



Secure Turkey Supply Plan - Issuing Movement Permits During an Outbreak of HPAI

D.W. Trampel, K. L. Petersburg,
D. D. Schmitt, S. R. Goff, J.A. Roth



Outline

- Asian H5N1 HPAI
 - Origin and Spread
- National HPAI Response Plan
- Secure Turkey Supply Plan



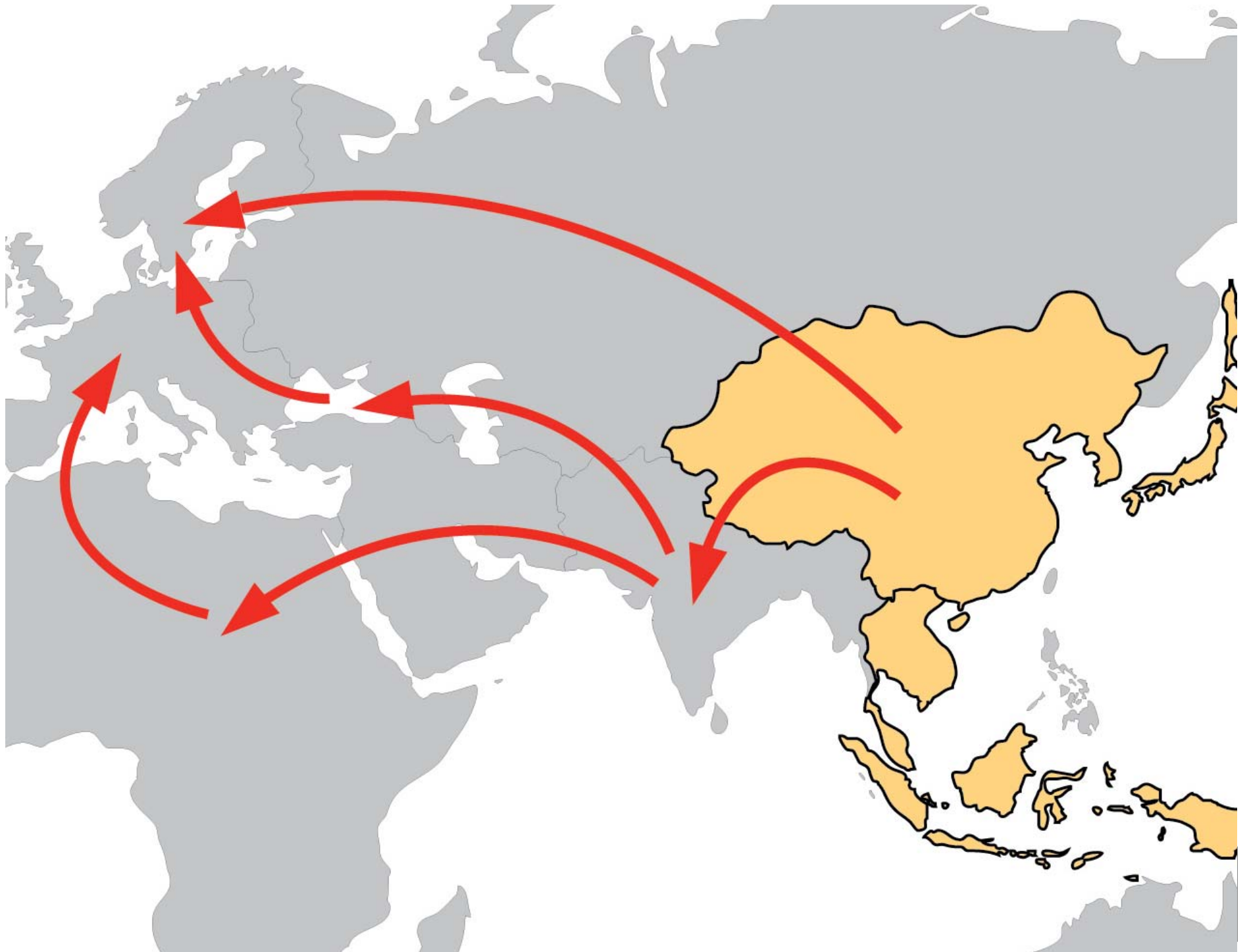
Asian H5N1 HPAI

- 1996 China
- 1997 Hong Kong *(6 D)
- December 2003 South Korea
- January 2004 Vietnam, Japan
- April, 2005 Qinghai Lake, China



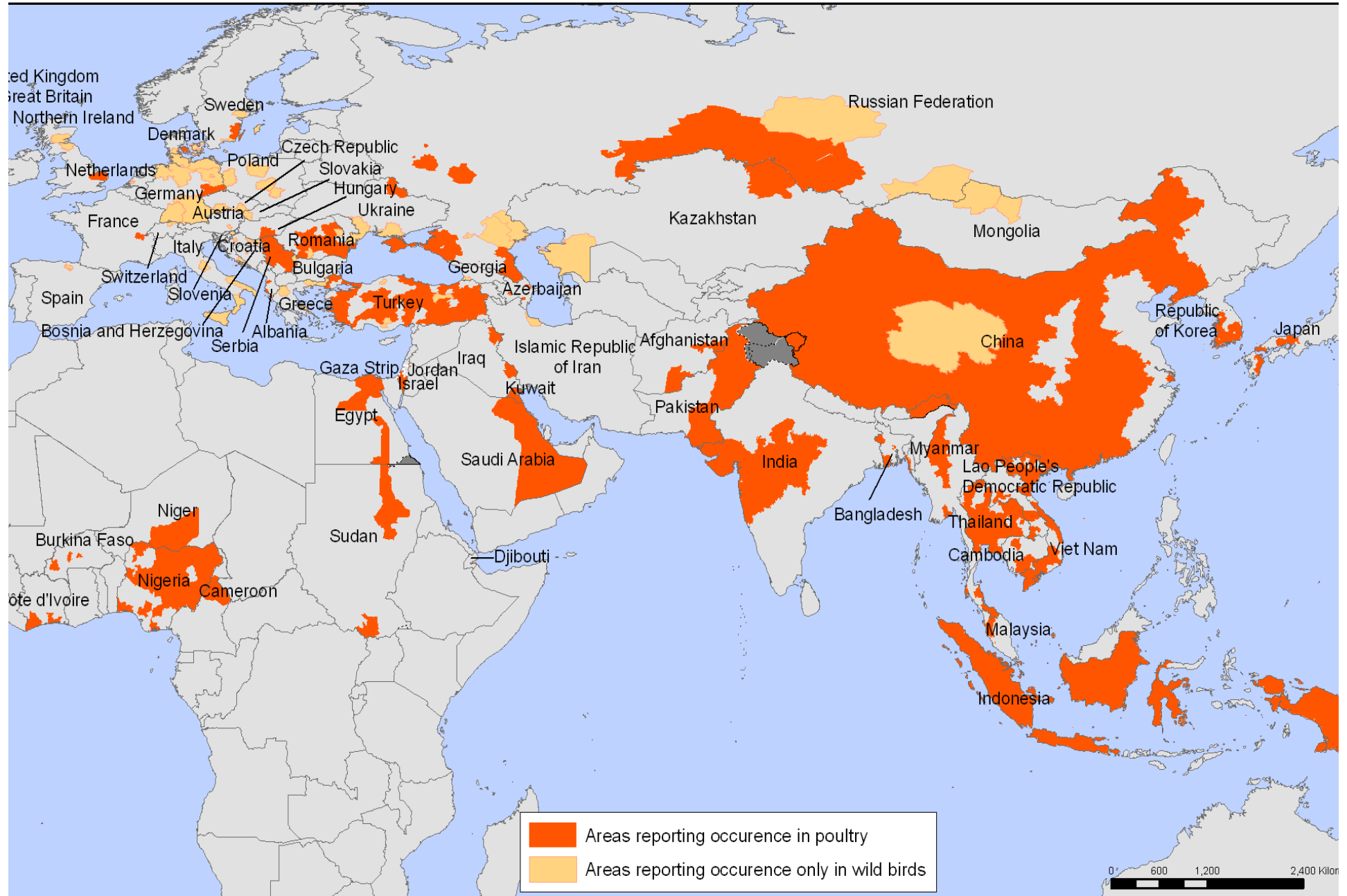
Asian H5N1 HPAI

- Qinghai Lake
 - Tipping point H5N1 spread
- Bar-headed geese, gulls, and great cormorants
- Migration patterns



as reporting confirmed occurrence of H5N1 avian influenza in poultry and wild birds since 2003

Status as of 16 April 2007
 Latest available update



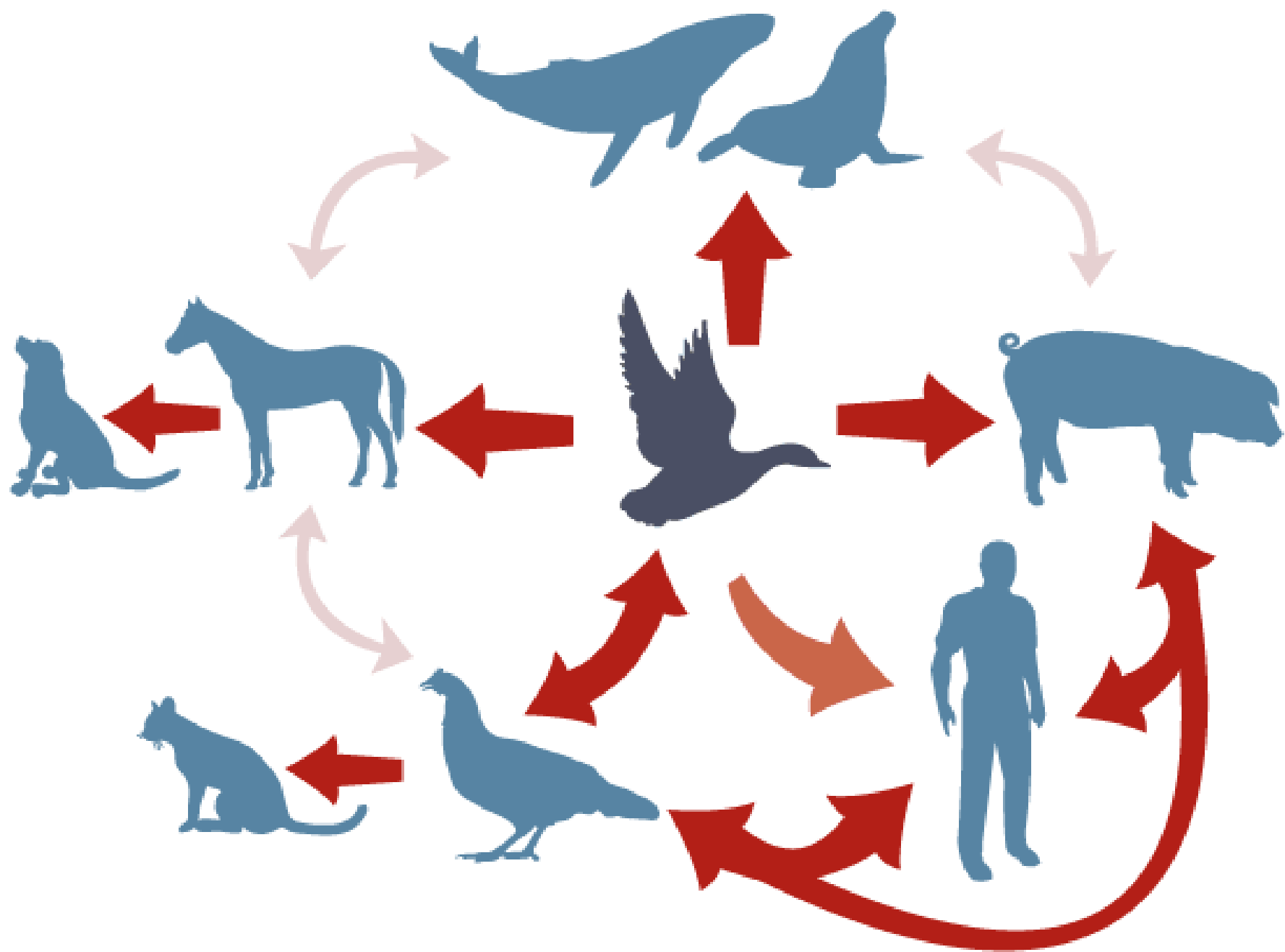
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which

Data Source: World Organisation for Animal Health and national governments
 Map Production: Public Health Mapping and GIS



Asian H5N1 HPAI

- February 2006
 - Asia, Africa, Europe, Middle East
- 2006 Peak
 - 63 countries; 3 continents
- 2012 Endemic
 - Bangladesh, China, Egypt, India, Indonesia, Vietnam





Asian H5N1 HPAI

- 400 million poultry killed/culled
- \$20 Billion
 - Global economic loss
- 359 human deaths
 - 608 infected (59% mortality; 8/10/2012)



National HPAI Response

- Wild migratory bird surveillance
- Importation restrictions
 - H5N1 countries – no live poultry/products
 - Live birds (except Canada)
 - 30 day quarantine at USDA facility
 - AI tested (any subtype)
- Smuggling Intervention & Trade Compliance Unit



National HPAI Response Plan

- April 2006
 - APHIS poultry industry meeting
- August 2006
 - HPAI National Response Plan 1st draft
- October 2007
 - USAHA Resolution 54
 - Incorporate COB by including movement protocols within, out of, and into a CA

DRAFT

DRAFT

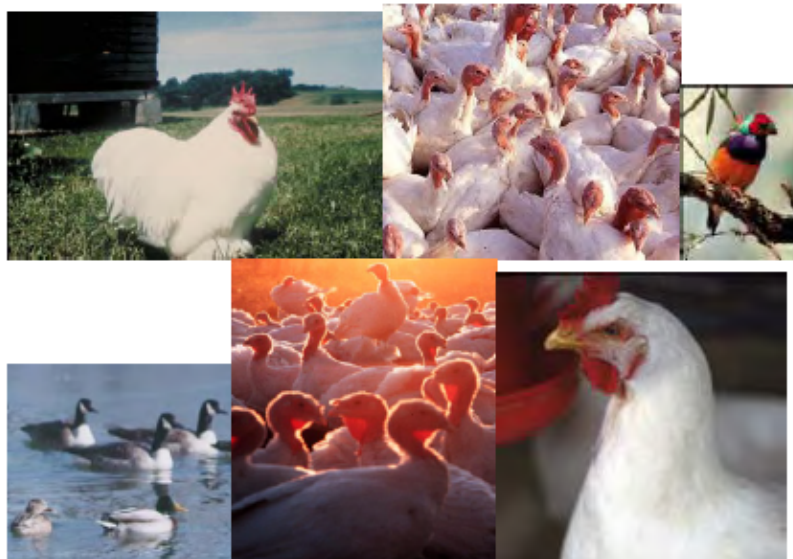
United States
Department of
Agriculture

Animal and
Plant Health Inspection
Service

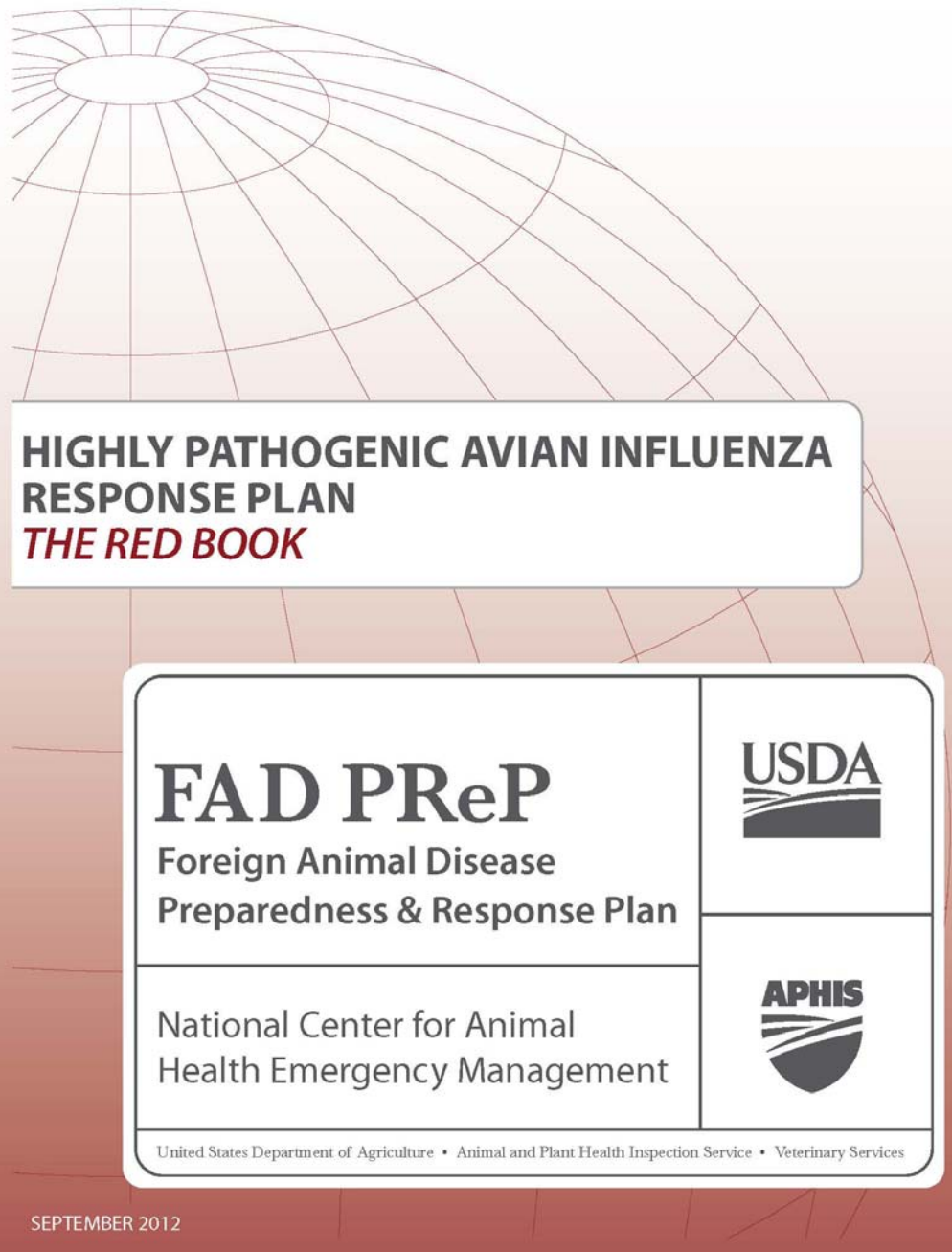
Veterinary Services

Emergency Management
and Diagnostics

Summary of the National Highly Pathogenic Avian Influenza (HPAI) Response Plan



August 2007
(Replaces version of August 2006)



**HIGHLY PATHOGENIC AVIAN INFLUENZA
RESPONSE PLAN**
THE RED BOOK

FAD PReP
Foreign Animal Disease
Preparedness & Response Plan

National Center for Animal
Health Emergency Management



United States Department of Agriculture • Animal and Plant Health Inspection Service • Veterinary Services

SEPTEMBER 2012



National HPAI Response Plan

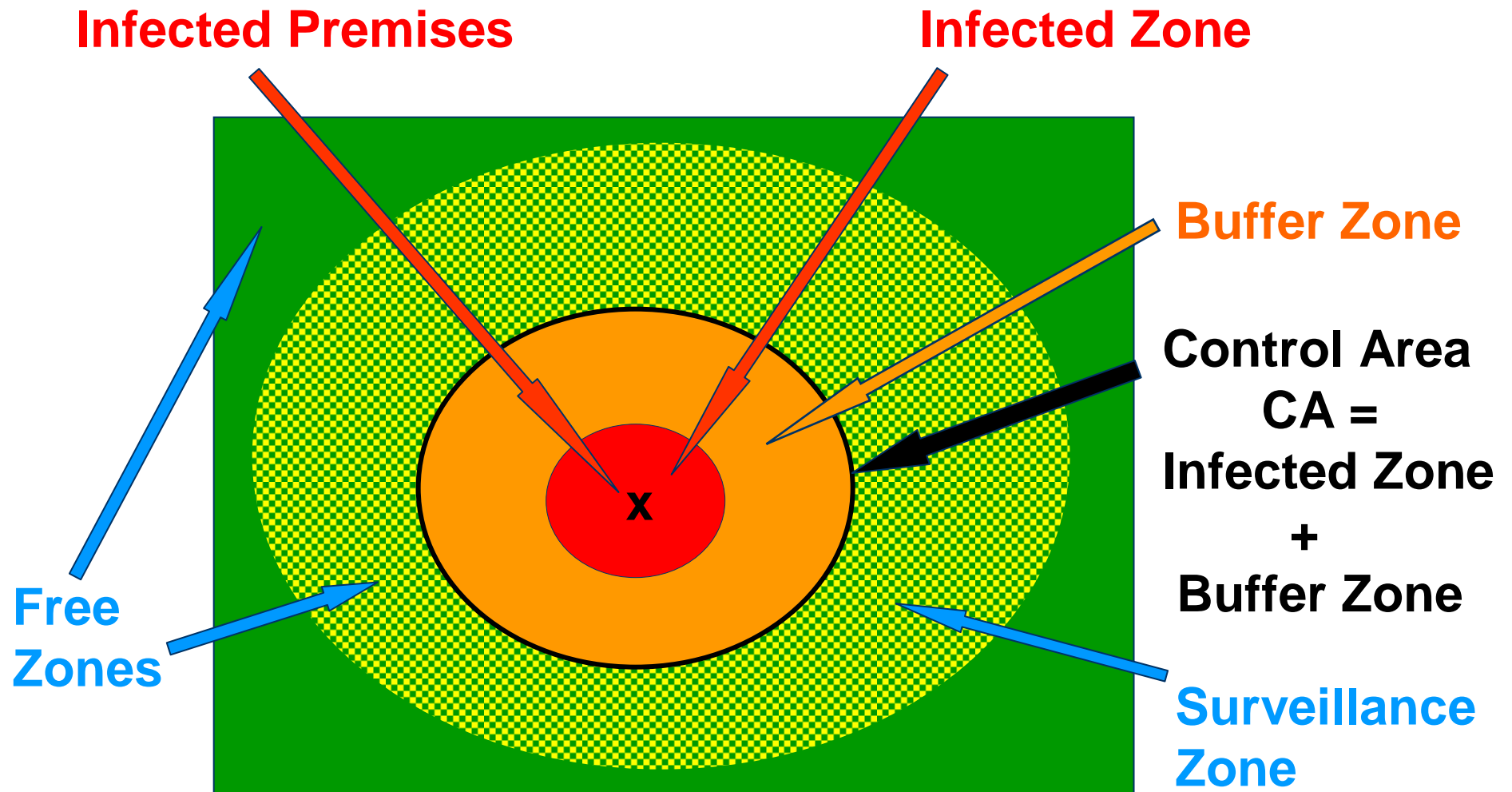
- Quarantine
 - State (Intrastate commerce)
 - Federal (Interstate commerce)
- Permit required for movement
 - Prevent further spread



National HPAI Response Plan

- Control Area
 - Infected Zone (2.0 mi radius)
 - Buffer Zone (6.2 mi radius)
- 96 hours
 - Characterize outbreak
 - Risk factors
 - Develop strategies

Zones of an Outbreak Response





Secure Turkey Supply Plan

- Market continuity non-infected flocks
- Ensure HPAI turkeys don't move
 - Protect other flocks
 - Food safety
- Avoid trade restrictions
 - Interstate, international



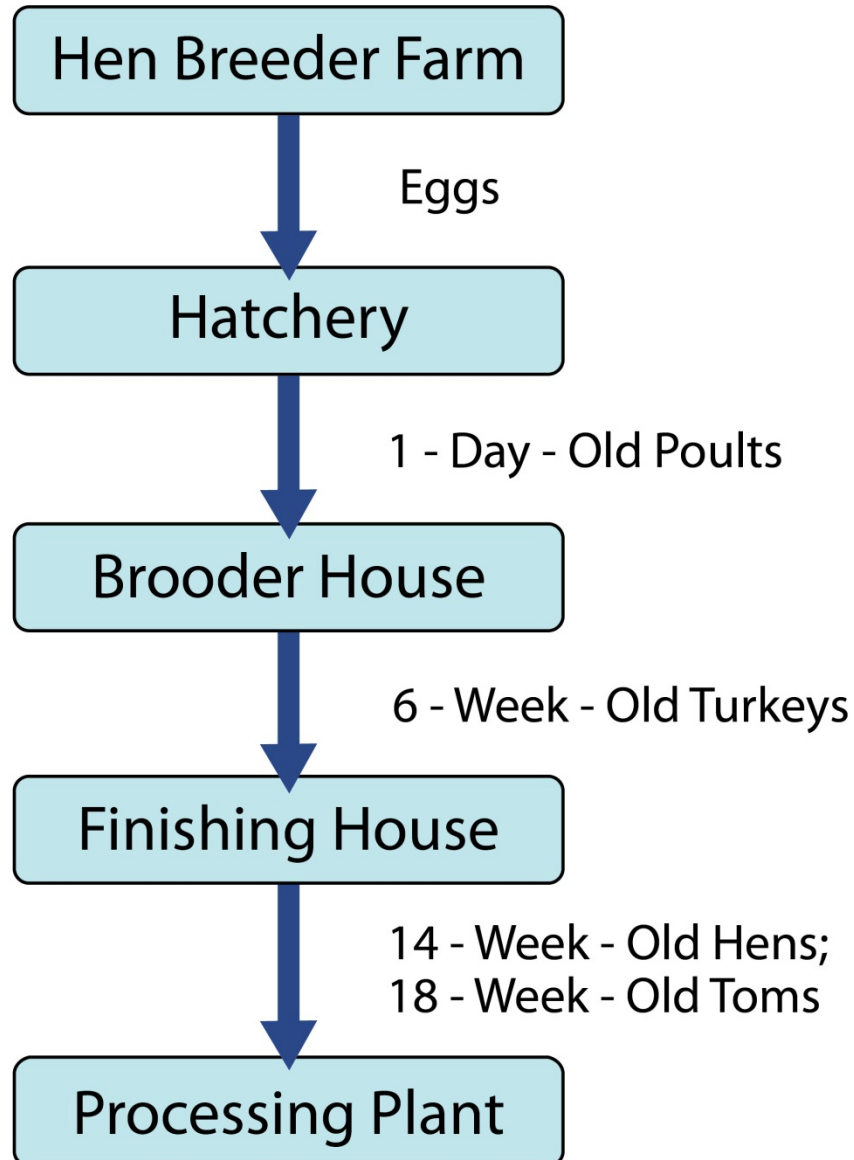
Secure Turkey Supply Plan

- Iowa State University
 - Center for Food Security/Public Health
- University of Minnesota
 - Center for Animal Health/Food Safety
- National Turkey Federation
- Association of Veterinarians in Turkey Production



Secure Turkey Supply Plan

- USDA APHIS
 - VS, CEAH, NCAHEMS
 - Eastern, western epidemiologists
- AVICs
- SAHOs
- 69 people
- 20 revisions





Pre-movement Requirements

- Biosecurity In-place
- Epidemiology No contact
- rRT-PCR Surveillance Negative
- Mortality Normal
- Clinical signs Absent
- Pre-loading inspection Normal
- Farm traffic restriction 5 days



Premovement Biosecurity

- Incident Command
 - Review written Biosecurity Plan
 - Time period before movement
 - Specific measures required
- Level 1- 26 pre-outbreak measures
- Level 2- 36 post-outbreak measures



Biosecurity Measures

- **Policies, Outside, Parking**
 - Annual biosecurity training
 - Employees do not own, contact birds
- **People, Vehicles**
 - No unnecessary visitors
 - Clean clothes, disinfected footwear
 - Mandatory hand hygiene
 - C & D vehicles



Biosecurity Measures

- Turkeys, Turkey Houses
 - Bird-proof
- Loadout, Livehaul, Equipment
 - Equipment C & D
 - Crews keep out of other houses
 - Do not borrow or lend



Biosecurity Measures

- **Birds, Rodents**
 - No other domestic birds on premises
 - Rodent control
- **Feed and water**
 - Secure from free-flying birds, rodents
- **Manure, Dead Bird Disposal**
 - Composted carcasses covered



Biosecurity Effectiveness

- Turkeys outdoors – AI outbreaks
 - 1988 258 flocks
 - 1991 110 flocks
- Turkeys indoors – AI outbreaks
 - 2000 3 flocks
 - 2001 2 flocks
 - 2002 4 flocks



Epidemiology Questionnaire

- **Infected premises**
 - Confirmed or presumptive positive
 - Lab results or clinical signs
- **Assess risk factors**
 - Employees, wild birds, carcass disposal
- **Trace-back info**
- **Trace-forward info**



Epidemiology Questionnaire

- Classify premises in HPAI Control Area
- Contact Premises
 - Direct or indirect exposure
 - Poultry, poultry products, fomites, people
- Suspect Premises
 - HPAI-compatible clinical signs



Epidemiology Questionnaire

- **At-Risk premises**
 - Susceptible poultry present
 - Not IP, CP, or SP
 - Seek permit to move poultry/products
- **Monitored premises**
 - At-risk premises
 - Meet pre-movement criteria



Daily rRT-PCR Surveillance

- Real Time Reverse Transcriptase Polymerase Chain Reaction Test
 - Sensitivity = Virus Isolation
 - Viral RNA detected (AI matrix gene)
 - 3 hours to complete
 - Sample collection & results to Incident Commander on same day

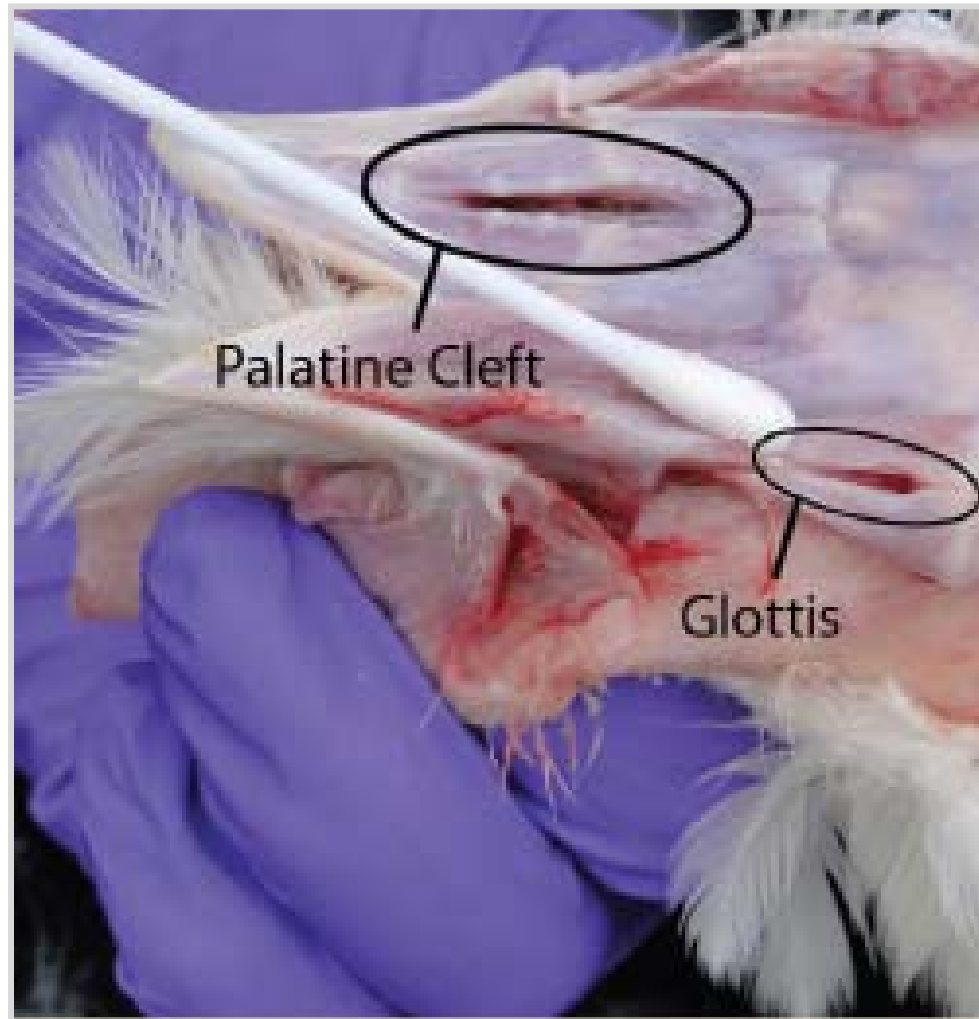


Daily rRT-PCR Surveillance

- **No. turkeys sampled**
 - 1 5-bird pool/50 dead/sick turkeys/house/day
 - 95% confidence, 40% shedding
- **5-bird pool**
 - Oropharyngeal swabs 5 turkeys/1 BHI tube
- **Sampling time**
 - Within 24 hrs prior to movement



Oropharyngeal Swabs





Daily rRT-PCR Surveillance

- Turkeys selected for sampling
 - Dead of natural causes
 - Sick and euthanized
- Sample collection site
 - Leak-proof container (“barrel surveillance”)
 - Designated location



Daily rRT-PCR Surveillance

- Sampling by IC-approved individuals
- Testing by authorized state VDL
 - Results to IC each day
- All houses negative prior to movement
 - Initial - 2 consecutive preceding days
 - Daily – 1 preceding day



Clinical Signs - Mortality

- Unexplained changes reported to IC
 - Reduced feed, water consumption; behavior
 - Company veterinarian, producer
- Mortality $>2/1,000$
 - No movement
 - Diagnosis required
- Pre-loading inspection



Farm Traffic Restrictions

- No dangerous traffic onto farm
 - Manure
 - Live or dead birds
 - Crews, equipment
- 5 days prior to movement

Biosecurity Status
Epi Questionnaire



Biosecurity
Epidemiology
rRT-PCR
Mortality
Clinical Signs

Permits

Data Portal

Mortality
Clinical Signs

rRT-PCR Results

Permits

Samples



Turkey Farm



Diagnostic Lab



Texas A & M Dashboard

- **Emergency Response Support System**
 - Web-based platform for incident mgmt
- **Simultaneous map display of data**
 - Control zone(s), premises, status, transportation routes, processors, producers, lab results, weather, geography
 - Data shown in charts, lists



Risk Reduction Measures

- All-In, All-Out management
- Supplemental Dx tests reported to IC
 - Rapid antigen capture immunoassay
- Monitoring turkeys not marketed
 - Hatchery → brooder house
 - Brooder → finishing house
 - Replacement breeders → farm



Public Health Risk

- Interagency RA for the Public Health Impact of HPAI
 - FSIS, APHIS, FDA
 - May 2010
- 98% flocks identified pre-slaughter
 - Mortality, clinical signs
 - 2% escape detection (3.5 day window)



Public Health Risk

- Pre-slaughter testing
 - 95% human illnesses mitigated
- Cooking
 - 165 F inactivates HPAIV
- Negligible risk (if properly cooked)



STSP Draft

- Poultry health risk assessments
 - Center Epidemiology Animal Health
 - Center for Animal Health/Food Safety
- Modified as needed
 - New technology
 - Risk assessment results

IOWA STATE UNIVERSITY

University Extension



Campanile



Dedicated to enhancing the quality of animal and human life.

Celebrating
125
years



College of Veterinary Medicine

