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United States Department of Agriculture

USDA's
93rd
Annual

Agricultural Outlook Forum

A New Horizon: The Future of Agriculture

February 23-24, 2017 • Crystal Gateway Marriott Hotel, Arlington, Virginia

Presentation from the USDA Agricultural Outlook Forum 2017

United States Department of Agriculture
93rd Annual Agricultural Outlook Forum
“A New Horizon: The Future of Agriculture”

February 23-24, 2017
Arlington, Virginia

Global HPAI Update

Ag Outlook Forum
February 24, 2017

Lisa A. Ferguson, DVM
Director of Science and Policy
APHIS, VS, National Import Export Services

- Avian influenza basics
 - Influenza A
 - 2 groups of proteins
 - Hemagglutinin, or “H” proteins (16 – H1-H16)
 - Neuraminidase, or “N” proteins (9 – N1-N9)
 - Pathogenicity – HPAI vs. LPAI
 - Wild birds, especially certain waterfowl
 - OIE definition – notifiable AI is any HPAI and H5/H7 LPAI



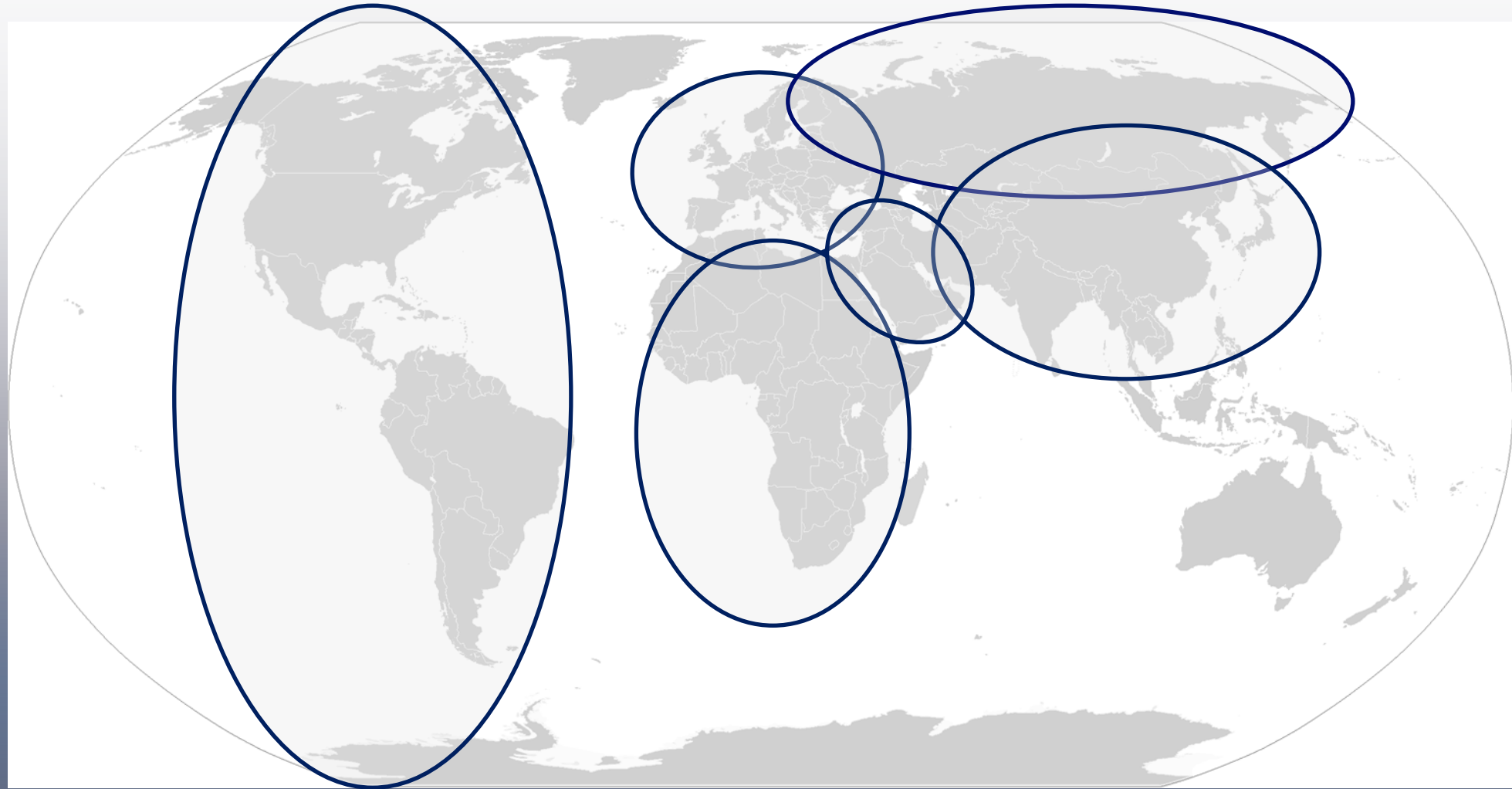
2016 H5 HPAI Around the World



H5 HPAI in 2016

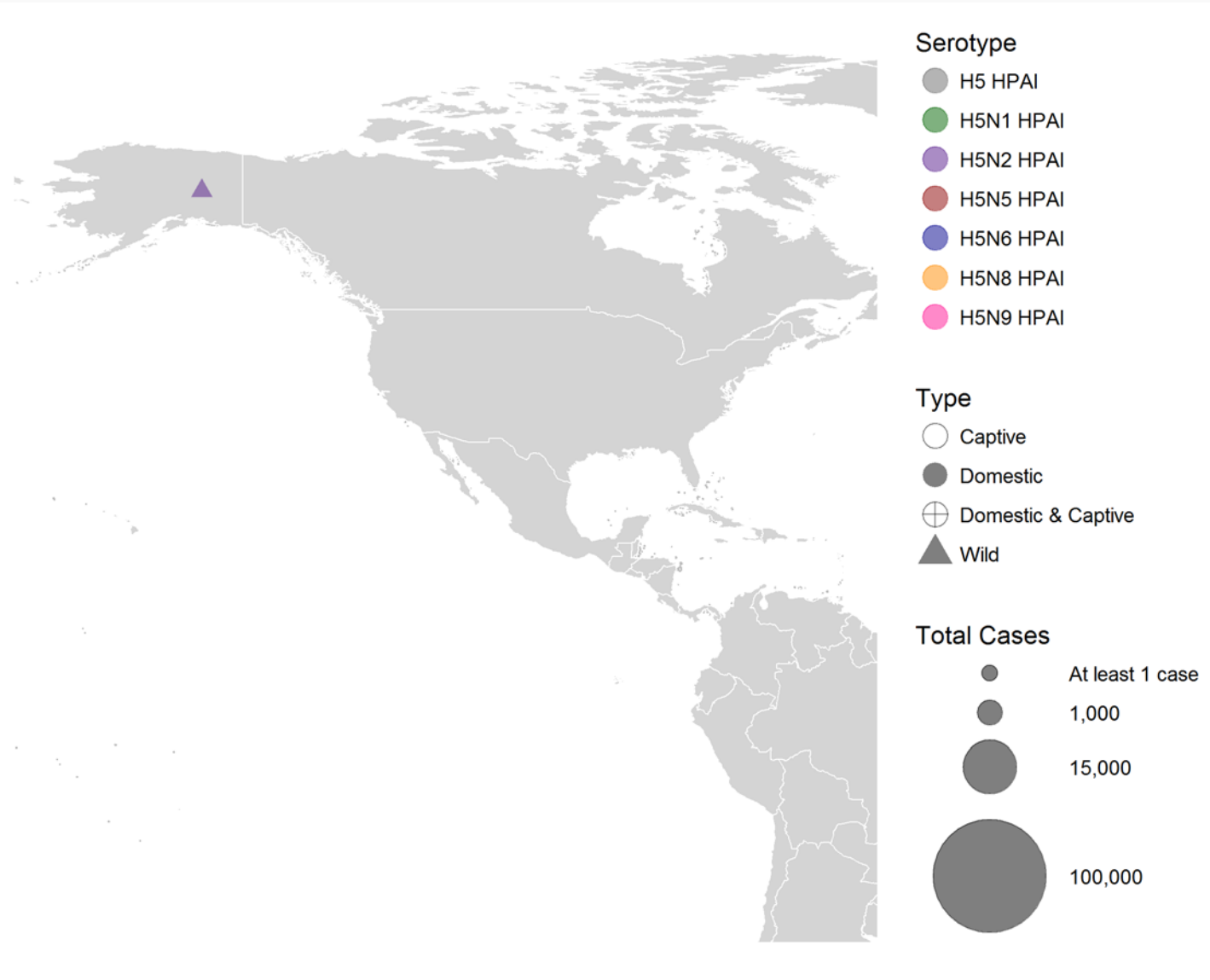
H5 strains of HPAI spread around the world in 2016. All of the data in this presentation illustrates OIE reports from member countries; not all countries may choose to self-report HPAI incidents to the OIE. Part 1 of this presentation shows the outbreaks by regions in the world; Part 2 of this presentation provides a monthly progression of H5 HPAI around the world throughout 2016. These maps show reports submitted to the OIE in calendar year 2016.

Part 1: H5 HPAI by Region



H5 HPAI from the Americas, 2016

Source: OIE



H5 HPAI in North America

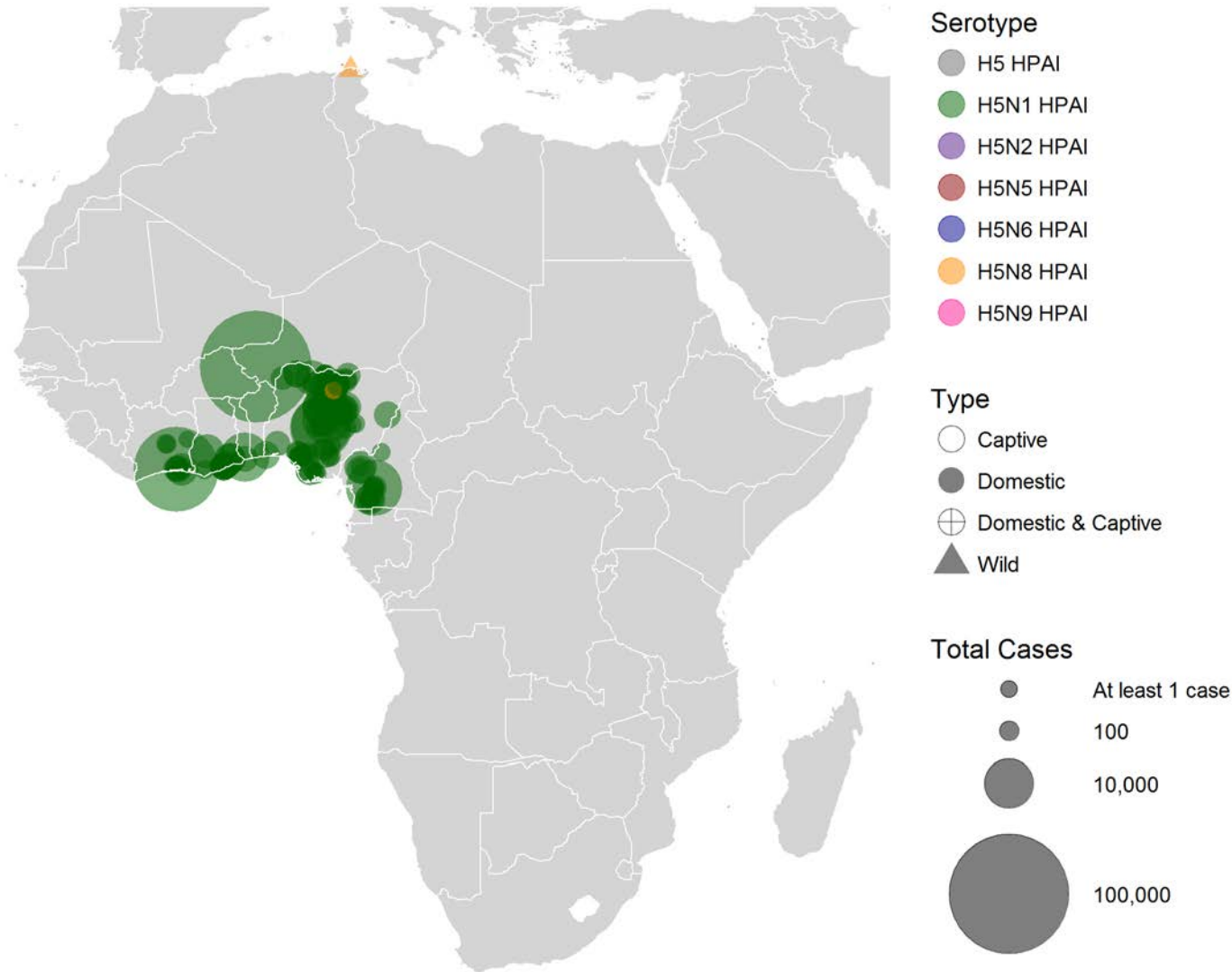
As of writing, the only case of H5 HPAI in the Americas is a case of **H5N2** identified in a wild bird in Fairbanks, Alaska in August.

H5 HPAI in Central & South America

There have been no reports of HPAI from Central or South America.

H5 HPAI from Africa, 2016

Source: OIE



H5 HPAI in Africa

The most common H5 HPAI subtype reported from African countries in 2016 was **H5N1**, which occurred in six of the seven African countries reporting an H5 HPAI strain this year.

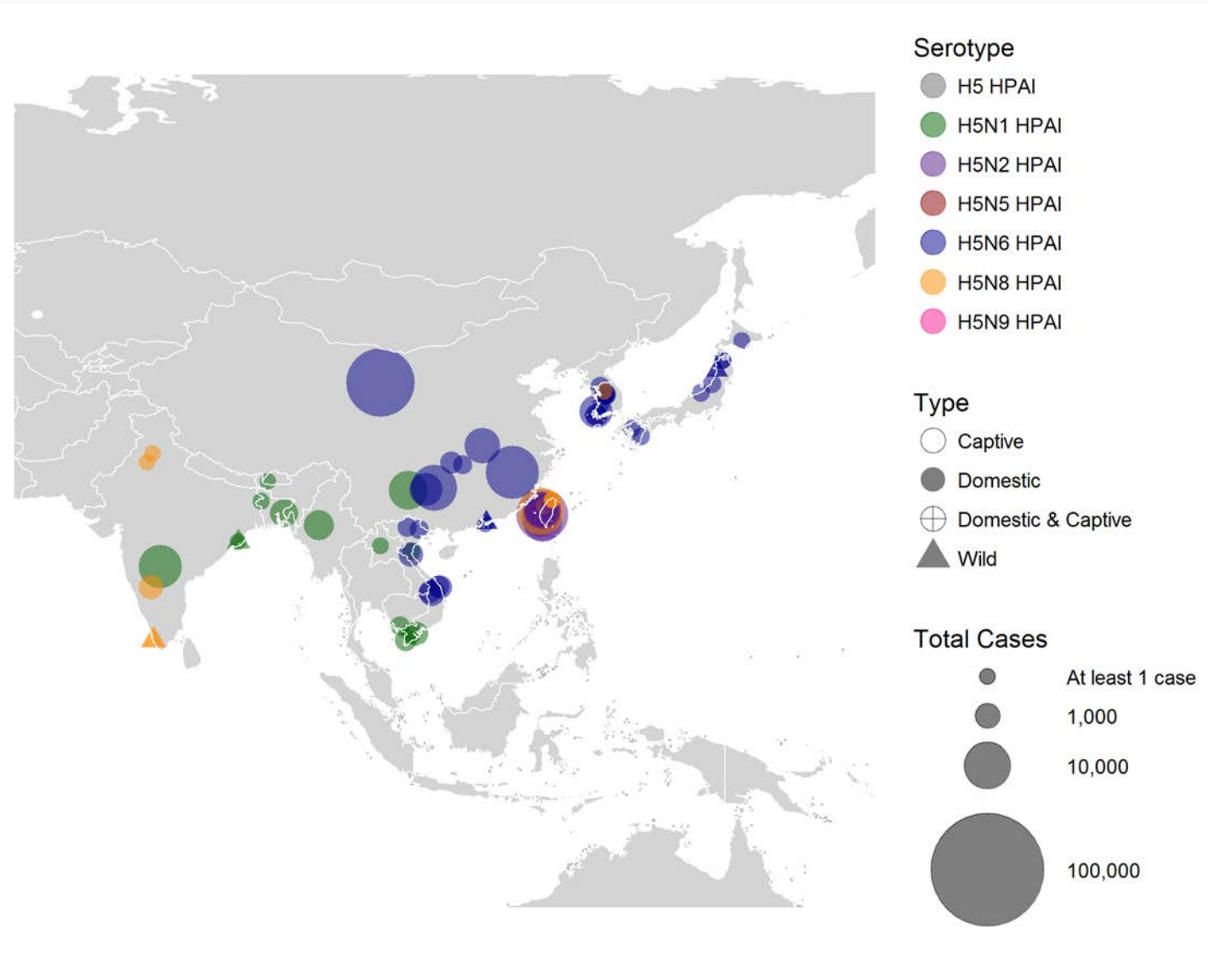
- Outbreaks of **H5N1** were reported early this year in domestic birds from Nigeria, Niger, Ghana, and Côte d'Ivoire.
- Côte d'Ivoire and Cameroon continued to experience outbreaks of **H5N1** through the summer.
- Togo reported an outbreak of **H5N1** in domestic birds in August.
- Reports of **H5N1** persisted in Ghana and Nigeria into October and November, respectively.

Nigeria and Tunisia detected the first cases of **H5N8** in the region in November.

- Domestic birds were affected in Nigeria
- Wild birds were affected in Tunisia

H5 HPAI Reports from Asia, 2016

Source: OIE



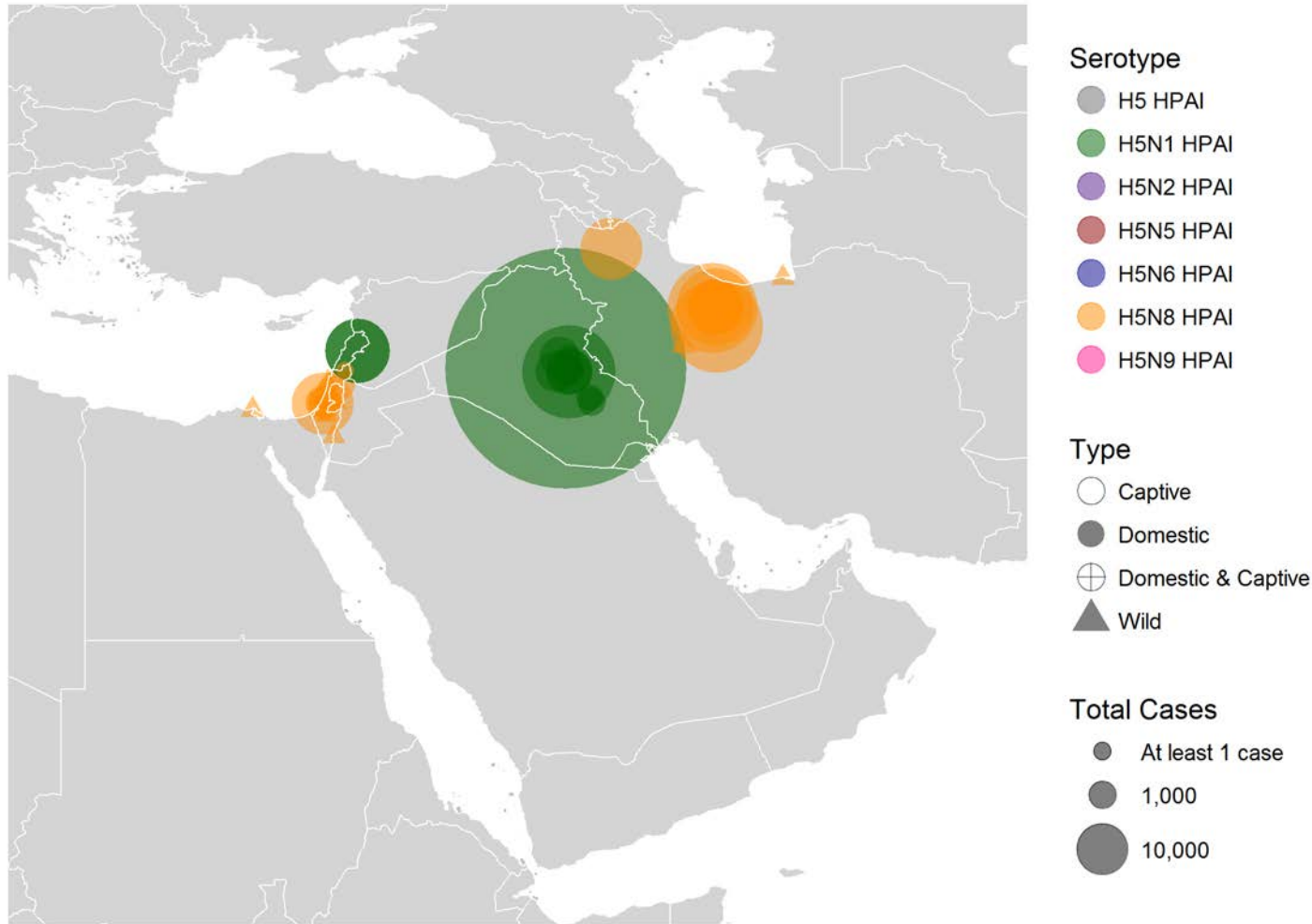
H5 HPAI in Asia

Twelve countries in Asia reported four H5 HPAI subtypes in 2016, as well as additional H5 untyped cases. Most cases were reported in domestic birds; no cases were reported in captive birds.

- Vietnam, Myanmar, Laos, India, China, Cambodia, Bhutan, and Bangladesh reported cases of **H5N1**, mostly in the beginning of this year and with a few reports in the fall.
- Taiwan experienced a significant outbreak of **H5N2** early in the year, with cases continuing to be reported into the fall.
- Vietnam, Hong Kong, and China reported **H5N6** early in the year, with reports of this subtype continuing in China throughout the year and reappearing during the fall in Hong Kong.
- Cases of **H5N6** were also reported in the Republic of Korea and Japan in the fall.
- Reports of **H5N8** appeared in Taiwan and the Republic of Korea in the spring/summer and in Taiwan and India in the fall.

H5 HPAI from the Middle East, 2016

Source: OIE



H5 HPAI in the Middle East

Five countries in the Middle East reported two subtypes of H5 HPAI in 2016.

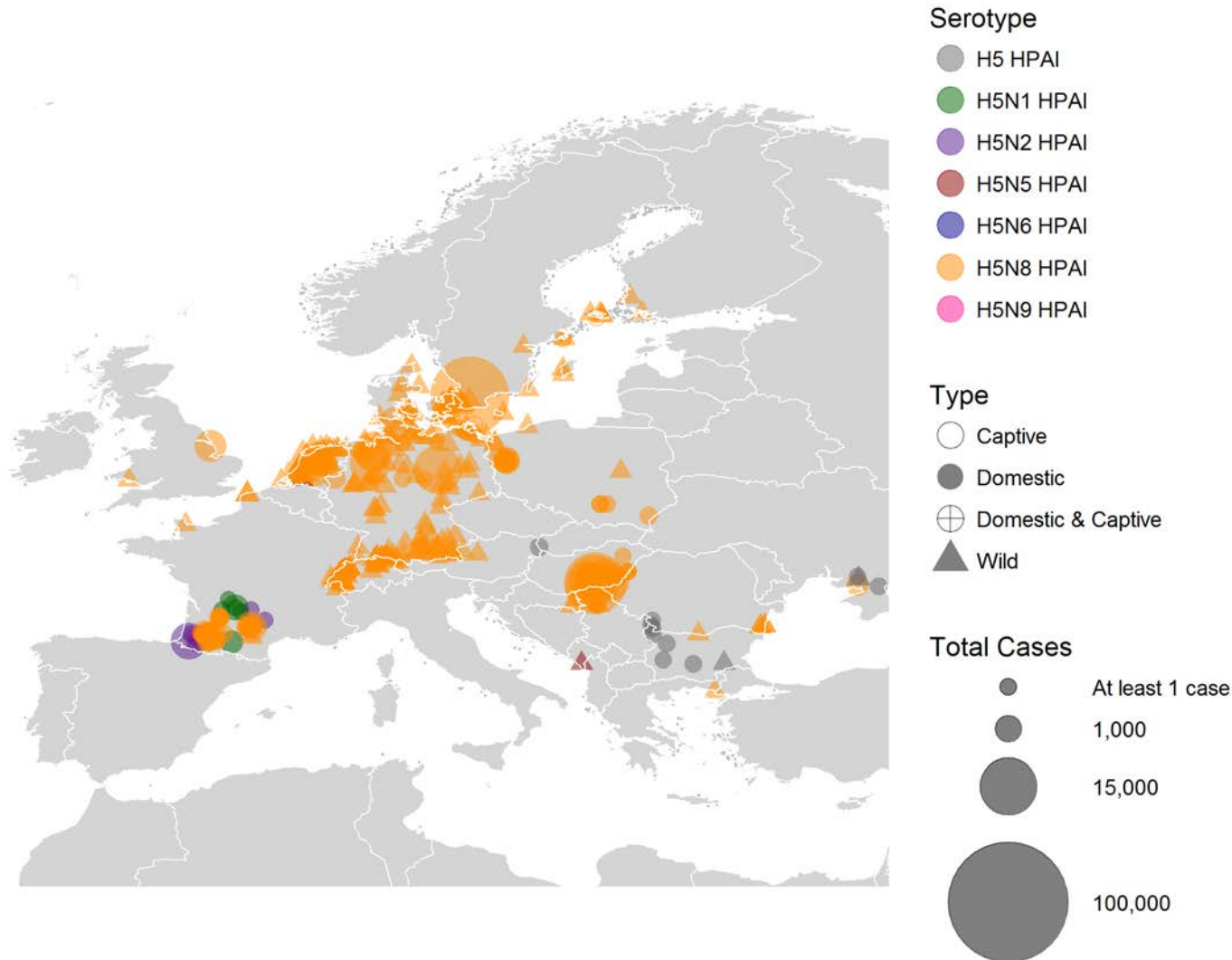
- Iraq reported cases of **H5N1** early this year in domestic birds, and significant outbreaks occurred again in summer as they reported the largest H5 HPAI outbreak this year in June.
- Cases of **H5N1** were also reported in Lebanon in the late spring in domestic birds.

Reports of **H5N8** started in Israel, Iran, and Egypt in November.

- In Israel, **H5N8** was detected in domestic and wild birds starting in November, and cases persisted through the end of the year.
- In Iran, **H5N8** was reported primarily in domestic birds, though a case in a wild bird was also reported.
- Egypt reported a single case of **H5N8** in a wild bird.

H5 HPAI from Europe, 2016

Source: OIE



H5 HPAI in Europe

Nineteen countries in Europe reported five subtypes of H5 HPAI in 2016, as well as untyped H5 HPAI.

Reports of H5 HPAI were confined to France early in the year; **H5N1**, **H5N2**, and **H5N9** were reported there in domestic birds.

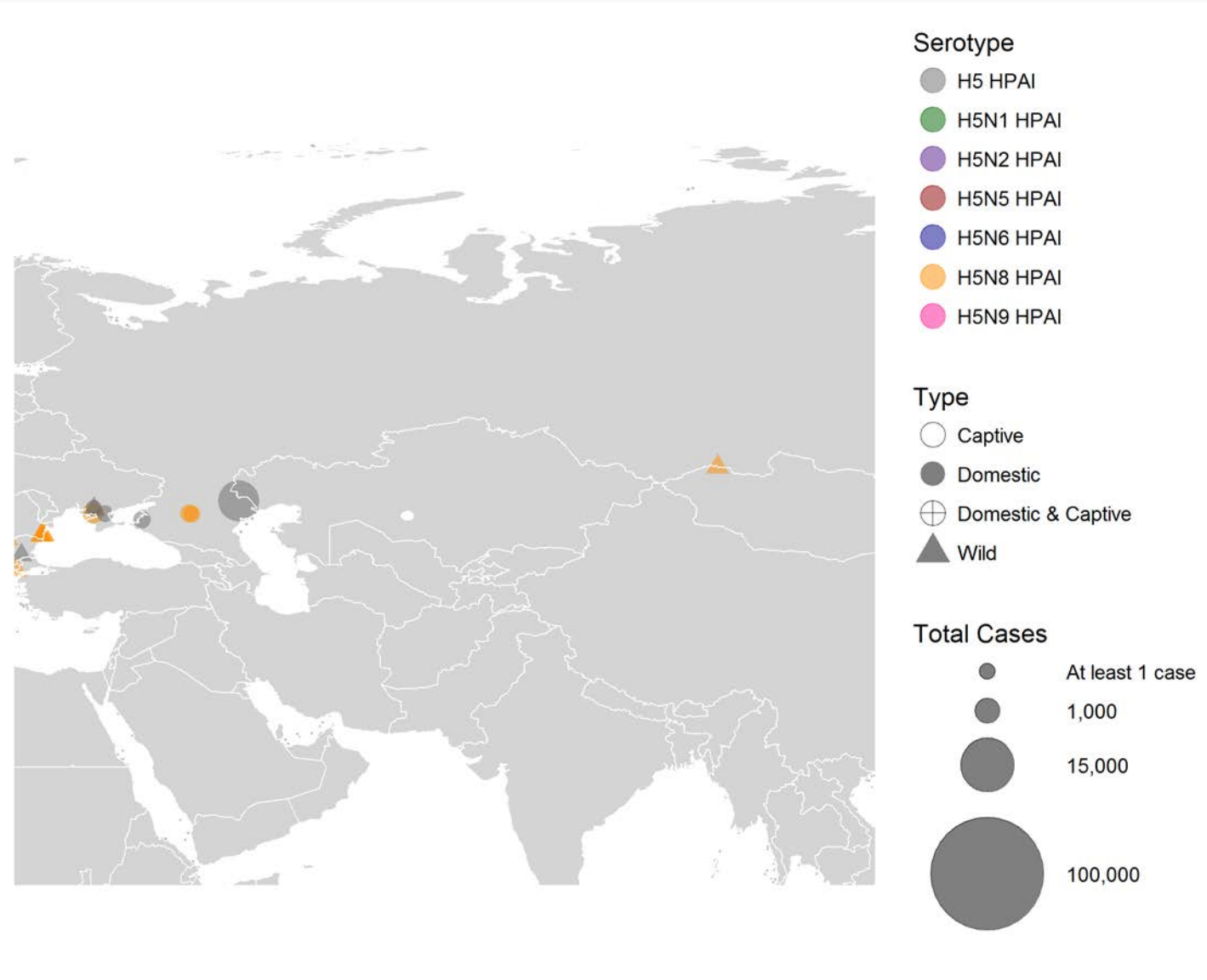
In October, reports of **H5N8** in Poland, Hungary, and Croatia heralded the beginning of a region-wide outbreak of this subtype in both domestic and wild birds.

- By the end of the year, the U.K., Ukraine, Switzerland, Sweden, Serbia, Romania, the Netherlands, Greece, Germany, France, Finland, Denmark, and Austria also reported **H5N8**.
- This outbreak has heavily affected poultry: over 142,000 **H5N8** cases have been confirmed in European poultry, resulting in the death or destruction of over 1.1 million birds.

The Netherlands and Montenegro reported cases of **H5N5** in wild birds in the fall of 2016.

H5 HPAI from Russia, 2016

Source: OIE



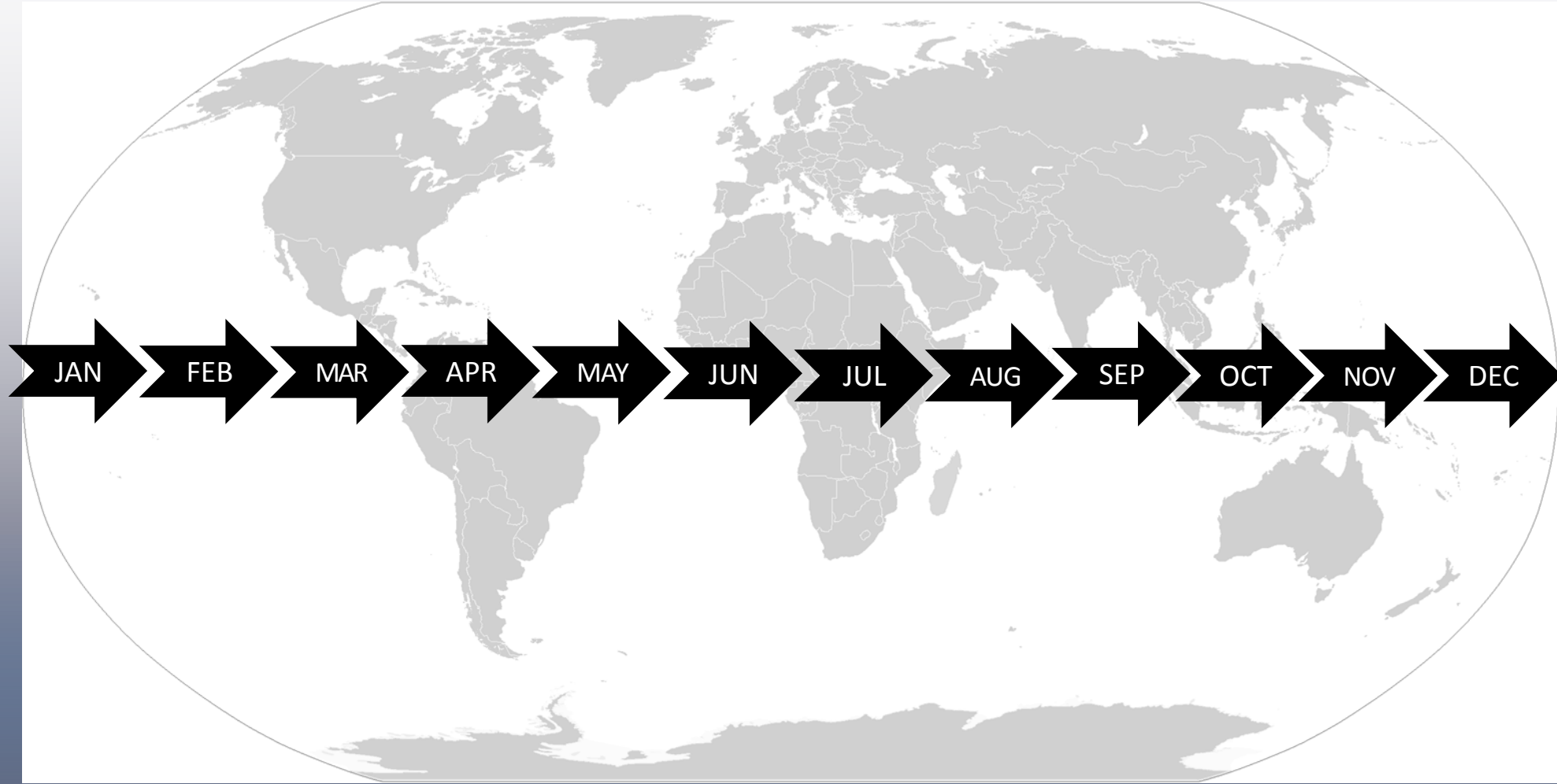
H5 HPAI in Russia

- A case of **H5N8** in a wild bird in Russia was reported in June.
- Cases of **H5N8** were reported again November, this time in poultry.
- Additional reports of a yet-unspecified subtype of H5 HPAI followed in December.

Part 2: H5 HPAI by Month (Cumulative)



United States
Department of
Agriculture

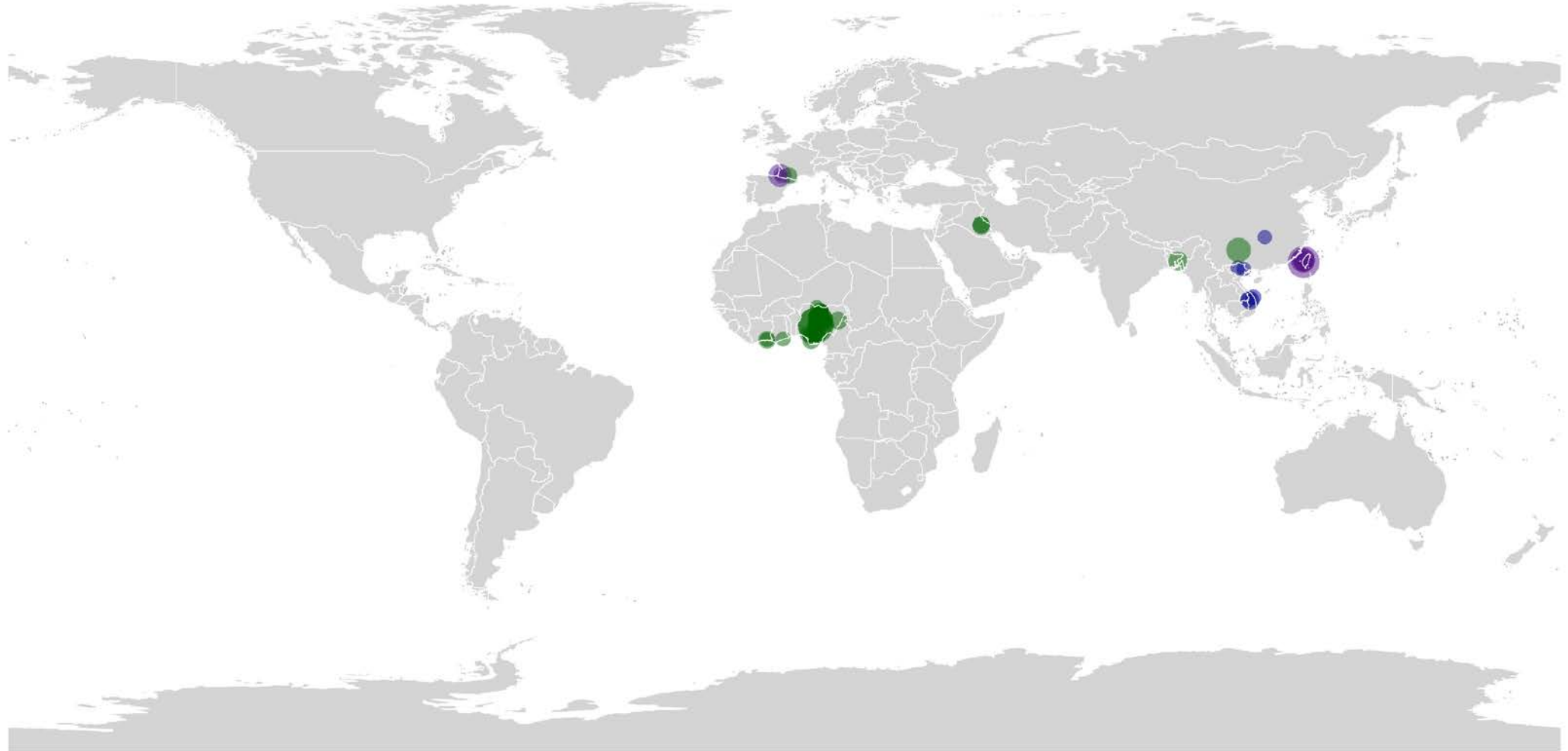


2016 H5 HPAI Reports Each Month, January

Source: OIE



Reports with start dates in: January



- Serotype**
- H5 HPAI
 - H5N1 HPAI
 - H5N2 HPAI
 - H5N5 HPAI
 - H5N6 HPAI
 - H5N8 HPAI
 - H5N9 HPAI

- Type**
- Captive
 - Domestic
 - Domestic & Captive
 - Wild

- Total Cases**
- At least 1 case
 - 50,000
 - 200,000
 - 400,000

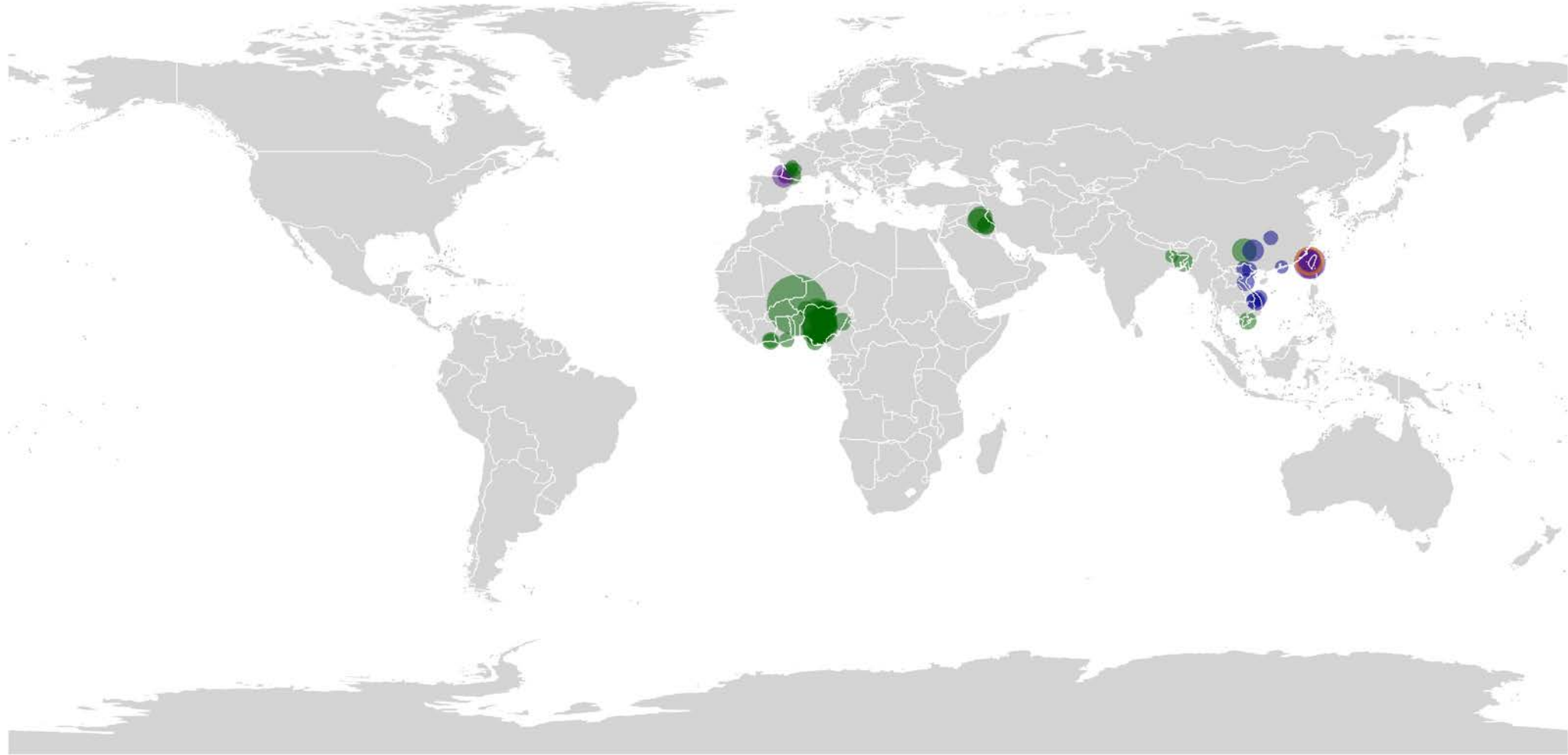
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru February

Source: OIE



Reports with start dates in: February



Serotype

- H5 HPAI
- H5N1 HPAI
- H5N2 HPAI
- H5N5 HPAI
- H5N6 HPAI
- H5N8 HPAI
- H5N9 HPAI

Type

- Captive
- Domestic
- Domestic & Captive
- Wild

Total Cases

- At least 1 case
- 50,000
- 200,000
- 400,000

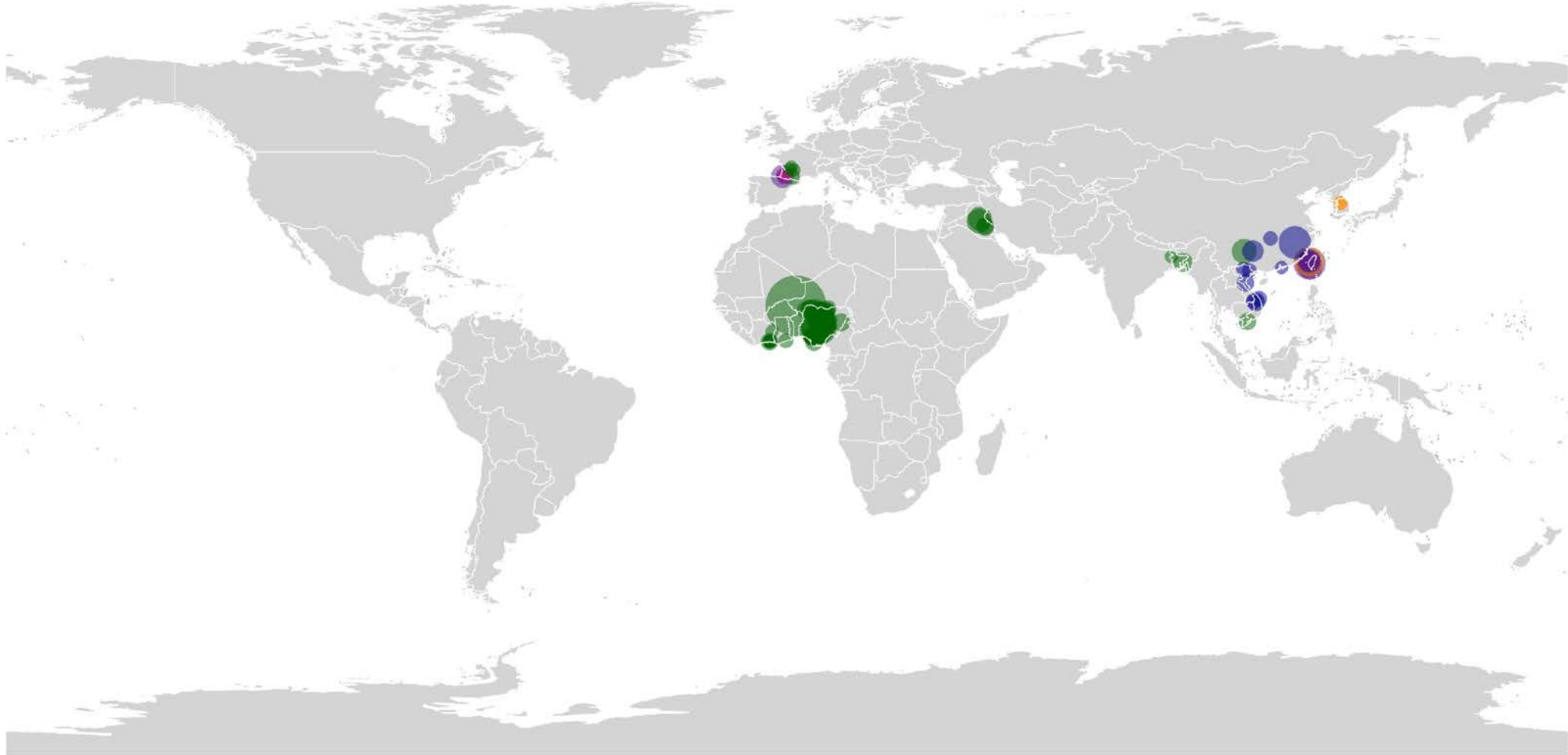
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru March

Source: OIE



Reports with start dates in: March



- Serotype**
- H5 HPAI
 - H5N1 HPAI
 - H5N2 HPAI
 - H5N5 HPAI
 - H5N6 HPAI
 - H5N8 HPAI
 - H5N9 HPAI

- Type**
- Captive
 - Domestic
 - Domestic & Captive
 - Wild

- Total Cases**
- At least 1 case
 - 50,000
 - 200,000
 - 400,000

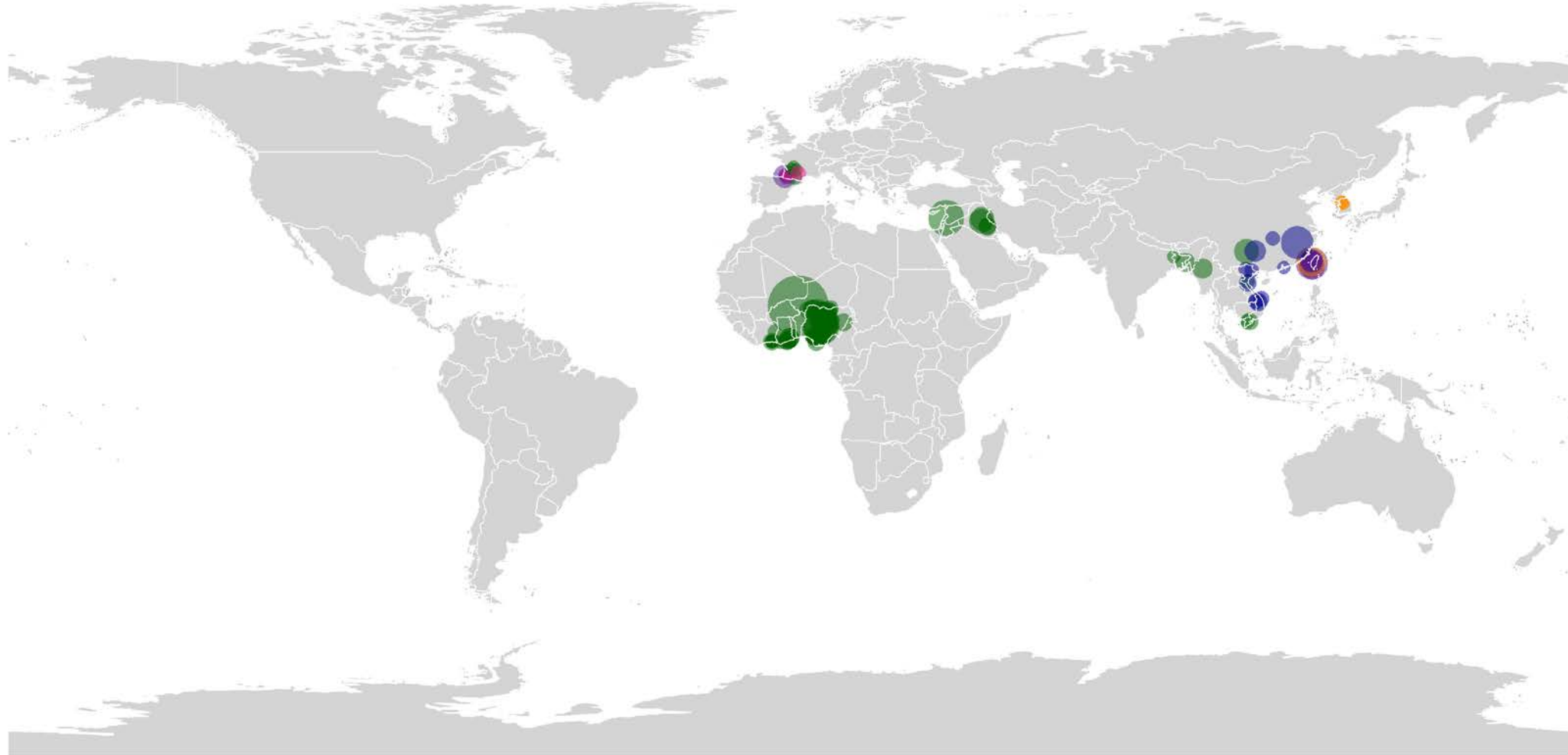
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru April

Source: OIE



Reports with start dates in: April



Serotype

- H5 HPAI
- H5N1 HPAI
- H5N2 HPAI
- H5N5 HPAI
- H5N6 HPAI
- H5N8 HPAI
- H5N9 HPAI

Type

- Captive
- Domestic
- Domestic & Captive
- Wild

Total Cases

- At least 1 case
- 50,000
- 200,000
- 400,000

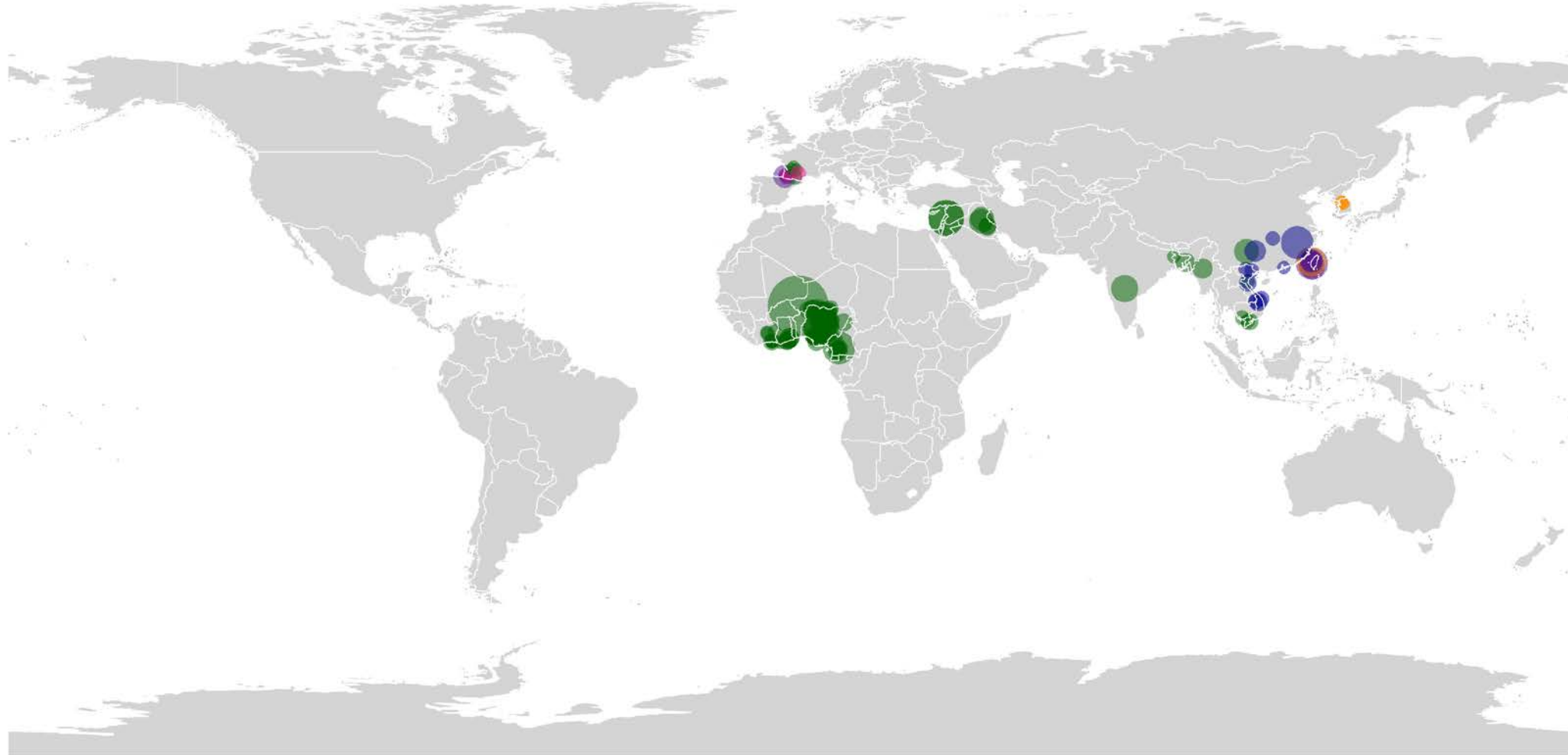
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru May

Source: OIE



Reports with start dates in: May



Serotype

- H5 HPAI
- H5N1 HPAI
- H5N2 HPAI
- H5N5 HPAI
- H5N6 HPAI
- H5N8 HPAI
- H5N9 HPAI

Type

- Captive
- Domestic
- Domestic & Captive
- Wild

Total Cases

- At least 1 case
- 50,000
- 200,000
- 400,000

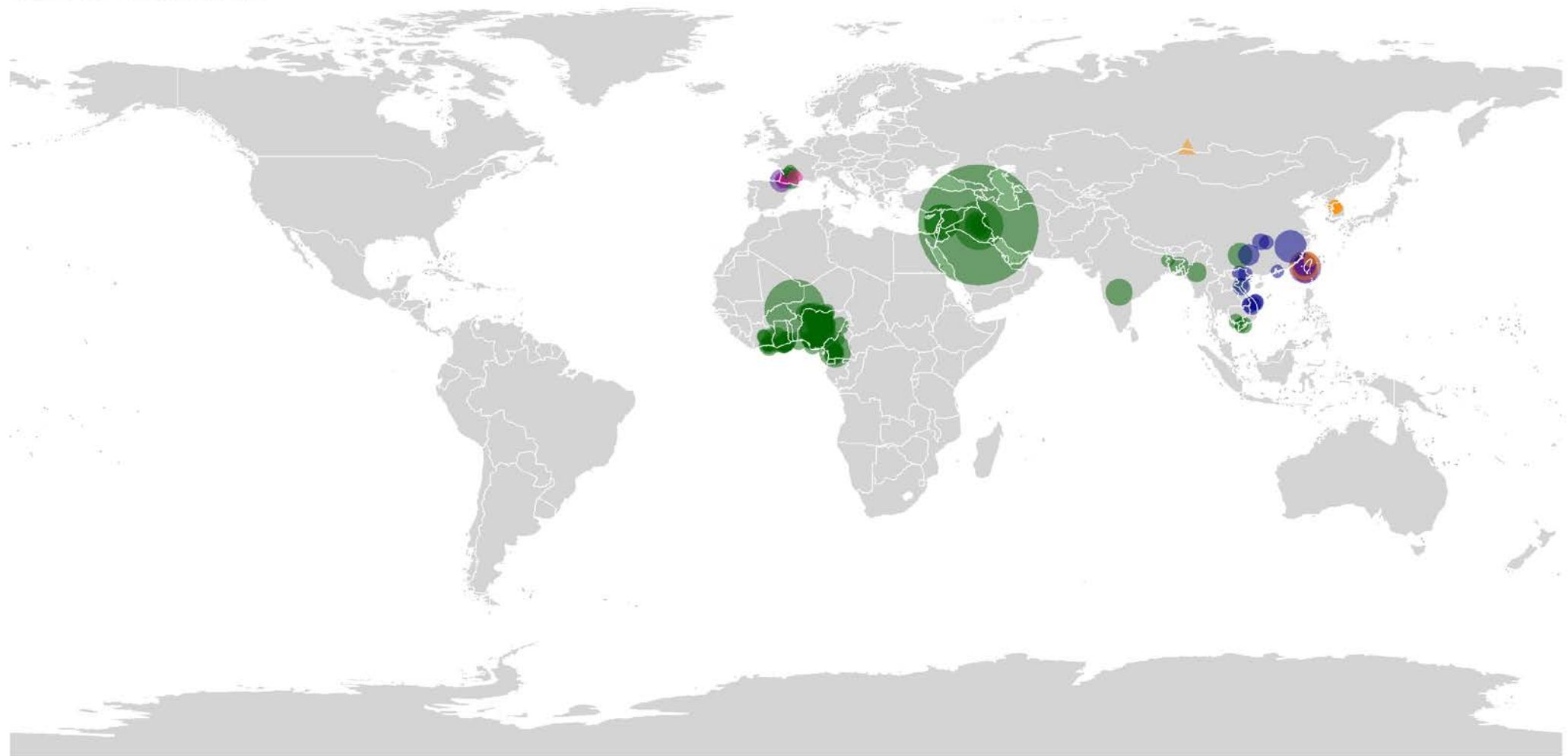
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru June

Source: OIE



Reports with start dates in: June



- Serotype**
- H5 HPAI
 - H5N1 HPAI
 - H5N2 HPAI
 - H5N5 HPAI
 - H5N6 HPAI
 - H5N8 HPAI
 - H5N9 HPAI

- Type**
- Captive
 - Domestic
 - Domestic & Captive
 - Wild

- Total Cases**
- At least 1 case
 - 50,000
 - 200,000
 - 400,000

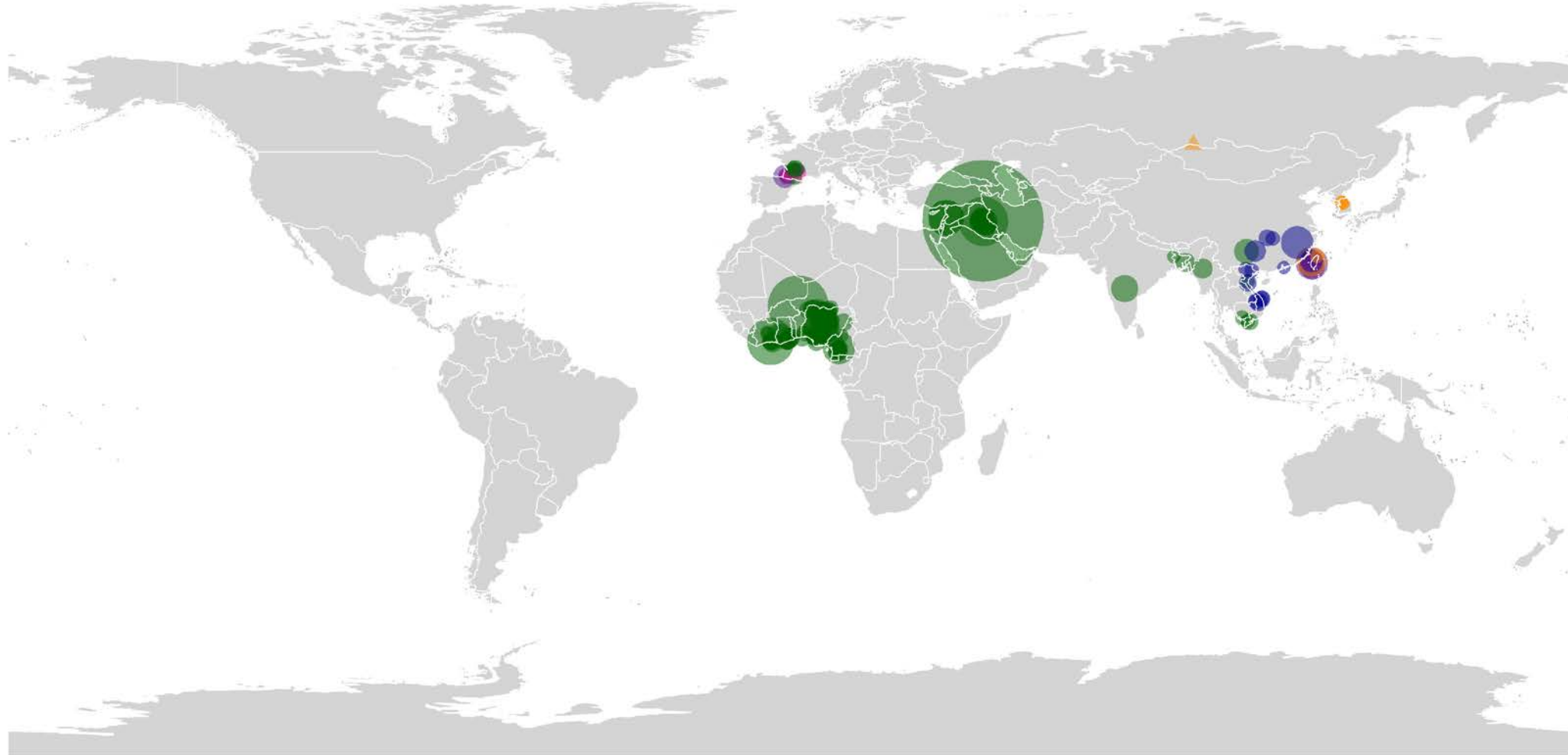
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru July

Source: OIE



Reports with start dates in: July



- Serotype**
- H5 HPAI
 - H5N1 HPAI
 - H5N2 HPAI
 - H5N5 HPAI
 - H5N6 HPAI
 - H5N8 HPAI
 - H5N9 HPAI

- Type**
- Captive
 - Domestic
 - Domestic & Captive
 - Wild

- Total Cases**
- At least 1 case
 - 50,000
 - 200,000
 - 400,000

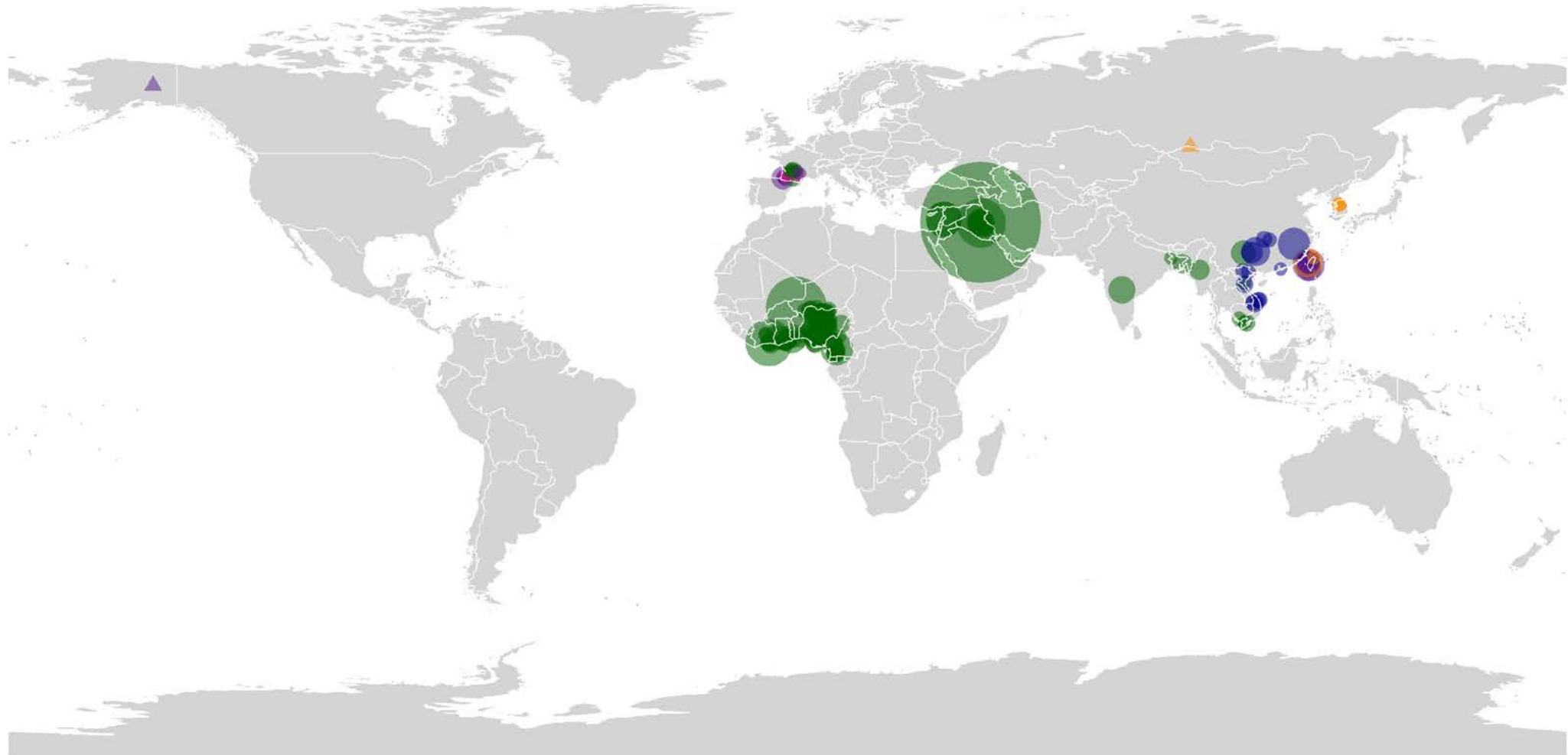
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru August

Source: OIE



Reports with start dates in: August



Serotype

- H5 HPAI
- H5N1 HPAI
- H5N2 HPAI
- H5N5 HPAI
- H5N6 HPAI
- H5N8 HPAI
- H5N9 HPAI

Type

- Captive
- Domestic
- Domestic & Captive
- Wild

Total Cases

- At least 1 case
- 50,000
- 200,000
- 400,000

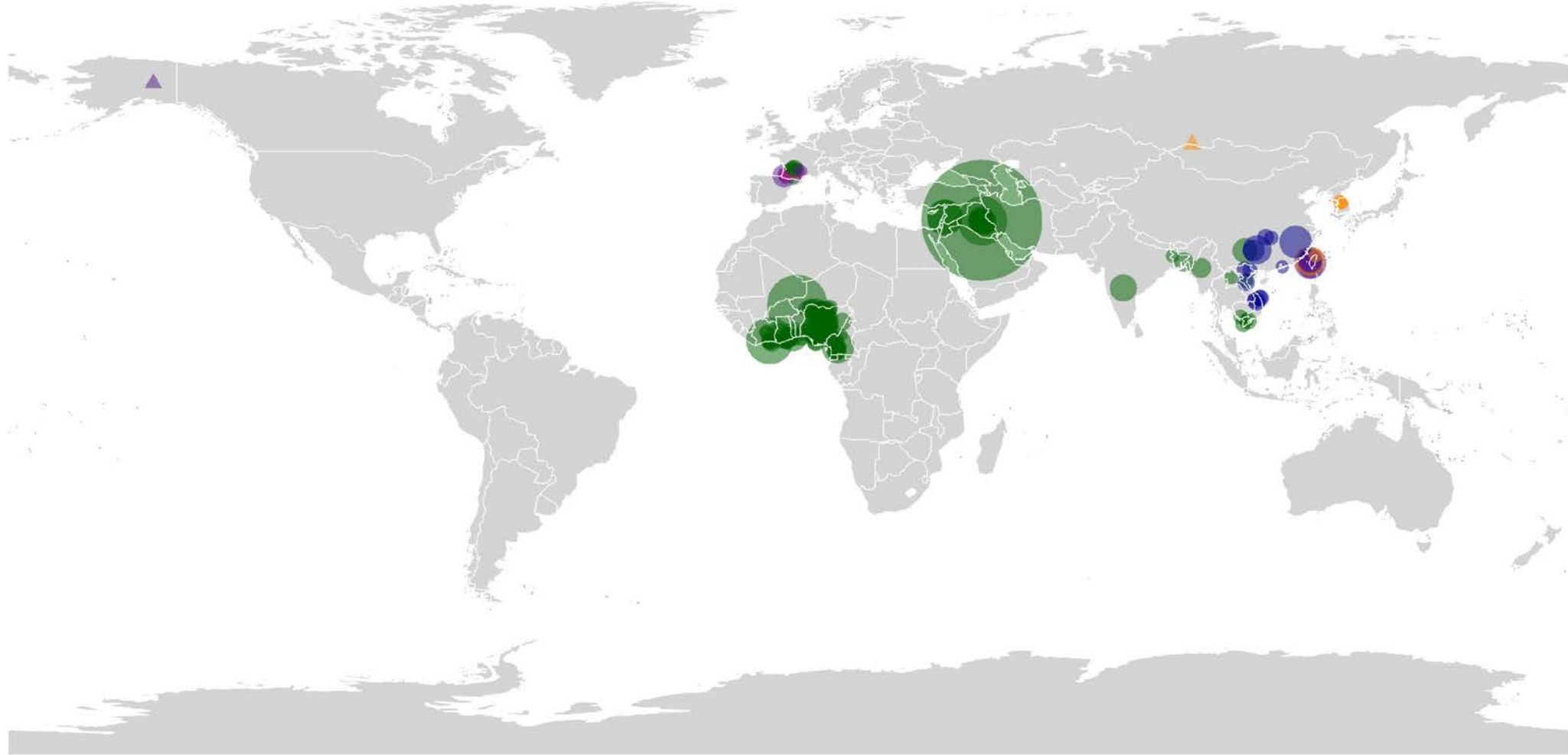
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru September

Source: OIE



Reports with start dates in: September



- Serotype**
- H5 HPAI
 - H5N1 HPAI
 - H5N2 HPAI
 - H5N5 HPAI
 - H5N6 HPAI
 - H5N8 HPAI
 - H5N9 HPAI

- Type**
- Captive
 - Domestic
 - Domestic & Captive
 - Wild

- Total Cases**
- At least 1 case
 - 50,000
 - 200,000
 - 400,000

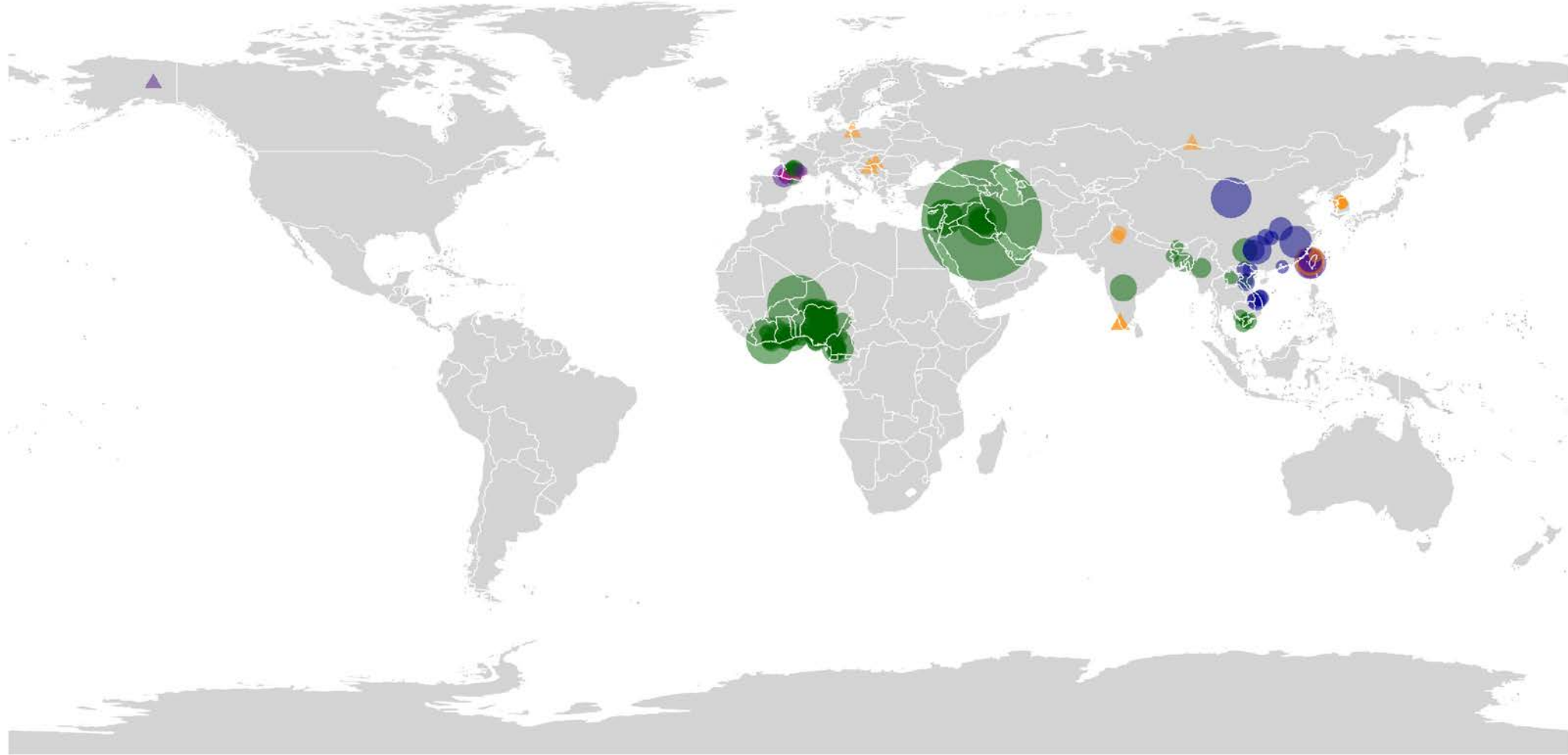
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru October

Source: OIE



Reports with start dates in: October



Serotype

- H5 HPAI
- H5N1 HPAI
- H5N2 HPAI
- H5N5 HPAI
- H5N6 HPAI
- H5N8 HPAI
- H5N9 HPAI

Type

- Captive
- Domestic
- Domestic & Captive
- Wild

Total Cases

- At least 1 case
- 50,000
- 200,000
- 400,000

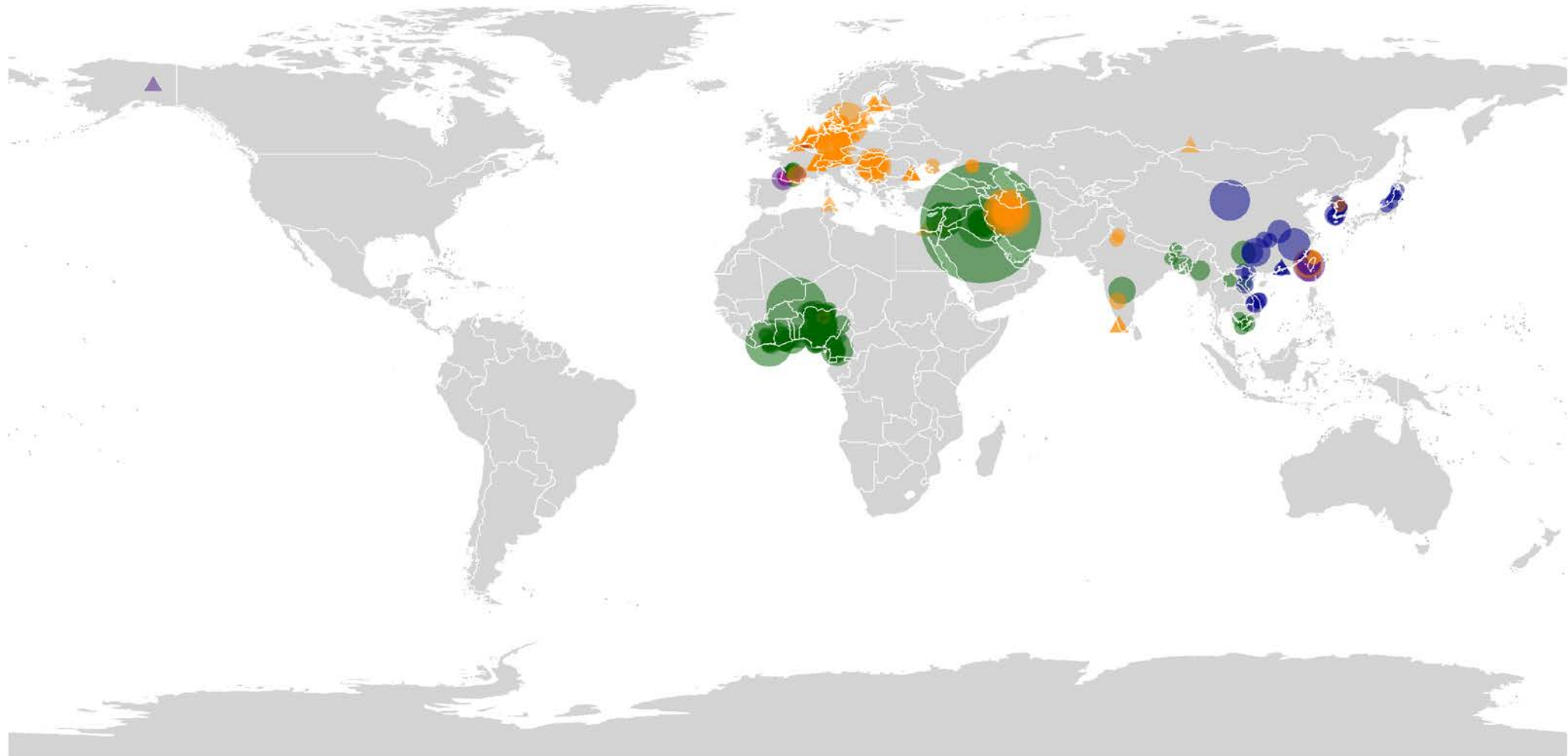
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru November

Source: OIE



Reports with start dates in: November



Serotype

- H5 HPAI
- H5N1 HPAI
- H5N2 HPAI
- H5N5 HPAI
- H5N6 HPAI
- H5N8 HPAI
- H5N9 HPAI

Type

- Captive
- Domestic
- Domestic & Captive
- Wild

Total Cases

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- 200,000
- 400,000

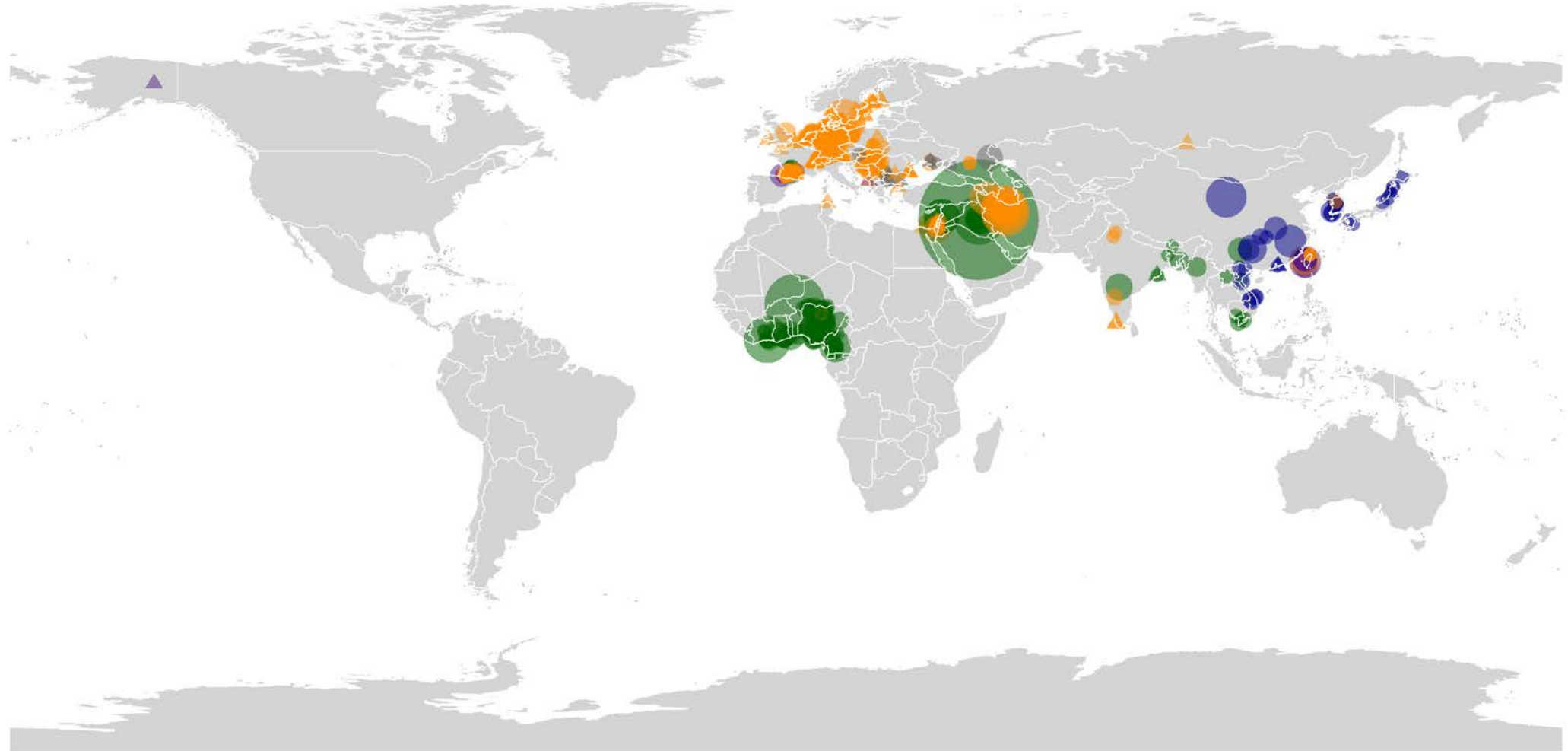
Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

2016 H5 HPAI Reports Each Month, thru December

Source: OIE



Reports with start dates in: December



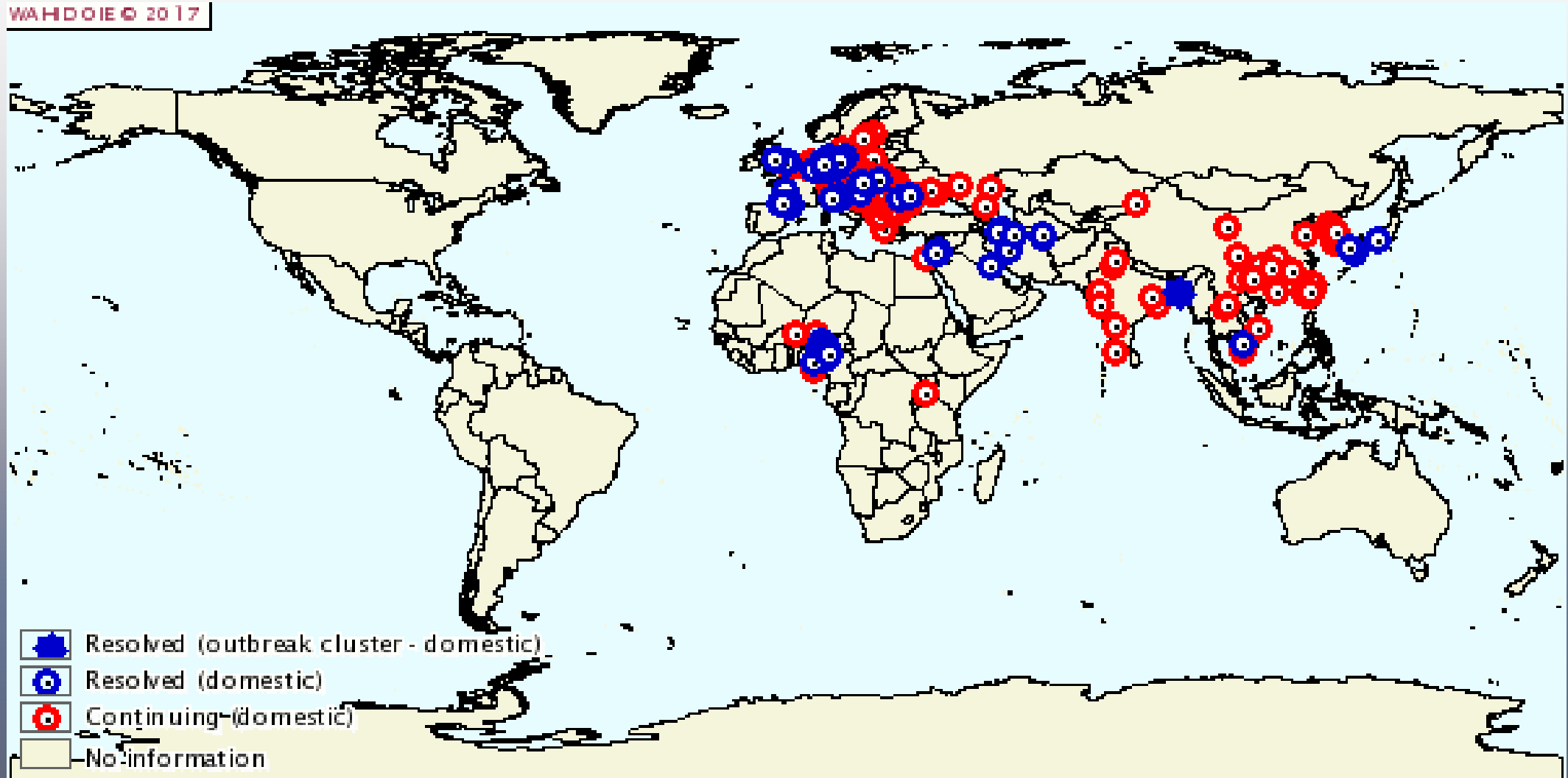
- Serotype**
- H5 HPAI
 - H5N1 HPAI
 - H5N2 HPAI
 - H5N5 HPAI
 - H5N6 HPAI
 - H5N8 HPAI
 - H5N9 HPAI

- Type**
- Captive
 - Domestic
 - Domestic & Captive
 - Wild

- Total Cases**
- At least 1 case
 - 50,000
 - 200,000
 - 400,000

Point sizes for each type of bird corresponds to total number of cases. All point are equally transparent to show overlapping reports.

HPAI reports to OIE, January 2017 to February 21, 2017



H7 HPAI findings

- 2016
 - H7N8 – USA (Indiana, turkey flock, January 2016)
 - H7N3 – Mexico (domestic poultry, several states)
 - H7N7 – Italy (domestic poultry, 2 flocks)
 - H7N1 – Algeria (wild birds)
- 2017
 - H7N9, China - previously low path, since 2013, human cases

USUS actions – awareness, prevention, and preparation

- 2014-2015 HPAI outbreak
 - 211 farms affected
 - 48 million turkeys and chickens depopulated
 - \$990 million spent by APHIS on response
 - \$5 billion impact on the economy
- *The largest animal health emergency response in US history*

US actions – awareness, prevention, and preparation

- Import controls and awareness
- Surveillance – poultry and wild birds
- “lessons learned”
- BIOSECURITY!!!

Thanks for your attention!