Feral Swine

History of an Expanding North American Threat and Eradication Efforts in Arizona

Presented by USDA APHIS Wildlife Services and U.S. Fish & Wildlife Service

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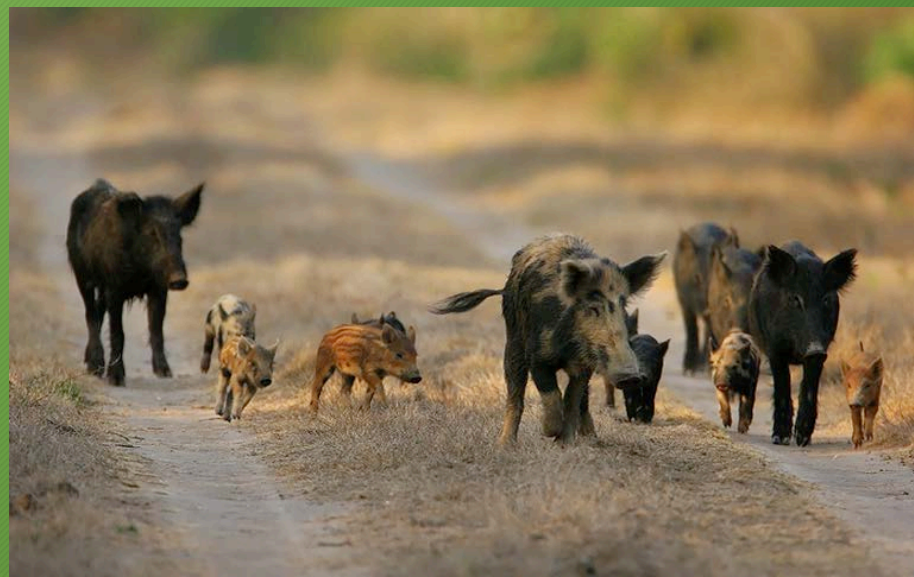
- APHIS-WS National Feral Swine Damage Management Program

What are Feral Swine?

- Not native to North America
- Wild boar/hogs, Eurasian/Russian boar, razorbacks
- Descendants of escaped or released domestic pigs (Sus scrofa)
- Pose a threat to agriculture, human health and safety, native species, natural resources and more

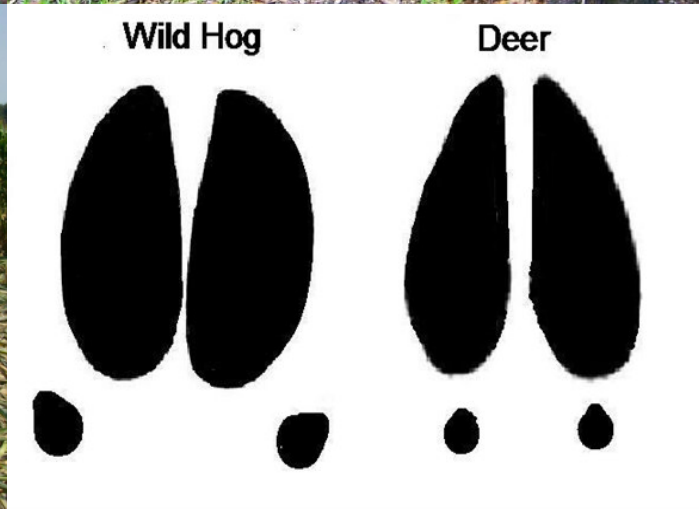
Identification and Characteristics

- Long, coarse hair and straight tails
- Long canines (tusks)
- Vary in color (black, brown, red, white, spotted)
- Adults can reach 250+ pounds
- Round cloven hooves
- Lack sweat glands
- Opportunistic omnivores
- Travel in sounder groups as large as 30 individuals
- Sexual maturity at 6-8 months
- Sows (females) can have 4-12 piglets multiple times each year



Habits and Indicators of Feral Swine

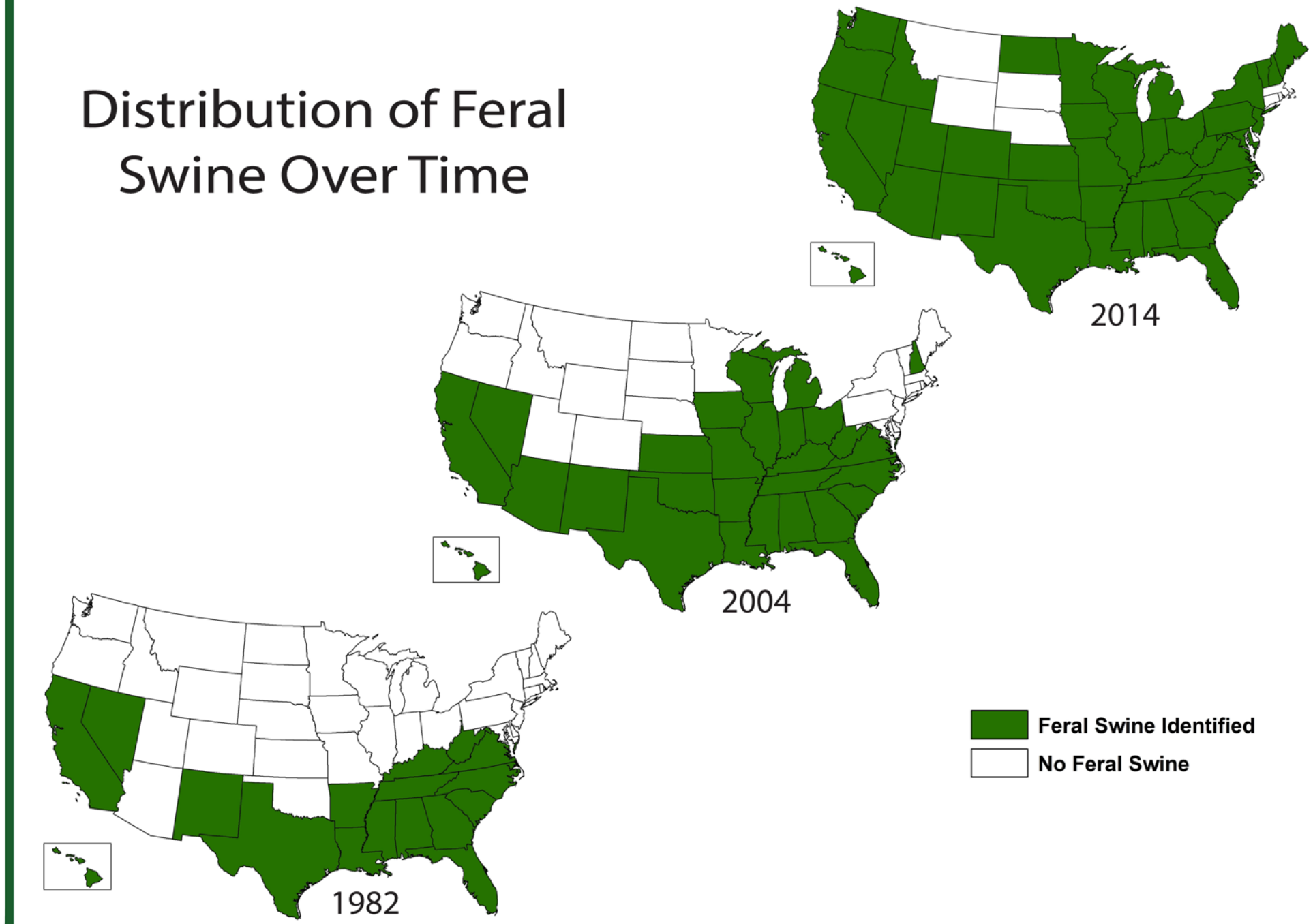
- Rooting
- Wallows
- Tree rubbing
- Trails and trampled vegetation
- Tracks
- Scat



History in North America

- Brought to North America by early settlers in the 1500's as a food source
- Adaptability of released/escaped swine allowed for rapid population and range expansion (habitat generalists)
- Due to commercial and recreational hunting, populations exploded over the last 35 years
- Currently present in at least 35 states (41 states in 2014)
- Management in the U.S. varies based on population densities and localized factors

Distribution of Feral Swine Over Time



*Arizona

Problems Associated With Feral Swine

Agricultural and Property

- Rooting, trampling and consumption all contribute to the loss of crops, property damage and damage to cultural/historic sites
- Feral swine cost the U.S. an estimated $1.5 billion per year in damage and control costs

Natural Resources

- Destruction of habitat
- Loss of biodiversity due to competition with native species over food, water and habitat
- Predators to reptiles, small mammals, amphibians, birds and nests
- Soil and water quality issues
- Enable the spread of invasive plants through disturbance
- Disruption of forest regeneration

Health and Safety

- Potentially aggressive nature toward humans and pets
- Disease threat to humans
- Disease threat to livestock and pets
- Auto-collision incidents

Who is Involved in the Solution?

National Feral Swine Damage Management Program

- Created in 2014 by USDA's Animal and Plant Health Inspection Service (APHIS) after receiving $20 million from Congress
- Aims to protect agriculture, natural resources, property, and human/animal health and safety through proper management
- Coordination between additional federal agencies, states, local governments, tribes, universities, organizations, the public and individual cooperators
- Collaboration with Canada and Mexico along borders
- Final Environmental Impact Statement (EIS) and Record of Decision resulted in an alternative that involves strategic coordination, allocation of resources and localized projects to manage and/or eradicate swine based on specific localized scenarios

National Feral Swine Damage Management Program

- Key program components include:
  - Field Operations
  - Disease and Population Monitoring
  - Research
  - Planning and Evaluation
  - Communication and Outreach
  - Regulatory Actions
- Additional APHIS agencies involved:
  - Wildlife Services
  - Veterinary Services
  - International Services
  - Legislative and Public Affairs
  - Policy and Program Development

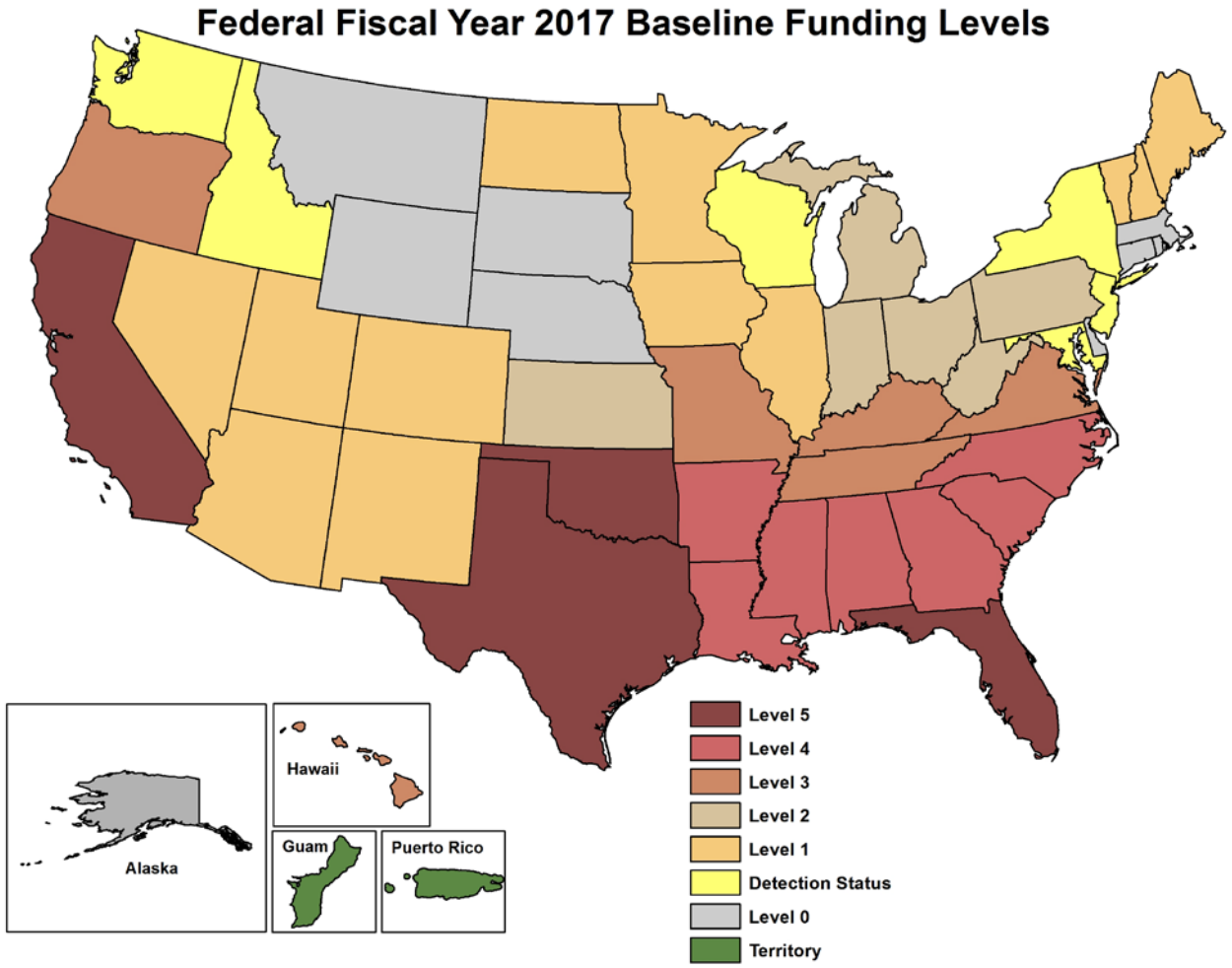
National Feral Swine Damage Management Program

- The strategy of the NFSDMP is to provide resources and expertise at a national level, while allowing flexibility to manage operational activities from a local or state perspective

- The overall goal of the program is to minimize damage inflicted by feral swine through management or eradication depending on population densities and other local factors

Funding

Nationwide Funding Overview



FY 2015 and 2016 Allocations

Level 5- $325,000
Level 4- $295,000
Level 3- $235,000
Level 2- $165,000
Level 1- $68,000
Detection Level- $42,000
Level 0- $0

***WS** state programs responsible for the territories of Guam and Puerto Rico each received $100,000 in special "Territory Funding" in FY2016

Operational Component Funding Structure

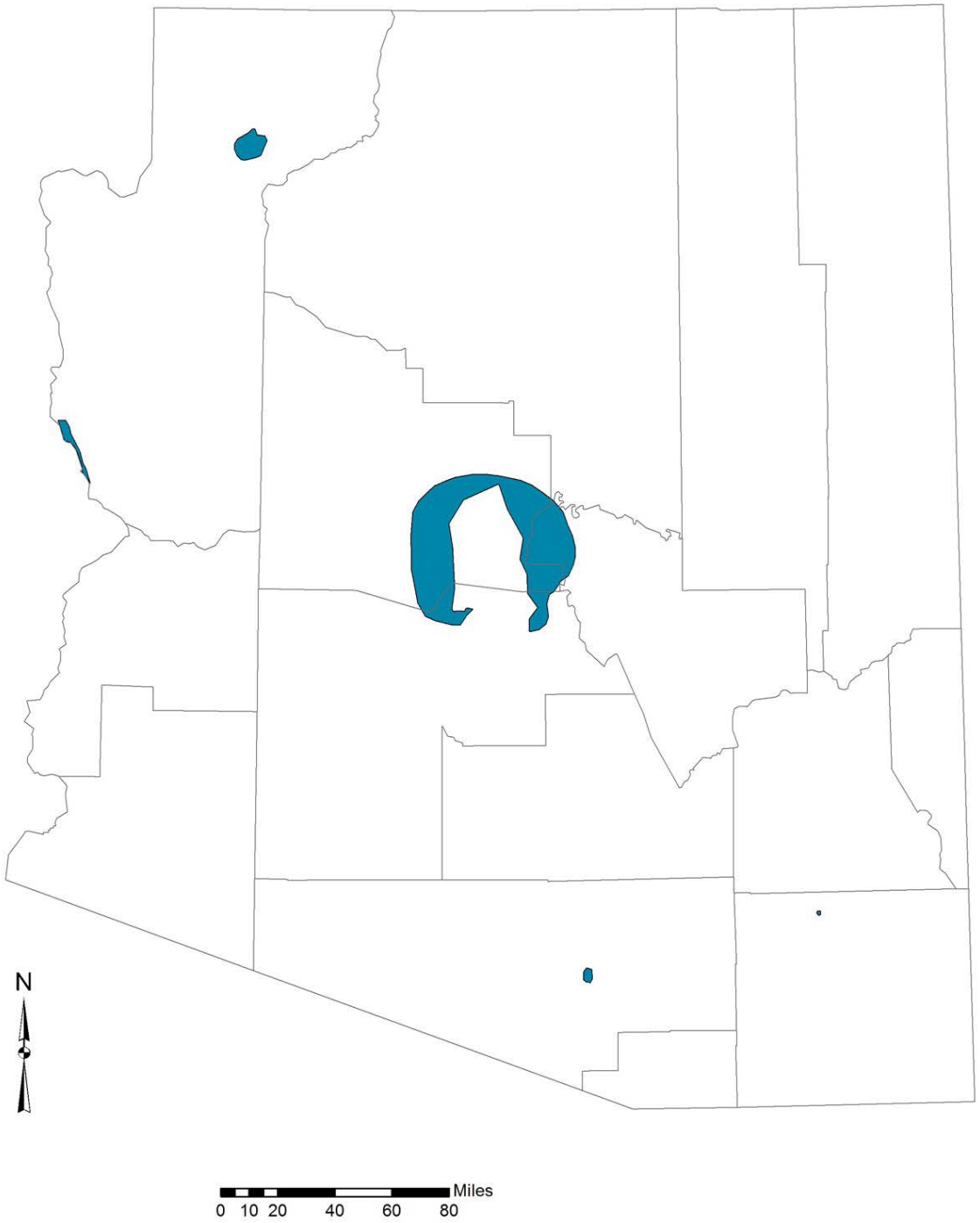
- Level of baseline funding allocated to each WS state program depends on feral swine populations, distribution, damage to resources, presence of potentially damaged resources and state, territorial, tribal, or local regulations impacting management efforts

Estimated State Populations

- Level 5- Greater than 750,000 feral swine
- Level 4- Between 100,000 and 750,000 feral swine
- Level 3- Between 10,000 and 100,000 feral swine
- Level 2- Between 1,000 and 10,000 feral swine
- Level 1- Less than 1,000 feral swine
- Detection Level- All know feral swine populations have been eliminated from a Level 1 state and surveillance/monitoring efforts will continue for a minimum of two additional years to ensure success
- Level 0- No feral swine (feral swine were either never confirmed in the state or the state has been free of feral swine with no confirmed reports for more than two years

Feral Swine in Arizona

Distribution



*2016

Damage Control Techniques

- Fencing
- Harassment
- Vaccination of Livestock
- Contraception
- Monitoring Cameras
- Trapping
- Snaring
- Dogs
- Ground Shooting
- Aerial Gunning/Surveillance
- Toxicants
- Telemetry
- *Laws passed on the transportation, possession, release and reporting of feral swine*

Damage Control Techniques

Feral Swine Removed From Arizona

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
# Removed	62	44	30	35	33	29	32	23	37	49	46	*

* On-going removal

Disease Sampling 1/01/2006-1/23/2017

Disease	Sample Type	Samples
Total Swine Sampled		351
Classical Swine Fever	Blood/Serum/Swab/Tissue	377
E. coli	Tissue	22
Genetic	Tissue	40
Hepatitis E	Blood/Serum	14
Leptospirosis	Blood/Serum/Tissue	66
Plague	Nobuto	114
Pseudorabies	Blood/Serum	278
Swine Brucellosis	Blood/Serum	277
Swine Influenza	Blood/Serum/Swab	91
Toxoplasmosis	Blood/Serum/Tissue	132
Tularemia	Nobuto	130
	Total Samples	1541

Disease Sampling

*Chart shows samples taken as of 10/1/2016

Disease	Sample Type	Samples
Total Swine Sampled		20
Classical Swine Fever	Blood/Serum	19
Genetic	Tissue (Ear Notch)	20
Plague	Nobuto	20
Pseudorabies	Blood/Serum	19
Swine Brucellosis	Blood/Serum	19
Toxoplasmosis	Tissue (Heart/Tongue)	3
Tularemia	Nobuto	20
	Total Samples	120

Disease Sampling

Havasu National Wildlife Refuge

Feral Swine History

- Translocation to Arizona
- First documented sightings in early 1970’s

A Threat to Biodiversity

- Habitat destruction
- Disturbance allows spread of invasive vegetation
- Competition for resources
- Water quality/Erosion/Wetlands
- Impacts on threatened and endangered species
  - Yuma Ridgway's Rail
  - Southwestern Willow Flycatcher
  - Yellow-billed Cuckoo
  - Northern Mexican Gartersnake

Damage Management Efforts

- Cooperation with U.S. Fish & Wildlife Service to work toward eradication
- Special Use Permit (SUP) allows the implementation of direct control methods such as trapping, shooting and monitoring
- Disease sampling to monitor potential health/agricultural threats
- Aerial gunning scheduled for February 2017

Looking Forward

Future Plans

- Continued monitoring following aerial operations in order to measure success
- Remaining population density will dictate future efforts and actions at Havasu NWR
- Continued surveillance throughout Arizona with resources and actions focused on areas with recent sightings

The End!