

Petechiae in proventriculus



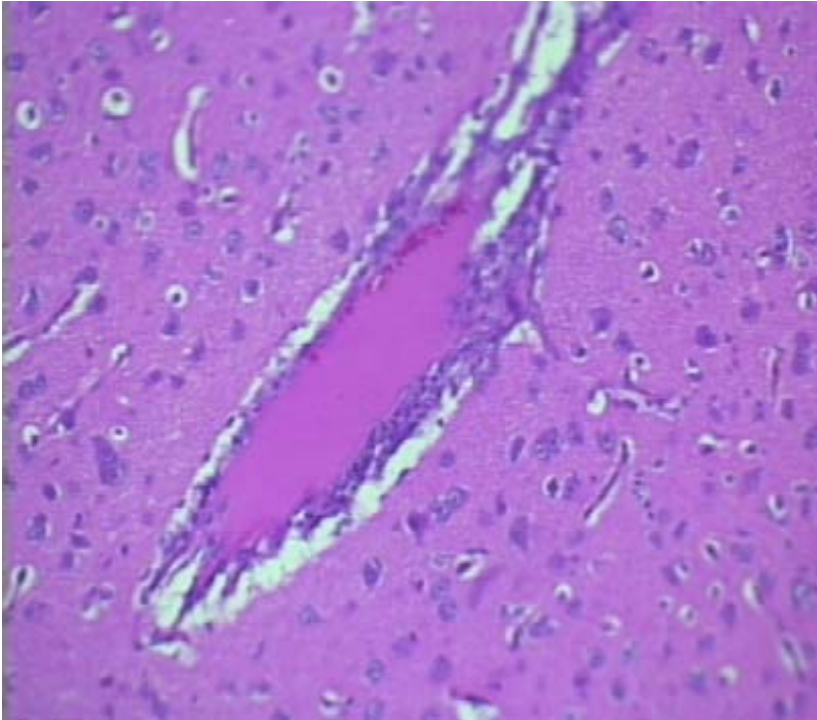
The diagnoses at this stage:

The differential diagnosis includes :

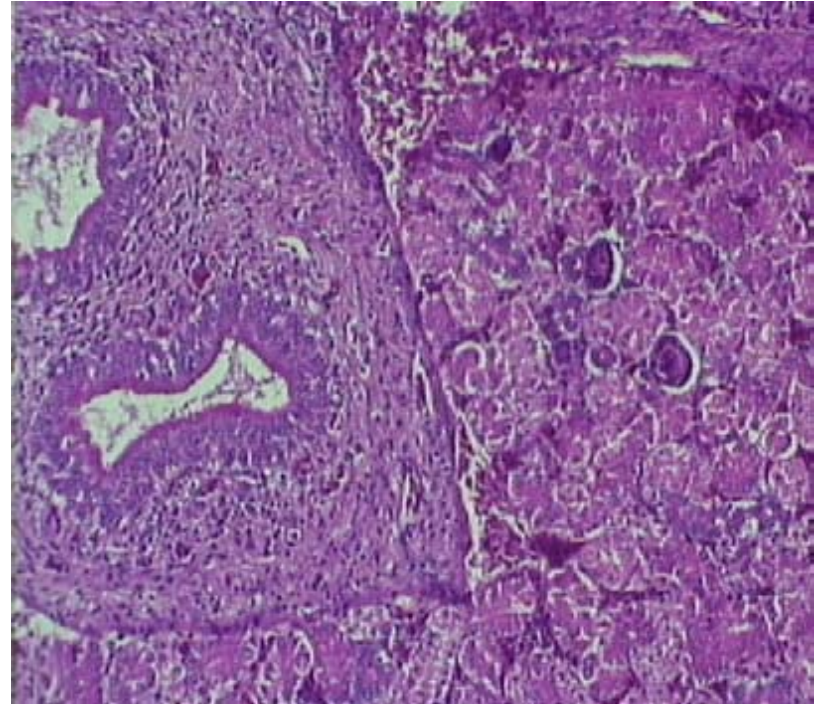
- **ND**
- **AI**
- **IB**
- **ILT**
- **IBD**
- **EDS**
- **Fowl Cholera**

- **Brain: Encephalitis (lymphocyte infiltration, vasculitis, gliosis, myelin degeneration)**
- **Skeletal muscle: haemorrhages**
- **Epicardium & myocardium: haemorrhages**
- **Trachea: tracheitis, haemorrhages**
- **Lung: interstitial pneumonia, haemorrhages, congestion**

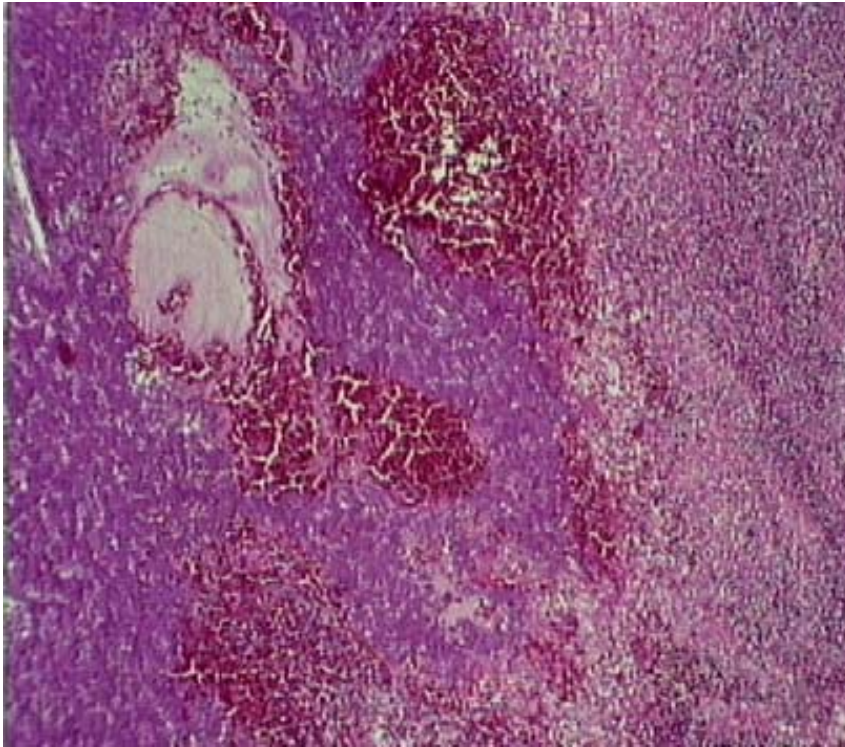
- **Proventriculus: proventriculitis**
- **Liver: hepatitis with necrosis & haemorrhages**
- **Spleen: congestion**
- **Kidney: congestion, nephritis, vasculitis**
- **Ovary: haemorrhages, fibrosis, necrosis**
- **Wattle & feet: oedema, haemorrhages**



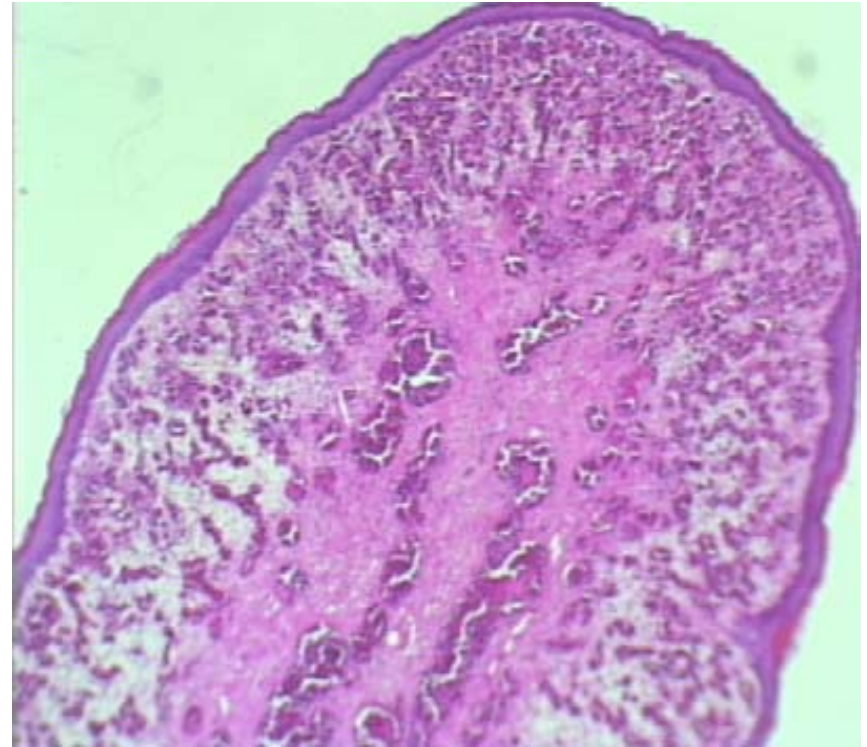
**Brain : vacuolitis,
H&E, x 63**



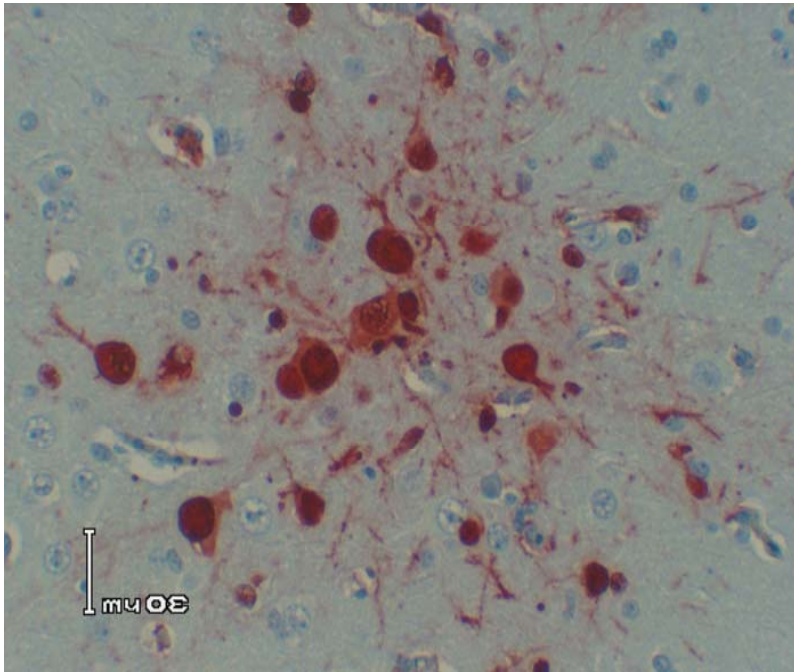
**Kidney : vasculitis,
H&E, x 63**



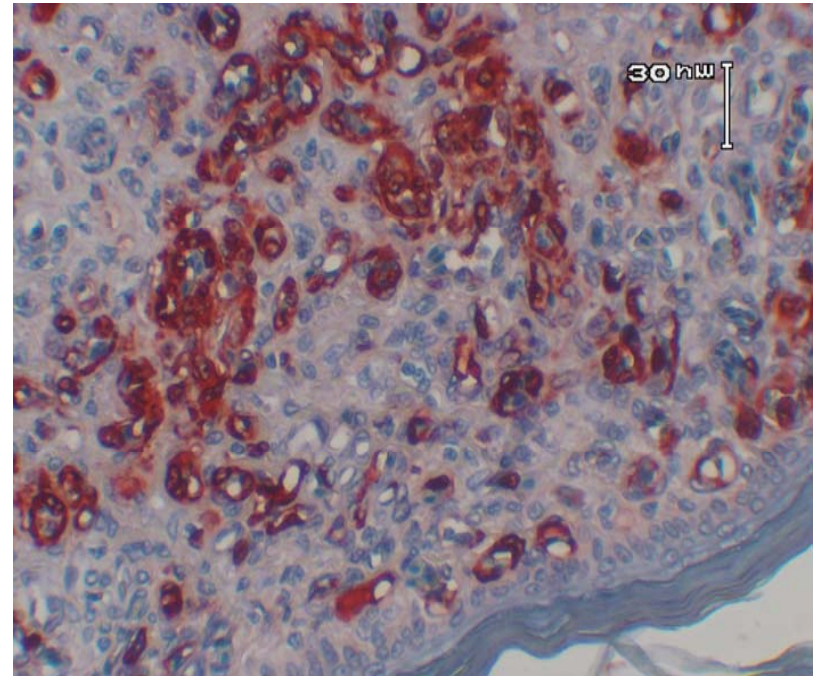
**Liver : hemorrhages & necrosis
H&E, x 63**



Wattle : hemorrhages, H&E, x 25



AI Antigen in Brain



AI Antigen in Wattle



Avian Influenza

**The origin of the H5N1
pandemic of poultry**



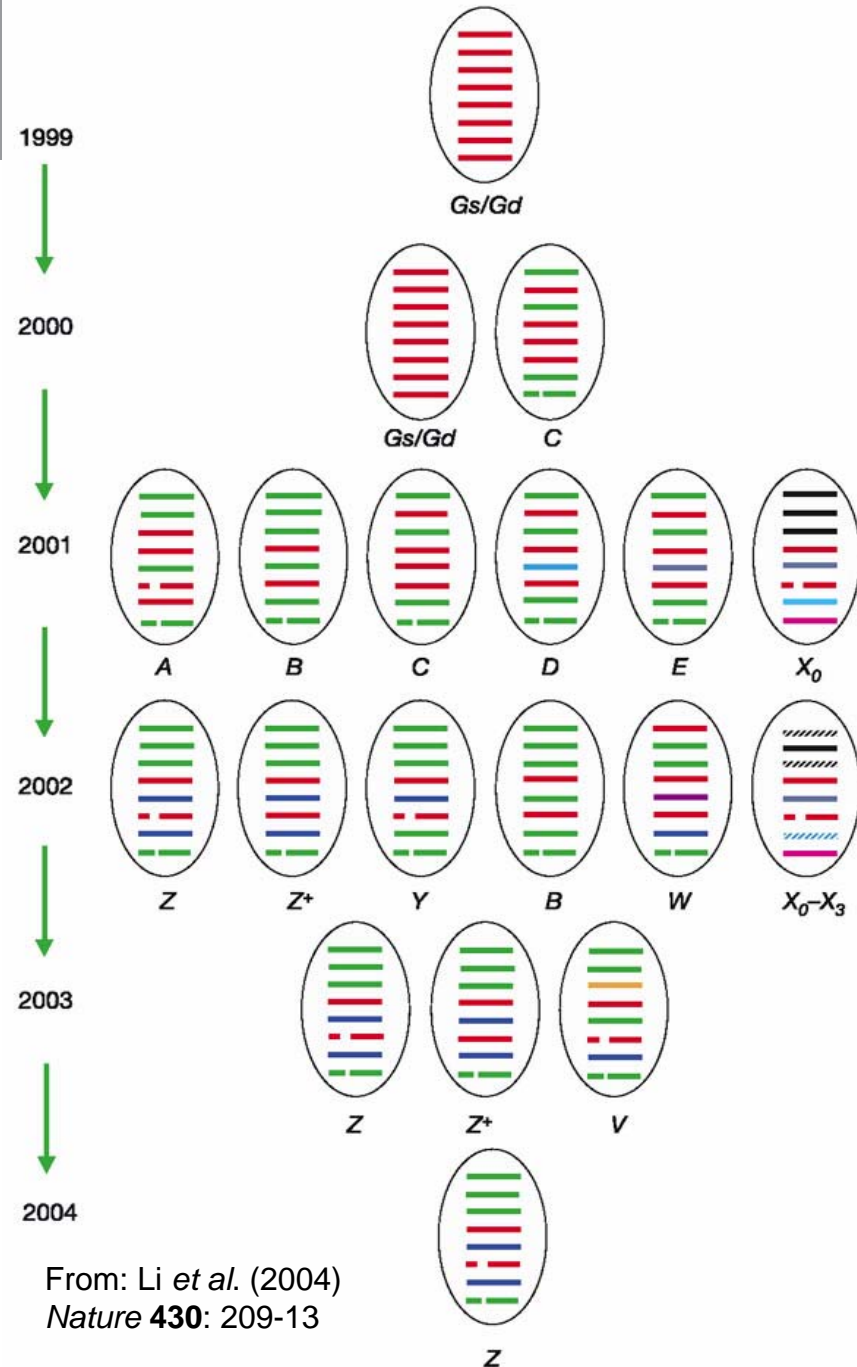
AI virus genetics: Not all H5N1s are the

All viruses have genomes with 8 segments

There are 3 mechanisms for genetic evolution:

1. Point mutations and deletions
2. Intergenic recombination between segments
3. Genetic reassortment during dual infection of a cell

(Hence the evolution of H5N1 viruses as illustrated)



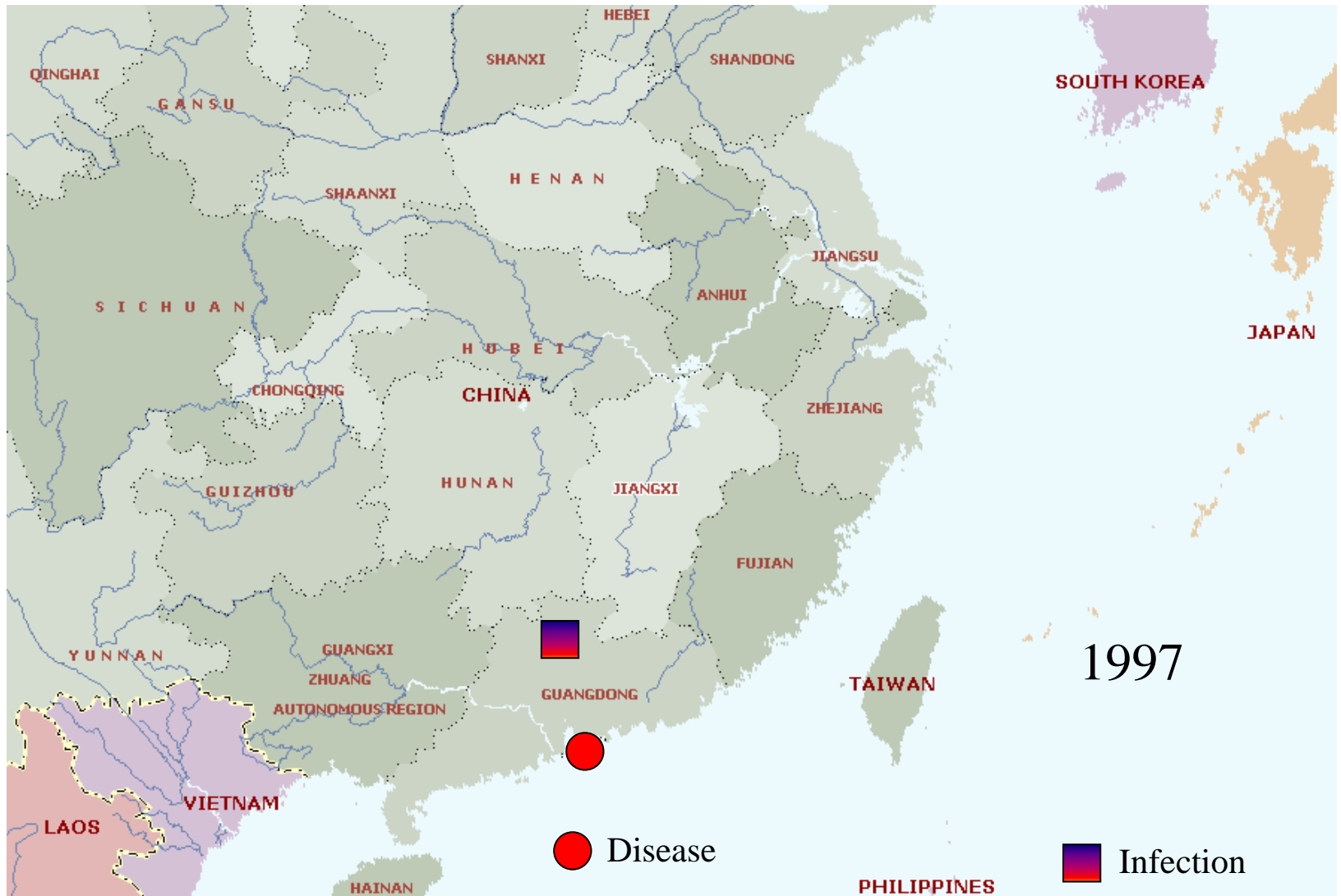
From: Li *et al.* (2004)
Nature **430**: 209-13

H5N1 HPAI in Asia

Les Simms



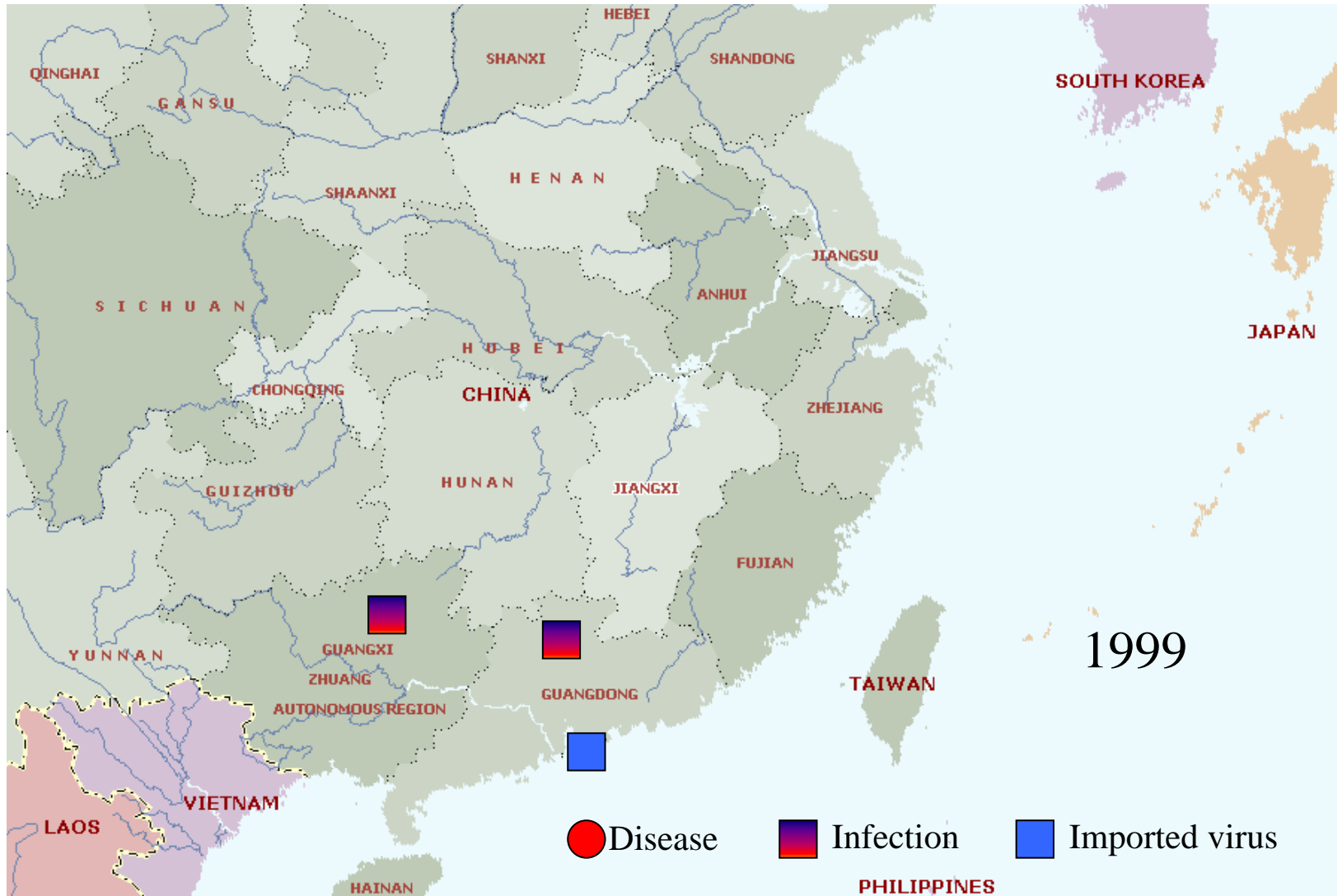
H5N1 HPAI in Asia



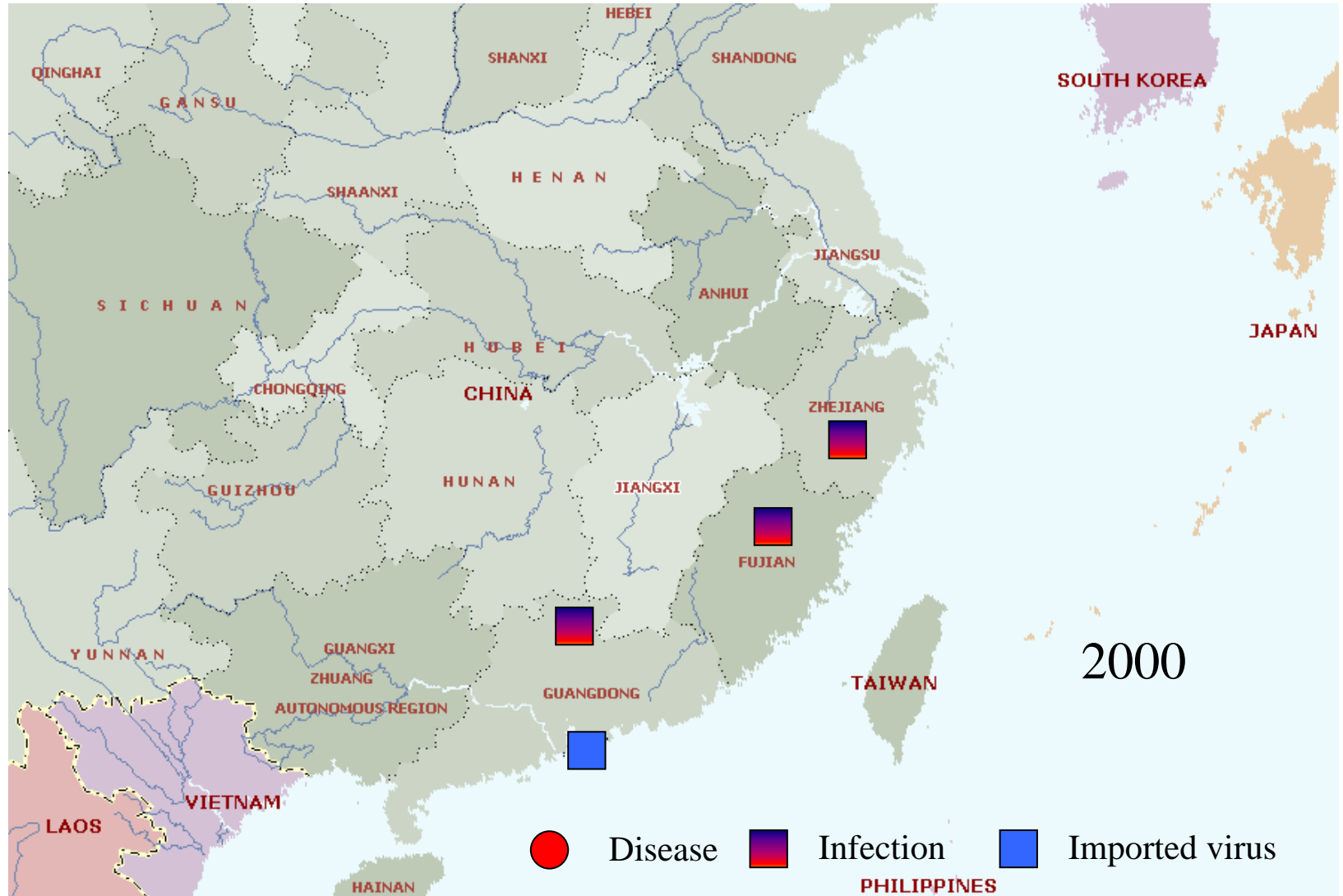
H5N1 HPAI in Asia



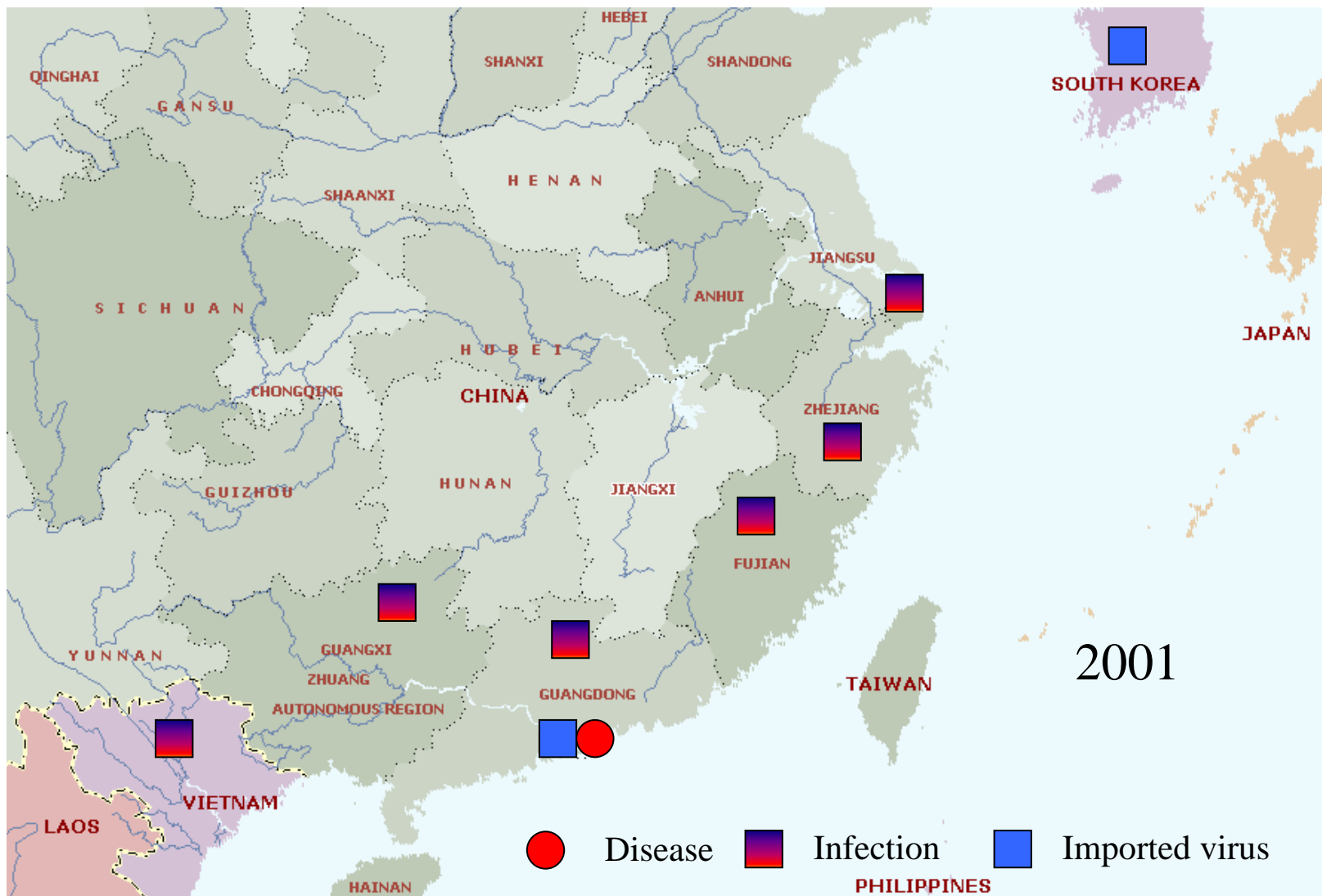
H5N1 HPAI in Asia



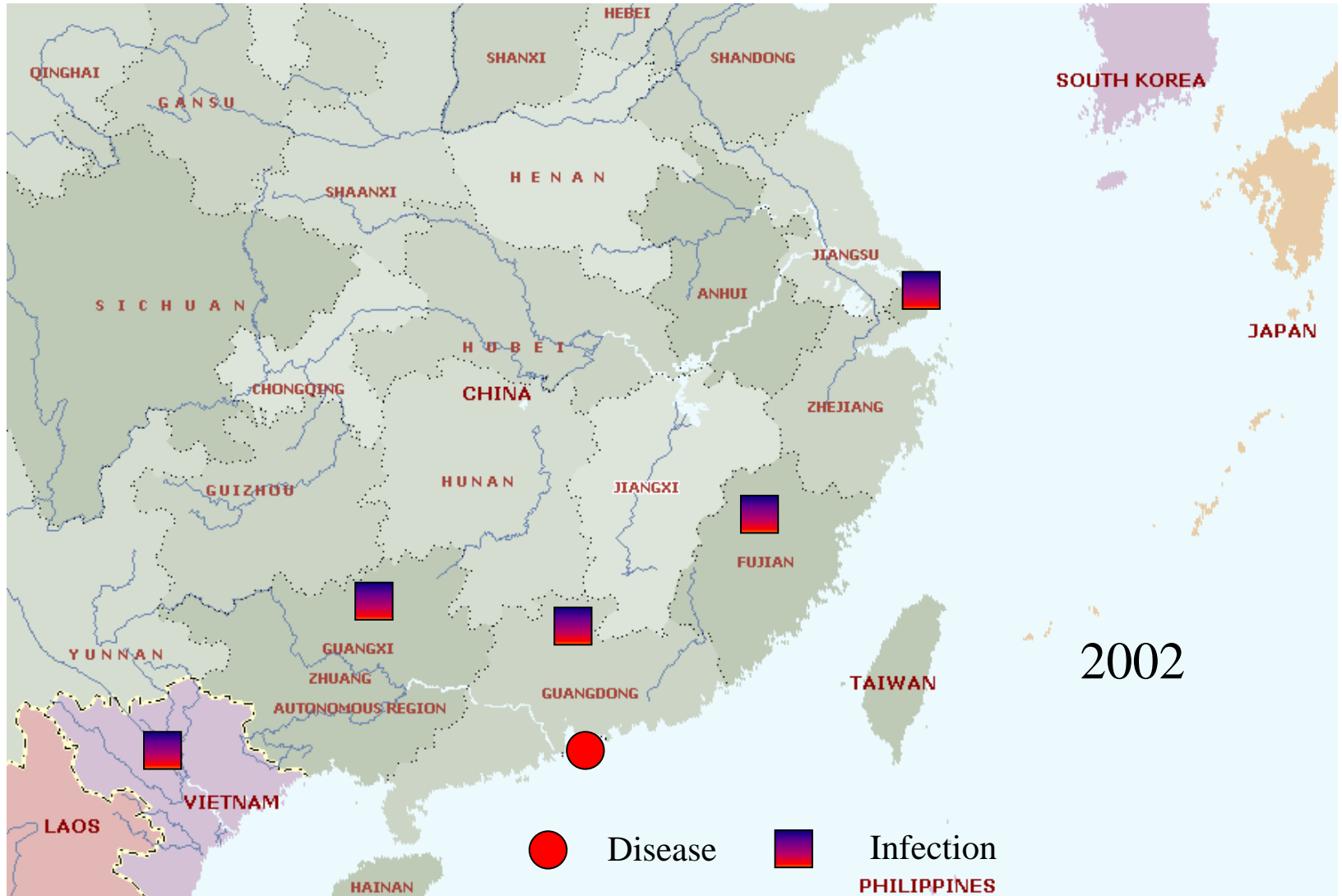
H5N1 HPAI in Asia



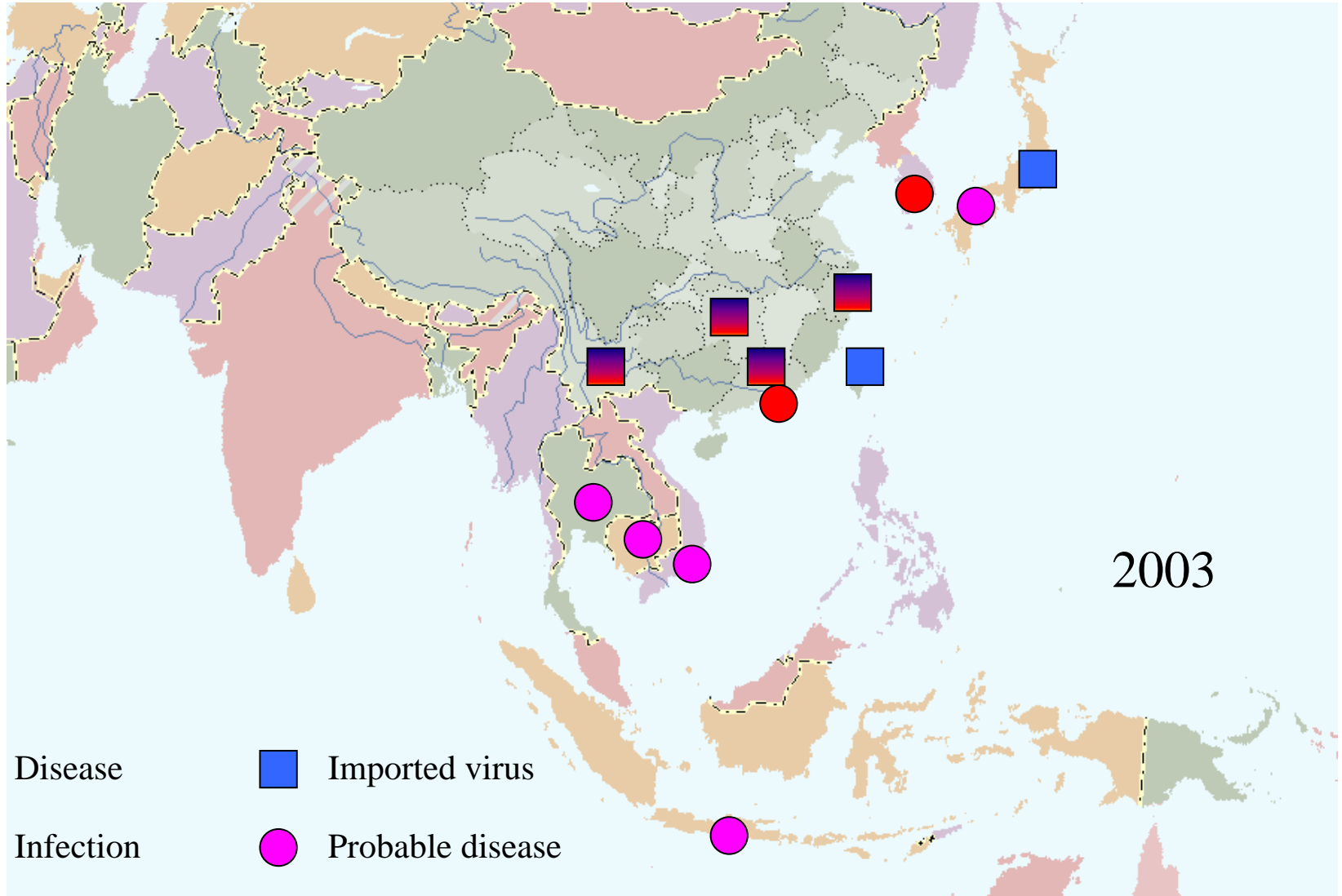
H5N1 HPAI in Asia



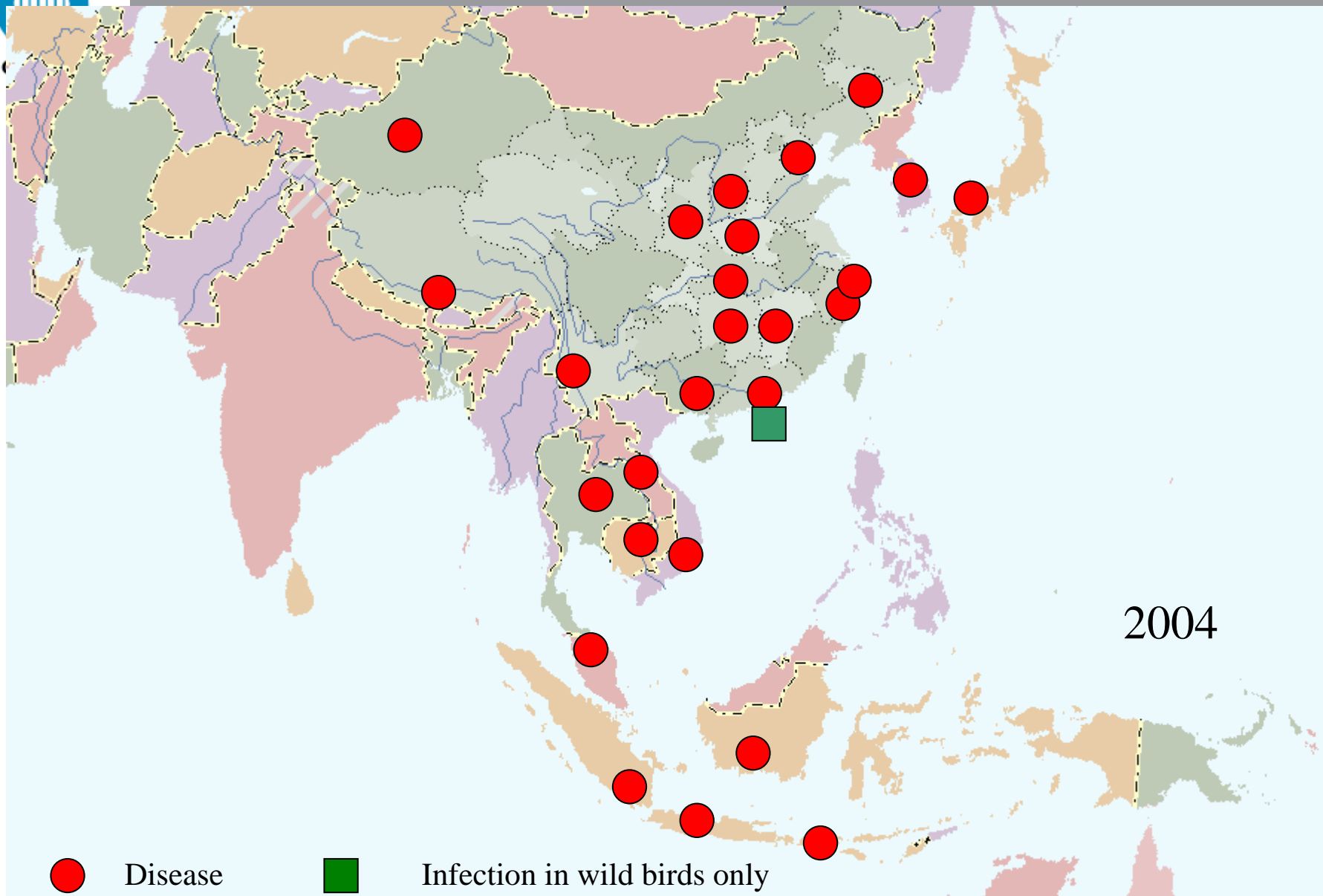
H5N1 HPAI in Asia



H5N1 HPAI in Asia

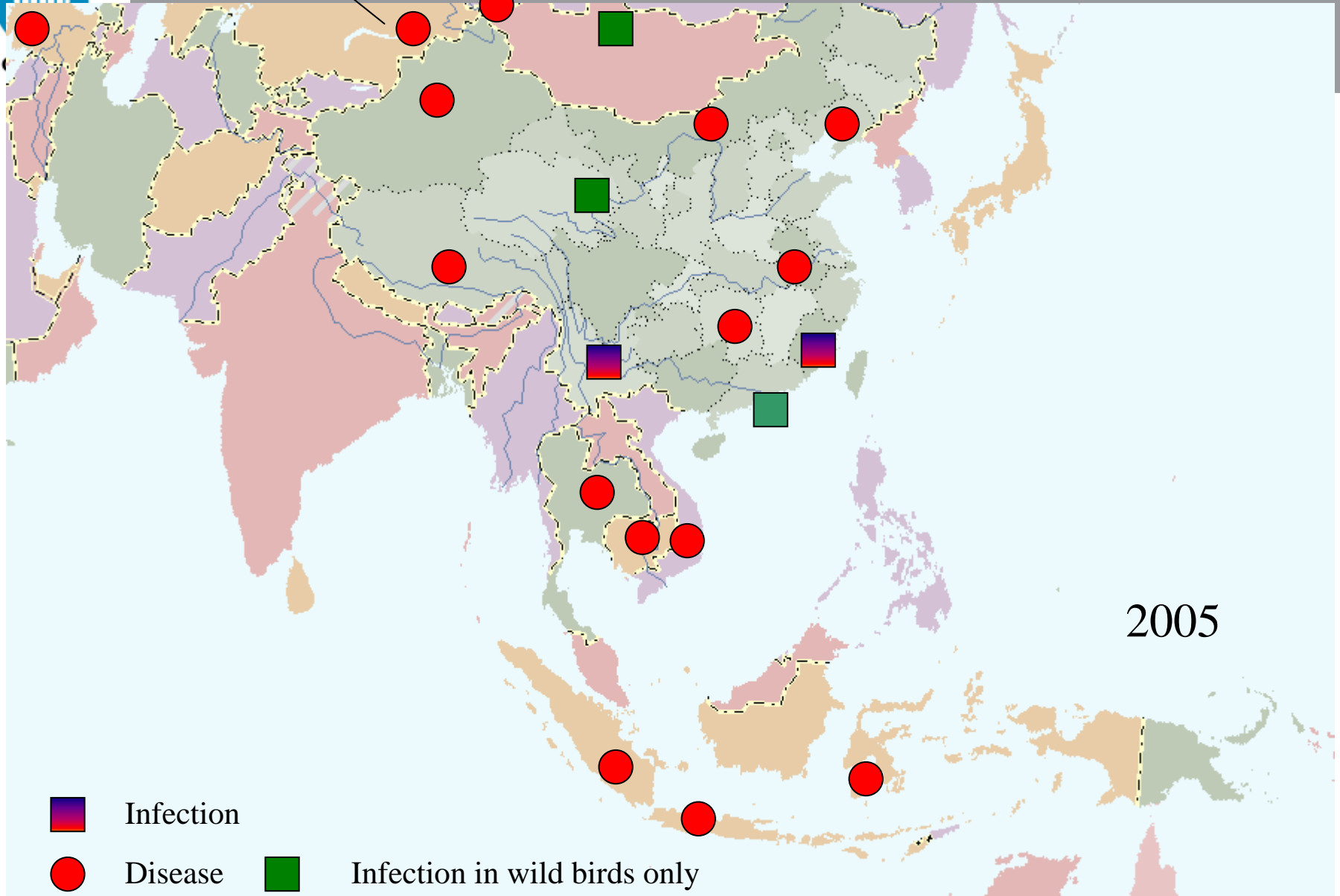


H5N1 HPAI in Asia





H5N1 HPAI in Asia



2005

-  Infection
-  Disease
-  Infection in wild birds only

→ Spread to Russia and Europe