FRONTLINE

U.S. CUSTOMS AND BORDER PROTECTION

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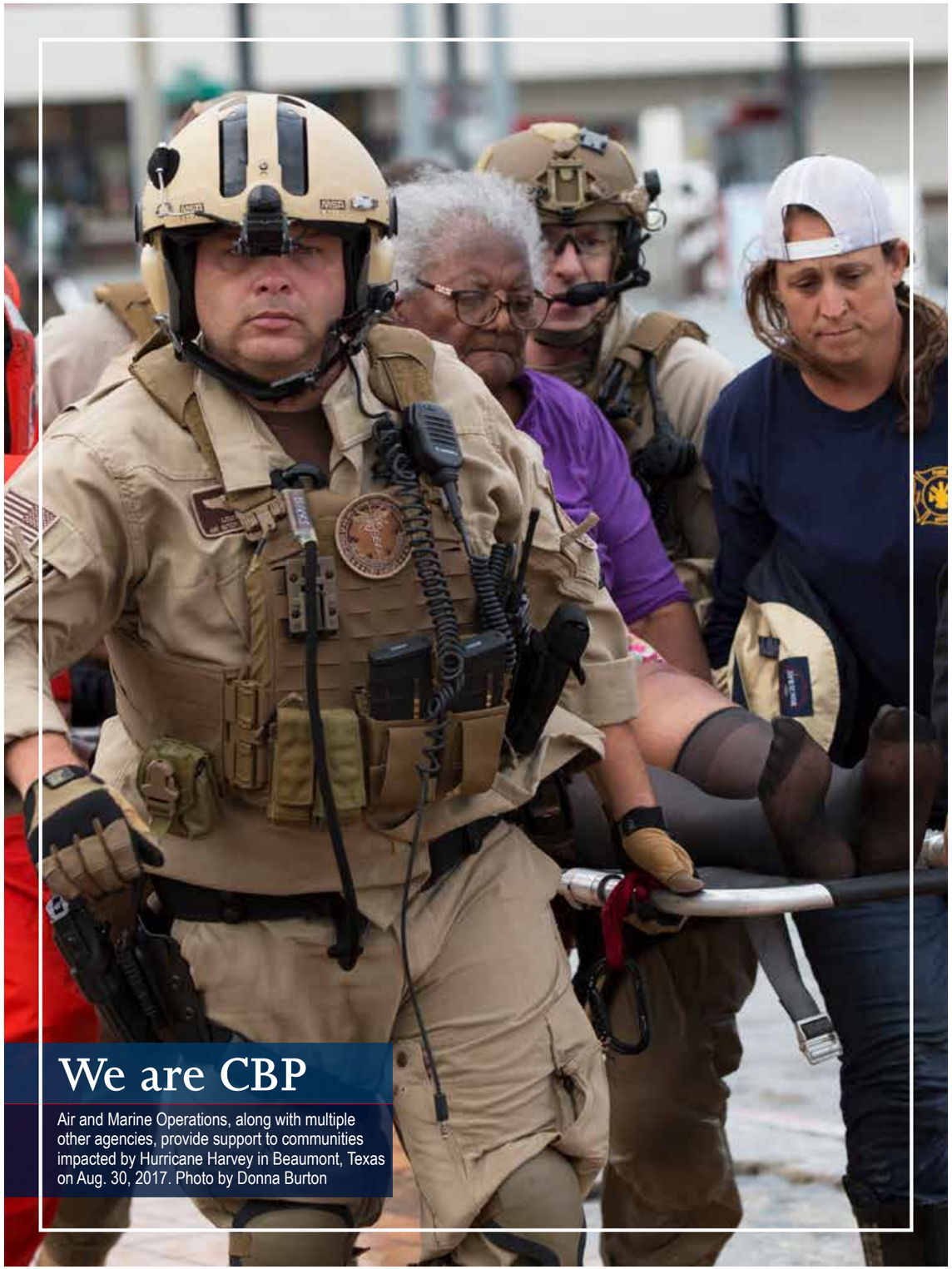
BIOMETRIC BREAKTHROUGH

HOW CBP IS MEETING ITS MANDATE AND KEEPING AMERICA SAFE



We are CBP

Air and Marine Operations, along with multiple other agencies, provide support to communities impacted by Hurricane Harvey in Beaumont, Texas on Aug. 30, 2017. Photo by Donna Burton

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Cover photo composite by Ozzy Trevino

This example of facial recognition technology does not reflect the specific hardware and software used by carriers.












U.S. Customs and Border Protection

FRONTLINE

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Paul Koscak, Marcy Mason

STAFF PHOTOGRAPHERS
Donna Burton, Glenn Fawcett

ART & DESIGN DIRECTOR
Ozzy Trevino

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To contact Frontline editors with messages, contributions, or delivery concerns, email: **frontline@cbp.dhs.gov**

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BIOMETRIC BREAKTHROUGH

HOW CBP IS MEETING ITS MANDATE AND KEEPING AMERICA SAFE

By Marcy Mason

It's 7:45 on a Wednesday morning in May at Hartsfield-Jackson Atlanta International Airport and passengers are boarding Delta Air Lines flight 334 to Mexico City. One by one the passengers scan their boarding passes and approach a camera that's set up on a jetway where they have their pictures taken before they board the flight.

The photos are being matched through biometric facial recognition technology to photos that were previously taken of the passengers for their passports, visas, or other government documentation. All is moving smoothly until the U.S. Customs and Border Protection officers assisting the passengers are alerted that they need to check one of the travelers.

It's a 28-year old woman, a Mexican national with a Mexican passport. The biometric system alerted the officers because when preflight information was gathered on the woman, no historical photos to match against her could be found.

A CBP officer took the woman aside and looked at her passport. No visa was attached and the woman didn't have a green card to prove she was a lawful permanent resident. Upon further questioning, the woman admitted that four years ago, she had come into the country illegally.

Using a specially designed, CBP biometric mobile device, the officer took fingerprints of the woman's two index fingers. "This was the first time that we had captured this individual's biometrics, her unique physical traits," said Bianca Frazier, a CBP enforcement officer at the Atlanta Airport. "We didn't have her biometrics because we had never encountered her before."

As early as 2002, shortly after the worst terrorist attack in U.S. history, legislation was passed requiring the Department of State and the Department of Homeland Security to use biometric technology to issue visas and screen non-U.S. citizens entering the U.S. Then in 2004, more legislation was passed, authorizing DHS to collect biometric data from non-U.S. citizens exiting the country.

According to Frazier, finding people who have entered the country illegally is common. Since June 2016, when CBP and Delta Air Lines launched a pilot program to test CBP's biometric facial recognition exit technology, passengers like the young Mexican woman have been found daily. "She was typical of the people who have entered without inspection," said Frazier. "Most days we find a minimum of two or three undocumented people, but sometimes we find as many as eight to 10 boarding a flight."

Ultimately, the woman was allowed to board the flight, but when Frazier used CBP's mobile device to take her fingerprints, it created a fingerprint identification number that is specifically tied to the woman. In the future, if she applies for a visa to return to the U.S. or is encountered crossing the border illegally, an alert will be triggered, indicating that the woman had previously entered the U.S. illegally and is on a lookout list. Additionally, when Frazier processed the traveler, the device automatically created a biometric exit record confirming that the woman left the country.

For more than a decade, the U.S. government has been struggling to find a way to develop a practical and cost effective biometric entry/exit system that fulfills a congressional mandate to keep America safe. CBP has partnered with the U.S. air travel industry to meet that goal and is implementing innovative ways of using biometric technology to provide better enforcement and a better experience for travelers.

Biometric challenge

By 2013, when CBP assumed responsibility for designing and implementing a system that could biometrically track travelers exiting the U.S., the government had been wrestling with the challenge for years. Technology was part of the problem, but how to integrate that technology into the existing infrastructure at airports without driving up costs and negatively impacting airport and airline operations was a conundrum.

CBP had been working with the airlines to verify travelers entering and exiting the country since the mid-1990s, using travelers' biographic

One of CBP's innovations is the Biometric Exit Mobile, a handheld, mobile device that allows officers on the jetway to run travelers' fingerprints through law enforcement databases as travelers are exiting the U.S. Photo by Rob Brisley

information— date of birth, passport number, document number, country of citizenship, etc. "The airlines sent us the manifest information in advance of the flight's departure," said John Wagner, deputy executive assistant commissioner of CBP's Office of Field Operations. "We did law enforcement work based on that data."

But then, after September 11, biographic information wasn't enough. To increase security, Congress passed legislation that added biometric requirements for tracking travelers. "Inbound passengers were easier to track because we already had a process," said Wagner. "When travelers come off of an international flight, they are funneled through a secure pathway to the CBP inspection area. The airline transmits the biographic data to us. We verify that information when we read a traveler's passport and we make sure it's accurate. That's when we also collect fingerprints from most non-U.S. citizens."

With outbound flights, collecting passengers' biometrics is much more difficult. "We've never constrained departures to be able to do that," said Wagner. "We don't have specific departure areas for outbound flights. International flights depart from all over the airport, so it was difficult to figure out where we could collect biometrics and what technology we would use."

Added to that, CBP lacked support. "The travel industry stakeholders were vehemently opposed to any of this because they thought it would cost money and it would slow people down," said Wagner. The challenges seemed insurmountable. "We were focused on where is the magic technology that is going to make this work and address all of these concerns. No one had been able to find it because it didn't exist," he said.

New beginning

Wagner and his team took a fresh start. They reached out to the DHS Science and Technology Directorate, the department's research and development arm, to learn more about the biometric technology that was available and which methods of collection would work best. Shortly thereafter, in 2014, a demonstration test lab was set up in Landover, Maryland. "One of the things we learned from previous pilots in airports is that airports are chaotic places. It's hard to do a really good controlled test when anything can go wrong and you don't know why. Was it because there were lots of delays? Were there weather incidents? Or did people miss their flights? Any number of factors could affect the performance of the biometric system, so we set up a test space where we could carefully control different variables to see how well our biometric concepts worked," said Arun Vemury, director of the DHS Science and Technology Directorate's Apex Air Entry/Exit Re-engineering and Port of Entry People Screening programs.

"We evaluated more than 150 different biometric devices and algorithms. We put them together in different configurations and then brought in test volunteers to actually run through the process to figure out how long it took, what kind of throughput we were able to get, how well the biometrics matched, and what their performance ultimately was," said Vemury "Over time, we brought in more than 2,000 people from 53 different countries of origin, who varied in age from 18-85. We were trying to mimic the demographics of travelers coming to the U.S."

One of the things that Vemury learned was that the algorithms used in facial recognition technology have become much more advanced. The algorithm is the formula that identifies the unique biometric features in a finger, iris, or face and then compares those points to corresponding areas in previously collected biometrics. "Because of the improvements in facial recognition technology, we can verify people's identities with facial recognition much more effectively today than we could even just two years ago," said Vemury.

After nearly two years of rigorous testing and evaluation, DHS Science and Technology gave its findings to CBP in December 2015. "We turned over all of our test reports, economic analyses, quantitative analyses, concepts of operation, and staffing estimates," said Vemury. "The last thing we wanted was to have any unanswered questions. We knew we needed a biometric process that would work."

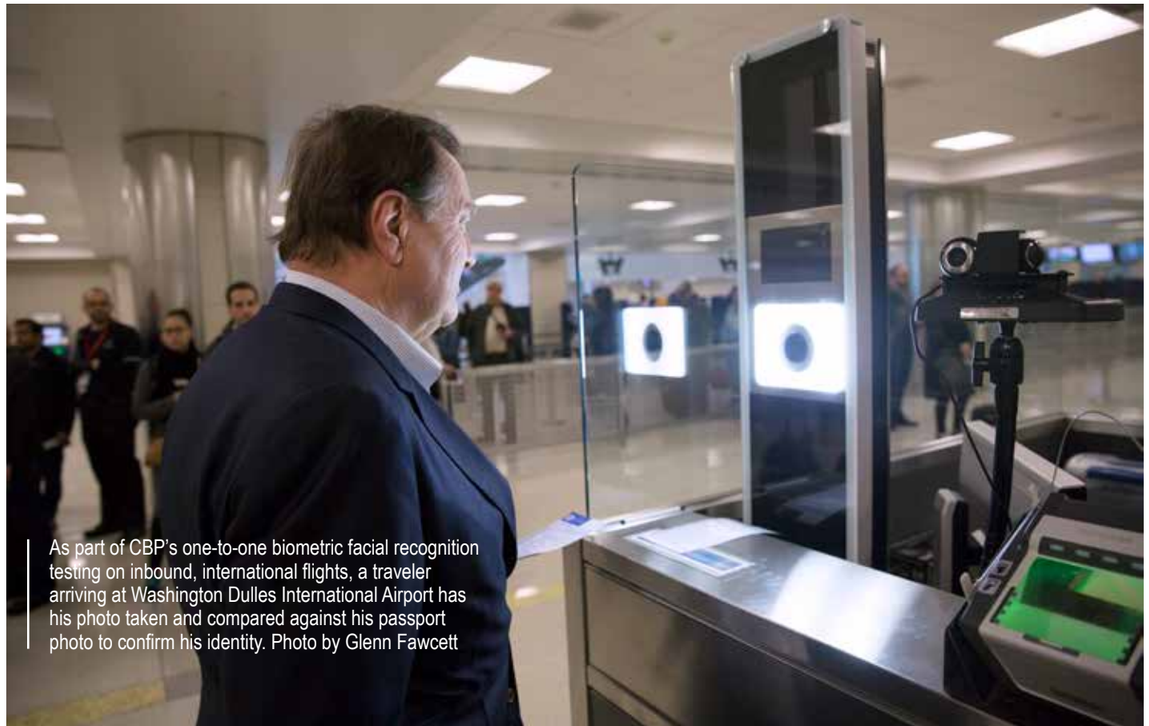
Field testing

Concurrently, CBP was doing its own laboratory tests and conducted a series of pilots. "We ran several pilots to help us learn about the different types of biometric technology in the different environments where we work," said Wagner. For example, CBP was aware that U.S. passports were vulnerable to fraud and thought a biometric tool could help. After months of testing algorithms and cameras, CBP developed a one-to-one facial recognition technology that compared travelers against their passport photos. The pilot, which was tested on inbound flights, initially ran for two months, from March to May 2015, at Washington Dulles International Airport in Dulles, Virginia. At that point, more lab testing and analysis were done to improve the algorithm, and then a second pilot, which continues today, was set-up at Dulles and John F. Kennedy International Airport in New York City.

"The pilots showed us that the facial recognition technology was accurate," said Wagner. "We grew confident that the algorithms were good enough to use and rely on."

One of the many examples that illustrates this occurred at JFK in May 2016, when a traveler with a U.S. passport arrived on a flight from Accra, Ghana, and presented herself as a returning U.S. citizen. All of her biographical information was processed successfully, but the CBP officer who interviewed the woman had a suspicion she might be an imposter. The officer referred the traveler to a booth equipped with the facial recognition technology where her photo was taken and compared to the photo in her passport. The match score was very low and she was referred for further inspection.

The woman was fingerprinted and the officers confirmed her true identity, uncovering that she was an imposter. In actuality, the woman was a Liberian citizen who had been denied a diversity visa from a green card lottery in 2015. She admitted that she found the U.S. passport in a marketplace and didn't know the true owner. The woman was then turned over to U.S. Immigration and Customs Enforcement



As part of CBP's one-to-one biometric facial recognition testing on inbound, international flights, a traveler arriving at Washington Dulles International Airport has his photo taken and compared against his passport photo to confirm his identity. Photo by Glenn Fawcett

authorities and sent to a detention center to await a credible fear hearing to determine whether she would be able to seek asylum. Without the suspicions of an astute officer and CBP's biometric technology, the woman could have entered the country through fraudulent means.

In another pilot at the land border, in Otay Mesa, California, CBP tested face and iris scans to biometrically record the entry and exit of pedestrians. "From these tests, we learned a lot about how travelers react to various biometric technologies," said Wagner.

CBP also built a handheld, mobile device that allowed officers to run fingerprints on departing travelers. "We tested the Biometric Exit Mobile in 2015 at 10 airports around the country," said Wagner. "It showed us we could accurately take fingerprints from a mobile device and gave our officers the capability to do law enforcement and biometric queries on a smart phone if they saw that an individual requires further investigation."

Biometric success story

As a law enforcement tool, the Biometric Exit Mobile has produced stunning results. Case in point is an incident that occurred in May at Chicago O'Hare International Airport involving a Polish national couple who were boarding a flight to Berlin, Germany. When the couple presented their passports at the departure gate, the CBP officers didn't find any U.S. visas or country entry stamps, so they decided to run a check and swiped the couple's passports. The biographical information didn't reveal anything derogatory, but as a precautionary check, the officers used the Biometric Exit Mobile device to take the couple's fingerprints. The officers took the index prints of the woman first and within seconds, she came back as a watchlist hit. The same occurred with the man. Both had been ordered deported by an immigration judge, but they didn't leave the country.

The officers wanted to clarify what they discovered, so they reached out to a colleague. "I pulled up the woman's name and nothing came up. There was no record on her whatsoever," said Jonathan Cichy, a CBP enforcement officer who works outbound operations at O'Hare Airport. "However, when I checked her fingerprints, there was a hit, but for a woman with a different date of birth and a different identity, which she had been arrested and deported under."

Then Cichy looked at the manifest for the flight. "I saw they weren't on it. There was no record of the identities they were using to get on the plane," he said. After checking further, Cichy found that both of the Polish nationals had criminal histories with multiple identities. "But none that came up in our systems because they weren't leaving under any of those identities. Biographics alone did not tell us the full story," said Cichy, who quickly rushed to meet the flight that was leaving in 20 minutes.

The couple was allowed to board the flight, but not until Cichy had served them with legal papers to verify their departure and close out the deportation case. "If either one of them is found attempting to return to the U.S. without permission, they could be prosecuted for reentry after deportation, a felony that carries a sentence of two to 20 years," said Cichy.

Decisive moment

CBP's biometric exit tests culminated in June 2016 with a pilot program at the Atlanta Airport. Wagner and his team had a breakthrough. All the work they had done for the past several years was finally coming to fruition. "We came up with a way of taking the information we receive about passengers from the airlines and matching it against information we already have in our government databases," said Wagner.

Based on their research, Wagner and his team decided to use facial recognition technology. "We found that facial recognition was intuitive for people. Everybody knows how to stand in front of a camera and have his or her picture taken. Not so with iris scans and fingerprints. Every time a traveler does the process wrong, someone has to instruct him or her the right way to do it," said Wagner.

CBP started testing biometric facial recognition technology on departing overseas flights with Delta Air Lines in June 2016 at Hartsfield-Jackson Atlanta International Airport. Above, CBP Officer Ernesto Julien, right, assists passengers as they scan their boarding passes and have their photos taken before boarding a flight to Mexico City on Aug. 3, 2017. Delta Air Lines Senior Agents Maribel Marcano, center, and Garrick Ealey, far right, welcome passengers aboard the flight. Photo by Rob Brisley

Aside from being quicker than other biometric methods, facial recognition has additional pluses. The physical design of the camera doesn't take up much space, and the equipment isn't costly. Furthermore, CBP already has a collection of photos for biometric comparison. "People have already provided their photographs to the government for travel purposes," said Wagner.

But the real feat was when CBP found a way to speed up the photo matching process. "As soon as a passenger checks in with the airline, the airline tells us who is getting on the plane. At that point, we find all the photographs we have of the people on the flight and we pool them, and then segment them into individual photo galleries for each passenger," said Wagner. "If there are 300 people on the flight, we find every photograph we have of those 300 people. Generally, that means we will have about 1,500 pictures because we have multiple photos of each passenger."

Then, as the passenger boards the flight, he or she has his or her picture taken. That photo is compared to his or her individual gallery of photos rather than comparing it to a billion photos that are in DHS's biometric database. "The matching is done in real-time because it's a small file and it's accurate," said Wagner.

The Atlanta pilot also was designed with certain parameters. "We did not want to add another layer onto the travel process," said Wagner. "We told our stakeholders, 'We want to design something that fits within your existing operations and infrastructure. We're trying to make things easier for travelers. We don't want to add additional steps or processes.'"

Strong partnership

In a discussion with Delta Airlines, Wagner asked if the airline would be interested in participating in a biometric pilot. "We have a very strong, long-standing, collaborative relationship with CBP," said Jason Hausner, Delta Air Lines' director of passenger facilitation. "Normally, when they approach us to do something, we're in. We like to be in on the front end to provide our expertise and help shape things."

Delta also had a long range vision of using biometrics for its own operational purposes. "When we heard the proposal from CBP to test biometric exit technology, it resonated with us because one

of the elements we were looking at is biometric boarding," said Hausner.

In February 2016, Delta met with CBP to develop a project plan and decided to test a flight from Atlanta to Tokyo, Japan. The pilot, which began in June, was successful, so by September, CBP decided to test another flight. This time the flight was to Mexico City. "As a further test to the technology, we chose a flight with a different demographic to ensure the matching capability was still successful," said Kevin Pfeifer, CBP's assistant port director of tactical operations at the port of Atlanta.

After more than a year of testing, the facial recognition technology has consistently shown a high rate of accuracy. "Our percent of successful matches is in the high 90s. It's even moved up a notch in terms of quality and accuracy," said Nael Samha, CBP's director of passenger systems who built the architecture for the pilot's operating system.

Operationally, the pilot has performed well too. "One of the things we wanted to evaluate was the impact on our operations. Would it delay boarding? Would it impact our on-time performance? We're very metrics oriented," said Hausner. "So far, this test has not impacted us in any manner, and part of it is because of the approach that CBP has taken. They know that in order for their program to be successful, they need to partner with us."

Industry innovations

During the summer of 2017, CBP conducted technical demonstrations of the biometric exit facial recognition technology with various airlines and airports throughout the country. "We wanted to show stakeholders and the public what this technology is, how it works, and explore how biometric exit technology can fit into airline and airport business models and modernization plans while addressing privacy requirements," said Wagner.

Some airlines are already making headway. At JFK and in Atlanta, Delta is testing ways to combine the facial recognition technology with its boarding pass procedures. "The CBP pilot is a two-step process by design, but it seemed to us that when this is implemented across the country, it should be a one-step process," said Hausner.

In June, JetBlue Airways transformed this goal into a reality and was the first airline to board passengers using biometric facial recognition instead of boarding passes. Unlike the technical demonstrations that CBP was conducting with other carriers, JetBlue proposed the pilot. The airline wanted to design its own technology and incorporate it with CBP's facial recognition matching system. "CBP was very open-minded with what we wanted to accomplish," said Liliana Petrova, JetBlue Airways' director of customer experience. "They flew out to Boston and spent several hours with us and took the time to listen. We wanted them to know exactly how we wanted to integrate the biometric technology with the experience at our gate."

The pilot, which was tested at Logan International Airport in Boston, was assembled very quickly. "CBP gave it priority and helped us do a very fast buildout," said Petrova. "Not many partnerships, even private partnerships, function as smoothly."

According to Petrova, the biometric system is part of JetBlue's strategy to remove the hassle from the traveling experience. "Passengers don't have to stop, look for their boarding passes or their IDs. The line moves faster and they don't have to wait as long," she said. "We're trying to take the anxiety out of flying and allow our crew members to interact more with customers."

JetBlue's customer feedback was positive. "The customers are really delighted by it. They think it's cool and they're having fun," said Petrova. As a result, JetBlue has decided to expand the pilot in late 2017 with additional flights departing from Boston and JFK.

CBP's future vision for biometric exit is to build the technology nationwide using cloud computing. "There are hundreds of airports throughout the U.S. where we provide services for international travelers and we still need to work through the deployment schedule and timeline," said Wagner. "We also need to determine the technology we'll use. We've been working with airports and airlines to arrive at some of those answers. We want them to tell us what the equipment should look like, so that it fits in with their operational needs."

Plans are also underway to update CBP's biometric inbound technology. "We'll be using the same system for our arrivals processing as we do for biometric exit," Wagner explained.

But that's not all that CBP has in store. "We're also looking at communicating with people on their mobile devices as they deplane," said Wagner. "If we can give travelers better guidance on how to navigate customs and the maze at the airport, we can increase efficiency and give them peace of mind."

Atlanta Assistant Port Director Kevin Pfeifer, left; Walter Jung, Delta passenger service associate, center; and CBP Watch Commander Marvin Chargualaf discuss biometric testing on international flights at Hartsfield-Jackson Atlanta International Airport. Photo by Ozzy Trevino

JetBlue was the first airline to incorporate its own biometric technology with CBP's facial recognition matching system to verify passengers exiting the U.S. A pilot program using the technology was launched in May 2017 at Logan International Airport in Boston. Photo by Zack Caplan

During the summer of 2017, CBP conducted biometric exit facial recognition technical demonstrations with various airlines and airports throughout the country. Here, CBP Officer Michael Shamma answers a London-bound American Airlines passenger's questions at Chicago O'Hare International Airport. Photo by Brian Bell

BIOMETRICS UNMASK CRIMINAL IN IRS SCAM

By Marcy Mason

Photo by Urupong Phunkoed/Shutterstock.com

An extraordinary example of how biometric exit technology is enhancing CBP's enforcement capabilities happened in April at Chicago O'Hare International Airport. A 38-year-old, Indian national, Dipakkumar Patel, presented an emergency Indian passport to board a flight to Abu Dhabi, United Arab Emirates, where he was making a connection to India.

While inspecting the passport, the CBP officer at the departure gate didn't find a U.S. visa and the pages of the passport were blank. There wasn't a U.S. entry stamp. When questioned, Patel told the officer that he had entered the country illegally through Mexico six years earlier. The officer decided to call CBP's Passenger Analysis Unit and asked them to run the man's name through the law enforcement databases to check if he was on a watch list.

A name came back with 22 aliases, and Patel's name was one of them. But it was a common Indian name and the match wasn't conclusive. So the officer decided to do a biometric check and called his colleague to come to the jet bridge to take Patel's fingerprints. Using CBP's Biometric Exit Mobile device, a handheld, biometric tool, the officer swiped Patel's passport and took prints of his two index fingers. "All of our systems were queried and within seconds it came back that he was a biometric match," said Jonathan Cichy, a CBP enforcement officer who works outbound operations at O'Hare Airport.

"He came into the country as a Portuguese national using one identity and was leaving the U.S. as an Indian national using another," said Cichy. "The Portuguese passport was legally issued to him, but he had obtained it fraudulently."

And there was more. When Patel's name was matched to one of the aliases, an alert was sent to CBP's National Targeting Center, the Department of Homeland Security's Office of Inspector General, and Homeland Security Investigations. "Patel was linked to a call center scheme where U.S. citizens had been defrauded out of hundreds of millions of dollars in unpaid taxes," said Cichy. All three authorities requested that CBP detain Patel and stop him from getting on the flight.

Patel was turned over to U.S. Immigration and Customs Enforcement and was placed in a local holding facility. He remained there until investigators from the DHS Office of Inspector General and HSI arrived to interview him. Patel was arrested on charges of passport fraud and, in May, was indicted by a grand jury in Atlanta, where he was taken to await his trial. In 2012, Patel had entered the U.S. through Atlanta, using the fraudulently obtained Portuguese passport.

In August, Patel pleaded guilty to a slew of crimes. In addition to false use of a passport, he plead guilty to a conspiracy charge for his role in a multimillion-dollar, India-based call center scam that targeted U.S. victims. According to his plea, Patel and his co-conspirators perpetrated a complex scheme in which individuals from call centers located in Ahmedabad, India, impersonated officials from the IRS and U.S. Citizenship and Immigration Services to defraud victims throughout the U.S. The victims were threatened with arrest, imprisonment, fines or deportation if they did not pay the money they allegedly owed the government. Victims who agreed to pay the scammers were instructed to provide payment using prepaid credit cards or wiring money. Upon payment, the call centers would immediately turn to a network of "runners" based in the U.S. to liquidate and launder the fraudulently-obtained funds. Patel served as a runner.

"Without the use of biometrics, Patel would have been allowed to depart the U.S. and return to his home country. He would not have been linked to any of the fraud that he committed against the U.S. and our citizens," said Cichy. "Biometrics are a critical tool in law enforcement. They reveal a person's true identity and help us protect America." FL

A HISTORY OF INNOVATIVE TECHNOLOGY

By Marcy Mason

At the same time that CBP was focusing on biometrics, the agency was developing technology that would expedite the processing of travelers and reduce wait times in airports. Air travel was growing, and by all indications, that trend would continue. According to the International Air Transport Association's latest projections, air travelers will double over the next 20 years.

In 2007, when CBP introduced Global Entry, it was an innovative concept because it was directed at low-risk travelers. "Global Entry was designed to give low-risk, frequent travelers the ability to use technology to expedite their arrival process," said Dan Tanciar, CBP's deputy executive director of planning, program analysis, and evaluation for entry/exit transformation. "The program allowed us to identify low-risk travelers, so that we could focus our attention on the travelers we don't know much about."

A few years later, in 2012, CBP launched another innovation—a self-service kiosk that helped speed up the traveler inspection process. The kiosks, known as Automated Passport Control, performed the administrative steps that CBP officers had traditionally handled, so that officers could focus more on inspections. The kiosks also enabled CBP to do away with paper forms, allowing travelers to submit their declaration and biographic information electronically. "Within two years, we were able to deploy about 1,500 kiosks at all of the top airports throughout the U.S. and we reduced wait times by about 30 to 35 percent," said Tanciar. "The Automated Passport Control kiosks shortened the amount of time travelers spent with CBP officers from 3 minutes to 30 to 60 seconds."

Automated Passport Control kiosks, another CBP innovation, speed up the traveler inspection process by performing administrative steps CBP officers previously handled. At the Miami International Airport, shown above, the self-service kiosks were initially installed as a way to process travelers faster during the 2014 FIFA World Cup. The technology shortens the time inbound travelers spend with CBP officers from 3 minutes to 30 to 60 seconds. Photo by Manuel Garcia

Economic impact

With CBP's staffing limitations, the success of the technology was paramount. Not just for CBP, but for its air industry partners too. "Airports are economic generators for their communities, so if you reduce the capacity of the airport, in effect, you're reducing the economic capabilities of the airport for its community," said Matthew Cornelius, vice president of air policy for Airports Council International-North America, a trade organization that represents airports in North America.

In 2013, when the Automated Passport Control kiosks were starting to appear at U.S. airports, Airports Council International saw the value of the technology and wanted to expand it. "We were approached by one of our associate member companies, Airside Mobile, a tech firm, that had a concept to create the same functionality of the kiosks, but to do it on a smartphone," said Cornelius. In other words, international travelers could fill out the required customs information on their smartphones before they ever got off the plane. "We saw it as an opportunity to alleviate some of the problems our members were having at their international arrival facilities. We knew that mobile applications and mobile technology are really the wave of the future."

Cornelius took the concept to CBP. "We told CBP, 'We have this idea. We think it's going to be helpful. Will you work with us on it?' To CBP's credit, they saw it made sense, that it was going to help us do our jobs better and alleviate the problem of processing travelers into the U.S.," said Cornelius.

CBP and Airports Council International began piloting the Mobile Passport Control app in August 2014. A year later, the pilot expanded to five airports. Today, 24 airports and one cruise port use the app and it has been downloaded more than 2.4 million times.

"It's a great example of partnership. We worked very closely with CBP," said Cornelius. "Everybody was on board, understood what needed to be done, and it all came together perfectly."

Faster processing

The technology was also critical for the airlines. "In early 2014, we knew the World Cup was being played in Brazil that year, so that meant there would be a lot of travel through Miami," said Howard Kass, American Airlines' vice president of regulatory affairs. "We knew that the processing times and the facilitation in Miami weren't what we wanted them to be. It wasn't a good customer experience," he said.

"The lines were long. There were multi-hour waits, and we felt the brunt of it because when travelers landed, they couldn't move through customs, so they misconnected on their flights," said Kass. "We then had to figure out how to get them to their destinations or put them up in a hotel. We spent lots of money to ameliorate the misconnections. Miami was getting a bad reputation among travelers, which is something we don't want to see at any of our hubs."

The airline thought CBP's technology might be the answer. "We knew from what we'd seen in other airports that the machines would be a tremendous benefit in Miami to help expedite people through the process," said Kass. So American Airlines worked with CBP and the Miami International Airport to get more Global Entry and Automated Passport Control machines in place. "We more than doubled the number of machines and we did a lot of marketing, advertising, and inflight announcements to encourage passengers to use the technology, so they could be processed quickly through the CBP facility," said Kass.

And it worked. "We got to a point where every U.S. citizen was using some kind of automation," he said. "CBP pledged a lot of resources to make sure that flights were processed smoothly during the World Cup. It was important to the United States that there wasn't a rough spot in Miami with all the traffic moving through." Moreover, said Kass, "There weren't any meltdowns or passengers stranded for hours and hours in the terminal and we made some improvements that really helped travelers move through the process more quickly."

CBP officers and representatives from many law enforcement agencies at the National Targeting Center work together to counter terrorism and criminal activities.

WORKING TOGETHER

CATCHING SMUGGLERS, TERRORISTS AND LAWBREAKERS WORKS BETTER THROUGH PARTNERSHIP

By Paul Koscak, photos by Glenn Fawcett

Since 2001, CBP's National Targeting Center in Sterling, Virginia, has worked nonstop to catch travelers and detect cargo that threaten our country's security. At the same time, the center is working just as hard to build a network of partner nations committed to fighting global threats. Increased targeting by all partners increases security for all is the concept.

That principle also supports the United Nations Security Council's Resolution 2178 requiring member nations to fight international terrorists and criminals by strengthening laws to prosecute them and requiring airlines to provide passenger lists. The resolution also calls for member nations to share information that can alert any partner nation, including the U.S., to an identified threat.

But effective passenger vetting hinges on the quality of a nation's risk assessment system. Some nations don't even have automated systems and manually comb through the data. At times, the enormous flow of cargo and passengers can overwhelm available resources.

To overcome these limitations, CBP offers its automated targeting system-global or ATS-G software along with technical assistance, to potential partners. ATS-G is similar to the software used at the Office of Field Operations's (OFO) National Targeting Center and evolved from decades of experience designing and operating passenger and cargo targeting systems. The software can vastly improve how travelers flying in and out of a country are vetted.

ATS-G rapidly compares passenger and cargo manifests against data bases and other records for clues that could reveal a high-risk traveler, such as a foreign terrorist.

The package includes a free software license, free installation tailored to a partner's needs as well as technical support and training. "We follow up two or three times per year to ensure the system is running and provide training on how to target," said Jerry Kaplan, ATS-G assistant director.

Use of ATS-G by foreign partners also supports the tenets of resolution 2178. ATS-G is part of a larger program of technology assistance, law enforcement and border security relationships.

New Zealand is one partner using ATS-G. Tony Davis, manager of New Zealand's Integrated Targeting and Operations Centre, said the software is user friendly, allowing the center to switch from screening flights—one at a time—to vetting passengers hundreds at a time. "ATS-G is fantastic and it's our primary targeting tool," he said. "CBP support has been excellent."

Sharing information with the U.S. and other countries, creates a bond that builds relationships, added Craig Chitty, manager of operations at the center. "It's very advantageous because it builds trust," he said.

Other nations have noticed and frequently contact the center to learn more about the software. "I'm a salesman for ATS-G," Chitty remarked. "We get approached by international organizations on the phone or by visits."

Another option

Gaining partners can be challenging. Political or legal roadblocks regarding sovereignty prevent some nations from freely collaborating with the U.S. or other nations, explained NTC Director Troy Miller. For those countries, CBP created the global travel assessment system or GTAS. GTAS permits foreign countries to independently perform vetting activities without the collaboration involved with ATS-G.

Launched in 2016, GTAS is free and designed for rapid use. The software is easily downloaded from

CBP Officer Zule Baker reviewing passenger manifest data at the National Targeting Center.

a special CBP website and ready to use. It can also improve an existing vetting system because the coding allows nations to customize the software or just download the portions that meet their needs.

GTAS is comparable to ATS-G because GTAS also automatically evaluates passenger manifests in real time to identify suspicious travelers or crewmembers who may pose a national security risk, justifying a closer assessment. Using GTAS, governments can screen suspects before they enter or leave that nation.

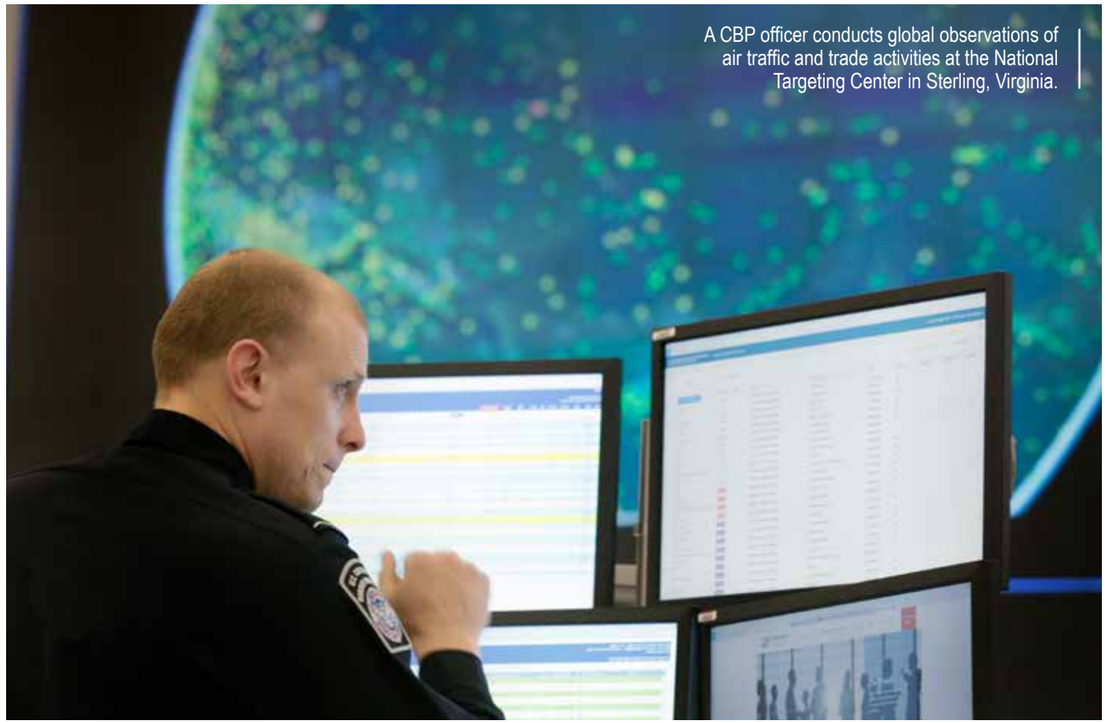
"GTAS also gives them [nations] the ability to comply with the U.N. resolution," Miller said.

Since the software is new, CBP is working through the World Customs Organization in Brussels, a group that promotes trade and supply chain security, to spread the word. With 182 members—mostly developing countries—the WCO can benefit from GTAS.

In July, Acting Commissioner Kevin McAleenan sent a letter to the organization outlining the details and benefits of the software. As an added advantage, he said, "CBP is willing to provide installation instructions, administration guides and user manuals, as well as technical and subject matter expertise on an ongoing basis…" One nation has already signed up for GTAS, so the outreach is beginning to pay off.

CBP pursues partnerships and promotes ATS-G and GTAS through international forums and events, many of which the U.N. and the European Union take part. When international partners are better able to identify possible high risk travelers, they close gaps in terrorist and criminal activities so governments can work together to detect, deter and defeat these threats.

In an interconnected world, it is more important than ever that countries conduct these risk assessments, and CBP is helping advance global security through ATS-G, GTAS, and the expertise of the NTC.



A CBP officer conducts global observations of air traffic and trade activities at the National Targeting Center in Sterling, Virginia.

MOVING TARGETS:

CBP'S AGRICULTURE SPECIALISTS' LATEST SECRET WEAPON

By Kathleen Franklin

An agriculture inspection specialist with CBP Office of Field Operations, National Agriculture Cargo Targeting Unit, inspects containers of imported goods for invasive insect and plant species at the Port of Baltimore. Photo by Glenn Fawcett

Alix Garnier crawls out from under a steel shipping container of aluminum coils at the Baltimore seaport, gingerly holding a glass vial between his thumb and forefinger. The agriculture specialist for U.S. Customs and Border Protection squints at the tiny object inside.

Nearby, Garnier's colleague, CBP Agriculture Specialist (CBPAS) Timothy Morris, has found mollusks on the exterior of the same cargo container. One of the snails was identified as an Amber Snail (Succineidae, sp.)—and that's enough to warrant sending the container back to South Africa.

A few miles inland, at the CBP Centralized Examination Station, CBPAS John Taylor is lying on the ground with a flashlight, peering underneath and through the slats of rough wooden pallets that hold stacks of terra cotta flower pots. At this moment, he's more worried about seeds than splinters.

One of CBP's many important responsibilities is to prevent potentially harmful or dangerous plant and animal material from entering the U.S. This includes insect pests, invasive plants, plant pathogens, and prohibited animal products that could be carrying diseases that could hurt U.S. livestock or humans.

In fiscal year 2016, CBP agriculture specialists conducted more than 9,800 cargo inspections at the Baltimore seaport.

The primary commodities that come through the port are salt, automobiles, sugar, gypsum, plywood, paper, iron ore, oil, and aluminum. Most of these commodities seem like they would be fairly low-risk for agriculture violations—compared to the tons of cut flowers that arrive in Miami, for example.

But Garnier and Taylor know all too well that some dangers are lurking in—and on—the containers themselves, or in the ubiquitous wooden shipping pallets. In fact, of CBP's 328 international ports of entry, the Port of Baltimore ranks number one in general cargo "reportable" pests – those that are reported to the U.S. Department of Agriculture.

An intercepted seed of a tridax daisy, or coatbutton (*Tridax procumbens*), found on a maritime shipment of metal products at the Port of Baltimore.

The plant is a federal noxious weed and has pest status in nine states. Photo by Glenn Fawcett

Meanwhile, 55 miles southwest of where Garnier, Morris, and Taylor are working, in a highly secure state-of-the-art office building in Northern Virginia, five specially trained agriculture specialists are scanning screens to see what sorts of agriculture cargo are on its way to our nation's 328 land, air, and sea ports of entry. They occupy just a tiny corner of a vast open sea of hundreds of desks staffed by experts on counterterrorism, immigration admissibility, and other specialized disciplines aimed at securing the U.S. border.

Welcome to the National Agriculture Cargo Targeting Unit, or NACTU. These analysts provide key intelligence to frontline agriculture specialists like Garnier and Taylor, letting them know if a shipment warrants further scrutiny.

The NACTU researches cargo shipments being imported to the U.S. and analyzes national agriculture quarantine activity to identify shipments that pose a significant risk to U.S. agriculture and natural resources. These potential threats include animal pathogens that could harm livestock and people; invasive plants that could damage our ecosystems; and insect pests and plant diseases that could hurt crops and forests.

Identifying the need

The idea for creating a targeting unit specifically on agriculture cargo originated nearly a decade ago, but efforts got under way in earnest in 2014 when the CBP Office of Field Operations' Agriculture Programs and Trade Liaison office contacted CBP's

Agriculture specialists of the National Agriculture Cargo Targeting Unit monitor inbound shipments and traveler-imported agricultural products as they work at the National Targeting Center in the National Capital Region. Photo by Glenn Fawcett

National Targeting Center, or NTC, to explore options for piloting the unit and collocating it at the cargo portion of the NTC's facility outside Washington, D.C.

"We assembled a working group of subject matter experts from various field offices and worked closely with NTC advisers to develop plans to pilot a unit," recalled Supervisory CBP Agriculture Specialist Nikki Thomas, one of the founders of the NACTU. CBP conducted six pilot cycles before establishing the NACTU as a permanent, full-time unit in September 2015 as part of the Agriculture Safeguarding Unit.

The five permanent NACTU targeters are led by Branch Chief Nidhi Singla, and they receive assistance from interns who rotate in from the field, bringing valuable knowledge and expertise with them about trends they see developing at the ports of entry.

"The goal is to cross-pollinate knowledge we have residing in the field with that of our permanent targeters here in NACTU, and then to send them back to the ports with the knowledge they receive here," said Singla.

The targeters have varied backgrounds and experience. For example, after earning a bachelor's degree in biology, Agriculture Operations Manager Samuel Broom interned with U.S. Fish and Wildlife Service in New Hampshire, researching the spawning habits of Atlantic salmon, and then tracking desert tortoises in the Mojave Desert for the U.S. Geological Survey.

"We focus not just on agriculture materials themselves—fruits and vegetables and animal products that could harbor pests and diseases—we also look at the miscellaneous commodities that are also capable of harboring pests and pathogens, such as wood packaging materials like pallets, as well as tiles and even steel," said Singla.

Shipments are sent from the Baltimore seaport to the examination station if CBP believes they merit further inspection. At the station warehouse, agriculture specialists are inspecting a shipment of nails from China—packed on wooden pallets. The reason for the referral: targeters had information indicating the shipment may be contaminated with a weed seed of Imperata cylindrica, or cogongrass, which is classified as a federal noxious weed, or FNW.

Many types of weed seeds—like those of cogongrass—have feather-like protuberances that serve as "wings" when the wind blows, carrying them to other areas—often sticking to the rough wood of shipping pallets. The production of seeds is seasonal, so certain times of year are worse than others in terms of interceptions, depending on the country of origin.

Finding the target

The targeters who work for the NACTU need the tenacity of private investigators and the patience of stakeout cops. They must be detail oriented and willing to trace the path of a shipment—not just the physical trajectory of the actual cargo, but the paper trail itself.

For example, a shipment from a certain country might list a major city as the cargo's origin because that is the manufacturer's headquarters location. But the materials may have actually been grown, processed, or packed in a remote part of the country where noxious weeds such as wild sugarcane (Saccharum spontaneum) grows. Wild sugarcane is an important habitat for certain animal species, and it is often harvested to thatch roofs.

But here in the U.S., wild sugarcane can quickly colonize disturbed soil to take over fields and pastures, choking out native grasses and crops. In fact, wild sugarcane is on the FNW list, along with cogongrass and more well-known nuisances like mile-a-minute vine (Mikania micrantha Kunth) and kudzu (Puerara montana). Deliberate importation of it is prohibited without a permit from the USDA's Animal and Plant Health Inspection Service.

The NACTU targeters know this. So based on the trends they see—and patterns of deception—they

CBP's agriculture specialists often find pests burrowed into wood packaging material, such as cargo pallets. Here, one of the specialists uses a penknife to examine signs of insect activity. Photo by Glenn Fawcett

will flag such shipments for the kind of inspection that requires flashlights and magnifying glasses—so not even one weed seed crosses the border.

Today, the NACTU provides targeting support to all CBP environments—air, sea, and land ports of entry—including rail and truck crossings and international mail and express consignment facilities. Its weapon of choice: CBP's Automated Targeting System, or ATS.

ATS is a Department of Homeland Security computer system that applies "risk assessment" principles for comparing traveler, cargo, and conveyance information against law enforcement intelligence and other enforcement data. Based on ATS data, CBP identifies people and cargo that may require additional scrutiny, while facilitating the entry of low-risk commodities.

Focused squarely on agriculture, the NACTU does not perform targeting activities for other trade issues, such as potential violations of intellectual property rights or antidumping and countervailing duty evasion. But the NACTU does collaborate regularly with other targeting organizations by referring intelligence to relevant targeting units, such as CBP's 10 industry-specific Centers of Excellence and Expertise or the Commercial Targeting and Analysis Center.

Taking aim

Besides conducting national agriculture quarantine targeting, the NACTU provides field support and targeting oversight for cargo pathways nationwide. The NACTU has assumed a field support role and is available via direct field support line seven days a week to provide guidance, and assist with research requests to analyze field intelligence.

NACTU also functions as a clearinghouse of sorts, facilitating the communication of observed risk across all port locations. The quarantine activities at the Port of Baltimore, for example, have influenced exams in other port locations.

Here is how it works: the high numbers of FNW interceptions on metal commodities and containers in Baltimore—like those found by Garnier, Morris, and Taylor—are reviewed by the NACTU's analysts at the NTC. Certain data about these shipments are applied to a national "user defined rule." The rule is used to identify shipments that might require extra scrutiny by agriculture specialists in other locations.

Collocation at the NTC makes it easier to share information, and the NACTU collaborates regularly with CBP's other targeting personnel by referring intelligence to the relevant targeting units and centers. "Increasing collaboration with partner

government agencies and industry stakeholders really enhances CBP's ability to execute its agriculture mission," said Singla.

Each pathway—air, land, sea, and international express consignment—poses its own challenges, Singla explained. Land border commercial cargo is especially difficult. While manifests for cargo ships or planes are available a day or two—or even weeks—before the cargo arrives, manifests for shipments arriving by truck or rail are often available for analysis only a few hours before the goods get here.

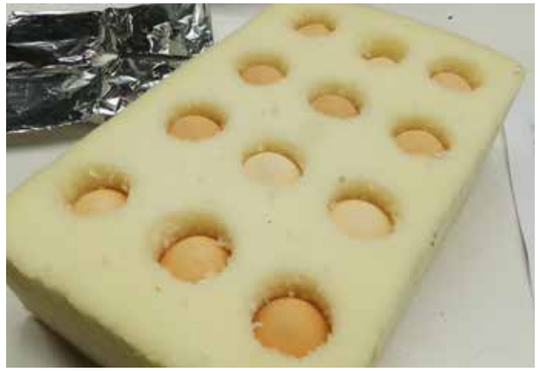
Then there are the challenges posed by "intermodal" pathways. Say a shipment destined for San Diego arrives in Mexico's Manzanillo seaport on the Pacific Ocean from Hong Kong. It might then be offloaded and placed on a train and sent northbound to Tijuana, where it might be offloaded again and divided onto trucks before crossing the border to San Diego. The NACTU targeters need to make sure that the manifests for this shipment remain consistent.

Significantly, the NACTU does not replace the local port's targeting operations. Instead, the unit helps to focus CBP on critical and higher-risk agriculture quarantine inspections, providing extra capacity for agriculture quarantine targeting. "The NACTU is a force multiplier. It augments the targeting efforts that are already in place at the ports," according to Singla.

Hitting the mark

The NACTU tries to identify potential first-time violators as well as repeat offenders. By looking at all the different parameters involved in a violative shipment, NACTU targeters can flag future shipments for closer inspection. That's how they found the rooster eggs also known as "hatching" eggs.

A CBP agriculture specialist at the Port of Baltimore looks at cargo container exteriors. Photo by Glenn Fawcett



Eggs that do not have the proper import permits are prohibited because they can carry diseases that could harm U.S. poultry, wild birds, and even people. Photo by CBP

Compared to other illicit materials—such as synthetic opioids, for example—rooster eggs might seem harmless. But eggs can carry diseases such as exotic Newcastle disease, or END, and highly pathogenic avian influenza, H5N1, a form of avian influenza, or "bird flu."

The bird flu has killed millions of poultry throughout Asia, Europe, and Africa, and there have been hundreds of cases involving bird-to-human transmission. In the U.S., an outbreak of END in 2002-2003 resulted in the destruction of more than 3.5 million birds at a cost of more than $160 million before the disease was contained.

Hatching eggs can show up anytime, anywhere. But certain types of interceptions are seasonal. Ykeisha Horton, a NACTU operations manager who joined CBP at the Houston, Texas, seaport in 2007, explained that the NACTU targeters are mindful of the weather patterns, cultural religious observances, and historical trends of a shipment's country of origin.

Every spring, for example, Chinese Americans celebrate the Autumn Moon Festival. CBP sees a spike in the number of "moon cakes" being imported into the U.S.—pastries that sometimes contain partially cooked egg or meat stuffing. Depending on the origin of the cakes, and whether the importer can prove that the filling is permissible, CBP can seize the delicacies.

Deceptions and distractions

The NACTU's targeters also know that violators learn from their mistakes. "Changing parameters is common and staying on top of these changes is imperative for NACTU's success," noted Horton. This practice, called "mis-manifesting," makes it especially difficult to target future potential violations.

Jacob Rodler, another NACTU agriculture operations manager, noted that mis-manifesting is quite common in the express mail pathway. Take those eggs, for example. Their distinctive shapes might prompt a smuggler to list them on the manifest as something else entirely—golf balls, perhaps—anything that might look normal during an X-ray inspection, Rodler explained.

Meat might be mis-manifested as "tee-shirts." Or a shipment of "vases" could turn out to be eels. The NACTU referred the shipment of "vases" only because it had observed certain patterns that suggested the parcel might contain prohibited meat. Generally, CBP agriculture specialists might encounter eels during the standard inspection process, and eels are promptly turned over to the Fish and Wildlife Service. These eels suffered the same fate, despite the manifest's label as T-shirts.

Another danger: "port-shopping." This occurs when shippers choose U.S. ports based on whether they believe they can bypass examinations. Let's say shippers who have been sending goods through the Newark, N.J., seaport have run into problems

These eels were smuggled in a shipment of crystal vases. Photo by CBP

because agriculture specialists there have found pests or contraband in their cargo. The shippers might switch destinations to a different seaport—maybe a smaller one—hoping that inspection resources there might be stretched thin enough to miss prohibited material, whether contraband or pest or weed seed, that might get the shipment rejected.

What these shippers don't know is that the NACTU is way ahead of them. The NACTU is able to detect and analyze changes in shipping patterns, and it can warn other ports to give these shippers' cargo an extra look.

The eco-stakes: economy and ecology

Besides protecting native flora and fauna from invasive pests, plants, and diseases, the NACTU's work also protects endangered species on the other side of the world.

Many plant and animal species are protected under the Convention on International Trade in Endangered Species, or CITES. This international pact aims to ensure that trade in specimens of wild animals and plants does not jeopardize their survival in the wild.

NACTU Agriculture Operations Manager Nancy Pinder recalled receiving port information regarding a seizure of orchids from Thailand. A passenger arrived at an airport and the agriculture inspection revealed 72 plant species and 14 seed species in the traveler's luggage.

Knowledge obtained from the passenger pathway often helps in seizing shipments of prohibited agriculture commodities in the cargo pathway. NACTU targeters use what is called "link analysis," which evaluates relationships between objects, organizations, people, places, or transactions. They also collaborate with the agriculture specialists at the local ports.

"When CBP agriculture specialists seize certain plants protected under CITES, the plants are sent to USDA for final identification and then destroyed to prevent any possibility that invasive pests or diseases will be released into our environment," Pinder explained. Why not send the endangered plants back to Thailand? Destroying them ensures that they do not go back to their native environment bearing any pests that could hurt the species or other indigenous plants.

But the NACTU protects not just ecosystems; it also protects our economy. Pinder offers a short history lesson: "In the early 80s, there was an outbreak

of Mediterranean fruit fly in California. It cost hundreds of millions of dollars to eradicate that infestation," she said. The so-called "Medfly" eats more than 300 kinds of fruits, nuts, and vegetables, wreaking havoc on orchards and crops. For California—which ranks as the world's fifth largest producer of food—this pest is a serious problem, as it is in Florida and other states where agriculture is important to the economy.

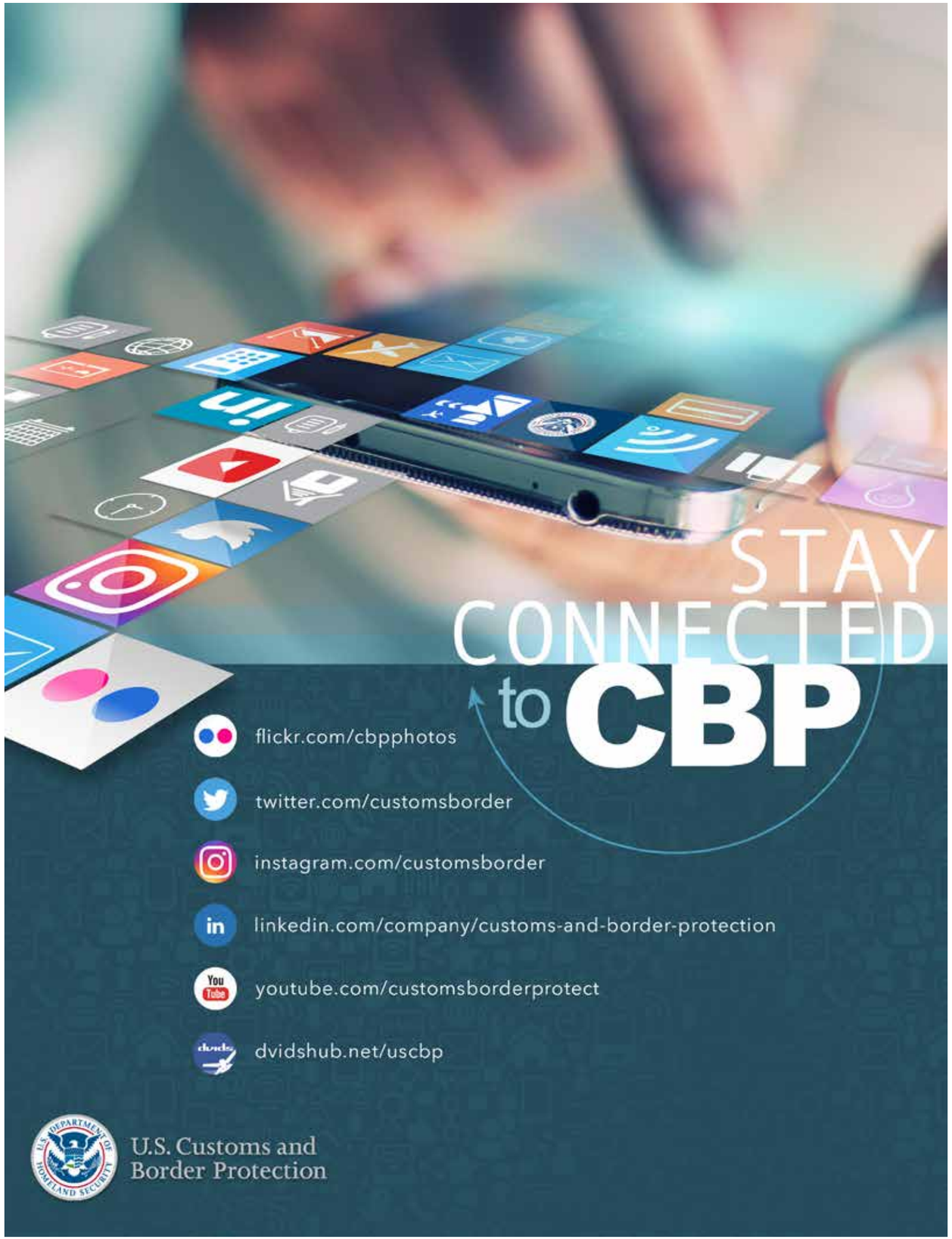
Finally, the NACTU helps CBP fulfill another part of its trade mission: facilitating lawful trade, which helps the U.S. economy. Conducting risk analysis lets agriculture specialists focus their inspections on shipments that pose more potential dangers.

Rodler explains: "Too often, targeting is looked at from the perspective of enforcement, but there is also an element of trade facilitation. For our outside partners in trade, they often look at our efforts as just stopping their freight or holding their freight, but by focusing on risk, we can actually help expedite the movement of compliant goods."

NACTU Agriculture Operations Manager Samuel Broom (left) and NACTU Branch Chief Nidhi Singla inspect the underside of cardboard that encases a shipment of aluminum coils. The cardboard also provides an area where pests take refuge and wind-dispersed seeds can collect. Photo by Glenn Fawcett

NACTU Branch Chief Nidhi Singla holds a vial containing an adult beetle intercepted within the container of aluminum coils. Identification of this beetle is pending. Photo by Glenn Fawcett

CBP agriculture specialist John W. Taylor inspects pallets of cargo at the CBP Centralized Exam Station in Baltimore. Cargo loaded onto wooden pallets may harbor certain plant and pest material that could harm U.S. agriculture and ecosystems. Photo by Glenn Fawcett



CONSTRUCTION COMPLETED for PROTOTYPE WALL DESIGNS

By Paul Koscak

Ground views of different border wall prototypes as they take shape during the Wall Prototype Construction Project near the Otay Mesa Port of Entry. Photo by Mani Albrecht

For the first time, the public got an up-close look at eight Southwest border wall prototypes when they were unveiled by CBP near San Diego in October. The event garnered coverage from more than 30 local and national media outlets. The prototypes range from 18 to 30-feet high.

Constructed with concrete and other materials, the structures will soon be tested for their resiliency to determine a final selection. CBP evaluators will use power and hand tools and methods criminals and those trying to slip through the border may use to penetrate the wall.

These prototypes will serve two important ends: to deter illegal border crossings and to allow CBP to evaluate the new wall designs for improvements in denying or impeding illegal entry. As the border security environment continues to evolve, CBP continues to refresh its border barrier design toolkit.

In order for wall prototype designs to be added to CBP's existing toolkit, they must meet the Border Patrol's operational requirements. "We'll look at things like aesthetics, how penetrable they are, how resistant they are to tampering and then scaling or anti-climb features," CBP Acting Deputy Commissioner Ronald D. Vitiello said during the announcement. CBP evaluators will use power and hand tools and other methods they expect transnational criminals to employ against the barrier.

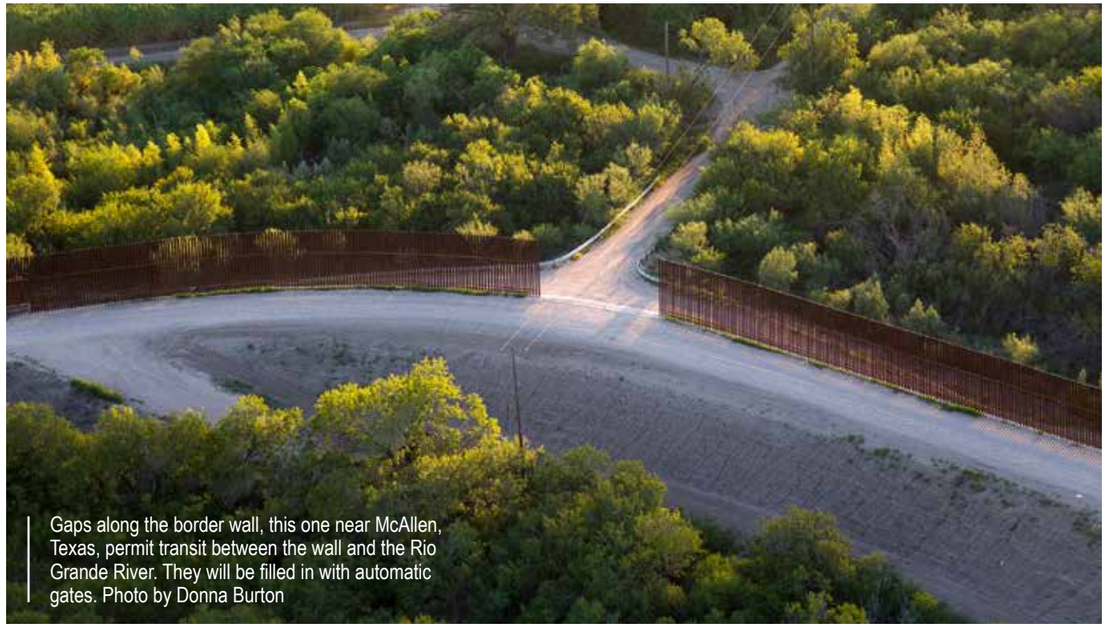
Six vendors will construct the eight prototypes, with two companies building examples of both. These companies are Caddell Construction Co. of Montgomery, Alabama; KWR Construction of Sierra Vista, Arizona; ELTA North America Inc. of Annapolis Junction, Maryland; W. G. Yates & Sons Construction Company of Philadelphia, Mississippi; Fisher Sand & Gravel Co. of Tempe, Arizona; and Texas Sterling Construction Co. of Houston, Texas.

Border Patrol requirements

The designs were constructed to the Border Patrol's requirements. "We look at things like aesthetics, how penetrable they are, how resistant they are to tampering and then scaling or anti-climb features," CBP Acting Deputy Commissioner Ronald D. Vitiello said.

The border wall supports impedance and denial. A major factor in determining where investments in impedance and denial would be most effective is referred to as "vanishing time," which is the distance between the border and the point at which an illegal border crosser could blend into the local populace. Vanishing times are often particularly short in urban areas, Blaine Sector Chief Jerry "Brian" Martin noted.

For fiscal year 2018, the Department of Homeland Security has requested $1.57 billion for wall projects covering approximately 74 miles along the Rio Grande Valley, Texas, and San Diego borders with Mexico. In Rio Grande Valley Sector, CBP would construct a border wall system that includes a concentrated combination of infrastructure such as wall, lighting, enforcement cameras, linear detection technology and all-weather roads. This system creates an enforcement zone, within which agents are able to safely patrol and maximize impedance and denial created by the border infrastructure.



Gaps along the border wall, this one near McAllen, Texas, permit transit between the wall and the Rio Grande River. They will be filled in with automatic gates. Photo by Donna Burton

Building the wall

While Congress considers funding for fiscal year 2018, other wall program activities are moving forward, such as planning and design, real estate, environmental activities, and upgrades along less fortified or outdated parts of the Southwest barrier. The fiscal year 2017 budget included $341 million for barrier replacement projects in the El Paso, San Diego, and El Centro Sectors. The funding also included 35 mechanical gates to close gaps in the existing infrastructure in Rio Grande Valley Sector.

In El Paso Sector, CBP will replace approximately 4 miles of primary pedestrian wall and approximately 20 miles of vehicle barrier. In addition, CBP will replace approximately 2 miles of primary pedestrian wall in El Centro Sector and approximately 14 miles of primary pedestrian wall in San Diego Sector using the steel bollard wall design.

A steel-bollard style wall provides significant impedance and denial capability. These are hollow steel beams that are filled with concrete and rebar. The space between the bollards satisfies a visibility requirement. "It's important for our agents to see any adversary to the south," said Martin.

Closing gaps

A few years ago, CBP installed 42 mechanical gates to start filling gaps in border barriers, left open to allow land owners access to their properties. Fiscal year 2017 funding covers the installation of approximately 35 more to be installed in the Rio Grande Valley Sector. Authorized users drive up to the gate and enter a code, which triggers a motor to draw back a moveable section of the barrier. This creates an opening to drive through. "Completing the remaining gates will help the Border Patrol tremendously" said Albert Herrera, assistant chief with the U.S. Border Patrol's Operational Requirements Management Division.

Environmental considerations

CBP has been working closely with a host of federal, municipal, and local agencies, conducting biological and cultural surveys to determine how construction might impact animals, plants, and populations. "We will continue to be good stewards of the environment," said Ntina Cooper, chief of staff for CBP's Office of Facilities and Asset Management within Enterprise Services.

During construction in 2008, design changes were included to prevent disruption to species migration patterns, including ocelots, pronghorn antelope, and other migrating animals, said Cooper. Native vegetation was also nurtured to prevent erosion, along with other efforts conducted in coordination with the U.S. Department of the Interior to mitigate unavoidable impacts of barrier construction.

Barrier enhancements produce results

"I've seen [barrier] impacts and its effect on border security," said Acting Deputy Commissioner Vitiello during a visit to the Laredo Sector. "I believe that it will help us do our work. It will help agents be better prepared and safer."

For example, Vitiello stated that in 2005 Yuma Sector was "inundated with illegal cross-border incursions." There were 138,549 illegal alien apprehensions, according to a CBP case study.

From 2006–2007, after adding 29 miles of primary pedestrian wall, 9.1 miles of lighting, 9 miles of all-weather roads, a bridge along the border, and 603 agents, Yuma Sector experienced an 82 percent decrease in illegal entries. In addition, Yuma saw a 95 percent decrease in agent assaults from fiscal year 2007 to fiscal year 2015, the study reports. Also during that time, methamphetamine seizures shot up more than 8,000 percent and heroin 39,554 percent.

This automatic gate in Brownsville, Texas, is one of 35 such gates that will close gaps along existing-wall in the Rio Grande Valley Sector. Photo by Rod Kise

PHOTO FROM THE FIELD

Photo by:
M. Riley Mayer
Border Patrol agent
U.S. Border Patrol
Deming, New Mexico

Due to the heavy rains and inclement weather of the yearly monsoon season, it is sometimes necessary to patrol areas on foot. The area known as “76 Draw” in the Deming area of responsibility, is prone to flooding and muddy roads. Border Patrol agents must track groups without the use of a vehicle.

Submit your photos to frontline@cbp.dhs.gov

An Air and Marine Operations crew aboard a King Air 350, uses the Minotaur, which links sensors, cameras, radar and communications equipment into a single system. Photo by Ozzy Trevino

INNOVATIVE TECH HELPS AMO COMBAT SMUGGLERS

By Paul Koscak

Groundbreaking software developed by the Johns Hopkins University Applied Physics Laboratory is giving Air and Marine Operations agents the edge in combating international smugglers intent on evading law enforcement. Minotaur, as the software is called, links sensors, cameras, radar and communications equipment into a single, more automated system, allowing operators to more efficiently identify and track any suspicious or illegal activity on both land and sea.

By digitally combining the surveillance devices, many redundant, time-consuming, manual tasks—such as turning the cameras to track a suspect—are now automatic. Minotaur can track hundreds of suspects at once. The upgrade makes surveillance far more efficient while giving operators tremendous options to identify suspicious activity, explained Mark Erwin, AMO's Minotaur project manager.

"Before, you had to slew the camera to the subject, which took about four minutes," he said. "Now, it's just four seconds to lock in. That's a big deal."

Minotaur looks and operates like gaming software, driven by multiple windows, a mouse and keyboard. From the air, the operator's monitor can show thousands of dots, each a vessel of some kind on the water. To the right, a vertical band contains symbols for dozens of commands and filters. If the operator enters the speed, direction or the size of a vessel typical of a smuggler, immediately only the dots fitting those requirements remain on the screen. When an operator zooms in on a likely subject, a box pops up with the vessel's information. Click on another symbol and the vessel's image appears. Other symbols allow the operator to give the dot a particular color and shape. Over land, vehicles and people can be viewed the same way

A Super King Air 350ER, flown by Air and Marine Operations, monitors other aircraft, vessels, and vehicles on land. Photo by Alex Zamora

and the software can tell apart people from animals, such as cows on an open range.

Among Minotaur's important features, operators can replay anything on the screen and returning crews can show the next crew exactly what they accomplished and where to continue the reconnaissance. With the current software, that information is lost as soon as the equipment is shut down. Through a satellite link, Minotaur provides text communications, an especially useful feature because of aircraft noise. Unlike radio, the link doesn't require a line-of-sight signal.

Minotaur is installed with minimal effort, since the software is delivered already uploaded on a computer that plugs into the surveillance hardware. For operators, training is just learning the differences between the current system and Minotaur.

Erwin said the advances "free operators to do more law enforcement" and give them more time to assist with the flight. They can look outside to scan for other aircraft or handle communications with the AMOC, CBP's Air and Marine Operations Center in Riverside, California. That support reduces the pilot's workload, making for a safer flight.

Minotaur has been years in the making. In 2006, the Navy approached AMO to help test airborne sensors that identified vessels. After flying with the software, AMO realized it could be modified to catch smugglers and border crossers. Through the Navy's contract with the Johns Hopkins University Applied Physics Laboratory, AMO directed the laboratory in crafting software with the features needed to supercharge its surveillance abilities.

Without this technology, spotting the bad guys would be more by chance, according to Mike Delaney, a laboratory engineer who helped manage the software project. Minotaur also saves money because it's designed for law enforcement and interdiction, which fit both Department of Defense and Department of Homeland Security missions, so costs can be shared, he said.

So far, AMO has tested the software on DHC-8, P-3 Orion and the unmanned Predator aircraft. Currently, two Minotaur-furnished King Air 350s operate from AMO's Jacksonville, Florida, air branch and plans call for acquiring up to 40 King Airs equipped with the software. For now, data and communications from Jacksonville flights go directly to the AMOC and then to AMO branch locations.

Detection Enforcement Officer Ned Leonard is one of the operators. "I'm impressed by the look and feel of the software," he noted. "You can divide the screen into subpanels. You can overlay images. This

Aviation Enforcement Agent Ramon Rivera monitors possible illegal activity off the coast of Florida using the Minotaur system. Photo by Ozzy Trevino

eliminates having two monitors and having to look up and down. The mapping is really great."

Detailed moving maps that show street names and allow operators to zoom in and out for certain features is a big change. "The current system only shows a picture of a paper map," Leonard said. "When you zoom in it gets fuzzy."

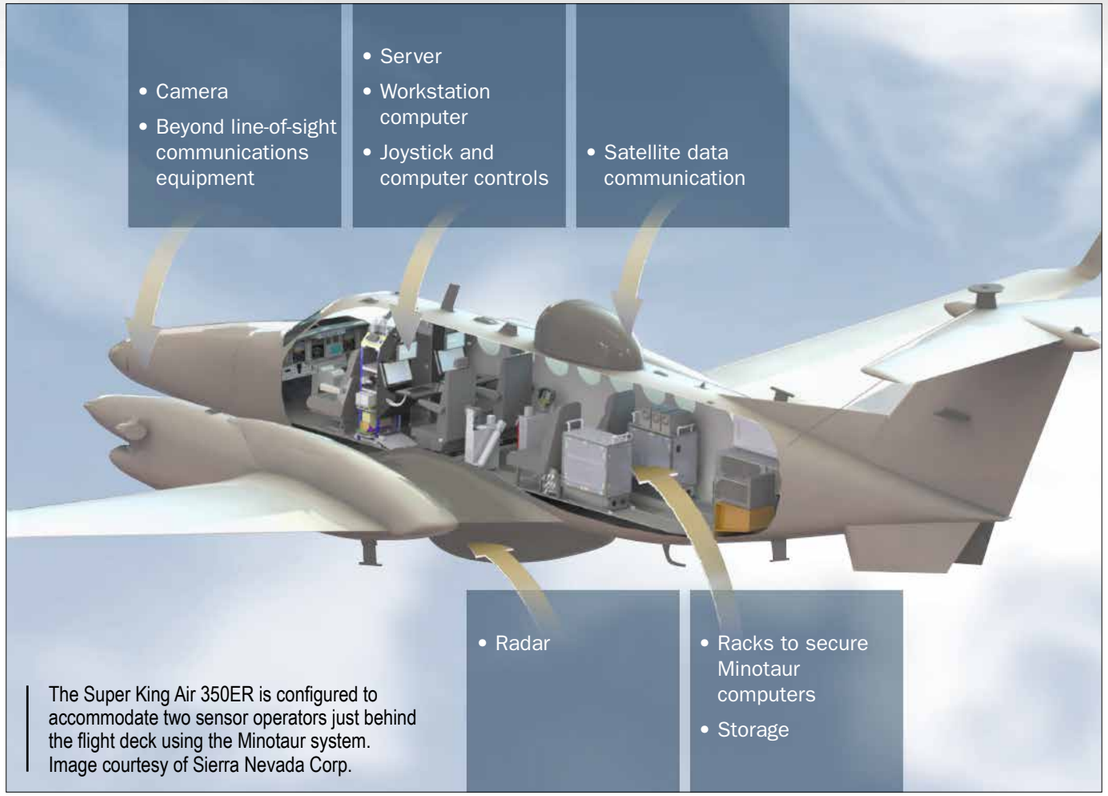
Aviation Enforcement Agent Ramon Rivera spent three years testing Minotaur at the Jacksonville Air and Marine Branch, Jacksonville, Florida, and also appreciates the maps. Many times, he said, the maps were outdated. With Minotaur, maps stay current because they're downloaded from the internet and uploaded into the software. "There's no interference and it's cleaner," is how Rivera described the system. "We used to get lots of false [radar] targets," he explained. "A wave crested and the system would track it."

An operator can get up to speed in less than a week. Agents without experience may take from seven to 10 days, Rivera said.

AMO operators will eventually be able to link to U.S. Coast Guard, Navy and Air Force platforms that use Minotaur. DHS has already approved using the new system to support the Joint Interagency Task Force—South. Meanwhile, Minotaur continues to evolve.

"It's a great tool and upgrade," said John Ducote, deputy director of the Jacksonville Air and Marine Branch. "We're getting some incredible results as we move forward." Ducote, a member of the test team, provided the aircraft, crews and operators for the Johns Hopkins engineers who worked from Jacksonville designing Minotaur for AMO's requirements. That partnership will continue in the future, he said. "It's a work in progress."

Four Super King Air 350ERs stand ready at the Jacksonville Air and Marine Branch in Jacksonville, Florida. Photo by Ozzy Trevino



The Super King Air 350ER is configured to accommodate two sensor operators just behind the flight deck using the Minotaur system. Image courtesy of Sierra Nevada Corp.

Border Patrol target practice at Camp Chigas, El Paso, Texas, during the 1930s. Photo courtesy of CBP History Program collections

ON TARGET
DOMINANT FOR DECADES

BORDER PATROL COMPETITIVE SHOOTERS SPEARHEAD THE SPORT

By Paul Koscak

Even among the best challengers, taking on the Border Patrol's handgun team is typically a losing game.

The Border Patrol has produced the nation's most renowned pistol shooters since the early 20th century. They've triumphed at myriad local and regional contests, earned multiple first-place prizes at national competitions and even hold international records.

"We've won so many events, I can't even count them," said Border Patrol Agent Robert Vadasz, consistently one of the world's top three shooters, who entered the sport in 2004 and was featured on the cover of American Rifleman, the National Rifle Association's signature magazine.

In November 2016, Vadasz set a new record as the world's best metallic pistol shooter by winning the metallic division at the NRA's World Action Pistol Championship in New Zealand. It's a significant feat because metallic competitors use a non-modified pistol with only standard metal sights. Earlier that year in May, he placed second in the metallic division at the NRA's U.S. National Championship Bianchi Cup in Missouri.

Considered the best marksmen in pistol-shooting sports, the Border Patrol's 10-member national pistol team with their monogrammed black hats are noticed when arriving at an event. "We're the most recognized team within the competitive shooting community," Vadasz said.

Winning legacy

Competitive shooting and Border Patrol culture go hand-in-hand with a legacy that reaches back almost to 1924, when the unit was formed. Back then, sharpshooting agents competed in local "bull's-eye" contests and national matches at Camp Perry, Ohio.

Agent Charles Askins emerged as the Border Patrol's top shot and the 1937 national pistol champion.

"We cleaned up locally," Askins later wrote in an article. "We were the champs of Texas and felt pretty cocky, so we went to the national matches." Askins also helped create the Border Patrol's first firearms training program and agent qualification standards.

More champion agents—Elmer Hilden, Joe White, Bill Toney and others—followed during the 1950s and 1960s, earning several individual and team national titles. One of those agents, Harland Carter, became the Border Patrol chief in 1950 and served as the National

Left. Border Patrol championship pistol shooting team, El Centro, California, during the 1930s. Photo courtesy of CBP History Program collections

Right. The 1954 Yuma Sector Border Patrol champion pistol shooting team. Photo courtesy of CBP History Program collections

Rifle Association's executive vice president from 1977 to 1985. His badge and pistol are on display at the NRA's National Firearms Museum in Fairfax, Virginia.

In 1966, the Border Patrol's pistol team switched to a new format: Police Pistol Combat, or PPC. Developed by the NRA and FBI, PPC is a fast-paced, timed course mimicking law enforcement action where contestants shoot from barricades and from different positions.

Local, state and regional tournaments and the NRA's annual National Police Shooting Championships in Albuquerque, New Mexico, use this standard format. Competitions are open only to civilian and military law enforcers. As with the earlier bull's-eye events, the Border Patrol's national pistol team has dominated the contests. Since 1966, 10 agents won the national championships—one agent won three times, another won twice and Vadasz won the title eight times.

Aiming for the top

Becoming a title holder begins at a local contest usually sponsored by a sheriff's office, police department, state police or other law enforcement agency. A Border Patrol sector typically fields a team where agents score individually and as a group, explained Art Velez, the national pistol team's captain. Agents who score the most points up to 1,500 move on to the NRA-sponsored regional matches to vie against the best shooters from several counties or an entire state. They may also qualify to join the Border Patrol's national team during its annual recruiting.

The team travels to five NRA national tournaments, challenging the nation's best law enforcement shooters. Agents winning national awards can enter shooting's pinnacle event—the Bianchi Cup, the NRA's Action Pistol Championship. Named for police officer John Bianchi, this three-day event held every two years is not just for law enforcers but open to all qualifying shooters striving to be the world's ultimate pistol shooter. Like the Olympics, the competition is held at different international locations.

Using the PPC format, local, regional or national bouts are the same—five matches where contestants earn points firing at a paper target from different distances. About 2 feet in length, the oval black target has four white rings and a bull's-eye, positioned within a large human torso outline. Advancing toward the target's center, the space between each ring is worth seven, eight and nine points respectively. The bull's-eye, 10 points.

Velez described the demanding requirements.

• Match one—20 seconds to fire 12 rounds at the target from 7 yards, then again at 15 yards.

• Match two—90 seconds to fire six shots from each position: kneeling and firing with the right and left hand while standing behind a barricade from 25 yards. (The barricade is a wood plank about a foot wide and several feet high.)

• Match three—2 minutes and 45 seconds to fire six rounds from each position: sitting, prone and firing with the right and left hand while standing behind a barricade from 50 yards.

• Match four—35 seconds to fire 12 rounds from 25 yards while standing, performed twice.

• Match five—60 rounds fired in four stages:

Stage A—20 seconds to fire 12 rounds from 7 yards.

Stage B—90 seconds to fire 18 rounds kneeling behind a barricade and also standing and firing from the left and right side of a barricade from 25 yards.

Stage C—2 minutes and 45 seconds to fire 24 rounds while sitting, prone and from the left and right side of a barricade from 50 yards.

Stage D—12 seconds to fire six rounds without any support to steady the pistol from 25 yards.

Matches must be accomplished with different pistols, all adding up to 150 rounds to earn a potential 1,500 points, Velez said. They vary from the service weapon to revolvers to semi-automatics. Some are "stock" pistols, meaning right out of the box while others are modified as per NRA rules.

Two- and four-shooter teams compete as well. "One fires while the other coaches," Velez said. "Then the one firing becomes the coach." Coaches will point out shortcomings to assist the shooter, such as aiming too high or too low or using too much pressure to steady the pistol against the barricade. Four-shooter teams perform the same task except with two coaches and two shooters.

"Imagine trying to hit a 1 1/2-inch circle at 50 yards," said Velez, describing the toughest bull's-eye shot of all.

The right stuff

So what does it take to be the best?

Accuracy, alignment and trigger control are the pillars of competitive shooting, Velez pointed out. Accuracy is the skill to have the round go exactly where you want it. Alignment means the pistol's aiming sights are properly set. Trigger control separates the winners from everyone else. "Ninety percent is trigger control," Velez insisted. "You're not pulling. It's a steady pressure in all one movement. And you don't stop." Uneven pressure can lift the pistol's barrel just enough to miss the mark, he said.

"Once the shot is made, don't dwell on it," advised Shawn Becker, a team member and supervisory Border Patrol agent who enjoys mentoring new shooters. "Look to the next shot." Thinking about it is a distraction and wastes valuable seconds, he explained. "Concentrate on what to do next," Becker said. "Don't dwell on the score."

Top shooters not only have good vision, they also visualize, said world record holder Robert Vadasz. "They see wind, humidity, elevation," factors that affect a bullet's path. "Some days, I can see the bullet traveling down range." Muscle memory, to precisely perform mechanical tasks such as aiming or trigger-pulling

At the 2016 Rocky Mountain Nationals in Raton, New Mexico, shooters fire while sitting, kneeling, prone and standing. Photo by Edgar Ramos

Lilia Maite-Ferrer gets some advice from team captain Art Velez after firing in the four-shooter squad semi-automatic pistol match at the 2016 Rocky Mountain Nationals in Raton, New Mexico. Photo by Edgar Ramos

Rebecca Brudnok fires from 7-yard line and Araceli Woods coaches during the four-shooter revolver match at the 2016 National Police Shooting Championships in Albuquerque, New Mexico. Photo by Edgar Ramos

without thinking, is also crucial and it only comes with repetition. "I've fired over 100,000 rounds," said Vadasz, describing his dedication to practicing.

Keeping equipment in perfect condition is critical. Guns, he said, are machines that can break down. "A bad round or a sliver of metal is all it takes" to lose, he said.

Proper mindset is essential: Have a winning attitude and expect success, but be ready to accept failure and to learn from your mistakes, Vadasz stressed. "I've lost a lot more than I ever won," he added.

Then there's commitment. Along with the mental drain from the events, the team is frequently on the road from April to September which takes a toll. "You've got to be dedicated and willing to persevere," said Ben Morrow, a Border Patrol intelligence agent and former team captain. "Not everything will work out."

At the same time, there's plenty of support, mentoring and camaraderie. "There's no ego" among team members, Morrow said. "We reach out to assist." He said members will let new members borrow guns or ammunition to offset sizable startup expenses.

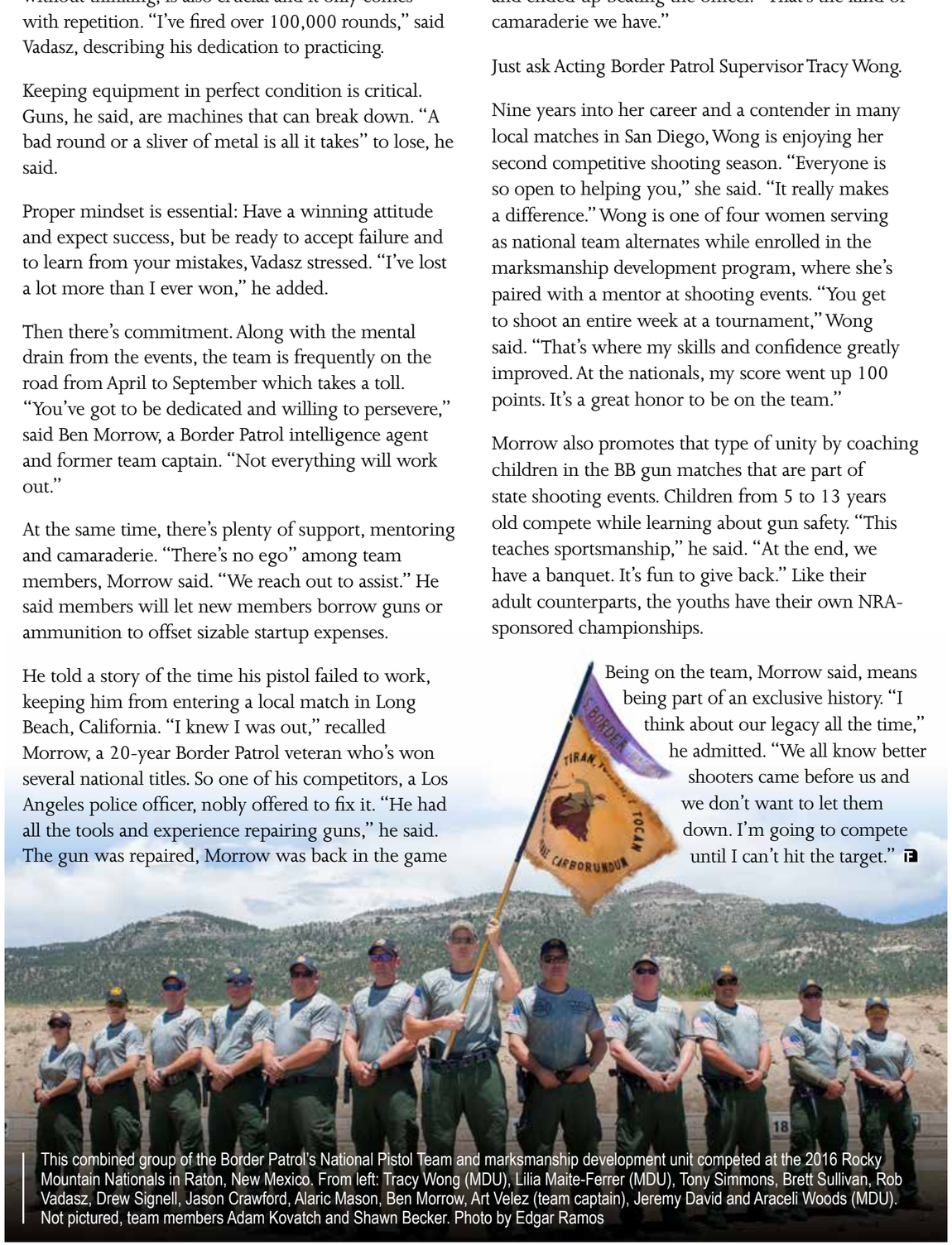
He told a story of the time his pistol failed to work, keeping him from entering a local match in Long Beach, California. "I knew I was out," recalled Morrow, a 20-year Border Patrol veteran who's won several national titles. So one of his competitors, a Los Angeles police officer, nobly offered to fix it. "He had all the tools and experience repairing guns," he said. The gun was repaired, Morrow was back in the game and ended up beating the officer. "That's the kind of camaraderie we have."

Just ask Acting Border Patrol Supervisor Tracy Wong.

Nine years into her career and a contender in many local matches in San Diego, Wong is enjoying her second competitive shooting season. "Everyone is so open to helping you," she said. "It really makes a difference." Wong is one of four women serving as national team alternates while enrolled in the marksmanship development program, where she's paired with a mentor at shooting events. "You get to shoot an entire week at a tournament," Wong said. "That's where my skills and confidence greatly improved. At the nationals, my score went up 100 points. It's a great honor to be on the team."

Morrow also promotes that type of unity by coaching children in the BB gun matches that are part of state shooting events. Children from 5 to 13 years old compete while learning about gun safety. "This teaches sportsmanship," he said. "At the end, we have a banquet. It's fun to give back." Like their adult counterparts, the youths have their own NRA-sponsored championships.

Being on the team, Morrow said, means being part of an exclusive history. "I think about our legacy all the time," he admitted. "We all know better shooters came before us and we don't want to let them down. I'm going to compete until I can't hit the target."



This combined group of the Border Patrol's National Pistol Team and marksmanship development unit competed at the 2016 Rocky Mountain Nationals in Raton, New Mexico. From left: Tracy Wong (MDU), Lilia Maite-Ferrer (MDU), Tony Simmons, Brett Sullivan, Rob Vadasz, Drew Signell, Jason Crawford, Alaric Mason, Ben Morrow, Art Velez (team captain), Jeremy David and Araceli Woods (MDU). Not pictured, team members Adam Kovatch and Shawn Becker. Photo by Edgar Ramos

Spike in opioid seizures prompts precautions from commissioner

Acting Commissioner Kevin K. McAleenan reached out to CBP's frontline force to ensure they remain safe when encountering opioids and fentanyl. CBP's law enforcers are more likely to come across those drugs because seizures have tripled since fiscal year 2015.

"Your safety always comes first," he said in an Aug. 15 message that outlines the precautions and treatments officers and agents, along with laboratory workers, emergency responders and all law enforcement, need to be aware of to protect themselves and the citizens they serve.

Opioids and fentanyl are epidemics sweeping the nation and the leading killer of people less than 50 years old. Fentanyl, a pain medication, is powerful—up to 100 times more potent than morphine. Overdoses point to the way fentanyl is made in illegal laboratories, reports the Centers for Disease Control and Prevention.

Decreased consciousness, slow breathing and pinpoint pupils are signs of fentanyl and opioid intoxication, according to the Drug Enforcement Administration. The DEA also lists rapid heart rate, nausea, vomiting, and dizziness, among the other symptoms.

For overdoses, fentanyl can be reversed by Naloxone, a prescription medicine with the brand name Narcan. Naloxone is extremely safe and should be used when an opioid overdose is suspected and then bring the victim to a hospital, as stated by the National Institute on Drug Abuse.

To stay safe, frontline personnel should approach fentanyl the way they would approach all chemicals of concern or unknown substances. Basic personal protective equipment with nitrile gloves, a properly fitted n-95 or p-100 mask, and OSHA approved eye-protection will safely protect against fentanyl exposure.

Throughout all the protocols dealing with opioids, one precaution is constantly stressed—hand washing with copious amounts of soap and water. Wash after handling opioids; wash after every shift; and wash before eating, drinking or smoking. However, don't use alcohol-based hand sanitizers because they allow the skin to absorb the drugs, advises the DEA.

For more information and guidance visit:
https://uconnect.cbpnet.cbp.dhs.gov/sites/OFO/ops/imd/EMS/Pages/OFO-Fentanyl-and-Naloxone.aspx

Photo by Victor Moussa/Shutterstock.com

CBP RESPONDS:

HURRICANE HARVEY


Photo by Glenn Fawcett


Photo by Alexander Zamora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HURRICANE IRMA


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Photo by Nick Sunderhaus


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HURRICANE MARIA


Photo by Ozzy Trevino


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Office of Field Operations

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Individuals seeking entry into the United States are inspected at Ports of Entry (POEs) by CBP officers who determine their admissibility.

More than 11 million maritime containers arrive at our seaports, another 11 million arrive by truck at land borders, and 2.7 million by rail. We are responsible for knowing what is inside, whether it poses a risk to the American people, and ensuring that all proper revenues are collected.

Each year, CBP agriculture specialists intercept tens of thousands of "actionable pests" – those identified through scientific risk assessment and study as being dangerous to the health and safety of U.S. agricultural resources.

U.S. Customs and Border Protection