

# Management of HPAI H5N1 surveillance in wild waterfowl in the Black Sea – Caspian region



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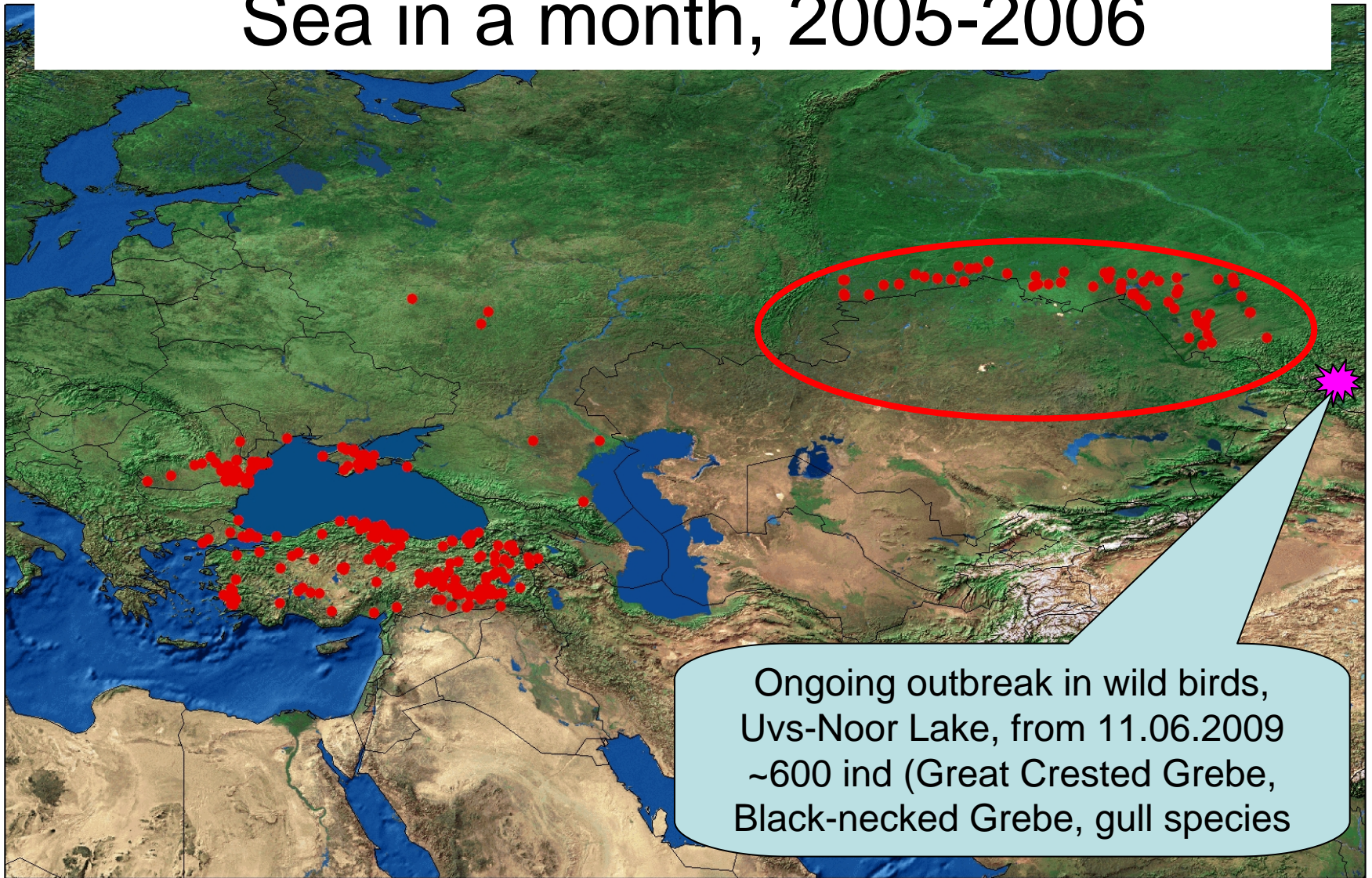
Istanbul, 29 June – 1 July, 2009

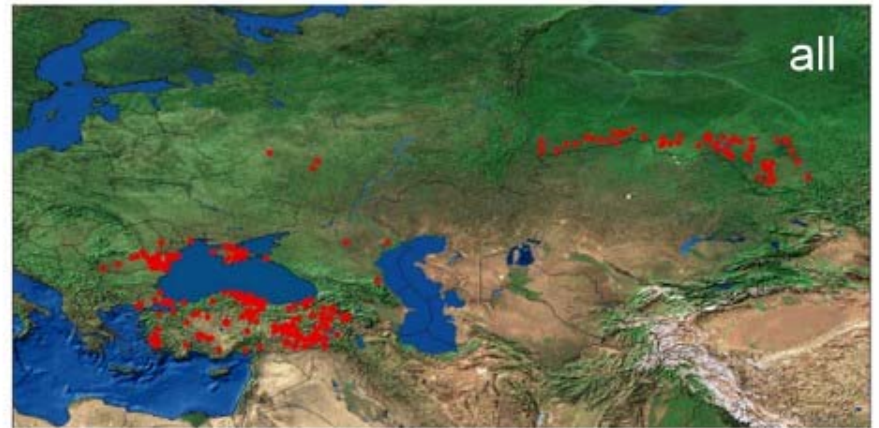
# Presentation outline



- HPAI in the Black & Caspian Sea: when & where does it take place?
- Surveillance: what are we looking for?
- Passive surveillance and sentinel species;
- Active surveillance (goals & targets)

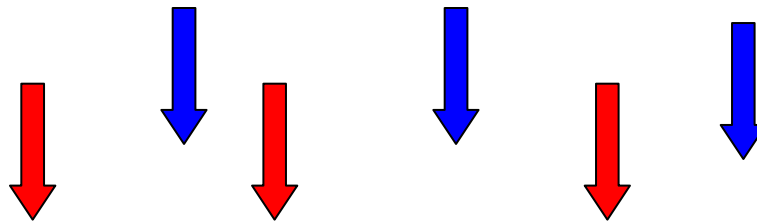
# HPAI H5N1: from SW Siberia to Black Sea in a month, 2005-2006



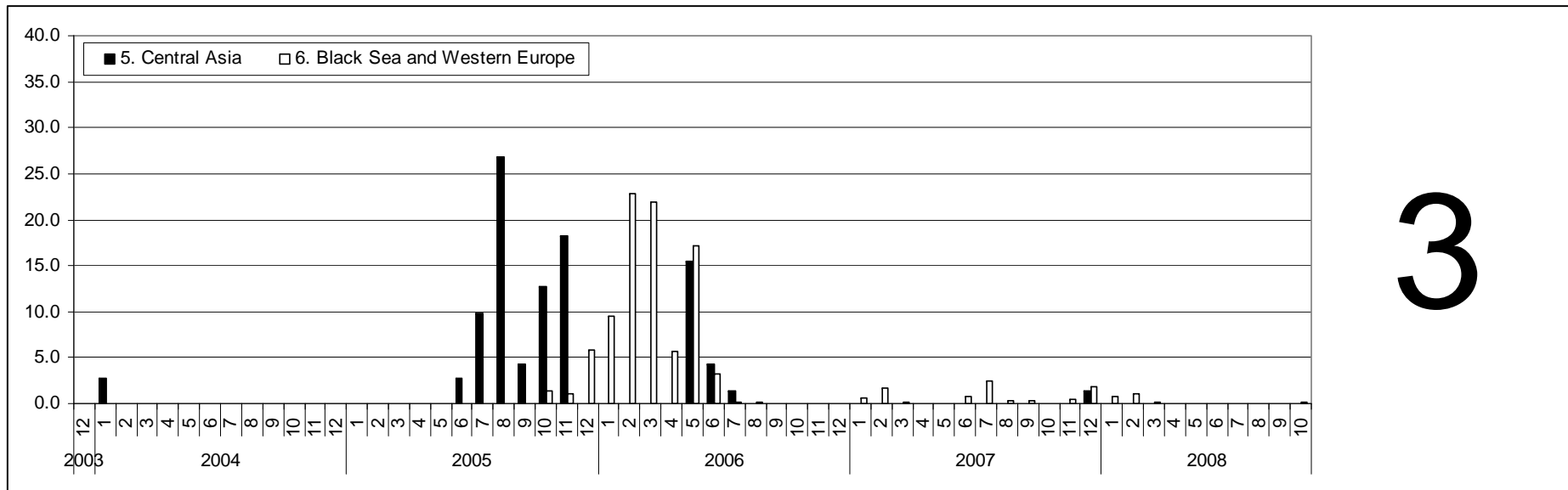


# HPAI H5N1 incidence: Central Asia – Black Sea & Western Europe

SE Asia →

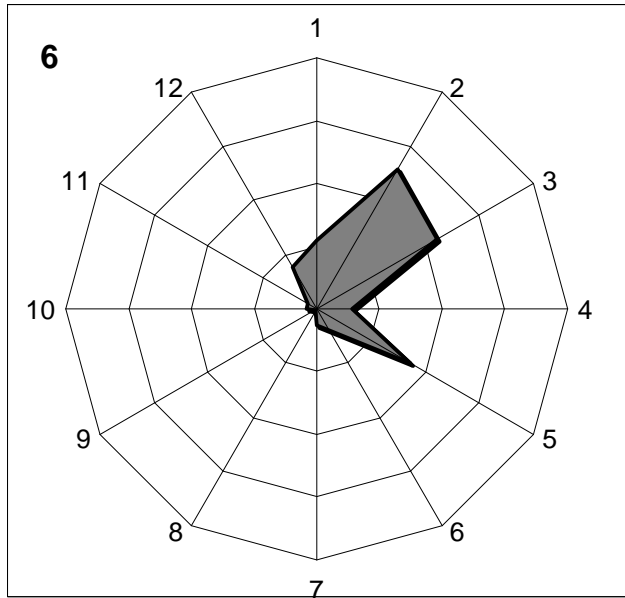


To be continued ...

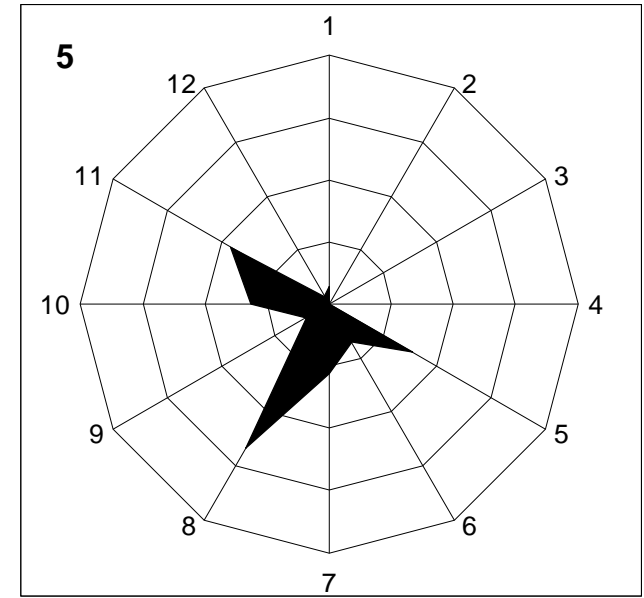


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# Monthly HPAI H5N1 incidence: 2005-2008 (%)



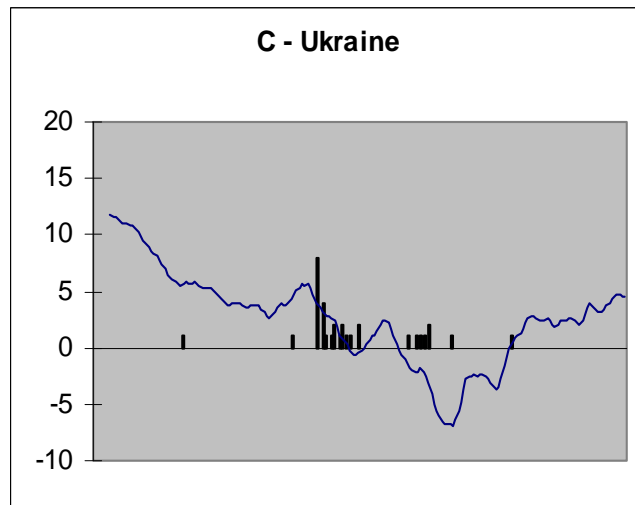
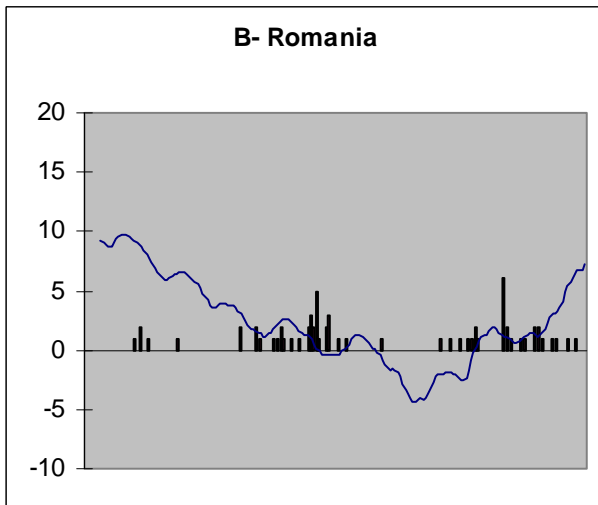
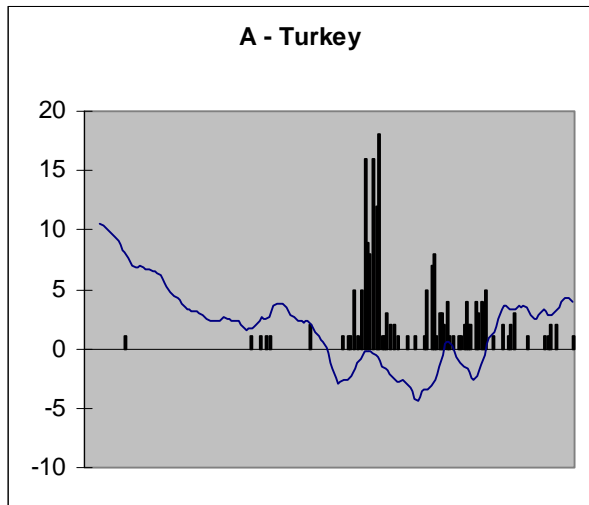
Europe - winter



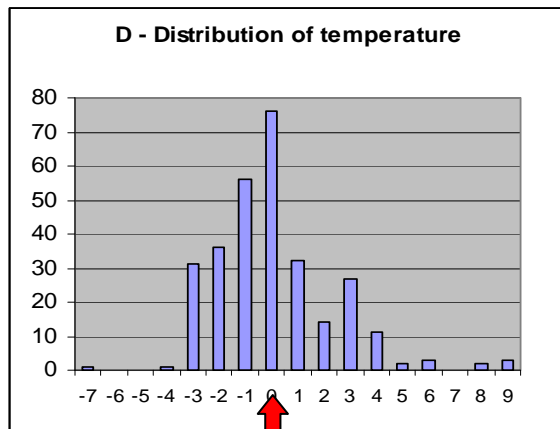
SW Siberia - summer

Peaks: May – Aug – Nov - Feb

# COLD SPELLS in the Black Sea region and daily HPAI H5N1 incidence



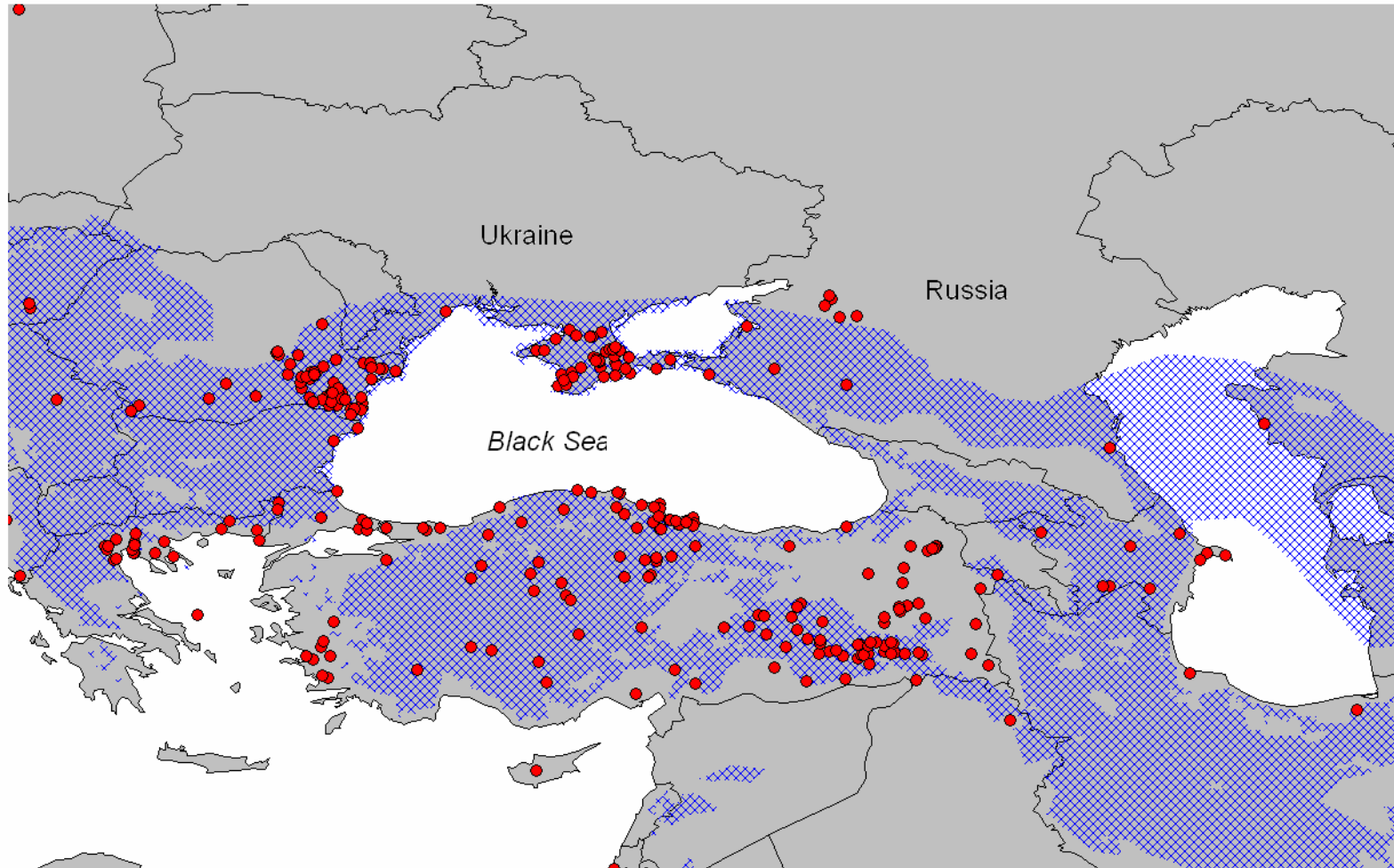
1 October 2005 – 31 March 2006



- Cold waves precede HPAI episodes
- They stop when it is too cold and resume as it gets warmer
- Most frequent at freezing temperatures
- How & where could poultry get into contact with waterfowl?

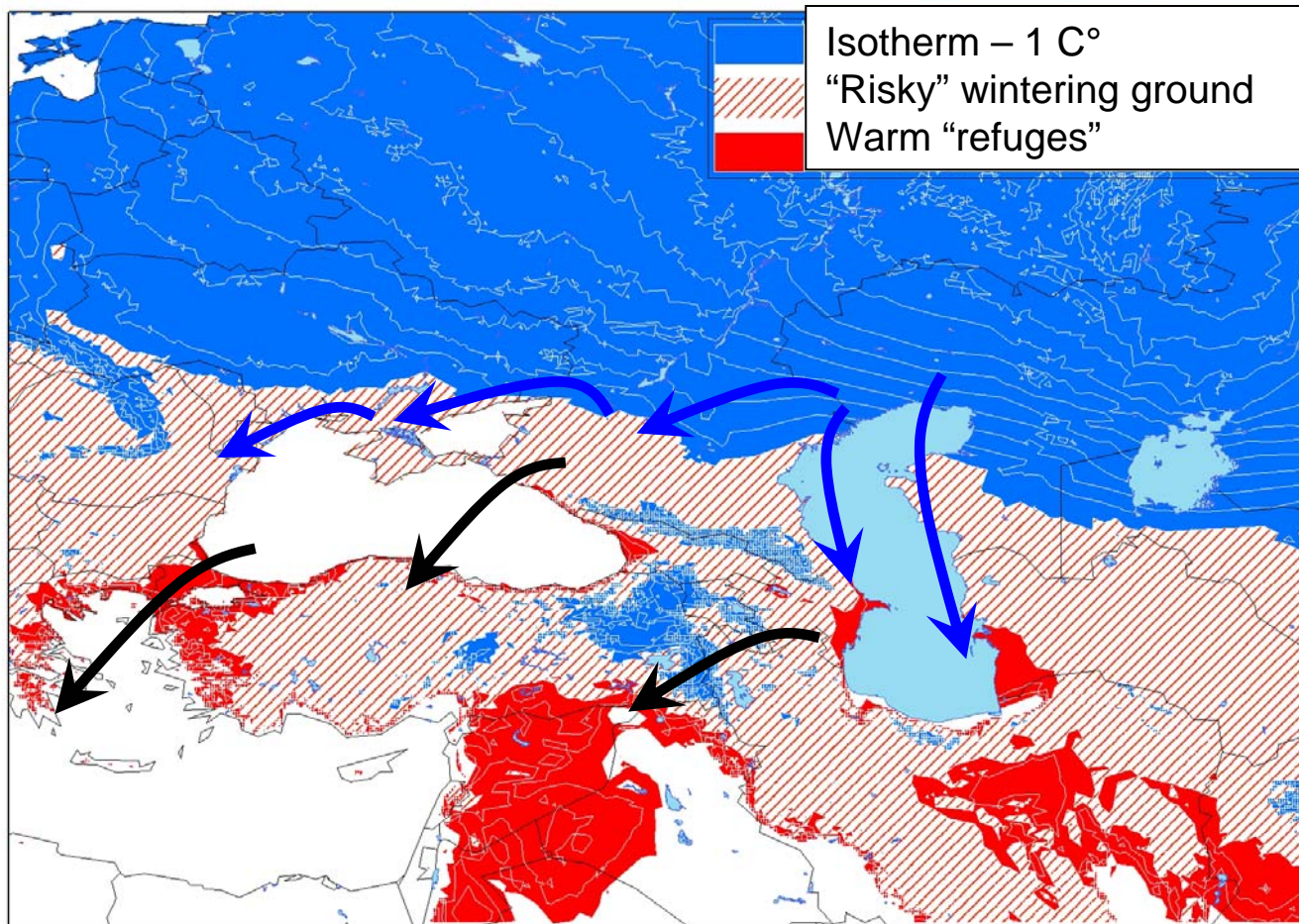
0° C

# Outbreaks and cold wintering zone of waterfowl in the Black Sea – Caspian region: 2005-08



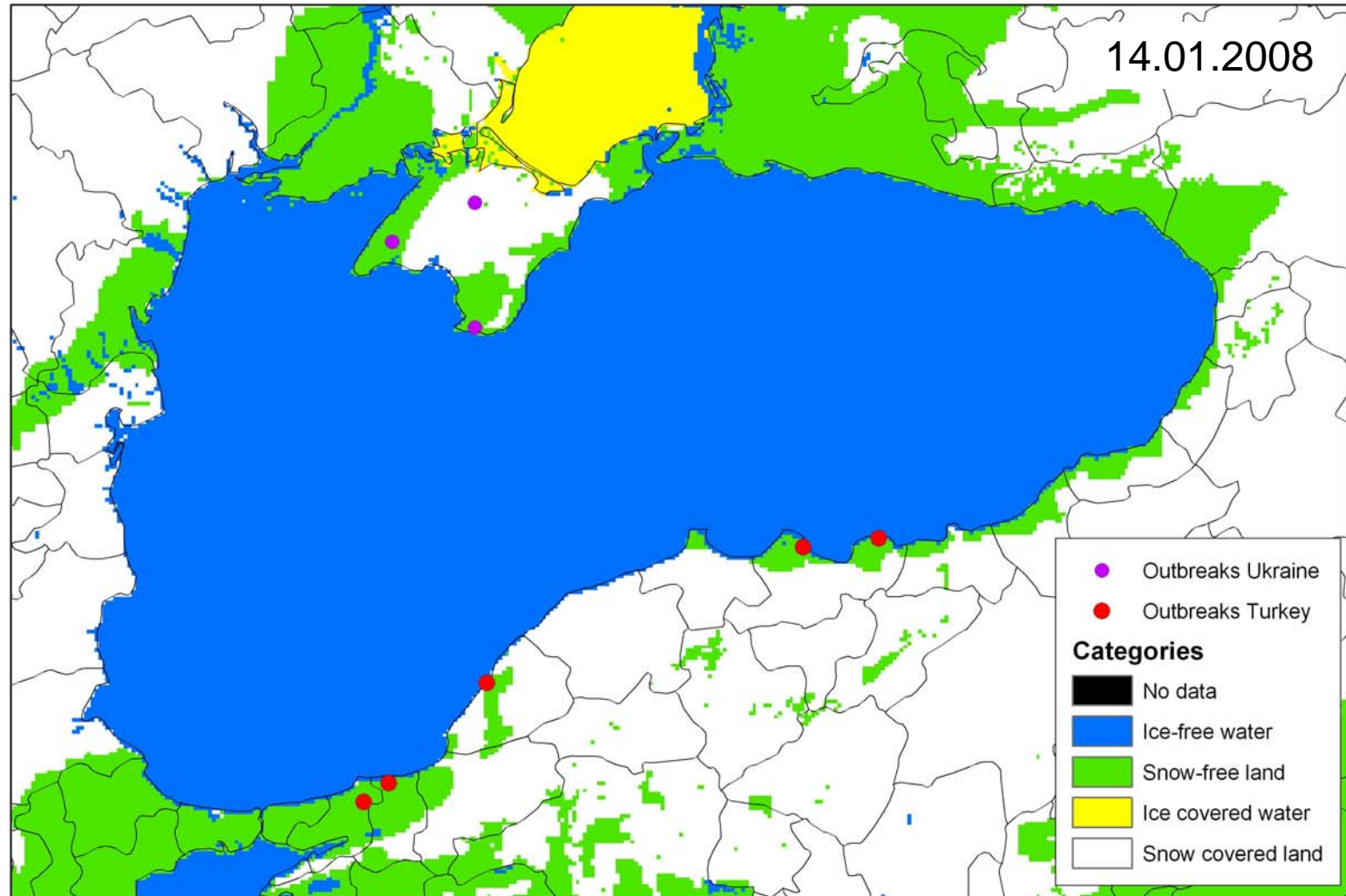


# Wintering conditions for waterbirds in the Black Sea - Caspian Sea region



Frost movements of wintering waterbirds are poorly understood

# Snow and ice cover are most critical factors for wintering birds



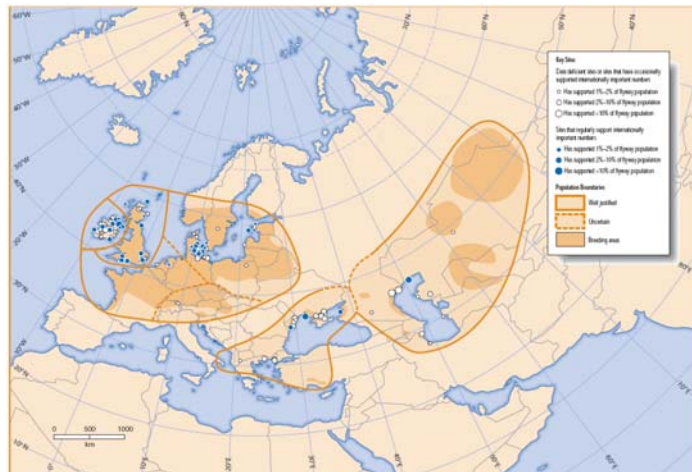
# Observations and considerations

- **Winter-time** invasions of HPAI H5N1 predominate;
- They are associated with **cold spells** and near **freezing** conditions;
- Cold conditions facilitate **survival** of the virus;
- Epizooties are **rapid**, develop over **extensive** areas (e.g. Caspian + Black Sea + Europe);
- **Sea coasts** and **saline lake** basins are at particular risk of HPAI H5N1 invasions;
- Active **targeted** search for cases of mortality in wild birds is needed.

# HPAI surveillance in wild birds

<b>Tasks</b>	<b>Considerations</b>
1. Understand disease ecology (active)	Vectors are highly mobile. Costly scientific exercise. Who is paying?
2. Establish presence / absence of the disease (active)	Don't we know it is potentially there? Do negative results mean anything?
3. Provide early warning (active)	We can't be earlier than predators, can't we?
4. Timely prevention of spread in the wild and domestic birds (passive)	<b>We can detect in wild birds/poultry before it gets worse</b>

# Mute Swan: a sentinel species # 1



- Wintering in the North of the Caspian and Black Sea;
- Latest to escape freezing conditions;
- Most frequently reported to be HPAI H5N1 +;
- Congregations and mortality events are easy to detect;
- Difficult to get for predators;
- Known and/or predictable wintering distribution;
- Restricted to shallows (~1 m).

# Other sentinel species

- Diving ducks of genus *Aythya*;
- HPAI H5N1 infections are fatal for them under laboratory conditions;
- Species most frequently reported to die of the disease in the wild.



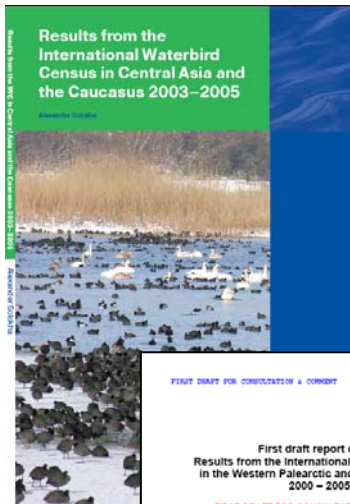
*Aythya ferina*



*Aythya fuligula*

# 1. International Waterbird Census scheme

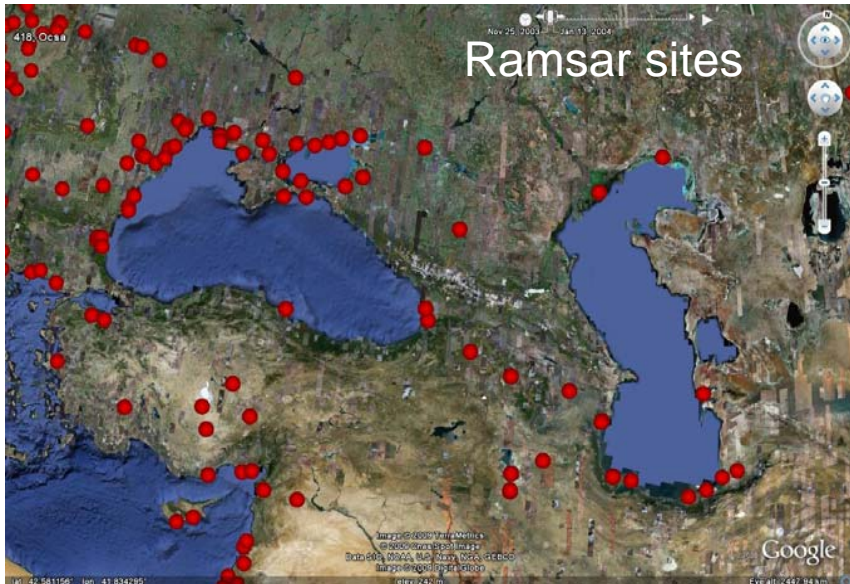
- Absolute, standardized and traditional counts in the region;
- Carried out in winter when risks of AI are highest;
- Provides good opportunity to conduct passive surveillance for AI;
- Volunteer-based (resource deficient, carried once a season on 15 January) – needs support from Governmental Agencies



## 2. Protected areas networks



**Ramsar sites, biosphere or nature reserves, natural parks, IBAs, SPAs etc.**



- National and international PA networks exist;
- Staff and facilities are available on the spot;
- Most are under jurisdiction of MoE or NAS;
- Protocols and training are essential;
- Resources + coordination are needed to run passive surveillance schemes;





### 3. Hunting associations / management bodies

- Hunters can see much more than general public;
- Their participation is essential;
- Main problem is that they do not want bans on hunting to be imposed;
- Is there a way out?



## Waterfowl populations are not a big flying poultry farm

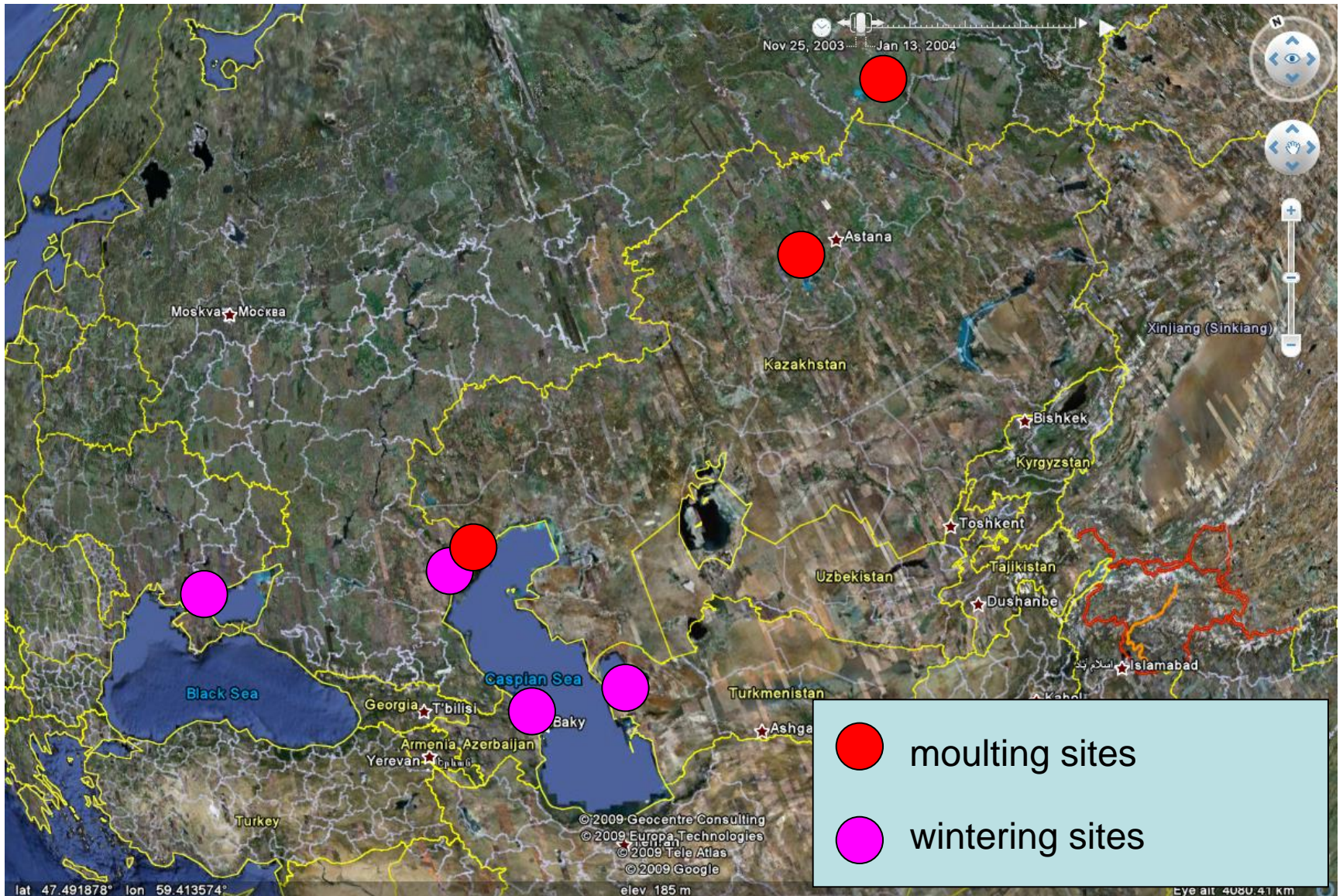
- Ecology and migration strategies;
- Species, age and sex composition;
- Life spans and immunological experience;
- Behavior and epizootological potential



# Active surveillance requires:

- Epidemiologically and ornithologically evaluated target species and goals;
- Consistency between goals and applied methodologies;
- Careful long-term planning and capacity building;
- The ultimate goal is to find reservoir species and provide basic understanding of disease ecology;
- Requires international cooperation, coordination and substantial efforts.

# Biogeography of surveillance in a regional perspective



# Major highlights

- Intensify passive surveillance at the national level and involve all partners;
- Solve the problem of the natural reservoir through carefully planned applied research facilitated through international organizations;
- Establish close international cooperation and provide technical assistance for large scale surveillance efforts.