

## A Texas-Based DHS Center of Excellence focused on Border Security

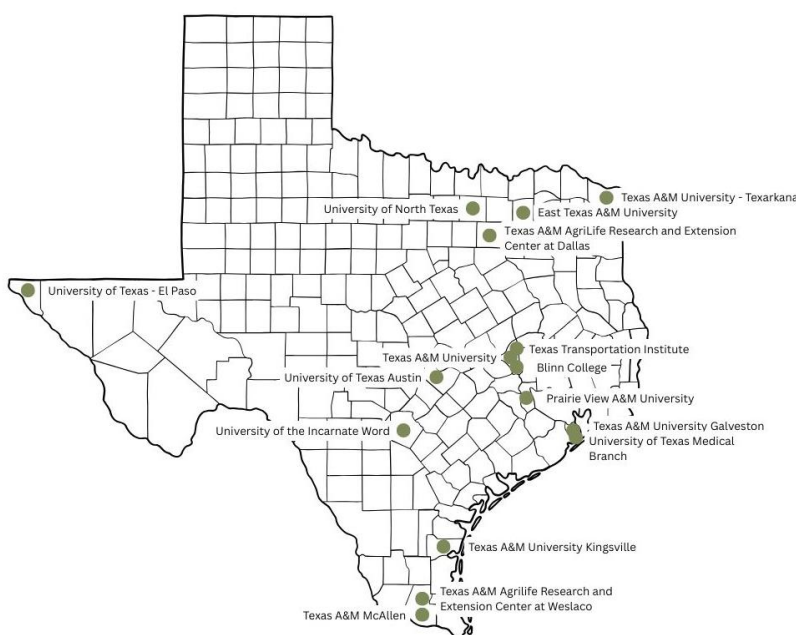
The Cross-Border Threat Screening and Supply Chain Defense (CBTS) is a Department of Homeland Security Center of Excellence (COE) at Texas A&M University that significantly contributes to **security of the Texas border** by addressing threats that could impact public health, agriculture, and the economy. CBTS helps DHS identify vulnerabilities in supply chains, delivers applied science and tooling to help solve long-standing challenges, and develops practical solutions to enhance border security and critical infrastructure. CBTS educates and trains current and future homeland security professionals, ensuring preparedness for evolving threats, and for the adoption of new technologies needed to mitigate those threats.

***CBTS programs support Texas and national needs by delivering research, tools, and education/training to strengthen our security and economy.***

Since 2020, CBTS has delivered **\$14.9M in total funding to Texas-based institutions** for research and education of the next generation of professionals at all levels, including undergraduate, graduate, and post-doctoral trainees, DHS workforce securing the Texas border, and training certificates. Programs spearheaded by CBTS have educated over 100 students with hands-on laboratory work in disciplines including engineering, computer science, cybersecurity, cyberintelligence, biotechnology, veterinary medicine and plant pathology, and trained over 30,000 Customs and Border Protection agents.

High priority challenges being addressed by CBTS include:

- Preventing spread of **African Swine Fever virus** into the U.S., a highly fatal disease that would decimate pork industry and trade.
- Technology and methods for **detecting invasive species and insect pests** crossing the border and threatening agriculture. Includes new operational methods for sampling, spectroscopy, molecular biology techniques, and artificial intelligence/machine learning with drone swarms.
- Novel methods for **detection of diseases in livestock** including Raman spectroscopy.
- Addressing **Chagas**, an endemic disease (a high mortality disease from cardiac failure, stroke, and sudden death) crossing the U.S. Southern border and spread by “kissing bugs.” It is a **direct threat for all DHS and law enforcement canines and the human workforce.**
- Delivered **accurate and timely information for the DHS S2**, through cross-border work and relations with U.S. and Mexican counterparts to assess and visualize public health risks,



**Figure 1. CBTS projects directly fund research and education in many regions of Texas with state-wide and national security impact**

during the pandemic. The project advanced tools for acquiring and managing public data used to provide timely analysis that aided resumption of commerce along the border.

- CBTS is developing ***equine first aid and basic medical training for Border Patrol*** – horse patrol agents. This training is vital for responding to emergencies and maintaining mission readiness and longevity of hundreds of trained working horses and their handlers patrolling inaccessible areas of the U.S. Northern and Southern borders.
- Planned work includes:
  - Addressing the immediate border security threats posed by **Carrizo cane** to law enforcement activities along the Rio Grande Valley border because it provides cover for illegal border crossing and cartel activities, obstructs remote video surveillance and radio transmissions, and reduces visibility for border patrol agents.
  - Industry-academic report and analysis of U.S. dependencies on and alternatives to **imported vitamin supplies**, largely produced by China. If U.S. vitamin imports were disrupted, this dependency would pose significant risks to the U.S. livestock sector as well as to public health and national security, given almost no domestic vitamin production.
  - Industry and government workshops simulating supply chain disruptions affecting **trade at the Southern border**. These collaborations aid working relationships, enforcement, and the resumption of business activities after events.
  - Evaluating physiology and human performance monitoring to ensure **health and readiness of elite agents** (DHS BORSTAR/BORTAC) in high intensity border operations.