

April 28, 2014

NTSSC This Week

Natick Soldier Systems Center Publications Office



Army testing combat boots, camouflage patterns

Also inside:

2013 Department of Defense Thomas Jefferson & U.S. Army MG Keith L. Ware Award-winning Digital Publication



Publisher's Note

John Harlow
USAG-Natick and NSSC Chief of Public Affairs



Newsletter wins DoD award

You might notice something a little different on the cover of *NSSC This Week*.

We have added another award since we last printed. On Tuesday, April 22, we found out we earned first place in the Department of Defense Thomas Jefferson Awards Program for best digital publication.

I want to take a moment and thank the leadership of the Natick Soldier Systems Center who encourage their subject matter experts to share the great work being done on this installation.

Not many people outside the Public Affairs world understand what a big deal this is to people like us.

We competed against the U.S. Naval Academy Public Affairs Office and the U.S. Air Force Judge Advocate Corps magazine.

Obviously, both of those organizations had more assets to accomplish their mission, but our little group still won.

Our little group is a great group to work with. We (Bob Reinert, Tazanyia Mouton and I) work hand in hand with Kelly Field from USARIEM, Phil Fujawa and Dave Kamm from NSRDEC StratComm, Jane Benson and Alexandra Foran, who are contract writers from NSRDEC Public Affairs, and work story ideas with Kyle Stewardson from PM-FSS.

That is nine total people who write, take pictures, design or provide story ideas for our publication, which is released every two weeks. The Air Force JAG submission had 26 writers, six editors and a managing editor, and the Naval Academy PAO shop has at least twice the assets that we have.

In the nearly 60 years that Natick has existed, this year was the first win at the Department of the Army and DoD competitions for the installation.

NSSC This Week is submitted by the USAG-Natick Public Affairs Office, but our goal is to tell the entire Natick story.

This is an award for the entire installation. The leadership who encourages storytelling, the subject matter experts who share the story and the team I work with who get that story told with great words, photography and design.

Congratulations to all of you and thanks for making *NSSC This Week* an award-winning publication.

John Harlow
USAG-Natick and NSSC Chief of Public Affairs



NSSC This Week

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About this newsletter

NSSC This Week is a biweekly newsletter covering NSSC news within the Army and commercial media.

NSSC This Week is maintained by the USAG-Natick Public Affairs Office.

Art Direction by Philip Fujawa, NSRDEC Strategic Communications.

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On the Web: www.army.mil/natick

Cover photo: Staff Sgt. Isaac A. Graham

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Within the Gates

NSSC recycles ... Do you?

By Rich Valcourt/USAG-Natick
Environmental Engineer

Recycling is more than just tossing your soda cans, cardboard or paper into the recycling container to divert materials from the solid waste stream or keeping waste from being incinerated or disposed of at a local landfill.

It helps complete a cyclic process of manufacturing and conservation, saving energy that would be used to make new goods. It also reduces the generation of environmental pollutants that foul our air and water.

As a steward of the environment, NSSC operates and maintains a single-stream recycling program in which materials are co-mingled into single recycling containers and collected. Here at NSSC, it's just as easy to use the recycling bin as it is to use your waste basket.

Since the inception of the single-stream recycling program in fiscal year 2010, NSSC has generated more than 425 tons of recyclable materials. That's equivalent to saving 6,000 trees or eliminating the need for 1,000 cubic yards of landfill space.

The single-stream recycling program accounts for up to 37 percent of NSSC's solid waste diversion. Added to the installation's scrap metal recycling program, that diversion rate increases to more than 50 percent -- the Army's goal.

For more information on Natick's recycling program, contact Richard Valcourt at ext. 5582 or richard.a.valcourt2.civ@mail.mil.

Upcoming Events

Blood Drive

The next American Red Cross Blood drive at NSSC will be held Friday, May 2 from 9 a.m. to 2 p.m.

To make an appointment, go to www.redcrossblood.org. For more information, contact Kaity Lawler at (781) 439-0513, or katherine.lawler@redcross.org.



Photo: Staff Sgt. Isaac A. Graham

“We do this rigorous user testing because we want Soldiers to trust and have confidence in their equipment so they can focus on their primary mission. And we’ve built up that trust over a number of years.”

Col. Robert F. Mortlock

Best Foot Forward

Army testing combat boots, camouflage patterns

Young Soldiers often want to wear a uniform that looks cool, while lawmakers want cost effectiveness, but the Army’s priority is protecting the Soldier from harm.

That’s what Col. Robert F. Mortlock, project manager for [Soldier Protection and Individual Equipment, Program Executive Office Soldier](#), said he aims for, along with other important goals like comfort, fit, price, protection from the environment and durability.

JUNGLE BOOTS

As the Army pivots to the Pacific region, it is looking to develop a new jungle boot. Testing of some vendor-supplied prototypes could begin this summer, Mortlock said.

A good jungle boot, he explained, would shed water, meaning it can dry out fast after submersion. It also would be lightweight and breathable to minimize the effects of high temperatures and humidity. The lugs (tread) on the outsole would also be able to trek through mud with minimal slipping. Also, the leather should not dry out and crack from repeated wetting cycles.

The most important factor in the development of the jungle boot — or any new boot for that matter — he said, is Soldier feedback from real-use, rigorous testing.

“We do this rigorous user testing because we want Soldiers to trust and have confidence in their equipment so they can focus on their primary mission. And we’ve built up that trust over a number of years,” he added.

BOOT IMPROVEMENTS

One of the biggest recent improvements in boot design is “direct-attach outsoles.” Mortlock explained that soles that are glued, not stitched, to the bottoms of boots, make some pairs of Army Combat Boots up to 1 pound lighter. The direct-attach outsoles are also less apt to separate after long, rough usage.

But equally importantly, he said, direct-attach outsoles have reduced lower leg injuries to

Soldiers because they reduce the shock transferred to the foot and leg.

The adoption of “universal sizing” is also important. Until the Army adopted universal sizing, a Soldier wearing size 10.5 boots and who ordered another pair of the same size from another vendor might find the new boots somewhat smaller or bigger than the boots being replaced. This is because commercial vendors use different molds, or “lasts” for building their footwear. The Army now requires that a universal “last” or mold, be used by all of its boot vendors to ensure that Army-issue boots have universal sizing. This will reduce the logistics trail and save time for Soldiers and their units, Mortlock added.

Another criteria, that doesn’t really relate to safety and comfort, is that any boot that’s produced for Soldiers and issued by the Army has to be made entirely in the U.S. out of U.S.-manufactured textiles and materials, per the Berry Amendment, which was originally passed by Congress in 1941, and codified into law as 10 USC 2533a. Soldiers are authorized to wear boots of their choosing, even if they are not Berry Amendment compliant, as long as these boots conform to

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Tough Ruck

Soldiers march on this Massachusetts trail of memories

By Staff Sgt. Jerry Saslav, Massachusetts National Guard / CONCORD, Mass. (April 21, 2014)

Over 300 heads bowed in remembrance as Steve Fiola said, “The primary reason we are here is to pay tribute and to honor our fallen.”

Fiola, a core member of Tough Ruck, stood in front of a large group of service members, veterans, Gold Star Families and other supporters. “So I’m going to ask that we take a moment in silence to honor our fallen brothers and sisters.”

A diverse group of men and women gathered on a small hill overlooking the North Bridge, where 239 years earlier men of the Massachusetts Militia had turned back the British Army on the opening day of the American Revolution. The people who gathered on April 19, 2014, were Soldiers, Airmen and a U.S. Marine representing the active duty, National Guard and Reserve components as well as military cadets, veterans and citizens.

They had come together from many parts of the country to take part in a charity event, the Tough Ruck to raise money for the Military Friends Foundation, a private organization that assists military families in need. As the historical reenactors kept alive the memory of April 19, 1775, the people on the hill prepared to keep alive the memory of those no longer living in a very military way; they would march 26.2 miles wearing their military uniforms and carrying rucksacks weighing on average 30 to 40 pounds. Many rucksacks were adorned with large streamers bearing the name of a service member no longer living.

Marching with a rucksack is known as rucking and this year’s event almost did not happen.

For many years many of these same individuals had marched along the route of the Boston Marathon, passed by the runners and cheered on by the crowd. The attack on the 2013 Boston Marathon changed that tradition.

Due to security concerns, backpacks and rucksacks were banned from the course. Fiola, one of the core members of Tough Ruck, a private organization, reached out to the National Park Service and the Trustees of Reservations and received permission to start and end the ruck at the historic Old Manse museum and conduct the majority of the march on the trails of the [Minute Man National Historic Park](#).

The 297 ruckers left as a group just after 7 a.m. and began what for many would be a six hour and 26.2 mile journey on the road.

“I’m feeling great, my feet are killing me, but I’m feeling great,” said Spc. Adam Ayer, fire support specialist, Headquarters and Headquarters Battery, 1st Battalion, 101st Field Artillery Regiment. “It’s definitely a long walk. I feel kind of guilty feeling pain. I think of the pain that the families have been put through, the pain that the Soldiers have been through and for me ... my feet ... it doesn’t seem really that important.”

Ayer was rucking for six service members. Last year he was on the Boston Marathon Route.

“I actually think this ruck is more challenging than the Boston Marathon,” said Ayer, “This one has a [few] more hills ... the terrain’s a lot different. You have the crowd that motivates you at the Boston Marathon ... with this one ... you’re by yourself and you have a lot of time to think.”

Not everyone was by themselves; a large group of Air National Guardsmen stayed together.

Col. Andrew Lawlor, staff judge advocate, Joint Force Headquarters, [Massachusetts National Guard](#), and his son Jackson stayed together. Jackson is a cadet in the Reserve

Officers Training Corps at the University of Notre Dame.

“Toby Keith said ‘I’m not as good as I once was, but I’m as good once as I ever was,’” said Lawlor, as he and his son headed to the finish line.

That was a sentiment shared by many of the ruckers.

“The feet are a little painful; but all the support from the community, especially the Gold Star Families really made it special,” said Staff Sgt. Jarred Turner, truck driver, 2123rd Transportation Company, Kentucky Army National Guard, “they kept us motivated.”

Turner was part of a group of five Kentucky Army National Guardsmen who drove up together to ruck the course; they stayed together throughout the route.

As the ruckers crossed the finish line, they were met by Gold Star Mothers and other volunteers who placed [Boston Marathon](#) medals over their heads. The medals were donated by the Boston Athletic Association.

As they removed the rucks that they had carried for so many hours, many of the service members were already looking forward to next year.

“I like this route better, with all the history that’s on this route ... it’s very humbling,” said Ayer. “You’re passing by grave markers where Soldiers have been buried ... it kind of puts everything into perspective. The Boston Marathon ... we’ve been doing it for years, but it’s really not our place. When you see the old houses ... the grave markers the reenactors. You realize how much blood was shed on these grounds. The militia fought on this ground.”

“You feel more at home on grounds like this,” said Ayer. “Soldiers belong on this trail.”



Photo: Staff Sgt. Jerry Saslav

Army National Guard Soldiers walk through the historic Minute Man National Park during a 26.2-mile ruck march April 19 to honor fallen service members and raise money to assist their surviving family members.



Photo: David Kamm, NSRDEC Strategic Communications

Military food inspectors may one day hold the key to avoiding foodborne illness in the palms of their hands. The U.S. Army Natick Soldier Research, Development and Engineering Center is working to develop a small, sensitive, hand-held device that will both capture and detect dangerous pathogens that can cause food-related illness.

The effort received a 2013 U. S. Food and Drug Administration leveraging and collaboration award. Under the award, scientists from Food Protection Team and Macromolecular Sciences and Engineering Team at NSRDEC, are collaborating with the [FDA Winchester Engineering and Analytical Center](#), and the [Massachusetts Institute of Technology](#). The award is for “Designing Handheld Resistance Based Biosensors Utilizing Conducting Nonwoven Fibers for In-Field Microbial Pathogen Detection.”

NSRDEC originally came up with the idea of conductive membrane sensors and performed the initial research under the Army’s 6.1 basic research programs. This research is the basis for the collaboration with the FDA and MIT. The NSRDEC scientists involved in the project include Andre Senecal, Kris Senecal, Joshua Magnone, Patrick Marek, Shannon McGraw and Philip Pivarnik.

The food inspection tool will reduce the danger Soldiers face from contaminated food. Food safety is critical to combat readiness. Soldier performance, quality of life, and health can be seriously affected by undetected pathogens in food.

“Military operations at some overseas locations where food is procured locally and food safety laws are lenient, are especially problematic. Soldiers can lose a lot of time from work because they get sick from pathogens present in water and food,” Andre Senecal said. “We are starting our work with E. coli 0157:H7, but the goal is to look at all microbial pathogens and toxins that they produce.”

“The leading cause of illness among troops has historically been gastroenteritis, with

one of the primary culprits being E. coli,” McGraw explained.

Biosensors consist of a biological component, such as an antibody or DNA that is capable of capturing, detecting and recording information about a measurable physical change in the biosensor system.

Safe Bet

Hand-held inspection tool to prevent food-related illness in Soldiers

When bacteria are present on the device, it impedes the flow of electricity from one side to the other side, McGraw said. This change in the electrical connection tells the user that the sensor has encountered a dangerous food pathogen.

The sensor will be a marked improvement over current detection methods because of its portability and simplicity in a field environment. Current methods use cumbersome, sometimes heavy equipment, including tubing and reagents.

Since the sensors would capture and detect on the same device, the need for some peripheral equipment is eliminated, Marek said.

“It will be portable,” added Kris Senecal. “And the device will be reusable and the detection membranes disposable, and (it) will hold up in a field environment,” McGraw said.

The biosensor will concentrate pathogens that could help eliminate the need to grow the bacteria, which can take eight to 30 hours, Andre Senecal explained.

“We thought we could incorporate Kris’s work on electrospinning and use nanotechnology and fibers as a way of simplifying the process of extracting and concentrating the bacteria on one platform,” he said.

Kris Senecal is working to put conductive polymers on nanofibers, which she said work better at detection than a flat surface.

“Nanofibers are one-billionth of a meter, and nanomaterials are cheap, one-use, and super lightweight,” Kris Senecal explained. “Nanofibers may be used for food safety. Antibodies can be added to the nanofibers, which have a lot of surface area to which you can add

antibodies that can catch single-cell bacteria, and other pathogens. The sensor will provide protection from E.coli, Listeria, general food threats, and Salmonella.”

“It will be very helpful in preventing illness. Everyone is looking for something better, cheaper, faster,” McGraw said.

“If it can be used for the military, it can be used elsewhere,” Pivarnik said.

“This could also help farmers since not all farmers use safe, municipal, chlorinated water,” Andre Senecal added.

“It definitely has commercial applications,” Kris Senecal said.

NSSC commander holds first town hall

USAG-Natick Public Affairs / NATICK, Mass. (April 23, 2014)

In his first town hall meeting since taking command of [Natick Soldier Systems Center](#), Brig. Gen. William E. Cole brought the workforce up to date on recent and future activities, and recognized a number of employees for their outstanding recent efforts.

Cole, who had taken over at NSSC in December 2013, told those in attendance of a number of recent high-profile visitors, including Army Chief of Staff Gen. Raymond Odierno; Medal of Honor recipient Staff Sgt. Ty Carter; Congresswoman Katherine Clark; Gen. Dennis Via, commanding general, Army Materiel Command; Gen. Vincent Brooks, commanding general, U.S. Army Pacific.

"It's been a busy place," Cole said. "One thing they all have in common is the high regard for the work that is done here."

Cole also noted the recent retirement of Dr. Jack Obusek as director of the Natick Soldier Research, Development and Engineering Center.

"What a fixture of Natick he has been," Cole said. "A great American. We're very sorry to see him go. At the same time, we're very happy to have Dr. (Laurel) Allender come up from Aberdeen to sit as the acting NSRDEC director."

According to Cole, construction on Natick's main gate should be completed in about three weeks.

"We're very excited about that," Cole said. "That will make the commute in a little smoother."

Cole said that Massachusetts' Military Bond Bill was signed into law last month. The bill allows the state to invest \$91 million into federal projects, which will also benefit Massachusetts.

"Right now, we've set our goal as building a Soldier Performance Center that NSRDEC and [\(U.S. Army Research Institute of Environmental Medicine\)](#) can use to support Soldier systems engineering in collaboration with local academia and industry," Cole said. "We think that will be a great new capability for the labs here at Natick."

The reconstruction of Kansas Street, which will be funded by the state through a capital projects bill, should begin sometime this summer, Cole said.

"It will make coming through the gate a much more pleasant experience," Cole said.

Cole said that NSSC is working with Mass-Development on different options that would move Natick's housing in outlying towns onto the installation. He added that it would be funded through an exchange in kind.

"We won't need any DoD money, any military construction money to do the brand new housing," said Cole, adding that Natick would give back the existing housing areas to the state in exchange for the construction of housing on the base.

The annual anti-terrorism/emergency management exercise will take place May 7-8 at Natick, Cole said.

"We've been coordinating with local police departments and fire departments and state agencies to make sure it's a good training event," Cole said. "This is serious training."

The Natick Civilian Personnel Advisory Center was recognized for achieving the highest overall satisfaction rating among the 16 CPACs in the Northeast Region, according to results of the 2013 Customer Feedback Initiative. Cole recognized CPAC team members Courtney Landry, Carol Hannah, Holly Borah, Megan Saari, Charlie Ross, Ginger Rettie, Justin Potter, Melissa Brossi and Steve Berry.

The garrison SHARP program's exercise recently was recognized as a "best practice" for the Installation Management Command. Cole thanked team members Julie Lindahl, Laura Capehart-Hall, Sgt. Crystal Meints, Spc. Matthew Figueroa and Staff Sgt. Vaquero.

Cole congratulated Joe Murphy, the garrison fire inspector, who received a 95 percent score on his recent Fire and Emergency Services Program Assessment.

Cole noted that the Public Affairs Office team of John Harlow, Bob Reinert, Tazanyia Mouton, Kelly Field, Phil Fujawa and Dave Kamm won first place Maj. Gen. Keith L. Ware Awards at the IMCOM and Army levels for the digital publication "NSSC This Week." Also, Tazanyia Mouton won the IMCOM award for best video news report for her story on Gen. Raymond Odierno's visit to Natick.

PAO's "2012 Year in Review" is among three award winners in the special publication category of the National Association of Government Communicators' "Blue Pencil and Gold Screen Awards," which will be presented June 12 at the National Press Club in Washington, D.C. The NAGC competition draws entries from federal, state, county and local government agencies across the country.

Cole cited the fine work done by the Directorate of Plans, Training, Mobilization and Security/Directorate of Public Works snow and ice removal team during the recent harsh winter. In particular, he mentioned Bruce Coffin, Mike Fraciose and Scott Whitney. He added that PAO assisted by providing closure information through social media.

Cole also recognized members of the Air Force Aircrew Performance Branch program office for providing joint solutions to help improve individual clothing and protection equipment items for Airmen. They included Debra McKean, Margaret Auerbach, Deana Archambault, Scott Gaumont, Celia Powell, Bonnie Slocum Dunford, Rich Landry, Christine Reffel, Kathryn McCusker, Steve Arcidiacono, Anabela Dugas, Nancy Hibbert, Melanie King and Rob Dilalla.

Anne Wright received her Thirty Year Certificate of Government Service.

In his garrison update at the town hall, Lt. Col. Brian Greata spoke about the front gate construction, the Energy Savings Performance Contract, the anti-terrorism/emergency management exercise, and Armed Forces Day.

Cole calls Natick 'a busy place'



Reclaiming Boston

Natick employees back at the marathon

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (April 24, 2014)

When he got to mile 22 of this year's [Boston Marathon](#) – the place where his race had ended during last year's bombing – it all started to catch up with Mike Nixon.

"When I headed down the underpass right before the turn to Hereford (Street), I couldn't stop the tears," Nixon recalled. "This is what was stolen from (me) and the ... other runners that were stopped on the course last year. We had finally reclaimed, and so did the City of Boston and the surrounding cities (and) towns, our marathon."

Nixon and other [Natick Soldier Systems Center](#) employees had returned to Boston in response to last year's attack. They, like many others, came back to honor the victims and to make the statement that they were unwilling to yield to terrorism.

"This year's marathon had a vibe that brought tears to your eyes," said Wes Long. "People were not just running for fun, to set records or to win the race. They were also running to pay homage to all those victimized by the Boston Marathon bombings and to show the world how strong the Bostonian and American spirit truly is."

Working the marathon in his capacity as a Framingham, Mass., auxiliary police officer, Long was "overwhelmed" as runners made their way over to him for high-fives, handshakes and to say thank you.

"I was just doing my job and never expected any sort of gratitude for it," said Long. "I was extremely touched ... by these gestures. To have runners from all walks of life, who have overcome so much, take a second out of their race to say thank you to me will be something I will never forget. Although I tried to thank them back, they quickly continued on with the race; however, the impression they left with me will be there forever."

Also in Framingham was Melvin Williams, in his familiar position as captain of a hydration station on the marathon course.

"This was one of the better races I've worked," Williams said. "We had a great crew."

Williams was struck by the size of the field and its collective mood in this, his 23rd straight year of working the marathon.

"There were a lot of runners this year," Williams said. "It seemed that everyone was in good spirits."

One of them was Shivaun Pacitto, who was near the finish line when the bombs went off a year ago.

"It was an emotional day, one filled with strength, hope, and determination to run 'Boston Strong' for the victims from last year's tragedy," Pacitto said. "I did struggle running this year, as Boston is a challenging course."

Pacitto, 56, ran the 26.2 miles in 4 hours, 22 minutes, 19 seconds, slower than last year's 4:03:37, but it didn't matter.

"The heat played a role in time, but it did not impact the feeling of joy for each step I took," Pacitto said. "The spectators and fans were cheering us on, and they were enjoying it just as much as the runners."

"Running in 2014 was an amazing experience. The runners were excited and the crowds (and) fans were unbelievable. You could feel their support, encouragement and excitement."

The 34-year-old Nixon also felt the effects of the unseasonably warm weather, crossing the finish line in 4:52:35.

"The cumulative effect of the warm day, plus not adjusting my expectations due to the increased temperature, made the last nine miles really tough," Nixon said. "There were very few clouds in the sky, a slight breeze that came and went, and almost no relief from the sun beating down on our necks."

Like Pacitto, however, Nixon seemed more focused on the experience than his time.

"The crowds were spectacular," Nixon said. "The course personnel were supportive and fantastic. All of the runners were out there supporting each other. The overall vibe was just remarkable."



Photo: Karly Rock



Photo: Michelle Kinsella

"The greatest part of all of it is the closure I finally received as I crossed the finish line. It wasn't the time I had hoped or trained for, but it was the redemption I needed by finishing."

Long pointed out that the event became so much more than a marathon.

"Those running, (watching) and supporting the marathon were from all over the world," Long said. "It was no longer about Boston or even the United States at that point. It was about the human spirit, the ability to come together though great adversity, push forward and overcome with excellence."

"I will never forget the 2014 Boston Marathon, and I was extremely fortunate and proud to be a part of it."

Shivaun Pacitto (top) smiles and waves as she starts the marathon. Bottom, Mike Nixon visits with Michelle Kinsella at mile 22.



Photo: John Harlan, USAG-Natick Public Affairs

Burke says goodbye at the BCIL

By Bob Reinert, USAG-Natick Public Affairs / FORT DEVENS, Mass. (April 21, 2014)

In her final visit to the [Army Base Camp Integration Laboratory](#) April 17, the assistant secretary of Defense for Operational Energy Plans and Programs urged personnel here to continue their important work for warfighters.

[Sharon Burke](#), who will be leaving her DoD post next month, toured the BCIL, which is split into two 150-person camps — one that mirrors what would be seen in theater, and another that tests innovative technologies. She received updates on developments in energy conservation and production, water reuse, and waste disposal.

"A lot of the stuff that's been fielded wouldn't have been fielded without this camp," Burke said. "I can't think of a better way for me to end my service in government this time (than) by coming and getting one last look at what you're doing."

Burke was welcomed by Lt. Col. Ross Poppenberger, [Product Manager Force Sustainment Systems](#), who pointed out that a shower water reuse system, micro-grid, energy-efficient kits, insulated liners, rigid doors and solar shades had all evolved from ideas into reality in 18 months.

"A lot of great work has been done, a lot more to come," Poppenberger said. "So we're excited to get going."

Not that Burke needed any convincing.

"Everybody who's involved in this project ... you make it easy to be a fan of the project and promote it," Burke said. "This has been some really good work. It's an innovative program that's put capability right in the hands of deployed forces. It's been an honor and a pleasure to see the project develop over time and to see the results."

Prof. Steven B. Leeb of Massachusetts Institute of Technology tells Sharon Burke, assistant secretary of Defense for Operational Energy Plans and Programs, about the non-intrusive load monitor developed at MIT, during Burke's visit to the Army Base Camp Integration Laboratory at Fort Devens, Mass.

"So if people see me as a supporter of the program, that makes me incredibly proud, because what you've done is just terrific."

Burke pointed out that she had been out in the field and seen warfighters benefiting from developments at the BCIL.

"Nothing in this whole job has made me prouder," Burke said. "It's been my pleasure and honor to trumpet (this program). Every chance I get, I talk about what you're doing here, and I will continue to do that."

"You've done wonderful work. Now you've got to do more. I'm looking forward to what you do next."



Measuring Soldiers' quality of life

Jane Benson, NSRDEC Public Affairs / NATICK, Mass. (April 28, 2014)

Natick researchers on the Consumer Research Team have devised a way to measure and model warfighter quality of life in base camps serving fewer than 1,000 personnel.

The model and tools have been developed in support of the Technology Enabled Demonstration Capability for Sustainability/Logistics-Basing, known as TeCD 4A, which aims to reduce fuel, water and waste at base camps while maintaining quality of life.

"This project is the first ever to model and quantify quality of life in a base camp. Under TeCD 4A you can't just reduce fuel, water and waste, you also have to maintain the quality of life. A metric previously did not exist to assess if quality of life is impacted by these reductions," said Justine Federici, a researcher at the U.S. Army Natick Soldier Research, Development and Engineering Center. "Without a way to measure QoL, there was no good way to trade off fuel, water and waste savings against impact on QoL. For example, a camp can save a lot of water by only letting Soldiers shower once a week—the minimum allowed under current regulations— but this would definitely hurt quality of life."

Why is it important to be able to measure Soldier quality of life? Natick researchers have found that quality of life has an impact on Soldier readiness and morale. Soldiers said it best in QoL interviews:

Taking a running-water shower "makes you feel human."

"When a guy is out on patrol, the first thing he is thinking of when he gets back is a hot meal."

"The ability to take a shower and wash all the grime off had the most gratifying effect . . . It gives you that feeling 'well, it's not that bad here.'"

To develop the QoL model, NSRDEC researchers began by interviewing Soldiers who had experience living in remote base camps with up to 1,000 personnel. These interviews revealed attributes of a base camp that affect Soldier quality of life, such as the availability of hot and fresh food, air-conditioning in billets, the ability to take a shower, and MWR resources such as a gym and Internet. A group of senior NCOs and officers confirmed these attributes in a war game conducted in partnership with the [Maneuver Support Center of Excellence](#) at Fort Leonard

Wood. The insights gathered from Soldiers were combined with information from other experts to create a survey that would let researchers measure the effect of every base camp attribute on Soldier quality of life.

"The survey was tested in March of 2013," Federici said. "The team got valuable feedback from Soldiers during the test, which has been folded into a new version of the survey, which will be given to 1,200 Soldiers this August at four different installations. To make the survey more interactive and engaging, the survey was designed to run on tablet computers with a touch screen interface."

"This quality of life research work will enable the Army to identify critical expeditionary base camp services that maintain or enhance Soldier readiness," NSRDEC's Claudia Quigley said. "As a member of the G4 Contingency Basing Quality of Life Working Group, this research is in collaboration with other Quality of Life projects across the Contingency Basing community. This important research also supports TeCD 4A and PEO CS&CSS Contingency Basing Infrastructure needs for defining essential QoL factors on Contingency Bases."

NSRDEC researchers on the Consumer Research Team developed this first-ever survey and model to ascertain which systems have the greatest impact on quality of life. The Consumer Research Team's mission is to research the needs, attitudes and behaviors of the warfighter as they pertain to the selection and use of Soldier products and new capability concepts. This work on quality of life benefits from the team members' extensive background in conducting operationally relevant surveys and gathering consumer insights on acceptance of Soldier Systems products ranging from combat rations, to expeditionary shelters, to combat clothing and equipment.

By creating a way to measure quality of life and model it — just as you can with fuel, water, waste and other physical resources — NSRDEC will be able to help make sure new base camp technologies are developed with the Soldier in mind. Sometimes something as simple as a warm shower can make all the difference to a Soldier deployed to a remote area, far from home. In the words of one Soldier, "It's the little things."

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[Army Regulation 670-1 "Uniform Appearance Regulation."](#) Soldiers are authorized to use their clothing replacement allowance for these.

Master Sgt. Benjamin Owens, a 20-year Army veteran who was interviewed along with Mortlock, said that even though many Soldiers opt to buy their own footwear, in his opinion, the best boots are standard issue.

"As a drill sergeant, I've foot marched hundreds of miles in different terrains in these," he said, pointing to the standard-issue boots he was wearing.

"Younger Soldiers sometimes go for a flashy look in a boot," he said, adding that they often pay a price for doing so.

Adding to Owens' comment, Mortlock said, "Any time you choose a different boot, you're trading off something: durability or breathability, or something else."

When Soldiers first join the Army, they're issued two types of standard Army Combat Boots, the hot weather and temperate weather variants. Soldiers later receive an annual clothing replacement allowance for boots.

Other specialized boots are issued for specific mission requirements. Soldiers deploying to Afghanistan are issued mountain combat boots, tailored for rough, mountainous terrain found in the eastern part of that country. That too comes in a hot-weather and temperate weather variant.

Aviators and vehicle combat crewmen are issued flame-resistant boots that fit their mission.

There are also intermediate cold/wet-weather boots and extreme cold-weather boots.

Specialized boots are not part of the Soldier's annual clothing replacement allowance, so Soldiers are simply issued new ones when their old boots wear out.

CAMOUFLAGE PATTERNS

The Army just completed the most extensive uniform camouflage testing in history, in which thousands of Soldiers participated over multiple lanes of effort, Mortlock said.

He explained the importance of camouflage to a Soldier's mission:

"The bottom line is the enemy can't kill, hurt or injure who they can't see," explained Mortlock. "We have testimonials from Soldiers in theater close enough to the enemy to

hear them saying they can't see the American. That's powerful. That's a combat multiplier."

Although much has been done, camouflage testing continues, Mortlock said. The Army evaluates "all the options" and is reviewing the fiscal year [2014 National Defense Authorization Act](#) to ensure any camouflage decision is in full compliance with the NDAA. The NDAA states that the Army can "use existing uniforms and patterns and use the patterns of sister services."

The ongoing tests will continue this month and next at Fort Benning, Ga., and will be followed up at Fort Polk, La., and Yuma Testing Ground, Ariz.

The tests are seeking to determine a family of camouflage patterns that perform better than the present Universal Camouflage Pattern, known as UCP. Separate patterns designed for arid, transitional semi-wooded, or heavily wooded terrain tend to perform better than a single pattern, which seeks to provide concealment in all three environments.

Criteria for testing the patterns, Mortlock said are "detection and blending."

For those criteria the Soldiers wearing the different patterns are put at a variety of distances, lightings, backgrounds and movements from Soldiers who serve as spotters. These Soldiers are timed as they try to pick the camouflaged Soldiers out from the environment.

So far, tests show that at a range between 25 and 50 meters, the pattern matters, meaning it is critical for blending in the environment. At distances greater than 50 meters, the pattern itself is less important than the general colors of the camouflage.

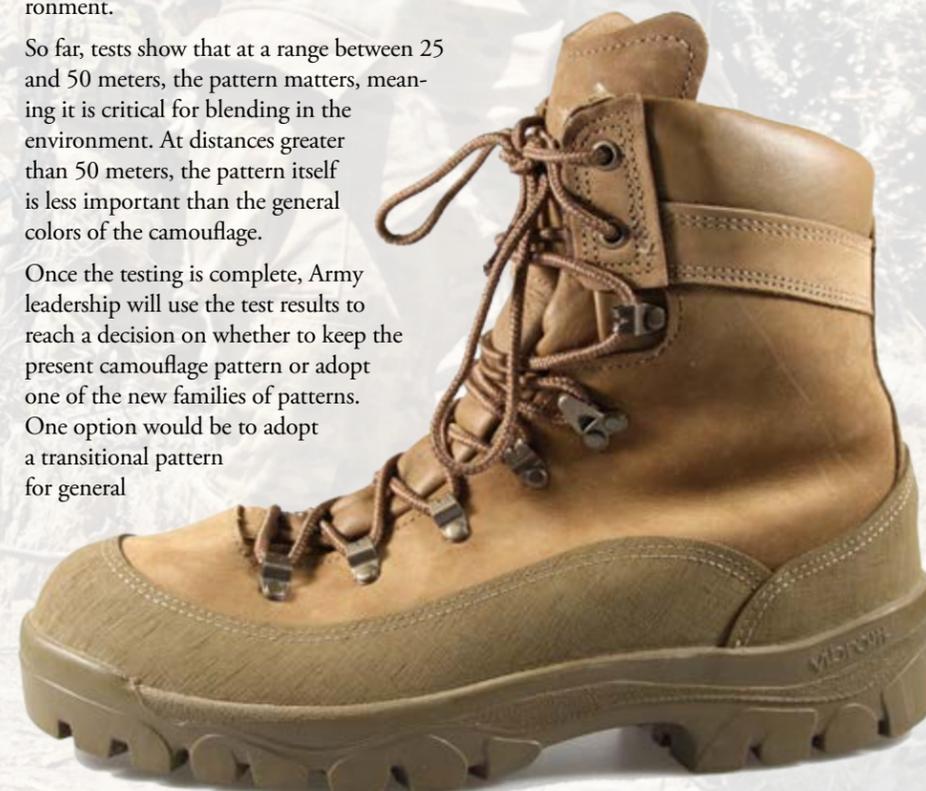
Once the testing is complete, Army leadership will use the test results to reach a decision on whether to keep the present camouflage pattern or adopt one of the new families of patterns. One option would be to adopt a transitional pattern for general

Army use, and to keep the more specialized arid and woodland patterns in reserve until they are requested by a combatant commander.

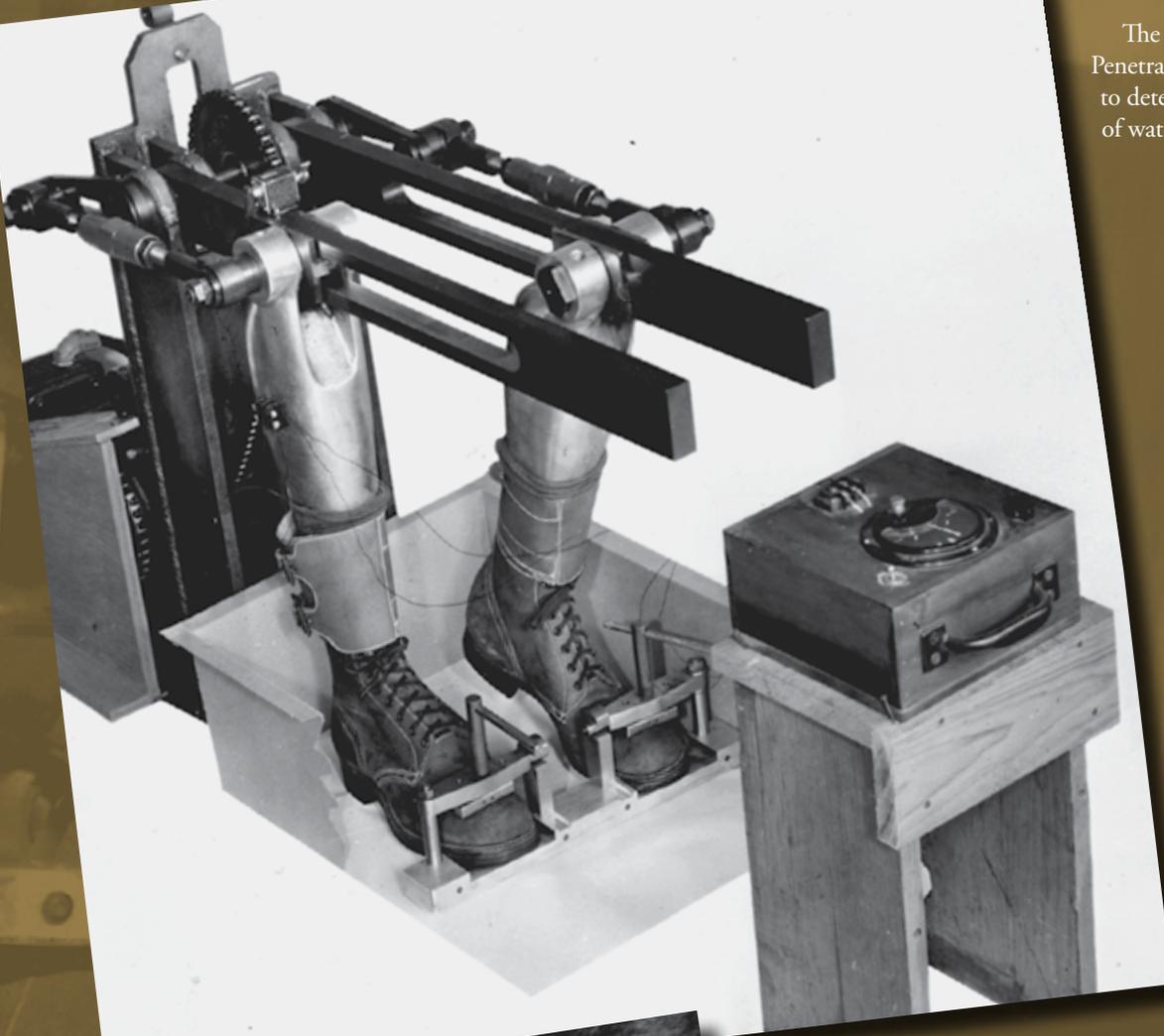
"The other thing about camouflage that sometimes gets lost is, we're not changing the combat uniform," Mortlock added. "It'll still be called the Army Combat Uniform. All that we're doing is updating the camouflage on the Army Combat Uniform."

"Whatever we do, we're going to do in a fiscally responsible manner," Mortlock said.

A number of organizations collaborate in the science, research, development and testing of combat boots and camouflage uniforms. These include PEO Soldier; the Army Test and Evaluation Command, Aberdeen Proving Ground, Md.; the Maneuver Center of Excellence, Fort Benning, Ga.; U.S. Army Training and Doctrine Command, Fort Eustis, Va.; and the Natick Soldier Research Development and Engineering Center, Natick, Mass. The effort also benefits from interaction with commercial vendors who develop and produce combat boots, uniforms and other gear.



The Maeser Walking Water Penetration Machine was used to determine the effectiveness of waterproofing applications on leather shoes.



Shown is another Natick machine for testing boots.

Looking back at Natick

Boot research ([see page 5](#)) didn't begin yesterday at Natick. Archival photos prove that Natick researchers have worked for decades to provide functional, comfortable footwear for warfighters.

TESTING

BOOTS

U.S. Army Natick Laboratories

TESTING