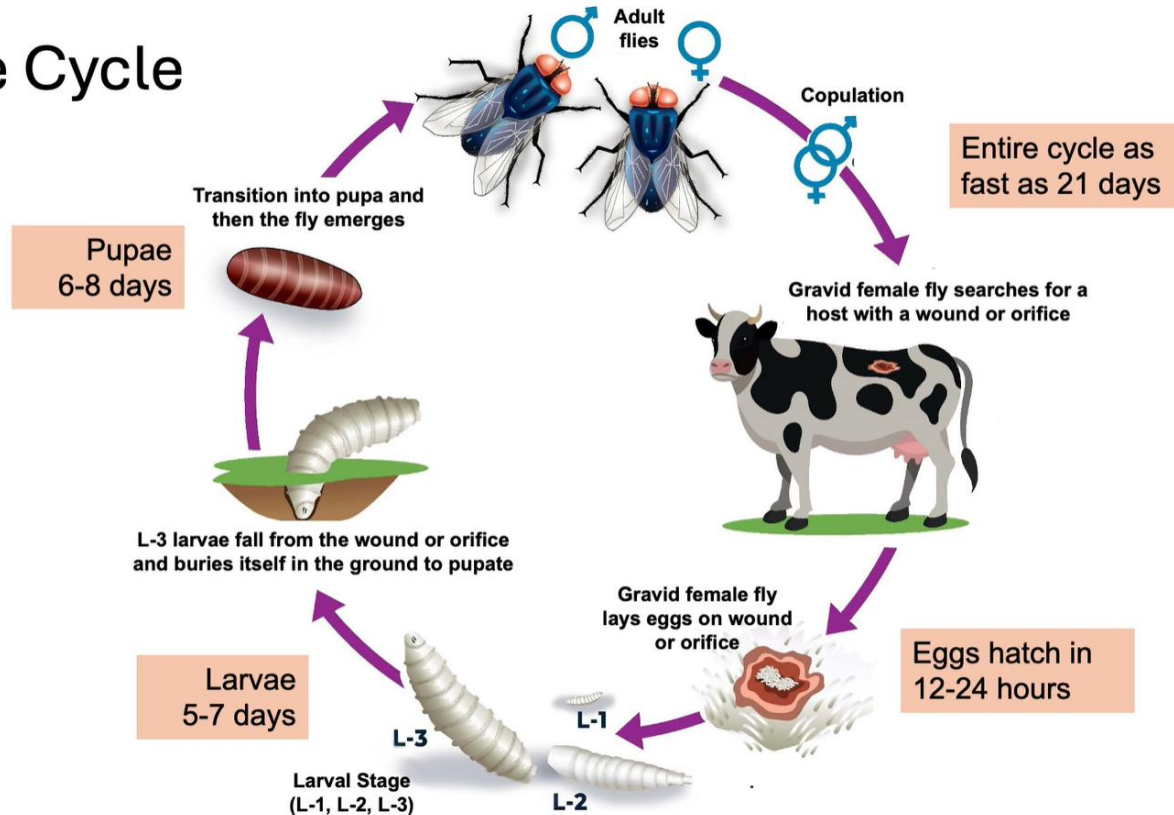


New World Screwworm Risk in Southwest Rangelands: Ecology, Detection, & System-Level Vulnerability



The Flesh-Eating Threat (*Cochliomyia hominivorax*)

NWS Life Cycle



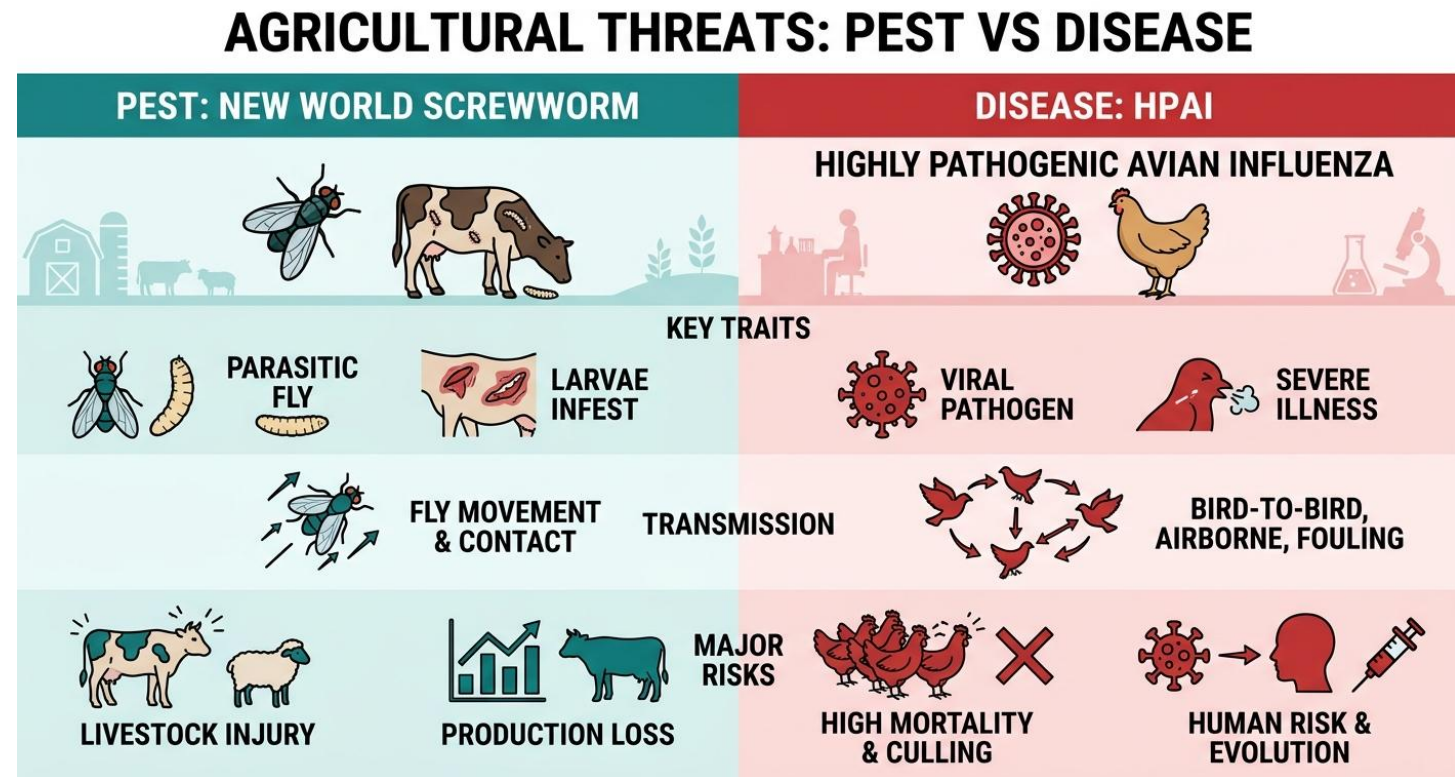
USDA-APHIS



Samantha Gibbs, U.S. Fish and Wildlife Service

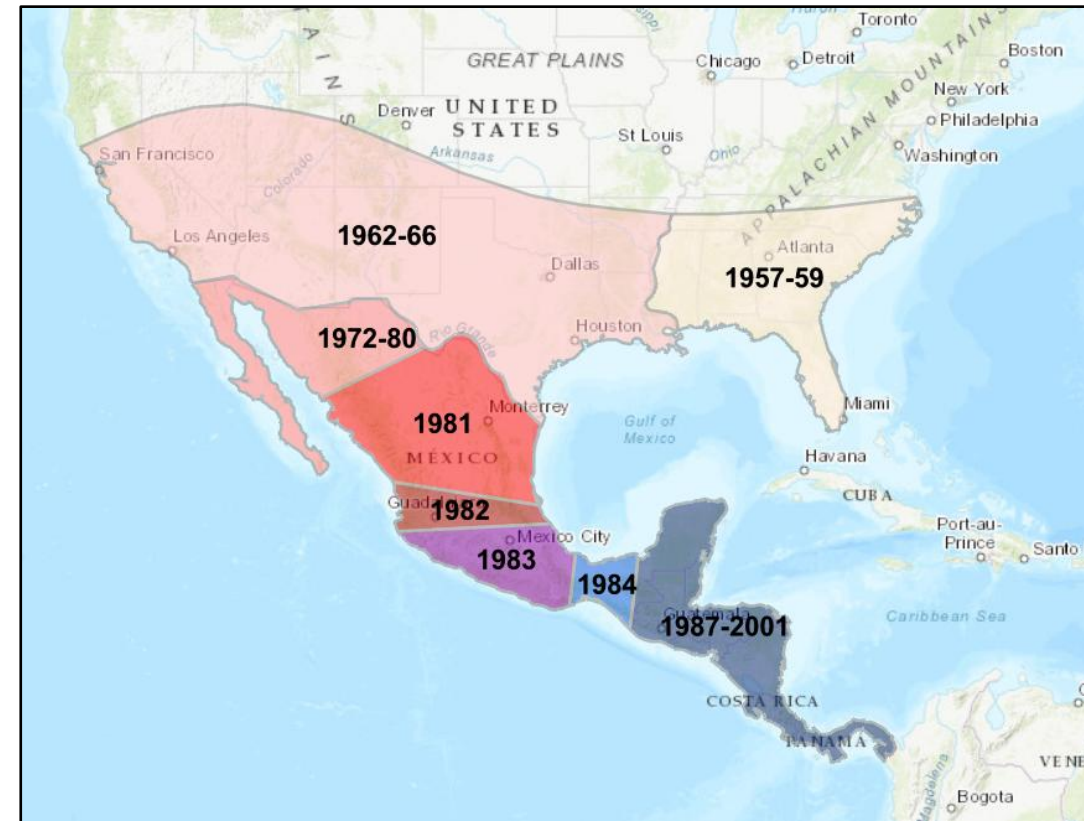
Biological Threats (Pests vs. Disease)

- Visible and detectable
- No animal-to-animal transmission
- Can be targeted at the population level
- Early detection enables rapid containment



Endemic Burden to Eradicated Threat

- NWS was historically endemic in parts of North, Central and South America
- **U.S. “eradicated” NWS in the 1960s** through the release of billions of sterile flies
- The U.S. experienced several incursions following eradication including the 2016 Florida incident, which killed 136 endangered Key deer



USDA-APHIS

The Threat Landscape (September 2026)



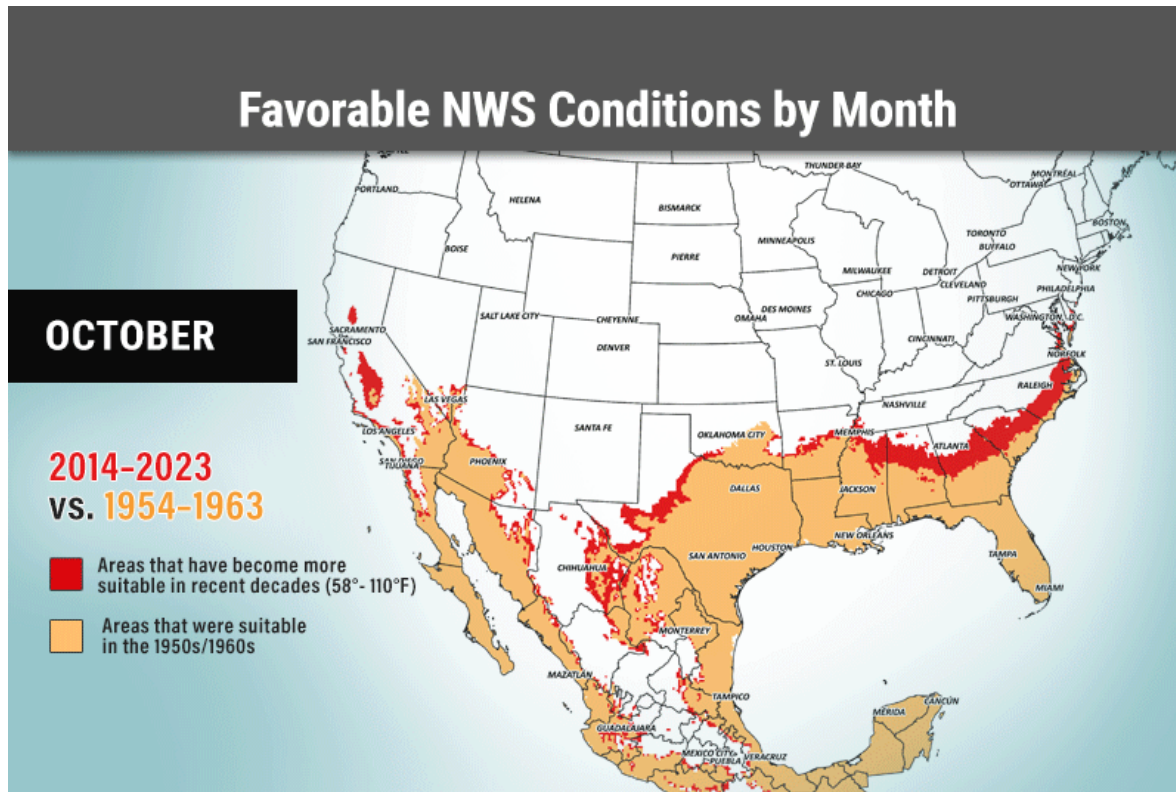
United States

- Active cases = 2

Mexico

- Active cases = 2,078
- Active cases by species
 - Bovine - 1,003
 - Canine - 740
 - Equine - 97
- Sonora = 95, Chihuahua = 88

New World Screwworm Habitat Suitability



Adult flies- thrive between 77-86°F, upper limits 104°F

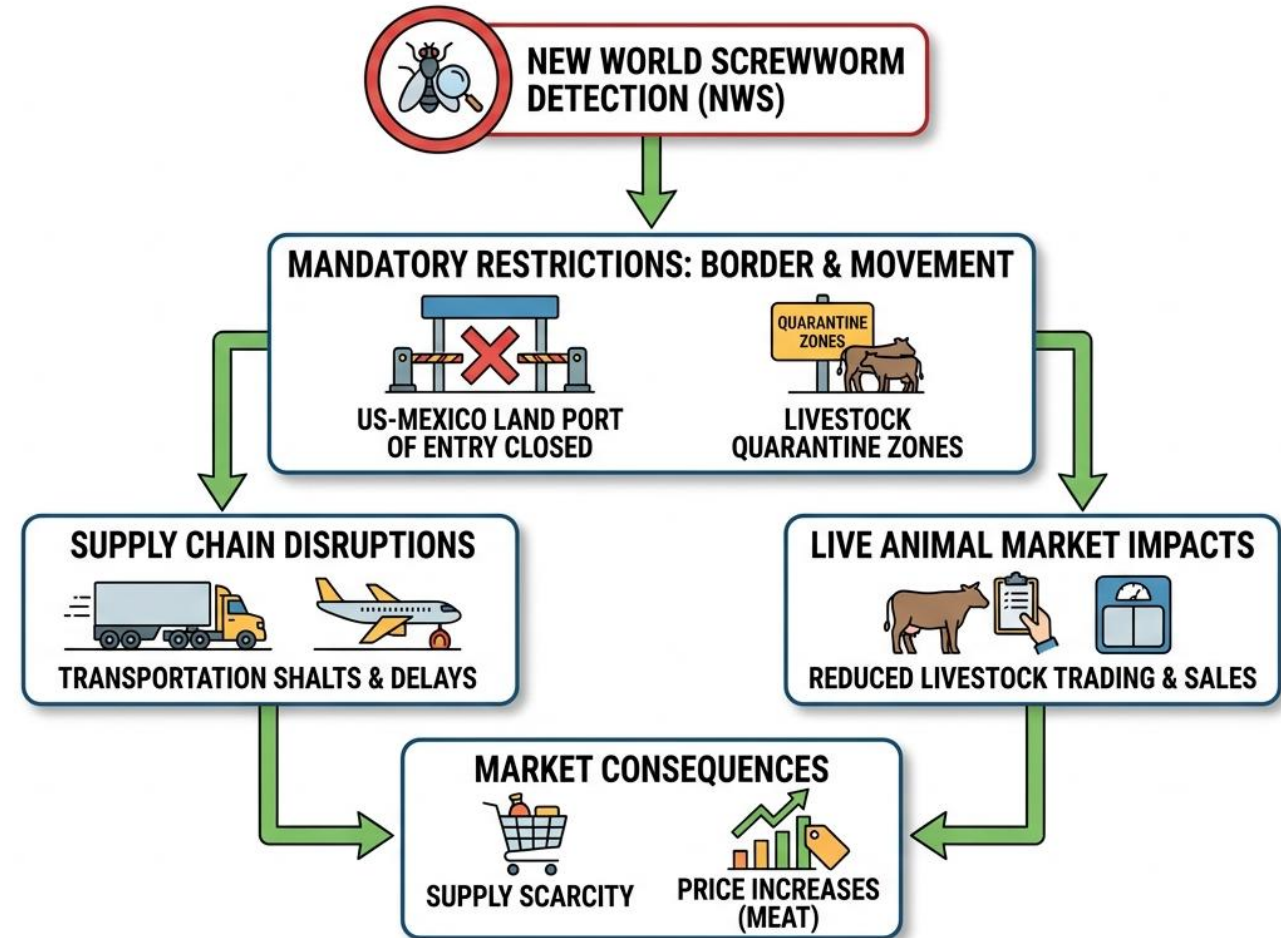
Pupae- require soil temps above 46°F to survive and emerge. Extended temps below 50°F reduces survival

Humidity- Optimal range 30-70%

Woods, Water, and Warm-Blooded Animals

Economic and Operational Stakes

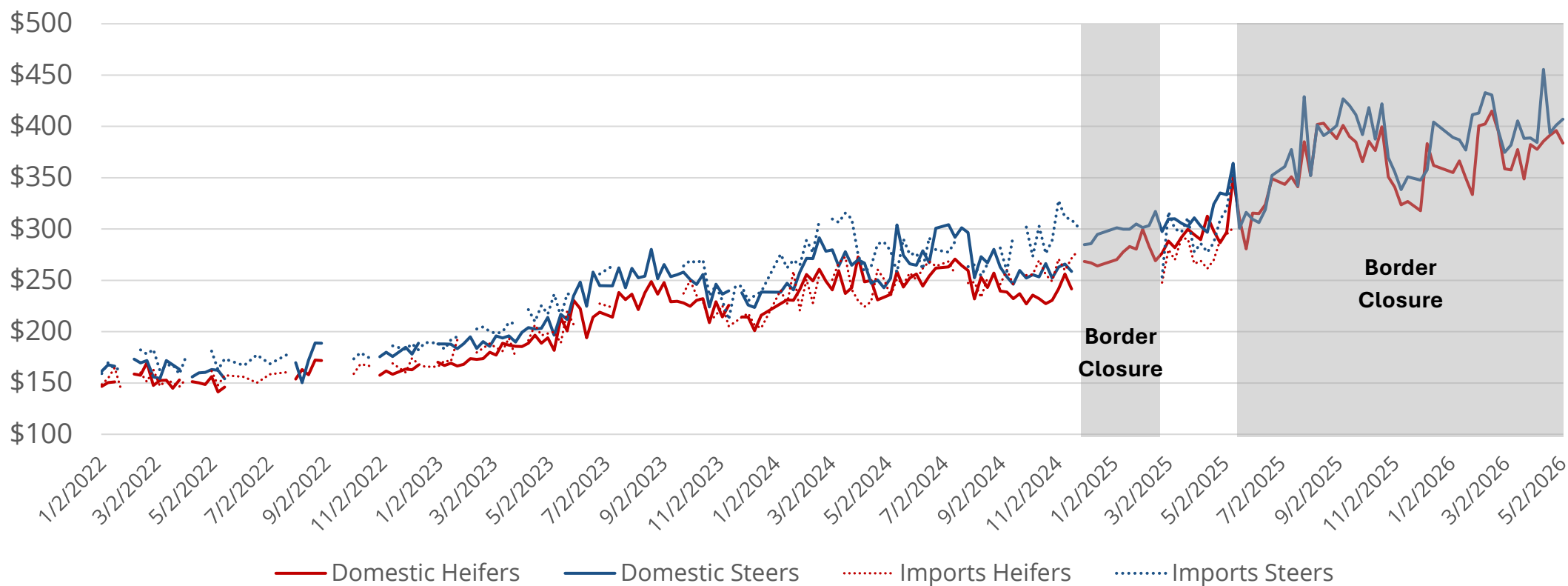
Risk: NWS detection delays can trigger major economic disruption due to U.S./Mexico biosecurity risk mitigation measures



Economic Impacts (Example)

Cattle Prices & NWS

Average Feeder Cattle Auction Prices, Domestic & Imported, Clovis NM & Santa Teresa NM, 2022-2026 (Nominal Dollars)



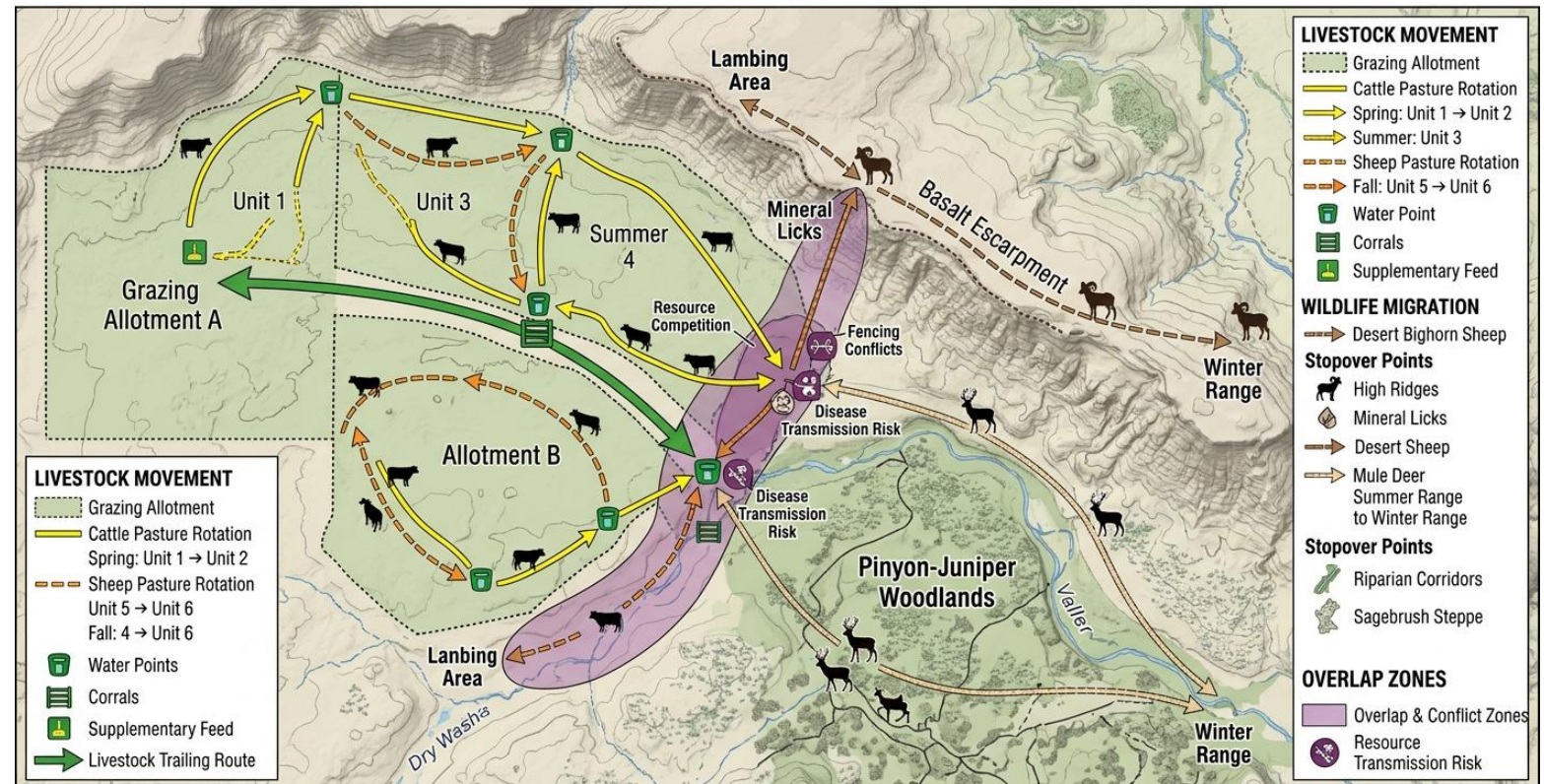
Source: USDA AMS

NWS System-Level Vulnerabilities in Rangelands

Extensively managed western rangelands pose unique challenges

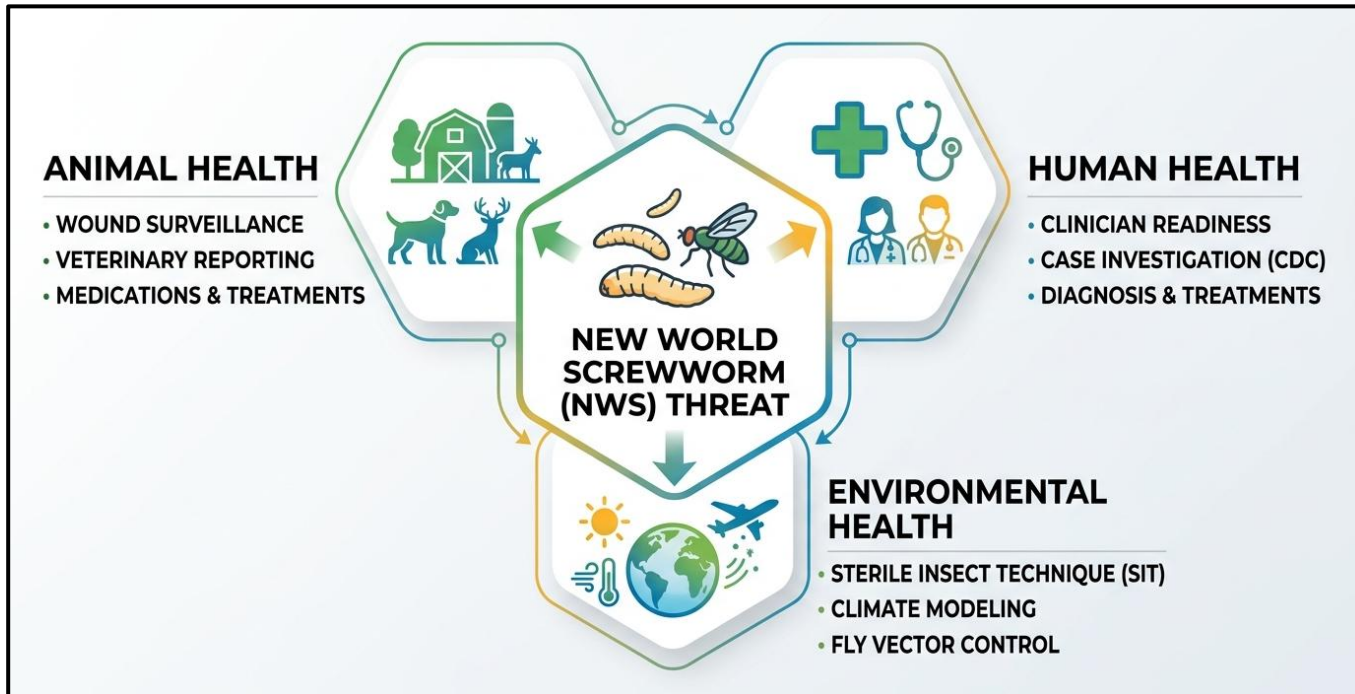
- Surveillance gaps
- Regulatory gaps
- Coordination gaps
- Trust gaps

Livestock movements and wildlife migration pathways across rangeland ecosystems



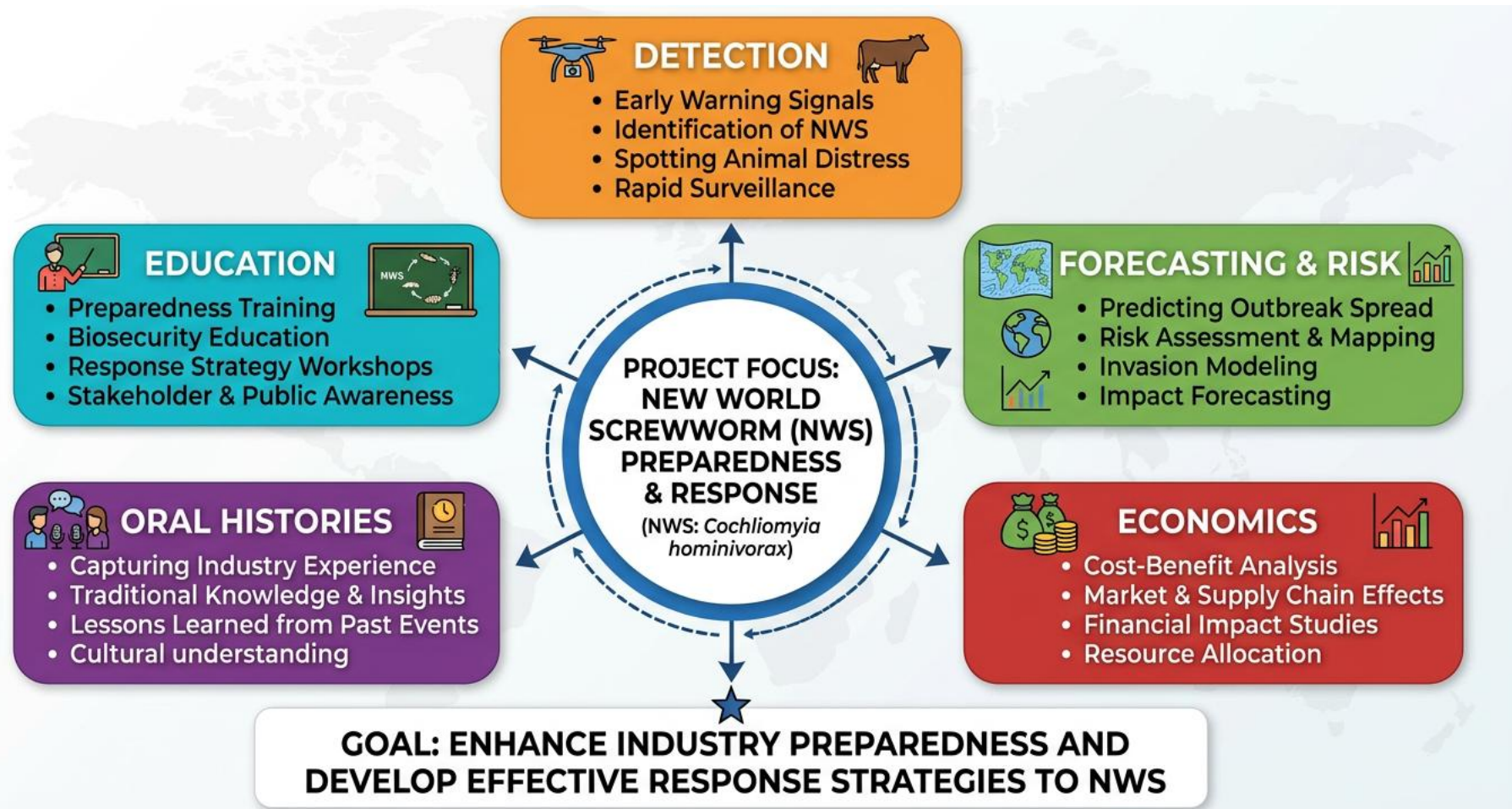
How Are We Addressing Vulnerabilities

Partnerships



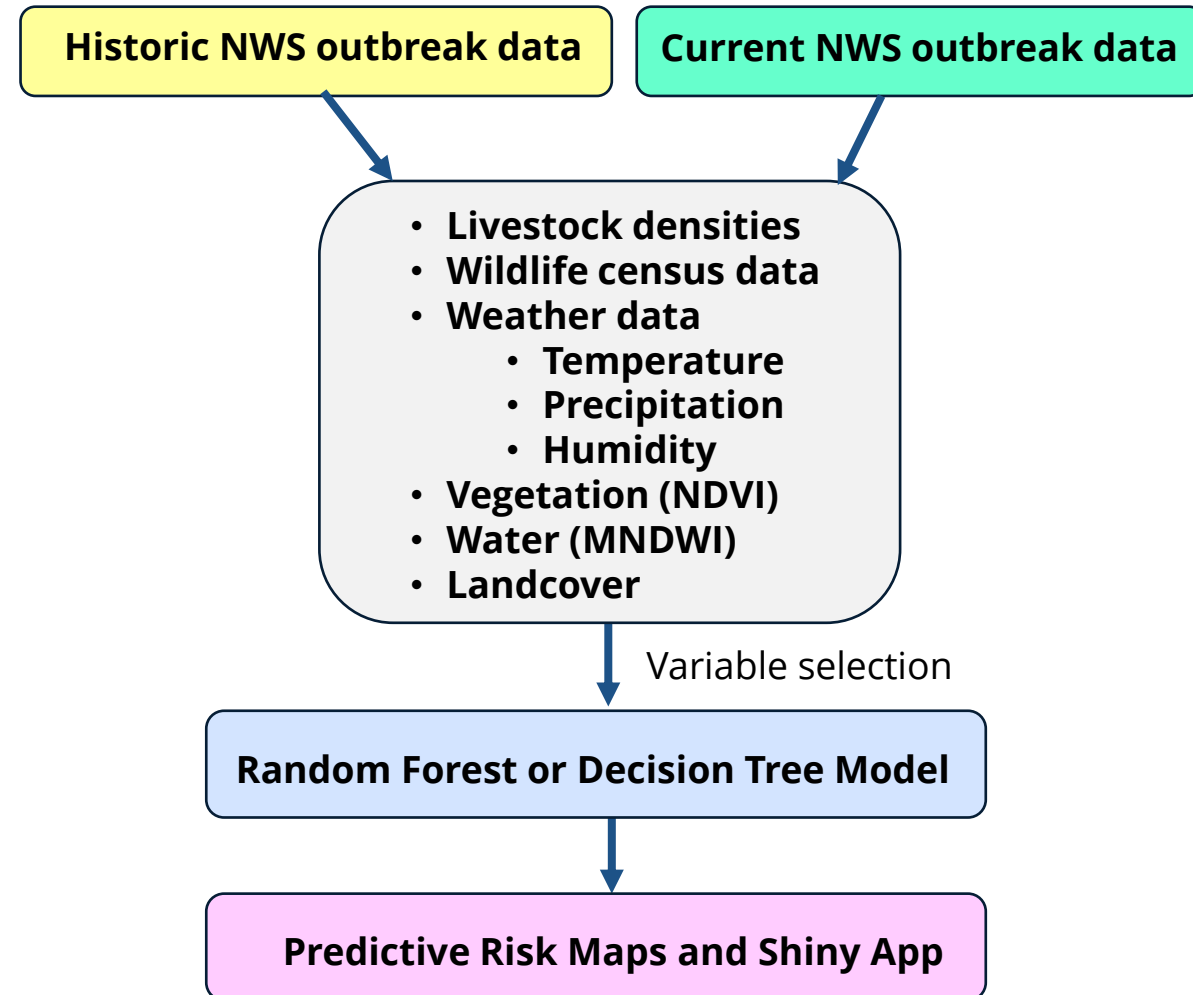
How Are We Addressing Vulnerabilities

Research & Cooperative Extension

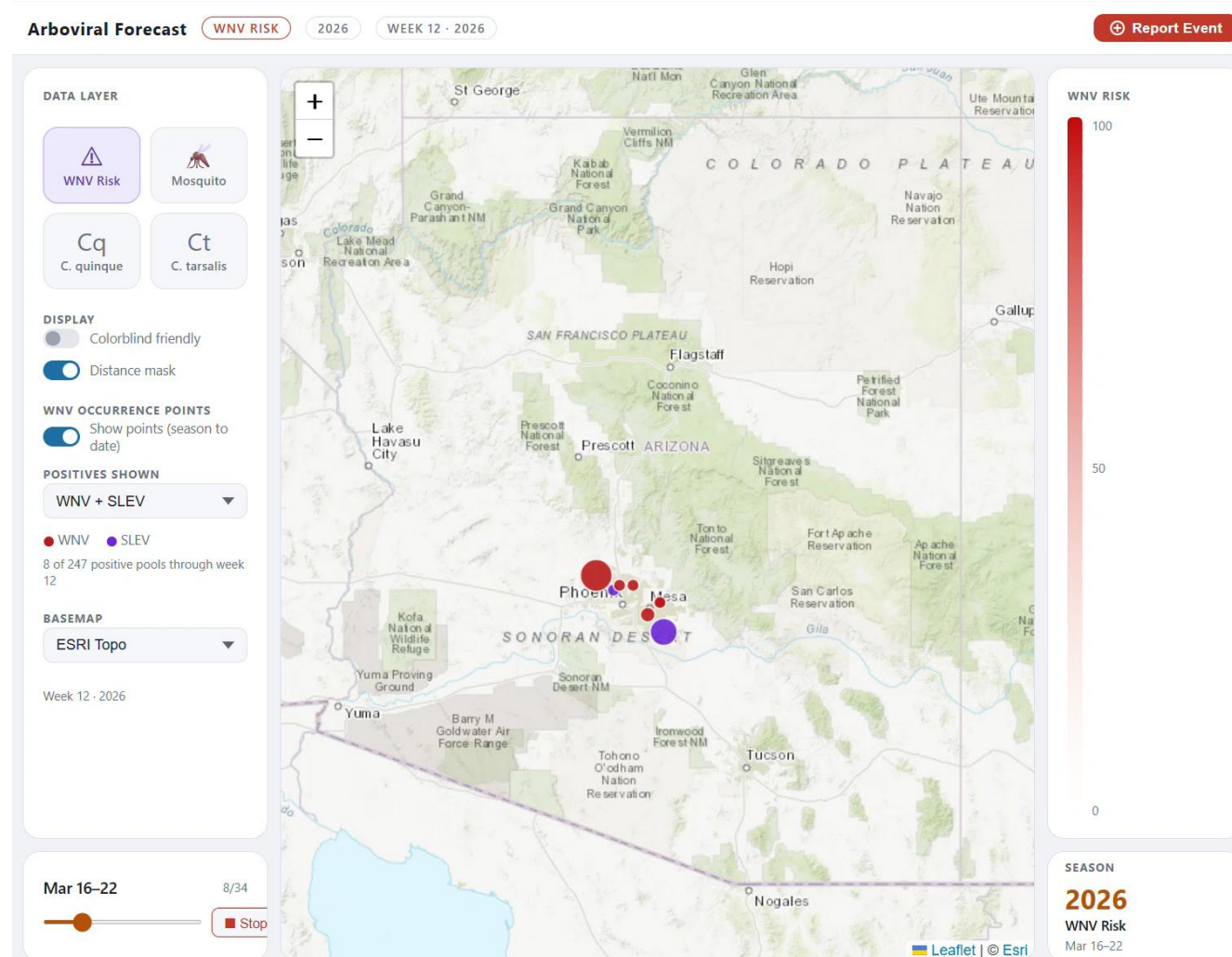


Predictive Modeling: Forecasting the Spread

- Outbreak data
- Variables to include
 - Livestock and wildlife
 - Weather data
 - Vegetation and water indices
 - Landcover type
- Random forest / decision tree model
 - *Cochliomyia hominivorax*
- Shiny app development



Predictive Modeling: Forecasting the Spread



Biological Warfare: Sterile Insect Technique



USDA Announces
**NEW \$25 MILLION
STERILE FLY FACILITY**

meetingplace
USDA Announces \$25M Sterile Fly Facility During Border Visit

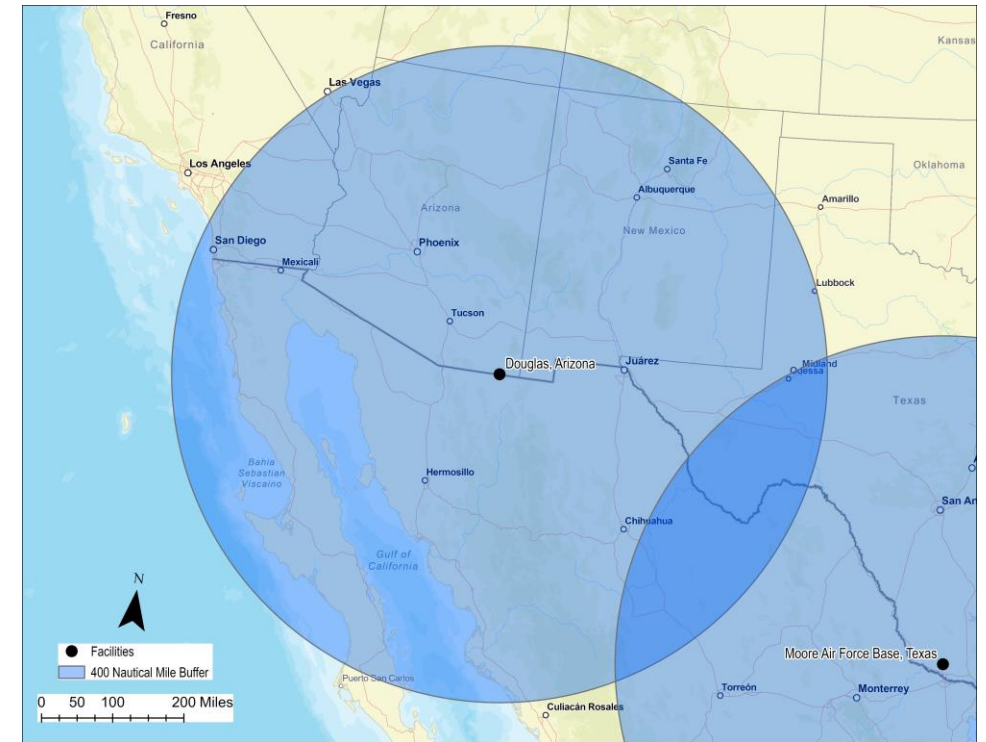
KTAR NEWS
92.3 FM
Secretary Rollins announces \$25 million for Arizona sterile fly dispersal facility

Progressive FARMER
—DTN—
Rollins Touts AZ Port Opening, NWS Lab

the Fence Post
Rollins announces \$25M for Arizona sterile fly dispersal facility

USDA

Positioning Success: Sterile Fly Facility Locations



Science-Based Strategies to the Rescue

Sterile Insect Technique (SIT)

- SIT targets the root cause: reproduction
- SIT allows eradication across large geographic areas, something that is not possible with chemicals
- SIT is data driven with confirmed detections driving dispersal patterns



Lessons From Our Previous Battles



The sterile fly program changed the Borderlands odds, but it was ranchers' vigilance and management that kept screwworm from coming back!

Inspect → Collect → Treat → Report → Observe Restrictions

Addressing Vulnerability

Attribute	1960's Eradication Era	2026 Preparedness Landscape
Livestock Transport	Slower, regional distribution	Rapid, long-distance interstate transit
Climate Vectors	Conditions more favorable for reducing fly survival	Warming climate with favorable microclimates
Primary Diagnostics	Visual inspection of animal wounds, flies and larvae	Visual and potential for PCR, animal biometrics
Defense Strategy	Reactive treatment of active infestations	Predictive modeling and proactive sterile fly releases



Education & Extension Initiatives



New World Screwworm
Found in the U.S.

What you
need to know

Paul Langlois, New World screwworm and other calliphorids (Diptera), USDA APHIS PPQ, Bugwood.org



THE UNIVERSITY OF ARIZONA
Cooperative Extension

(Includes College of Veterinary Medicine)



Questions?



Connect With Me

**Many UA colleagues are involved with this project.
I am happy to provide connections!*



Natural Resources
& the Environment

amyganguli@arizona.edu