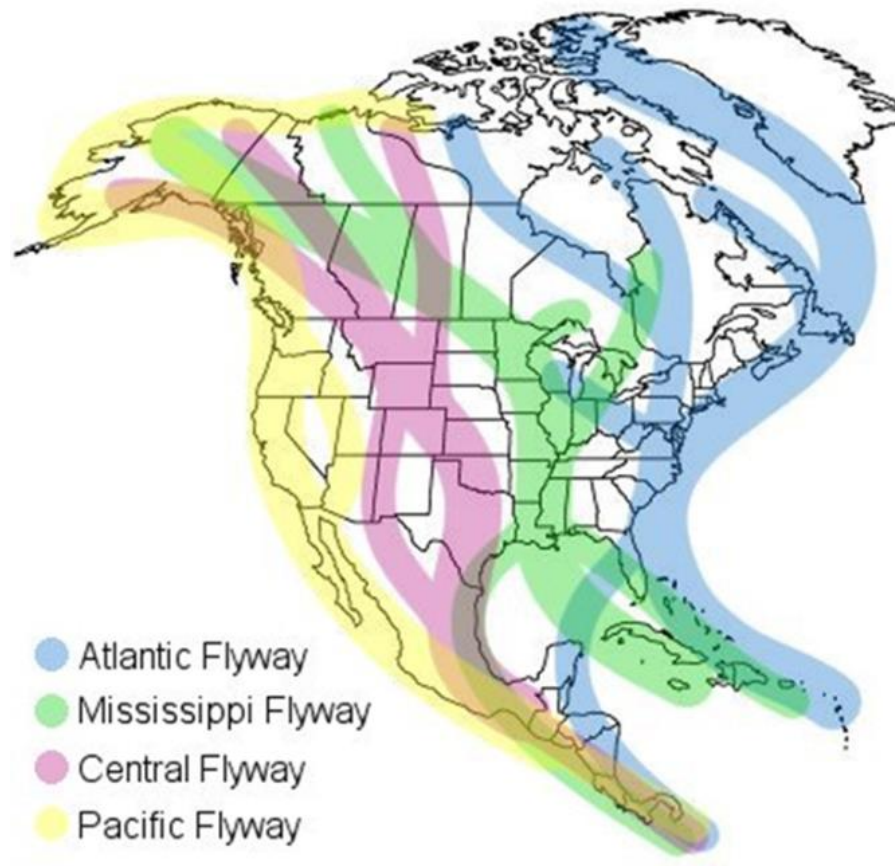


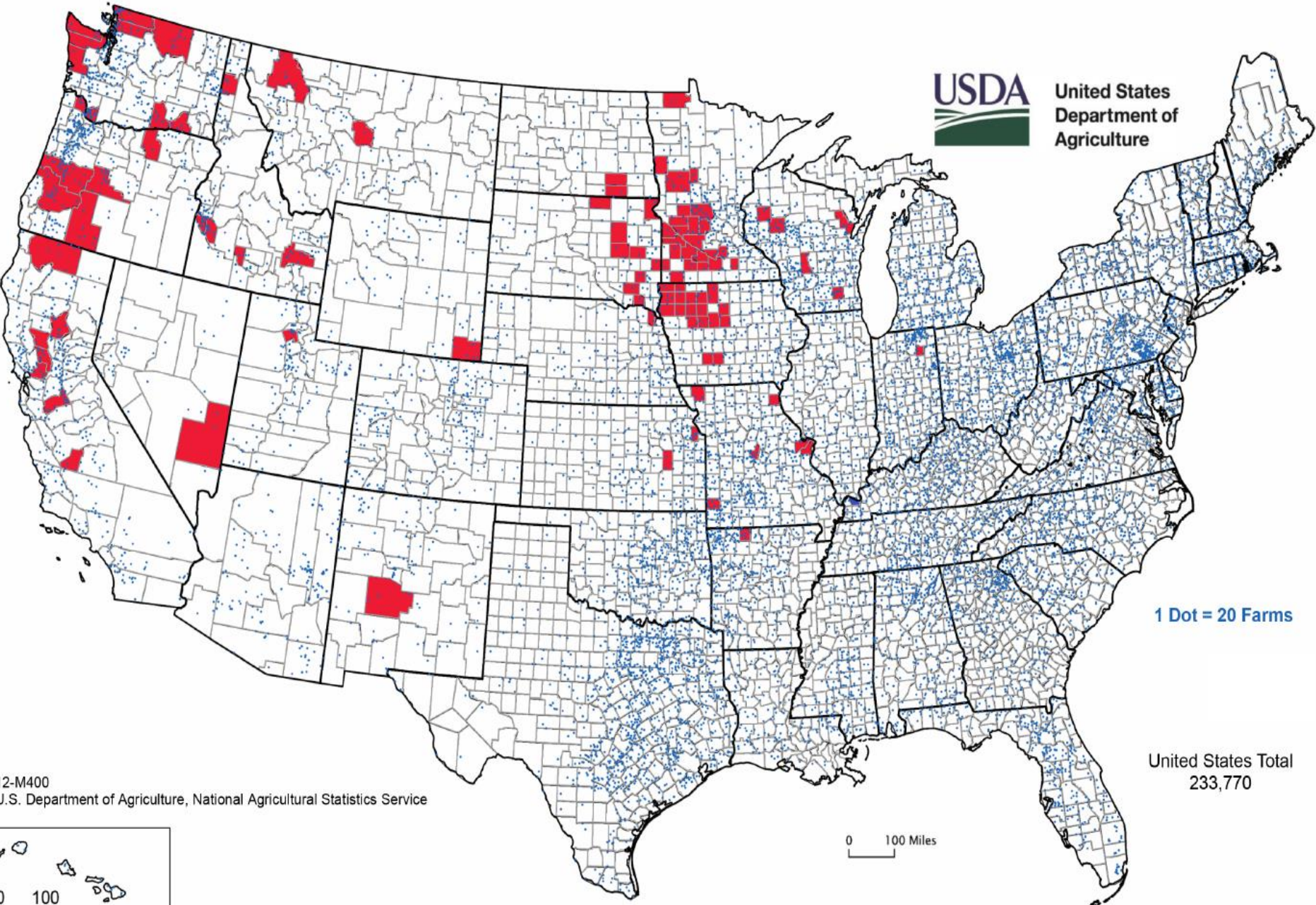
High Path Avian Influenza

December 10, 2015





United States
Department of
Agriculture



1 Dot = 20 Farms

United States Total
233,770

0 100 Miles

12-M400
U.S. Department of Agriculture, National Agricultural Statistics Service

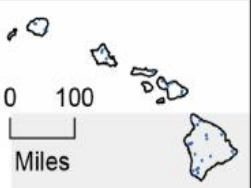


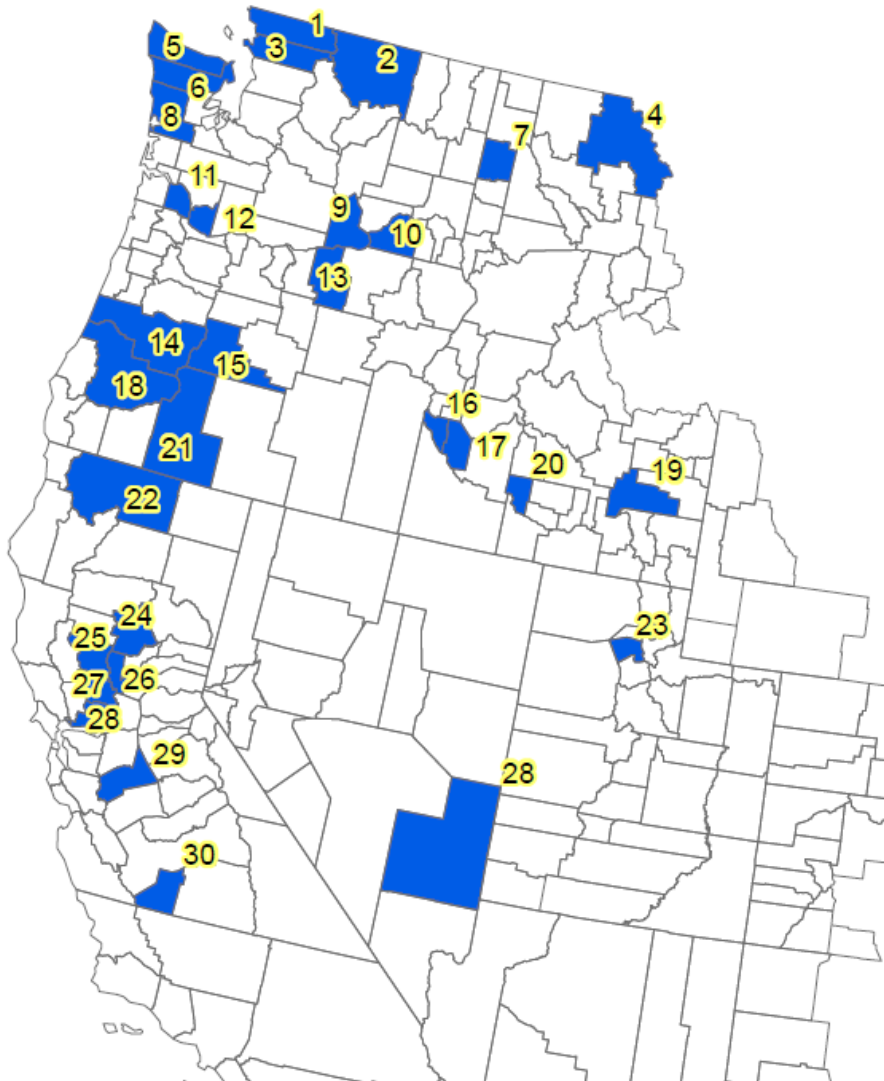
Figure 1. All HPAI Detections As Of June 5, 2015 PM (as reported on www.aphis.usda.gov)

*one or more detections may have occurred in county

▶ Most Severe Animal Disease Outbreak in US History

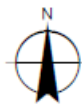
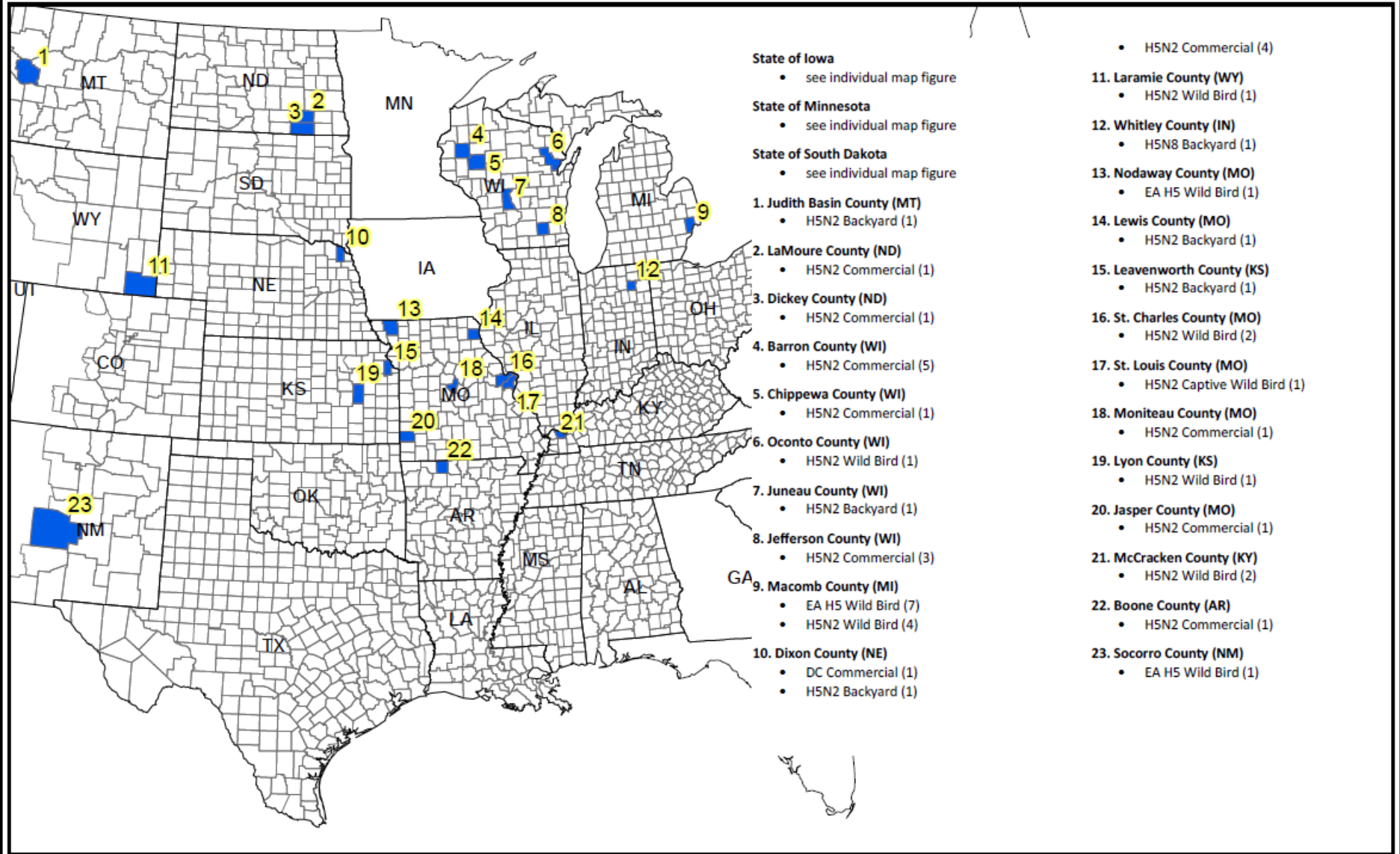
- 223 Domestic Poultry Flocks
- Hardest Hit Industries
 - Turkeys
 - Laying Hens/Pullets
- Iowa, Minnesota
 - Also Nebraska, Wisconsin, South Dakota, Arkansas, Missouri, North Dakota
- 49.6 million birds impacted

Figure 3a (Pacific Flyway). All HPAI Detections with Details, as of 8/31/2015 (as reported on www.aphis.usda.gov)



1. **Whatcom County (WA)**
 - H5N1 Wild Bird (3)
 - H5N2 Wild Bird (5)
 - H5N8 Captive Wild Bird (1)
 - H5N8 Wild Bird (2)
2. **Okanogan County (WA)**
 - H5N2 Backyard (2)
3. **Skagit County (WA)**
 - H5N2 Wild Bird (1)
4. **Flathead County (MT)**
 - H5N2 Captive Wild Bird (1)
5. **Clallam County (WA)**
 - H5N2 Backyard (1)
6. **Jefferson County (WA)**
 - H5N2 Wild Bird (1)
7. **Kootenai County (ID)**
 - H5N8 Captive Wild Bird (1)
8. **Grays Harbor County (WA)**
 - H5N8 Wild Bird (1)
9. **Benton County (WA)**
 - H5N2 Backyard (2)
 - H5N2 Wild Bird (1)
10. **Walla Walla County (WA)**
 - H5N2 Wild Bird (1)
11. **Columbia County (OR)**
 - H5N2 Wild Bird (3)
 - H5N8 Wild Bird (1)
12. **Clark County (WA)**
 - H5N2 Wild Bird (1)
 - H5N8 Wild Bird (1)
13. **Morrow County (OR)**
 - H5N2 Wild Bird (6)
14. **Lane County (OR)**
 - H5N2 Wild Bird (4)
15. **Deschutes County (OR)**
 - H5N2 Backyard (1)
16. **Canyon County (ID)**
 - H5N2 Backyard (1)
 - H5N2 Captive Wild Bird (1)
 - H5N2 Wild Bird (2)
 - H5N8 Wild Bird (1)
17. **Ada County (ID)**
 - H5N2 Wild Bird (1)
18. **Douglas County (OR)**
 - H5N8 Backyard (1)
19. **Bingham County (ID)**
 - H5N8 Wild Bird (2)
20. **Gooding County (ID)**
 - H5N8 Wild Bird (1)
21. **Klamath County (OR)**
 - H5N8 Wild Bird (2)
22. **Siskiyou County (CA)**
 - EA H5 Wild Bird (10)
 - H5N8 Wild Bird (2)
23. **Davis County (UT)**
 - EA H5 Wild Bird (1)
 - H5N8 Wild Bird (1)
24. **Butte County (CA)**
 - H5N8 Wild Bird (2)
25. **Colusa County (CA)**
 - EA H5 Wild Bird (11)
 - H5N8 Wild Bird (3)
26. **Sutter County (CA)**
 - EA H5 Wild Bird (4)
27. **Yolo County (CA)**
 - H5N8 Wild Bird (1)
28. **Solano County (CA)**
 - H5N8 Wild Bird (1)
29. **Lincoln County (NV)**
 - H5N8 Wild Bird (1)
30. **Stanislaus County (CA)**
 - H5N8 Commercial (1)
31. **Kings County (CA)**
 - H5N8 Commercial (1)

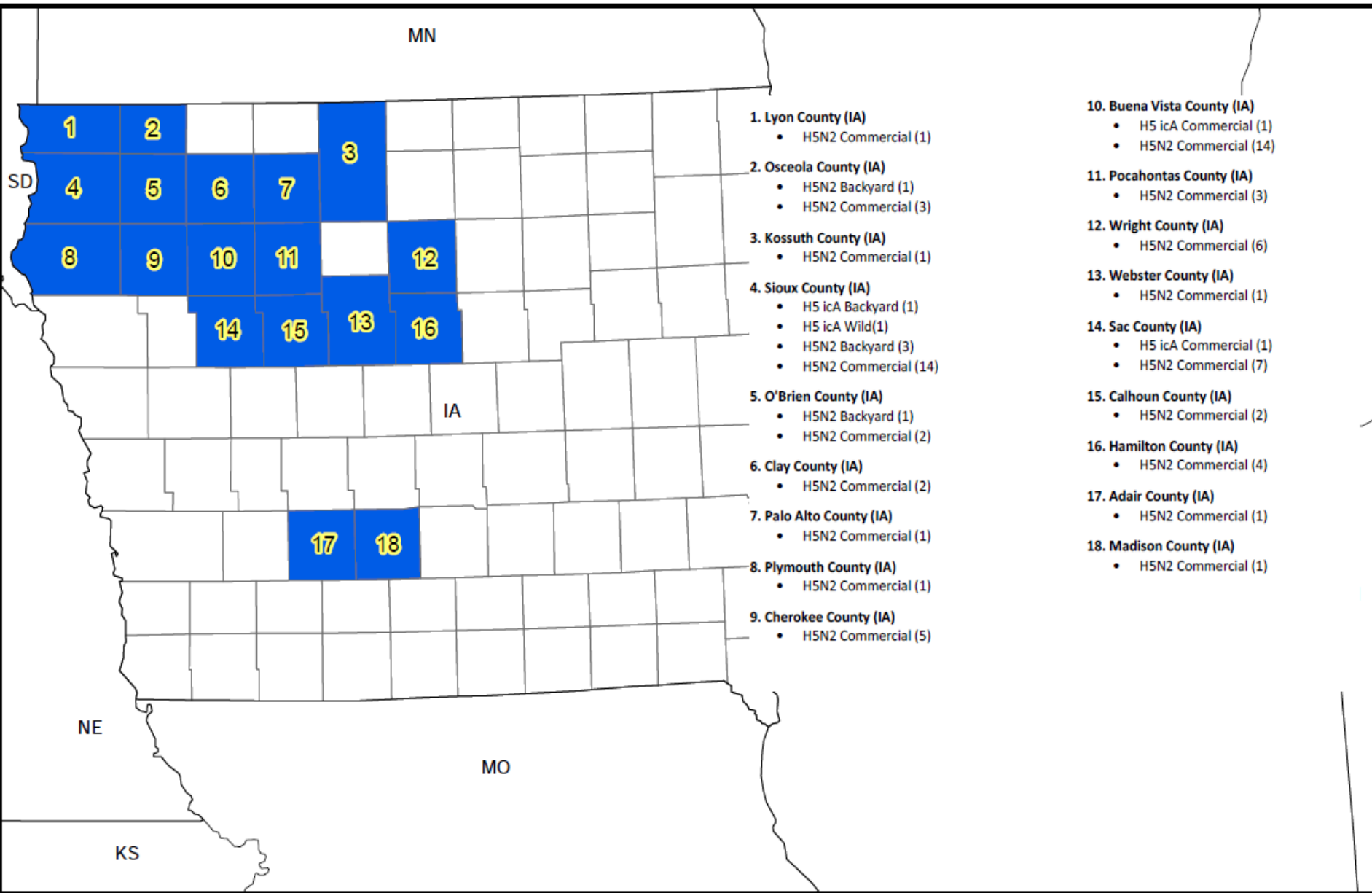
Figure 3b (Mississippi and Central Flyways). All HPAI Detections with Details, as of 8/31/2015 (as reported on www.aphis.usda.gov)



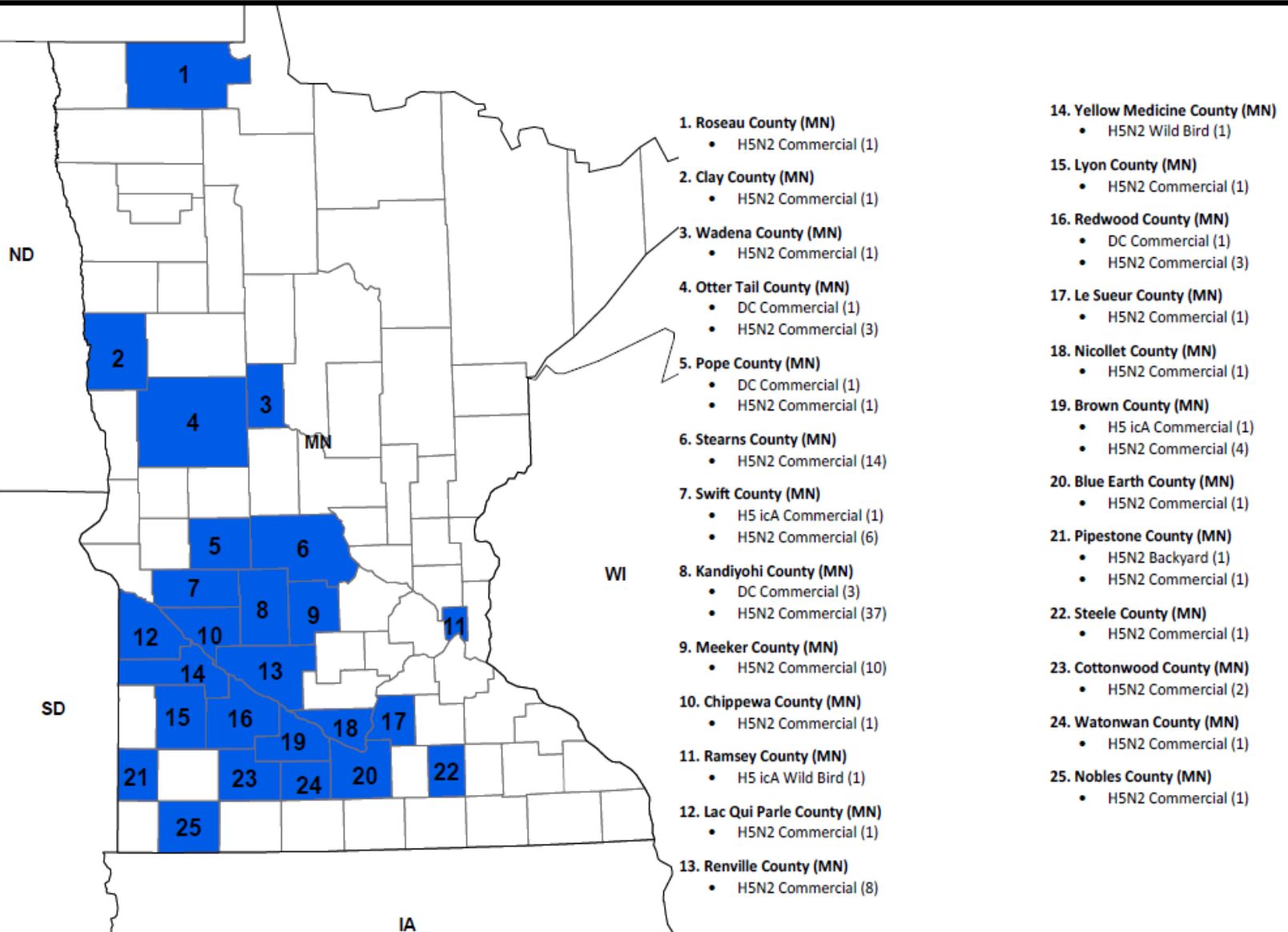
Economic Impacts Elsewhere

- Ten percent of nation's egg-laying hens killed.
- Iowa (#1 in U.S. egg production):
 - 33 million-plus birds, worth \$84 million, killed
 - Lost 24 million, or more than 40 percent, of its egg-laying hens
 - Requested presidential disaster declaration
 - Loss estimates exceed \$1 billion
 - Expect 1,500 lost jobs
- Minnesota:
 - \$310 million - direct poultry industry loss
 - \$1.8 billion – loss by allied industries

Figure 3d (Inset of Iowa). All HPAI Detections with Details, as of 8/31/2015 (as reported on www.aphis.usda.gov)



**Figure 3c (Inset of Minnesota). All HPAI Detections with Details,
as of 8/31/2015 (as reported on www.aphis.usda.gov)**



Cost of Disease Eradication

- \$700M from Commodity Credit Corporation
 - \$500 million to control spread
 - \$190 million in direct indemnity payments
- Industry Costs
 - \$1.6 million in turkey and laying hen industry losses
 - \$3.3 billion loss to broader economy
 - International trade bans (including partial and regional)

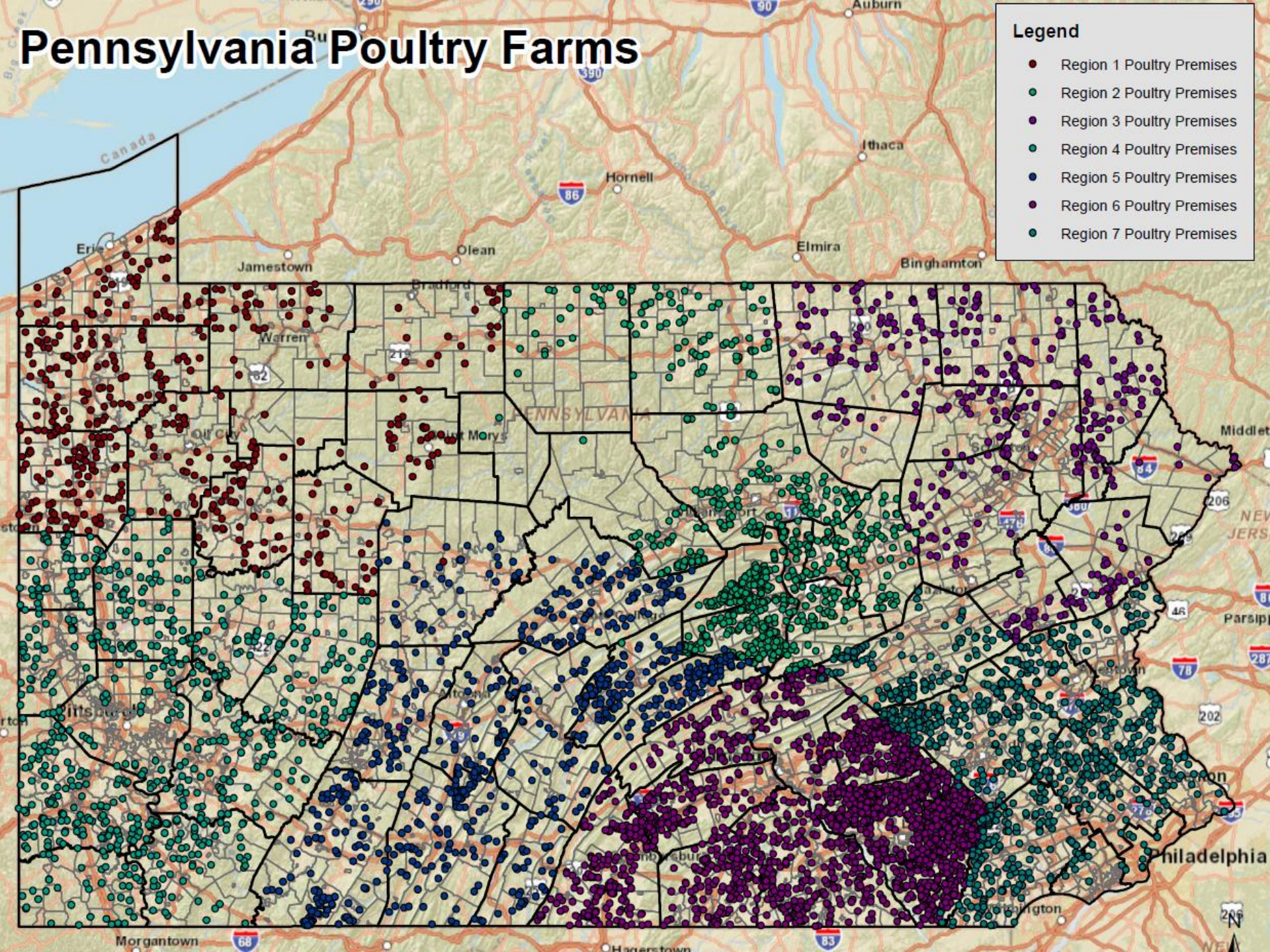
Current Disease Status

- A lull in newly infected flocks in the Upper Midwest since late June – warm weather conditions
- HPAI is expected to return with cooler weather this winter.
 - Possibly to major poultry production regions in the Southeast and East that were previously untouched.

Pennsylvania Poultry Farms

Legend

- Region 1 Poultry Premises
- Region 2 Poultry Premises
- Region 3 Poultry Premises
- Region 4 Poultry Premises
- Region 5 Poultry Premises
- Region 6 Poultry Premises
- Region 7 Poultry Premises



Potential Costs and Losses

Costs Include

- Loss of birds – farmer/integrator indemnity
- Depopulation (estimates from \$6-\$26 per bird)
- Disposal of dead birds and contaminated materials (litter, feed, manure, eggs, bedding)
- Cleaning and disinfection of premises
- Down time of production facilities
- Losses to allied industries (poultry service companies, feed providers, the poultry and egg processing industries, etc.)

Indemnity

- For birds that must be euthanized or those alive at time of disease confirmation.
- Fair market value of inventory based on calculator that takes into consideration age and intended use of birds.
- Indemnity is not paid for:
 - Birds that die prior to HPAI confirmation.
 - Lost income from idled facilities.
- Indemnity is not restorative.

Public Health

- Most HPAI strains are not transmissible to humans.
 - Exception Asian H5N1 with limited infectivity for humans. Causes severe disease in limited number of human cases.
- According to the Centers for Disease Control no human infections have been associated with the ongoing U.S. HPAI outbreak.
- Personal protective equipment recommendations for all responders.

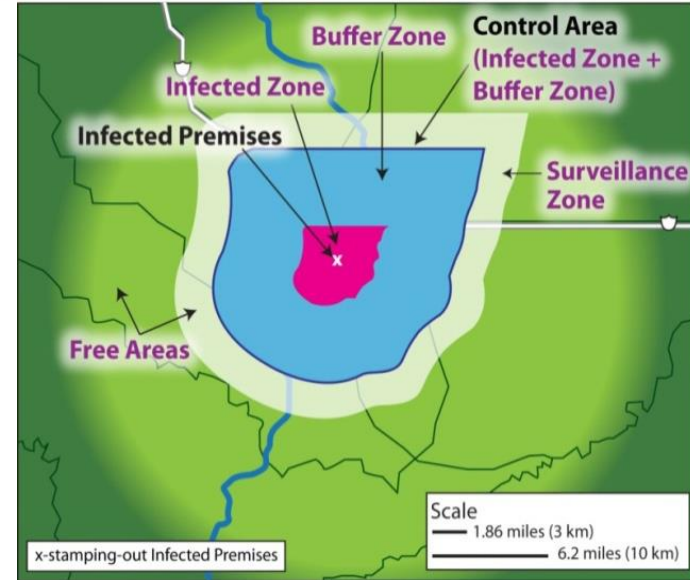
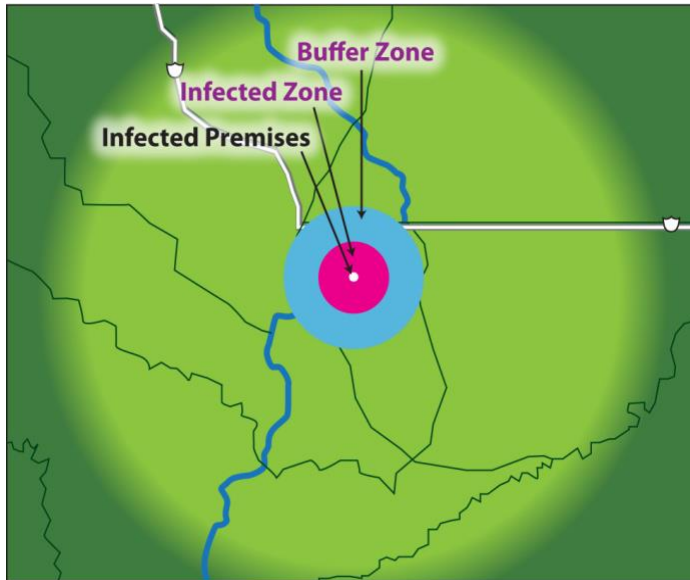
HPAI Vaccination

- A possible strategy as an emergency measure for disease containment and elimination.
- Considered a last resort under extreme conditions in severe outbreaks.
 - Protect susceptible population.
 - Reduce severity of disease.
- Inactivated vaccine is under development
 - Field isolate genetically modified by USDA, ARS
- Concerns:
 - International trade
 - Re-establishing the nation's disease-free status.
 - Testing – differentiating vaccinated poultry from naturally infected poultry.

Disease Eradication

- HPAI is a foreign animal disease dealt with by stamping out procedures per federal requirements.
- Federal financial assistance to producers
 - Indemnity for birds alive at time HPAI diagnosis is laboratory-confirmed.
 - Testing, Depopulation, Disposal, Cleaning and Disinfection assistance.
 - Small flocks – compliance agreement with producer
 - Larger firms – cooperative agreement with producer
 - Based on flock plan agreement signed by federal officials, state officials and producer – once HPAI is confirmed.

Control & Surveillance Zones



Infected Zone (IZ) - at least three kilometer (1.86 mi.) perimeter to extend from infected premises. Initially encompasses infected (IP), suspect (SP), contact (CP), at risk (ARP), and monitored premises (MP). Within infected zone - IP, SP, and CP - subject to quarantine ARP and MP subject to movement controls.

Buffer Zone (BZ) - at least seven kilometer (4.35 mi.) perimeter beyond infected zone to surround infected zone. Within buffer zone - any CPs are subject to quarantine, ARPs and MPs are subject to movement controls.

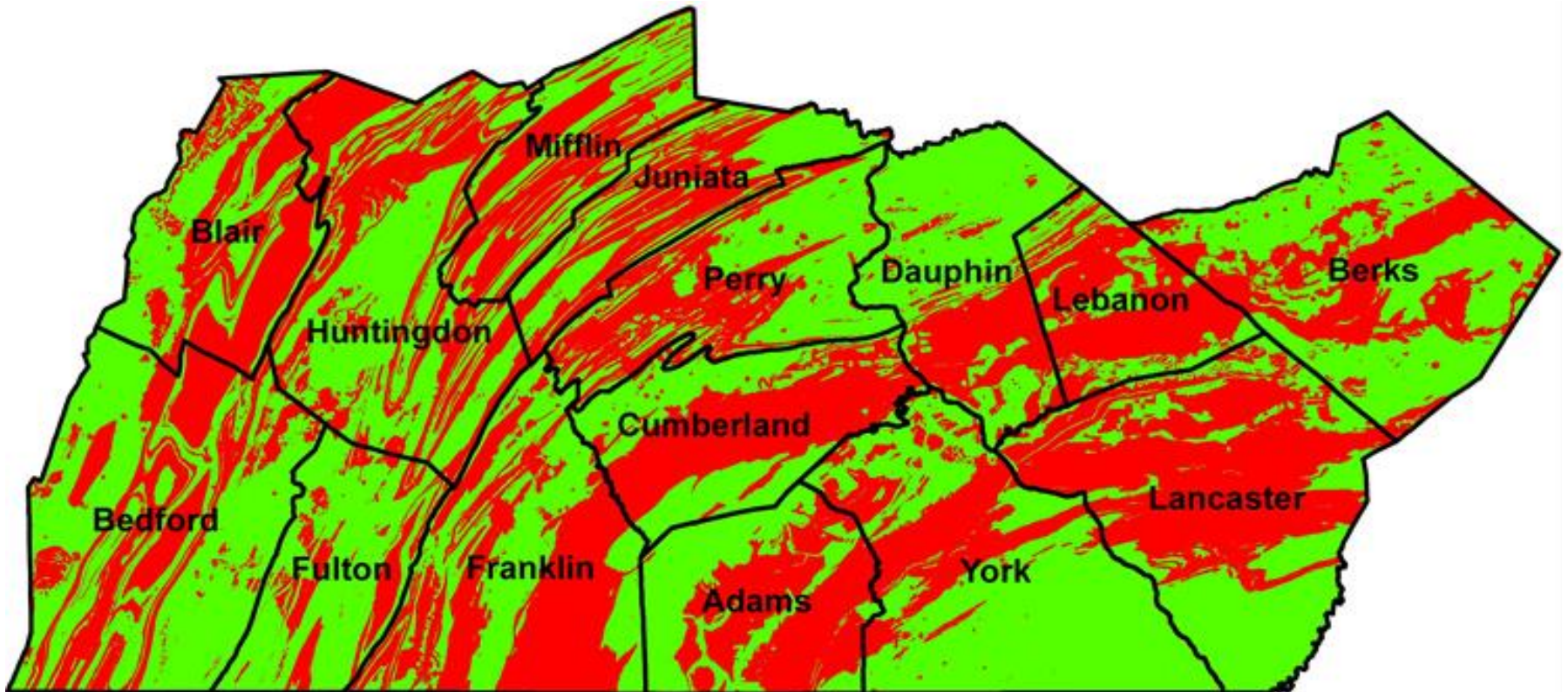
Control Area (CA) = Infected Zone + Buffer Zone. Shape is subject to change depending on outbreak circumstances.

Virus Inactivation on Infected Premises

- Takes a minimum of about 30 days in decomposing carcasses.
- Disposal options:
 - Composting – preferably in-house
 - Burial
 - Incineration
 - Landfill

South Central PA Geology

Kerry Leib & Brian Moore – DEP Emergency Response



Repopulation/Restocking

- Minimum of 21 days after:
 - Cleaning and Disinfection
 - Negative confirmatory environmental testing
 - Generally restocking criteria are met two to six months after disease outbreak, depending on conditions.
 - Phased restocking of laying operations takes longer (Anywhere from 18 or more months)
- Restocking must be approved by USDA, APHIS
 - Farms that restock without APHIS approval will not be indemnified if they become re-infected.

HPAI Task Force

Subcommittees

- Depopulation – Dr. Greg Martin, PSU
- Disposal – Dr. Paul Patterson, PSU
- Premise C&D – Dr. Sherrill Davison, UPenn
- GIS – Susan Casavant, UPenn
- Logistics – Derek Ruhl, PDA
- Vaccine – Dr. Eva Pendleton, PSU
- Communications – B. Hunter-Davenport, PDA, & Rachel Cloninger, PennAg Industries
- Epidemiology – Dr. David Zellner, PDA
- Finance – Mike Smith, PDA
- Health – Dr. Enzo Campagnolo, DOH
- PADLS – Dr. Deepanker Tewari, PDA
- Labor – Greg Hostetter, PDA
- Biosecurity, Dr. Nan Hanshaw, PDA

Exercise – Real Time

- Sept. 12, 2015
- Franklin County Meat Turkey Flock
 - 7000 birds – 18 weeks old
 - September 11 – Six mortalities 'normal'
 - September 12 – 100 mortalities
 - Ongoing mortalities through the day
- Emergency notification to PDA.
- Emergency testing at PVL.
- Initial steps in notification/activation.
- PCR test results negative for HPAI at 7 PM, 9-12-15
- Further diagnostics in PADLS to determine cause

HPAI Suspected at Large Layer Premises

- Samples arrive at the PA Veterinary Lab for PCR testing.



- A PDA veterinarian is dispatched to the premise to begin a Foreign Animal Disease (FAD) investigation.

Other Possible Causes under Investigation

- *Ornithobacterium Rhinotracheale* (ORT)
 - Bacterial
- *Mycoplasma gallisepticum*
- *Pasteurella multocida* (Fowl Cholera)
 - Bacterial
- Laryngotracheitis (LT)

Questions

Gregory E. Hostetter | Deputy Secretary
PA Department of Agriculture
2301 N. Cameron St. | Harrisburg, PA 17110
Phone: 717-705-8895 | Fax: 717-705-8402
grhostette@pa.gov
www.agriculture.state.pa.us