manufacturer. We found
24 some quality control issues. We really have not found the
25 root cause in that, though. But we have put in and we are

1 modifying the current block 1 MQ-9's with a thing called
2 ESIP, electrical safety improvement program. And basically
3 we put a direct-drive, brushless alternator that allows 10
4 hours of flight capability if you lose a starter generator,
5 which has caused those accidents that you referenced,
6 Senator. And just since last April, we have recovered 17
7 MQ-9's using this direct-drive, brushless alternator. So
8 that gives us the capability with the older MQ-9's, the
9 block 1's. The block 5's -- it is not a factor, sir.

10 Senator Lee: Thank you very much.

11 Senator Cotton: Senator Gillibrand?

12 Senator Gillibrand: Thank you, Mr. Chairman.

13 General Carlisle, the Air Force is offering retention
14 bonuses for the RPA pilots for the first time in fiscal year
15 2016. How significant is your shortage of pilots? And
16 since the bonuses have been implemented, have you seen
17 significant interest? To what degree is the Air Force
18 encouraging RPA pilots who want to leave active duty to stay
19 in Reserves or National Guard, and how is this shortage
20 impacting your ability to meet strategic needs?

21 General Carlisle: Yes, ma'am. We did a career
22 incentive retention pay of \$25,000. In fiscal year 2016 and
23 2017, that only applies to 29 folks in the RPA enterprise.
24 To date, we have seen that we do not have the final number
25 on take rate based on this year yet because, obviously, we

1 are still in the middle of the year. But we have a fairly
2 positive response from the RPA community with respect to the
3 retention bonus.

4 We are short. We are very much encouraging folks to
5 stay with the Air Force in another component, either the Air
6 National Guard or the Air Force Reserve.

7 We actually have a rated problem across our Air Force.
8 We are working with Congress in fiscal year 2017 to raise
9 that to \$35,000, if at all possible, across the entire rated
10 force to try to maintain the level of folks we need within
11 the Air Force and increase the take rate so we can keep that
12 experience capability and those incredible airmen doing the
13 job we are asking them to do, ma'am.

14 Senator Gillibrand: So do you think pay is
15 fundamentally the reason why you do not have the force you
16 need?

17 General Carlisle: Ma'am, I think it is a combination.
18 There is kind of three components. I think it is quality of
19 life and the family. I think it is job satisfaction with
20 the job they are doing. And then I think it is
21 compensation. And I think every airman takes all three of
22 those into account. We know that we cannot compete with
23 General Atomics if they want to hire and pay somebody to be
24 a contractor RPA pilot. And we cannot compete with the
25 airlines that want to hire our pilots. But if we can

1 increase the compensation somewhat and we can improve their
2 quality of life, we know that the job satisfaction of both
3 the RPAs and the manned pilots -- they find great job
4 satisfaction. Frankly, it is higher than it is in the
5 civilian community.

6 So it is a combination of all three of those. We have
7 to improve their quality of life. If we could increase
8 their compensation, combined with their job satisfaction, I
9 believe we can keep the right folks in our Air Force.

10 Senator Gillibrand: And have you thought about
11 utilizing Guard and Reserve as a backup?

12 General Carlisle: Ma'am, our Guard and Reserve is
13 hugely engaged in the RPA enterprise. As a matter of fact,
14 they are mobilizing and volunteering to pick up three
15 additional lines to allow us to get healthier. And the
16 Guard and Reserve are phenomenal in what they do in
17 supporting the joint fight. It is one Air Force. And doing
18 the mission, you cannot tell the difference between a
19 guardsman or a reservist or an active duty member, ma'am.

20 Senator Gillibrand: Thank you.

21 Ms. Farrell, I went to Africa recently on a CODEL, an
22 anti-terrorism CODEL. And one of the concerns that was
23 raised was the limited amount of ISR capabilities that
24 AFRICOM shares with EUCOM. What is your assessment our ISR
25 capabilities versus our needs?

1 Ms. Farrell: Senator, that really would be better
2 addressed by one of the generals. Our focus was really on
3 the human capital management aspect and the shortages, but
4 not a particular geographic area.

5 Senator Gillibrand: General Perkins?

6 General Perkins: Senator, the demand on unmanned
7 aerial systems, like almost every other asset that we have,
8 is somewhat insatiable. And I can understand that. Having
9 commanded in combat a number of times, I created insatiable
10 demands. You can always use more infantrymen. You can
11 always use more intelligence, surveillance, reconnaissance
12 systems. So I am sure they have a very high demand.

13 And so as we are growing demand from 200 systems to
14 over 7,000, we have to grow it as a system. So it is
15 growing the operators, growing the training base, growing
16 the actual systems themselves, and then the force structure.
17 So I think we have got about the right balance, and then it
18 is just deciding where to use that for the biggest return on
19 investment.

20 Senator Gillibrand: Thank you.

21 Thank you, Mr. Chairman.

22 Senator Cotton: Ms. Farrell, I want to discuss
23 something related to what Senator Gillibrand was raising.
24 She was talking primarily about compensation and the bonus
25 pay. I want to talk about quality of life and job

1 satisfaction.

2 I know you and your team have spent quite a bit of time
3 around the units and the operators and pilots in both the
4 RPA and the UAS community, as have members of this committee
5 and some of our very capable professional staff. Could you
6 provide your perspective on those quality of life and job
7 satisfaction issues, things like the amount of hours worked,
8 availability of child care, availability of housing, the
9 pride in the work done, and the morale of those personnel?

10 Ms. Farrell: Yes, sir. We did visit 10 sites in total
11 between the two reports issued in 2014 and 2015 for the Army
12 and the Air Force and one Marine Corps location. And we did
13 conduct focus groups. The focus groups are
14 nongeneralizable. We do analyze the information we get from
15 those groups to see if we are looking at themes and we did.
16 For the Army, we administered also a questionnaire to six
17 units, RPA units, to gather information.

18 As for the morale for the Air Force -- and again, this
19 was in 2014 -- in all 10 of the focus groups that we met
20 with, the morale was reported to be low. Another factor
21 that I think enters is about in 4 of 10 of those focus
22 groups, members reported that they believed the stigma was
23 attached to being an RPA pilot in a negative way, and that
24 some, including some commanders, even thought that perhaps
25 the Air Force had missed their recruiting goals in 2011 and

1 2012 because of the stigma associated. You know, those are
2 perceptions. GAO likes data.

3 We did look at promotion rates, and we found that in 20
4 of 24 promotion boards over a certain period of time, RPA
5 pilots were promoted at a much lower rate than the line of
6 the Air Force. And we also found that for 9 of those 24
7 boards, that RPA career field fell at the bottom as well.

8 As far as other comments about training or sense of
9 worth, we would hear in the focus groups that this was a
10 valuable mission. We heard repeatedly, though, with Army
11 focus groups -- there were eight -- that they wished they
12 could get the training. It seems like with the Air Force,
13 the problem was they wanted more training, and they wanted
14 improved training. And for the Army, they were wanting the
15 training. We heard repeatedly in all the focus groups and
16 in five out of six of unit questionnaires that were provided
17 back to us that they had difficulty doing the training.

18 For example, one person noted that over a 3-year
19 period, they had only done about half of the required
20 training. And he and others reported to us that they were
21 pulled for non-training activities. Units reported that
22 this happened often because of resource constraints, broken
23 equipment. It was a variety of reasons that that was
24 reported.

25 For the quality of life, as you have heard, the Air

1 Force and the Army are structured very differently. And
2 there could be a huge advantage for the Air Force RPA
3 community being structured the way they are, being deployed
4 at station once they can get their shortages fixed because
5 currently, as you know, that quality of life is impacting.
6 We hear over and over in all the focus groups that they
7 would almost rather be deployed for 6 months overseas than
8 at their home station for 3 years because they do not know
9 when the end is going to happen. It is so difficult for
10 them to do the mission, and then after the mission is over,
11 all those other things that happened when they are stationed
12 in the States. And then some of them have families. So
13 there is a number of issues that need to be addressed.

14 But, again, I go back to setting the pilot requirement
15 is imperative because it spills over to all these other
16 issues of making sure that you have got a enough so that
17 somebody is not working 23 hours a day.

18 Senator Cotton: You mentioned stigma they felt. You
19 said that was a perception. So could you elaborate a little
20 bit on the perception as you heard it from members of the
21 community?

22 Ms. Farrell: Yes. We heard from about 4 out of 10
23 focus groups that there was a negative perception because
24 with an RPA -- again, this was the Air Force focus groups --
25 they are not actually in the cockpit. That then would be

1 interpreted as of less value.

2 We heard from both Air Force and Army that there is
3 just not enough known about that RPA or UAS community, that
4 there needs to be more education going up the chain. We
5 have seen the Chief of Staff for the Army, for example,
6 directing reviews to understand more about what is going on
7 with UAS training. So it appears that perhaps you have got
8 some of the senior leadership paying attention and the RPA
9 pilots are trying to decide if they want to stay. But in
10 between, there needs to be an awful lot of education about
11 what this community brings.

12 Senator Cotton: So that is stigma inside the service
13 primarily or in society, or both?

14 Ms. Farrell: Both. The stigma specifically inside the
15 Air Force in terms of perhaps impacting on their promotions
16 -- that is the reason we did look at the promotion rates --
17 but also in recruiting, that they do not have enough pilots
18 with the experience to go be recruiters to also help
19 overcome any stigma that might be associated with bringing
20 them into the Air Force.

21 Senator Cotton: General Perkins, how many times did
22 you serve in Iraq?

23 General Perkins: Sir, I have had --

24 [Audio disruption.]

25 General Perkins: The best offense is generally a good

1 way to go about this.

2 Senator Cotton: General Carlisle, do you think there
3 are many people who are contributing more to the mission of
4 killing ISIS terrorists than your RPA pilots?

5 General Carlisle: No, sir. I think the RPAs are at
6 the head of that mission. They are doing phenomenal work.

7 Senator Cotton: Maybe our society should pay them the
8 respect they deserve then and honor their service and not
9 attach any stigma to what they do since they are keeping us
10 safe in our beds at night.

11 Senator Gillibrand, a second round of questions?

12 Senator Gillibrand: I have no further questions.

13 Senator Cotton: I still have a few more. You are all
14 excited to hear that.

15 Senator Manchin, any second-round questions?

16 Senator Manchin: No.

17 Senator Cotton: General Carlisle, a lot of the
18 questions here today, obviously, are focused on the use of
19 officers versus enlisted personnel to fly remotely piloted
20 aircraft. In 2014, a GAO report recommended the Air Force
21 consider the use of enlisted pilots on MQ-1's/MQ-9's. The
22 Air Force declined that recommendation, and it said, quote,
23 it considered assigning enlisted personnel as RPA pilots,
24 but it decided that the responsibilities of piloting an RPA
25 were commensurate with the rank of officer instead. End

1 quote. Yet, just in January, the Air Force has seemed to
2 reverse its position by announcing that enlisted personnel
3 will begin flying the RQ-4 Global Hawk.

4 One, was there new information or a policy change that
5 led to this position in January, and two, could we just get
6 your bottom line answer on whether you think it will ever be
7 the right course of action for the Air Force to use enlisted
8 personnel to fly its RPAs?

9 General Carlisle: Yes, sir. So we did announce that
10 we are going to have enlisted pilots fly the RQ-4. It is
11 closer to the Army system, reference, point, and click. It
12 is a singular ISR mission that they do. And we have all the
13 confidence in the world that they are going to do a
14 phenomenal job.

15 With respect to the MQ-1/9, our challenge, as I
16 mentioned earlier, was we did not grow enough training. So
17 whether we put officers through that training or enlisted
18 members through that training, we did not have a large
19 enough training enterprise.

20 The second challenge that we faced as we moved forward
21 in the MQ-1/9 world was the rate at which the demand
22 increased. If you took a person that was already pilot-
23 qualified, that training was shorter and quicker so you
24 could get them into an actual RPA mission sooner, which
25 given again the demand, that was of value. So that is why

1 we did not start back with enlisted members in the RPA
2 community.

3 We are going to very deliberately implement the RQ-4
4 enlisted operators. I will brief the Secretary probably in
5 May. I imagine that sometime in late 2016/early 2017, we
6 will have enlisted members flying the RQ-4.

7 As we learn from that, we will look at the MQ-1/9
8 enterprise, and there may be -- we may, in fact, do that.
9 We do not know the answer to that right now, Mr. Chairman.
10 I do believe that the difference between Dave and I that we
11 have talked about between the employment, the way the Air
12 Force employs the MQ-1/9 in particular in theater-level air
13 power across multiple mission sets in a very dynamic
14 environment is a different CONOPs or an employment concept
15 than an organic RPA to a ground commander in a ground unit.
16 But that does not indicate in any way that we are not going
17 to continue to look at it, and that may, in fact, be the
18 right answer. It will take us a bit of time as we look at
19 that, sir.

20 Senator Cotton: So the answer to the question right
21 now, will the Air Force use enlisted personnel to fly the
22 MQ-1/MQ-9, is maybe.

23 General Carlisle: Yes, sir. We do not know. We are
24 going to start with the RQ-4.

25 Senator Cotton: You are going to start with the RQ-4

1 and evaluate both the results of that initiative and how you
2 might transfer those lessons to the MQ-1, MQ-9.

3 General Carlisle: Exactly, sir.

4 Senator Cotton: And what is a timeline for a yes or no
5 answer to the question as opposed to a maybe?

6 General Carlisle: Sir, I think as we start the
7 implementation and getting the enlisted and operators
8 trained on the RQ-4 and then flying the RQ-4, we probably
9 will probably not even be able to implement that prior to
10 late 2016/early 2017. So I would guess it would probably be
11 in 18 months from now when we would have a significant
12 amount of information and data and understanding of how that
13 went before we would relook at the MQ-1/9 discussion.

14 Senator Cotton: I want to return to an exchange you
15 had with Senator Rounds as well, and I apologize if I did
16 not catch this. Could I get the bottom line answer for how
17 many pilots you need today to meet demand?

18 General Carlisle: Sir, we are about 83 percent manned
19 right now, and that is of about 1,100 required to do the
20 entire enterprise at a 10-to-1 crew-to-combat lines ratio.
21 We need an additional probably 300 to get some dwell
22 capability so that we have part of the force that is not
23 doing combat and is doing continuation training. So I think
24 the total number -- and I will come back with the exact
25 number, but I think the number that we are looking at is

1 around 1,400, sir.

2 Senator Cotton: So you need 1,100 to do the mission.
3 You need 300 to build up enough dwell time, for a total of
4 1,400.

5 General Carlisle: Yes, sir.

6 Senator Cotton: And at 1,100 needed for the mission --
7 are you saying 83 percent of 1,100?

8 General Carlisle: Yes, sir, something in that vicinity
9 as we grow.

10 Senator Cotton: I am not great at math, but that
11 sounds like you have about 900?

12 General Carlisle: Yes, sir. That is about right, 900
13 and something.

14 Senator Cotton: So you have 900 today. You need 1,100
15 to meet mission requirements. You need 1,400 to meet
16 mission requirements and provide appropriate dwell time.

17 General Carlisle: Yes, sir. Right now, we have 981
18 for a requirement of 1,180.

19 Senator Manchin: My only thing just for clarification
20 was along those same lines here. Did I understand you
21 earlier saying, General Carlisle, that you were 500 fighter
22 pilots short?

23 General Carlisle: Yes, sir. 511 to be exact.

24 Senator Manchin: 500 short.

25 General Carlisle: Yes, sir.

1 Senator Manchin: The shortness you have right now is
2 300 for drones. And you have more shortage in fighter
3 pilots than drones?

4 General Carlisle: We are about 200 short. 981 is what
5 we are assigned, and we are 1,180 is authorized. So we are
6 about 200 short in the MQ-1/MQ-9 world. We are about 500
7 short across all fighter pilots. So that is all platforms,
8 F-16's, F-15's, A-10's, F-22's.

9 Senator Manchin: I thought it was like a 3-to-1
10 difference. For every one fighter pilot, you were three UAV
11 pilots short.

12 General Carlisle: No, sir. If you include the entire
13 fighter force, that is a larger --

14 Senator Manchin: I understand.

15 General Carlisle: It is a pretty large number. You
16 know, the fighter community reference the line cockpits, the
17 training, the test, and then all the other demands on that
18 fighter community for COCOM positions and staff positions
19 and things.

20 Senator Manchin: General Perkins, are you all short?

21 General Perkins: Sir, right now, based on -- again,
22 when we build a capacity -- and we are still building some
23 of our Gray Eagle companies -- we try to bring both the
24 force structure, as we procure the equipment, and the pilots
25 up. So with regard to our Shadow operators that are with

1 our organic maneuver brigades, we are at 100 percent. And
2 with our Gray Eagle manning, we are at 98 percent.

3 Senator Manchin: What kind of bonuses are you giving?

4 General Perkins: Well, sir, when you sign up to be a
5 15 Whiskey, which is our unmanned aerial system operator,
6 that is a 6-year enlistment, which is longer than most. You
7 can become an infantryman for 3 years. So you do have to
8 commit for a longer period of time. Then once you complete
9 your 6-year enlistment, right now you can reenlist, but
10 again it has got to be for 5 years after that. And
11 currently that is a \$11,000 bonus after you have completed 6
12 years, to reenlist for another 5.

13 Senator Manchin: Can you help the Air Force with some
14 of your excess 100 percent and get them up?

15 General Perkins: Well, we work very closely with the
16 Air Force. They help us out in the field all the time.

17 Senator Cotton: I want to actually touch on something
18 related here about training times. General Perkins, you are
19 going to graduate a bunch of new privates from basic
20 training on Friday. Correct? All around America.

21 General Perkins: Correct.

22 Senator Cotton: And then they will go on to what is
23 called advanced individual training.

24 General Perkins: Yes, sir.

25 Senator Cotton: Some of them will complete in their

1 same station what they call one-station unit training.

2 General Perkins: Right.

3 Senator Cotton: So those proud new privates, when they
4 get out of basic training on Friday, if they are going on to
5 15 Whiskey training to be one of your operators, how long is
6 their advanced individual training?

7 General Perkins: So, sir, they will leave, say, Fort
8 Jackson or Fort Sill where they do their basic training.
9 They will go out to Fort Huachuca where we do all of our 15
10 Whiskey training. They all get -- now, this is post basic
11 training, which is 10 weeks. They get 8 weeks of what I
12 refer to as ground week. They got to take the FAA written
13 exam, et cetera. If they are then going to be our Shadow
14 operator, which is sort of our mid-level with our organic
15 brigades, that is 10 additional weeks. And then if they are
16 going to be a Gray Eagle operator, which includes an
17 instrumentation requirement, that is 25 weeks. So if they
18 are going to be the Shadow operator, that is going to be 18
19 weeks of AIT. If they are going to be a Gray Eagle
20 operator, that will be 33 weeks of AIT.

21 Senator Cotton: So I have a few comparative numbers
22 here in front of me. Your repairmen take 17 weeks of AIT?

23 General Perkins: Correct. Generally our longest --
24 and there are different kinds of repairmen, but if you look
25 across the Army, it averages about 12 weeks between the

1 lowest and the highest. Generally our military operational
2 specialties that have the highest or the longest AIT are our
3 repair people because they have got to go through the
4 troubleshooting. They have to learn the electronics,
5 mechanics, et cetera. So our Patriot repair people, our
6 radar repair people -- those tend to be our longer AITs
7 because of the requirement to understand the technicality of
8 what is going on and being able to troubleshoot, et cetera.
9 So that is probably a medium number you said for our repair
10 people in general.

11 Senator Cotton: That is just for the people who are
12 repairing the very aircraft that these operators are flying.

13 General Perkins: Correct.

14 Senator Cotton: Just 1 week less to learn to be a
15 repairman for one of those aircraft as opposed to being an
16 operator.

17 You are right about the repair AIT times. A basic
18 television equipment maintainer takes 24 weeks of AIT. A
19 Patriot repairman takes 45 weeks. Not even the Gray Eagle
20 operators take that long.

21 General Carlisle, when you have new officers, they pin
22 on their 2nd lieutenant bars. How long do they undergo
23 training before they are prepared to operate the MQ-1 or
24 MQ-9?

25 General Carlisle: Sir, first they go through

1 undergraduate RPA training, which is held at Randolph, and
2 that usually lasts about 6 months. And then from there, if
3 they are going to RQ-4, they will go to Beale and get RQ-4
4 training. If they are getting MQ-1/9, they will go to
5 Holloman for that training, and that lasts between 4 and 6
6 months. So it is about a year.

7 The challenge we have right now is -- and one of the
8 things we are trying to do is our training pipeline is very
9 inefficient. And so we have to get better at moving those
10 folks through. Part of it is class start time dates, the
11 other required training they have to do. But we are working
12 hard to get efficiency within that.

13 The actual full-up training to when we send them to a
14 unit and then once they get to the unit, they go through
15 their mission qualification training, but usually that is a
16 top-off while they are doing combat missions.

17 Senator Cotton: And I make the comparison and ask the
18 question to highlight the challenges the Air Force has,
19 whether you use officers or whether you ultimately use
20 enlisted personnel and moving people from the schoolhouse to
21 the front lines because I think that is going to be a
22 continued bottleneck no matter what course you take on who
23 is piloting the aircraft or whatever kind of additional
24 bonuses that you are going to provide or whatever kind of
25 additional quality of life measures on which you can

1 improve.

2 Senator Manchin, anything further?

3 Senator Manchin: No.

4 Senator Cotton: Well, we will conclude. Thank you
5 very much for participating in what is a very important
6 hearing. As you can see, there is a lot of interest in this
7 topic on the committee. And I want all of our pilots and
8 our operators to know that the members of this committee and
9 the Americans that we represent appreciate their service and
10 thank them for keeping our country safe.

11 This hearing is adjourned.

12 [Whereupon, at 4:14 p.m., the hearing was adjourned.]

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