

# **Bulgaria's activities on vector borne diseases (historical review)**

**Prof. Georgi Georgiev**

**RISK ASSESSMENT CENTER ON FOOD CHAIN**

# THE BULGARIAN EXPERIENCE ON VBD

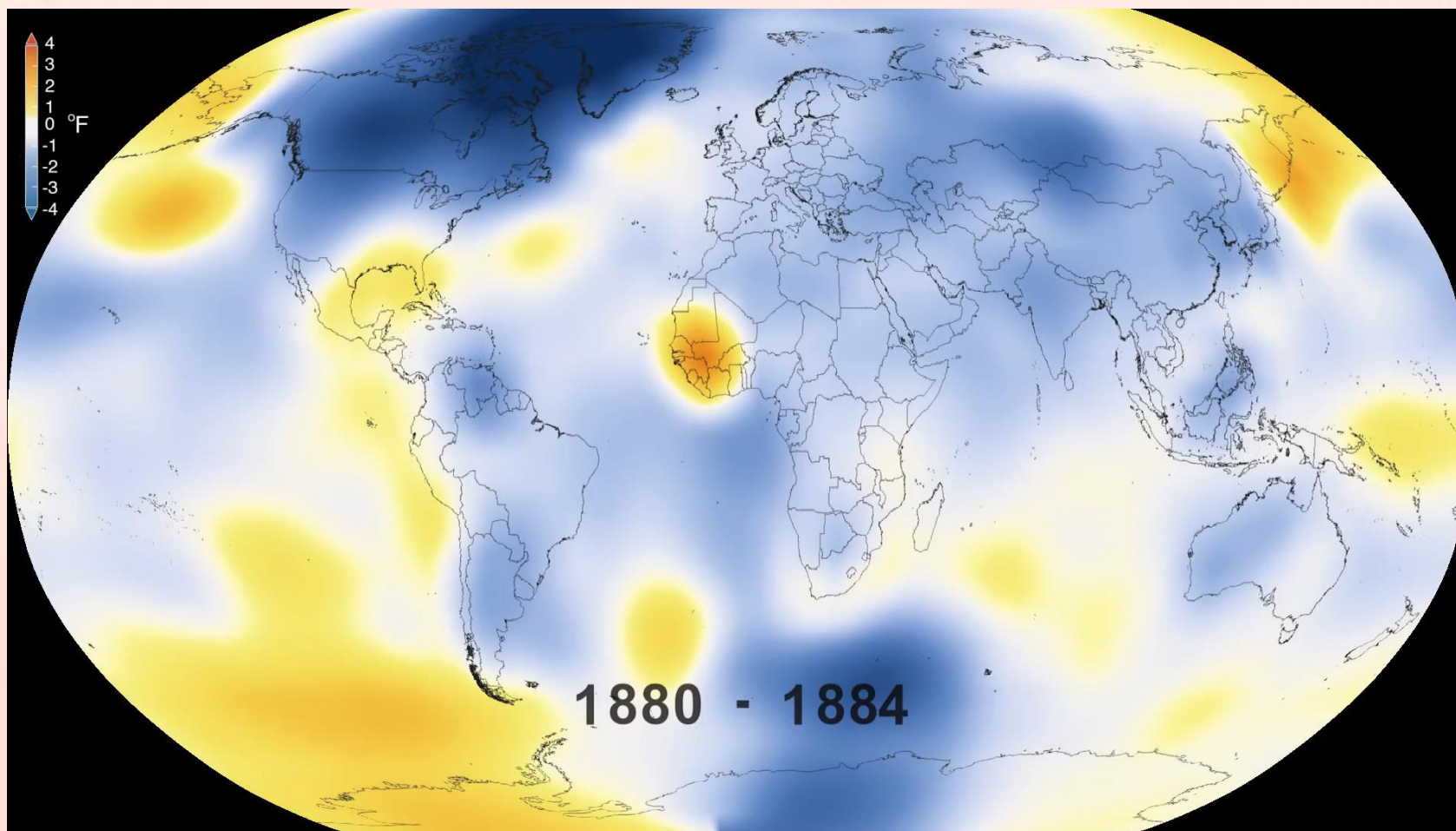


**Ministry of Agriculture and Food / Risk Assessment Center on the  
Food Chain**

**Prof. Dr. G. Georgiev**



# The Global Warming Trend





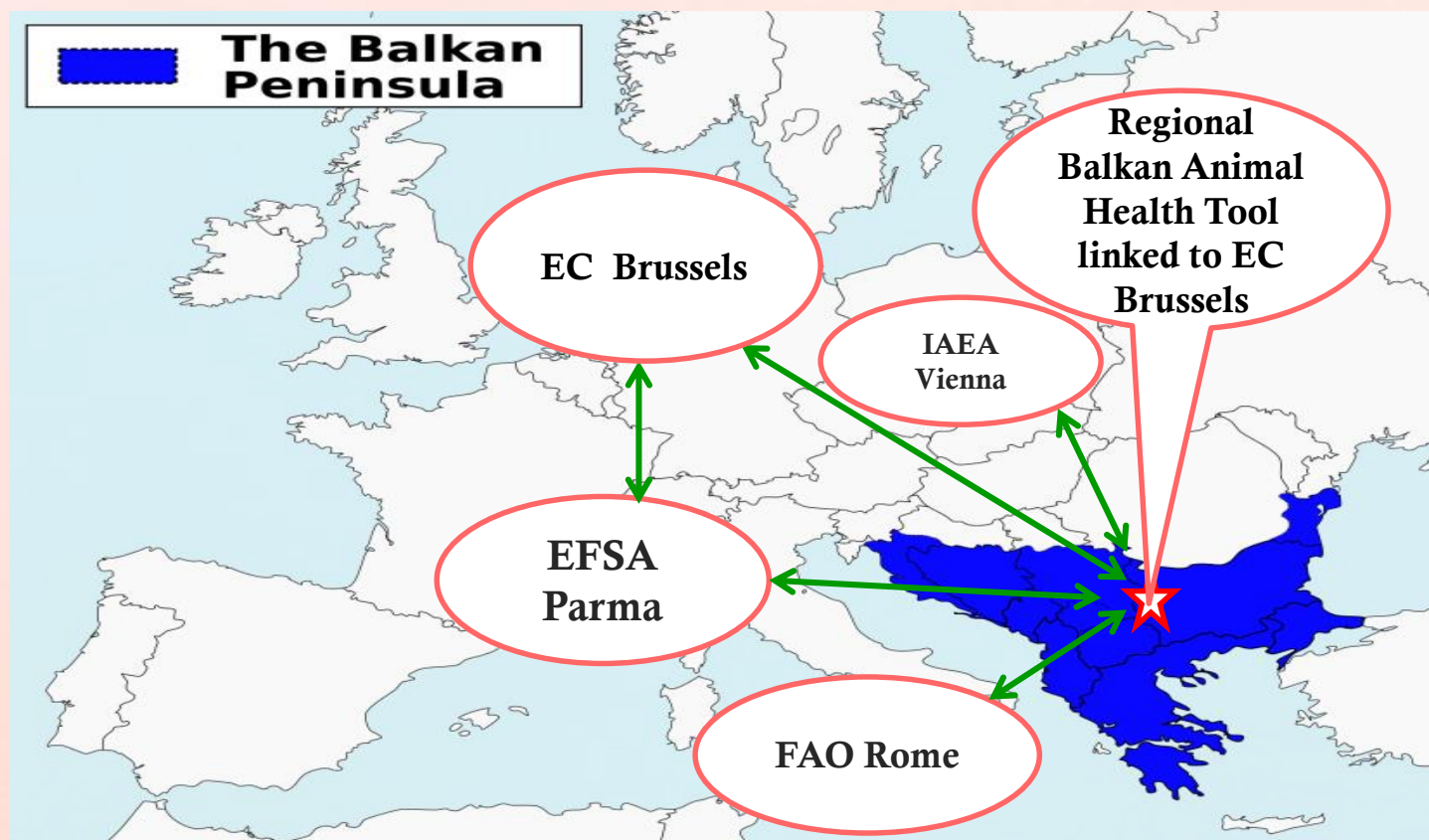
# Failure of classical “stamping out” policy

The latest epidemics of VBD showed that the classical veterinary measures such as: “stamping out”, animals movement restriction and disinfections were not effective.

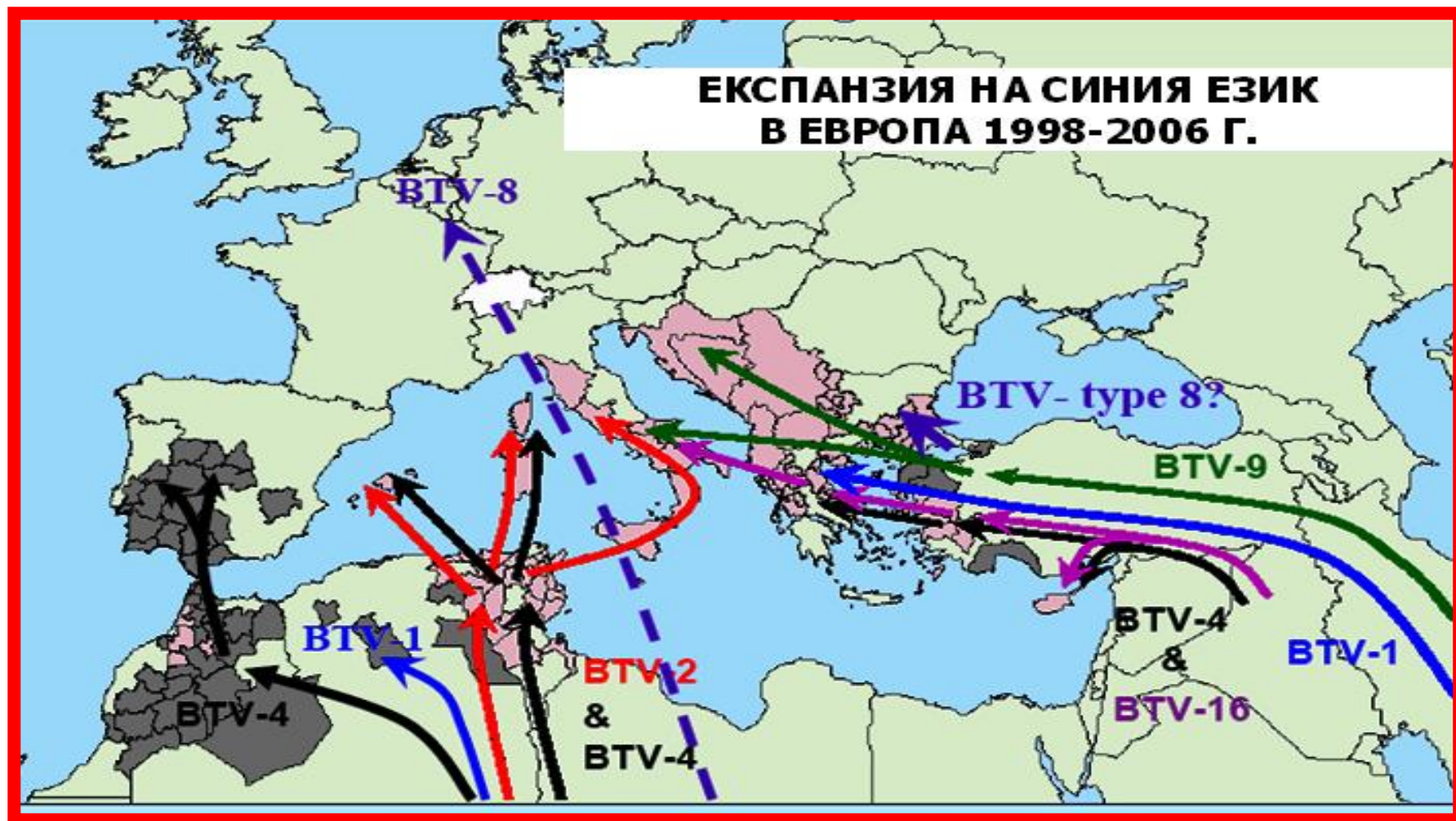


# Regional Enforcement Structures Involved

Regional cooperation and coordination is needed.



# Main Pathways of BTV Incursions in Europe



# Index Cases of BTV-9 Epizooty 1998-9 on the Balkans

о-в Самос

о-в Лерос

о-в Кос

о-в Хиос

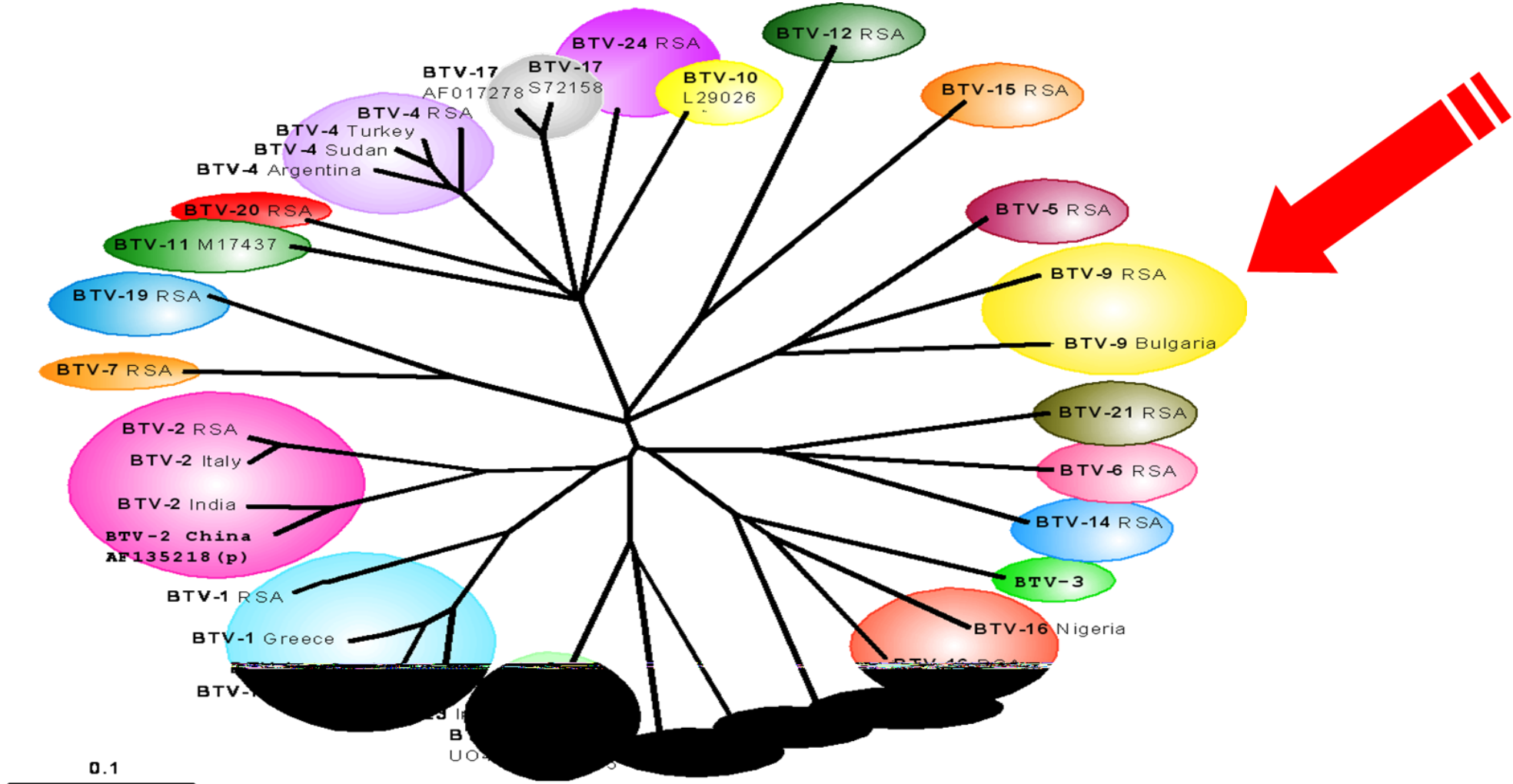
о-в Родос



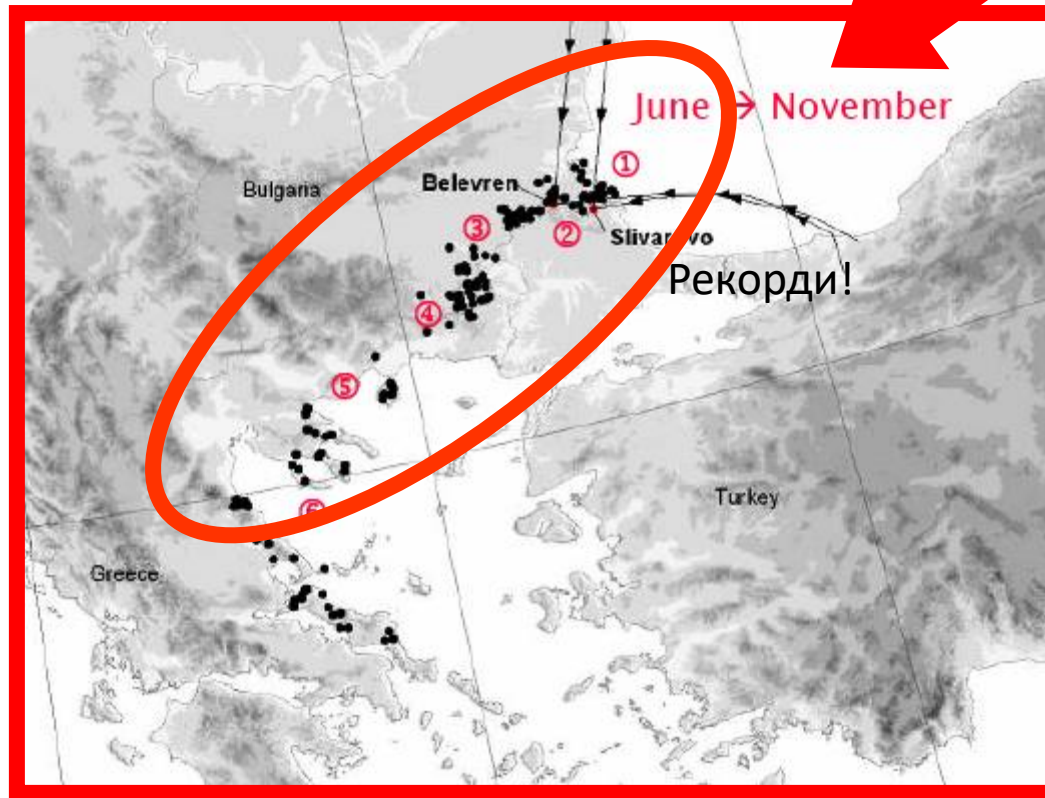
# Trajectories 1998 BTV-9 wind patterns from Middle East to Islands Rhodes and Lesvos passively transmitted infected midges



# The World of classical BTV strains



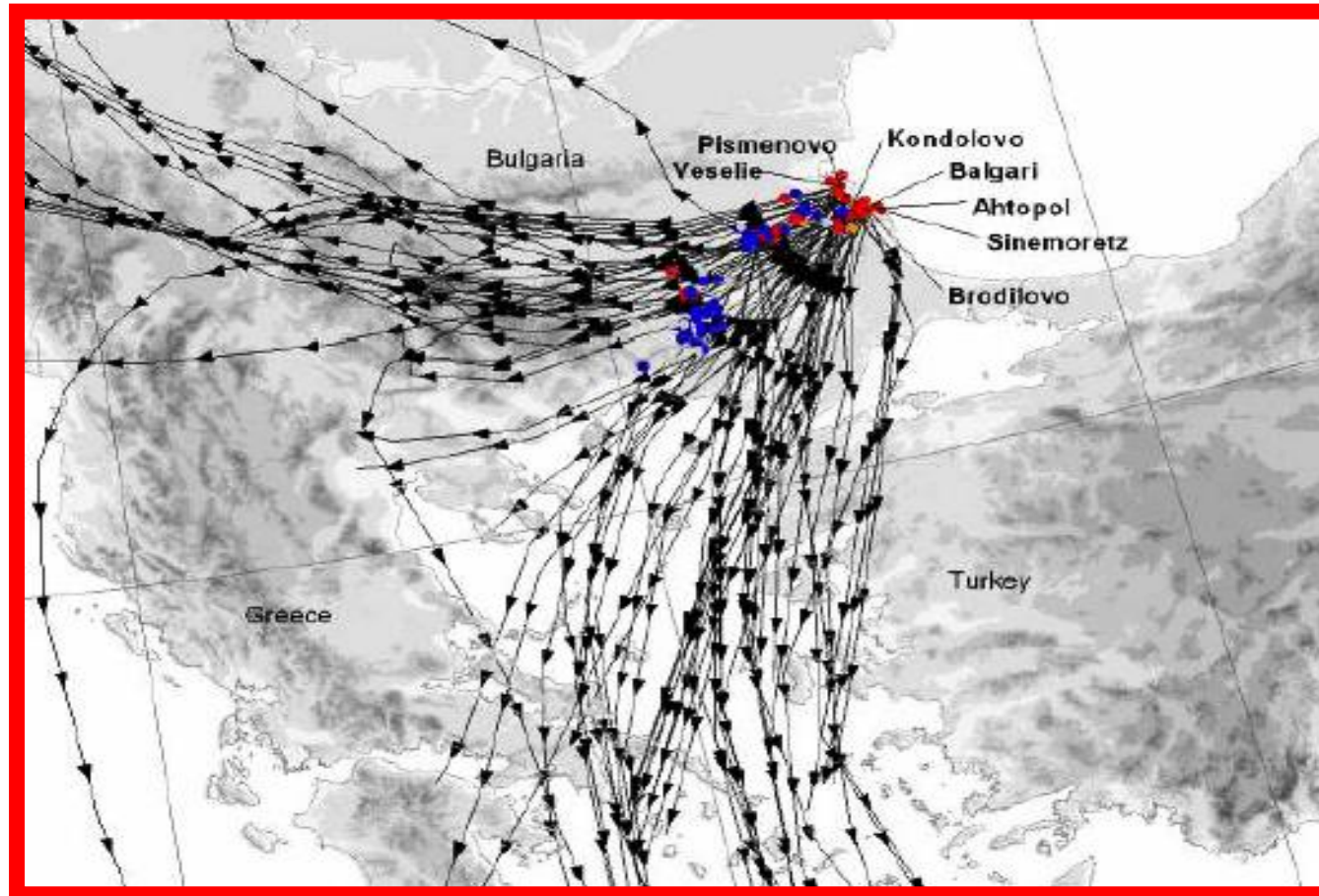
# Trajectories of wind patterns from East Black Sea Coast to the West 1999 - June



c. Rezovo – N 42°0' 0"

Sozopol – N 42° 25' 16"

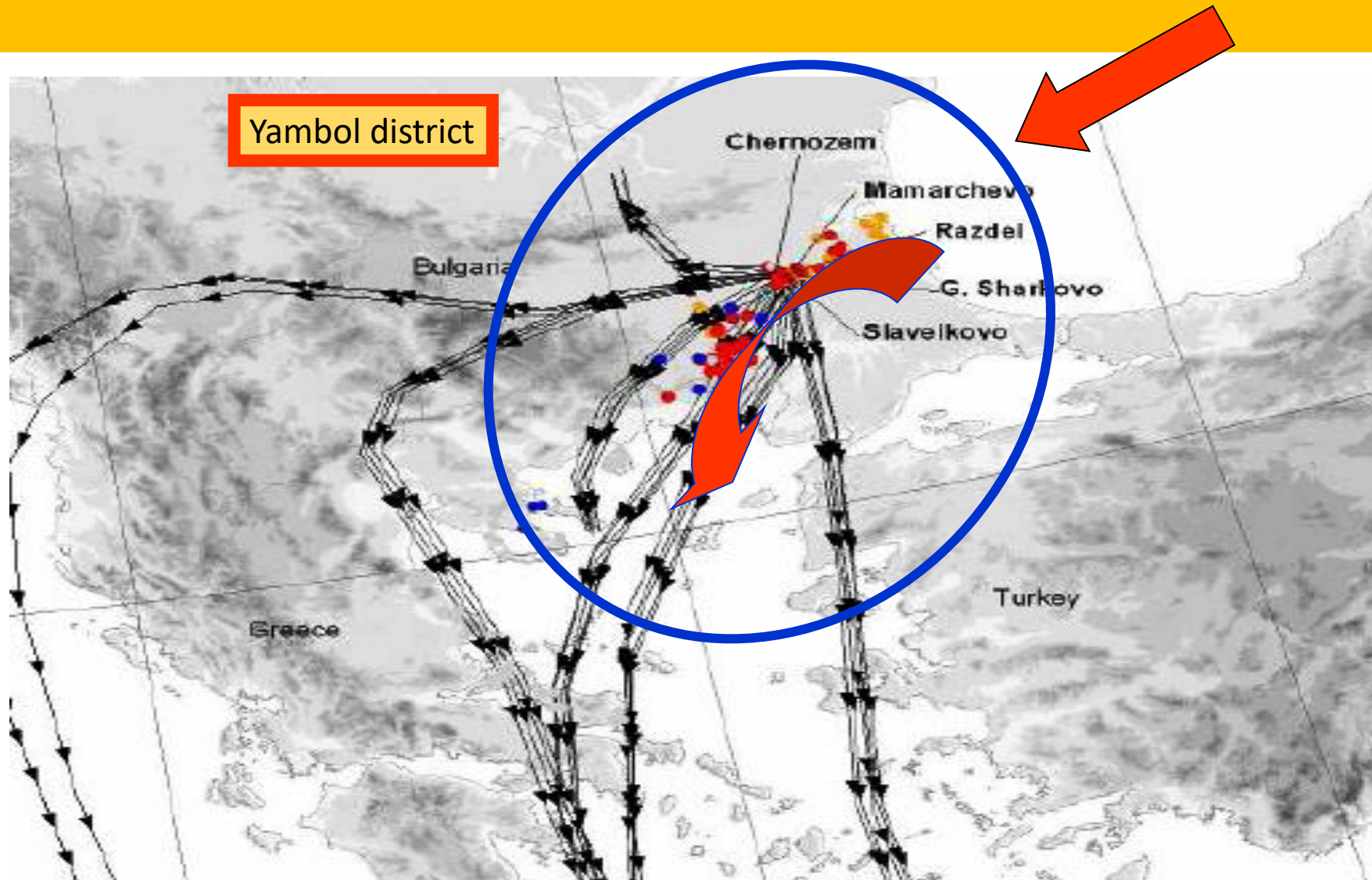
# Trajectories of wind patterns from East Black Sea Coast to the West 1999 – June – July and dispersing BTV-9 to Edirne (TR) and Evros (GR)



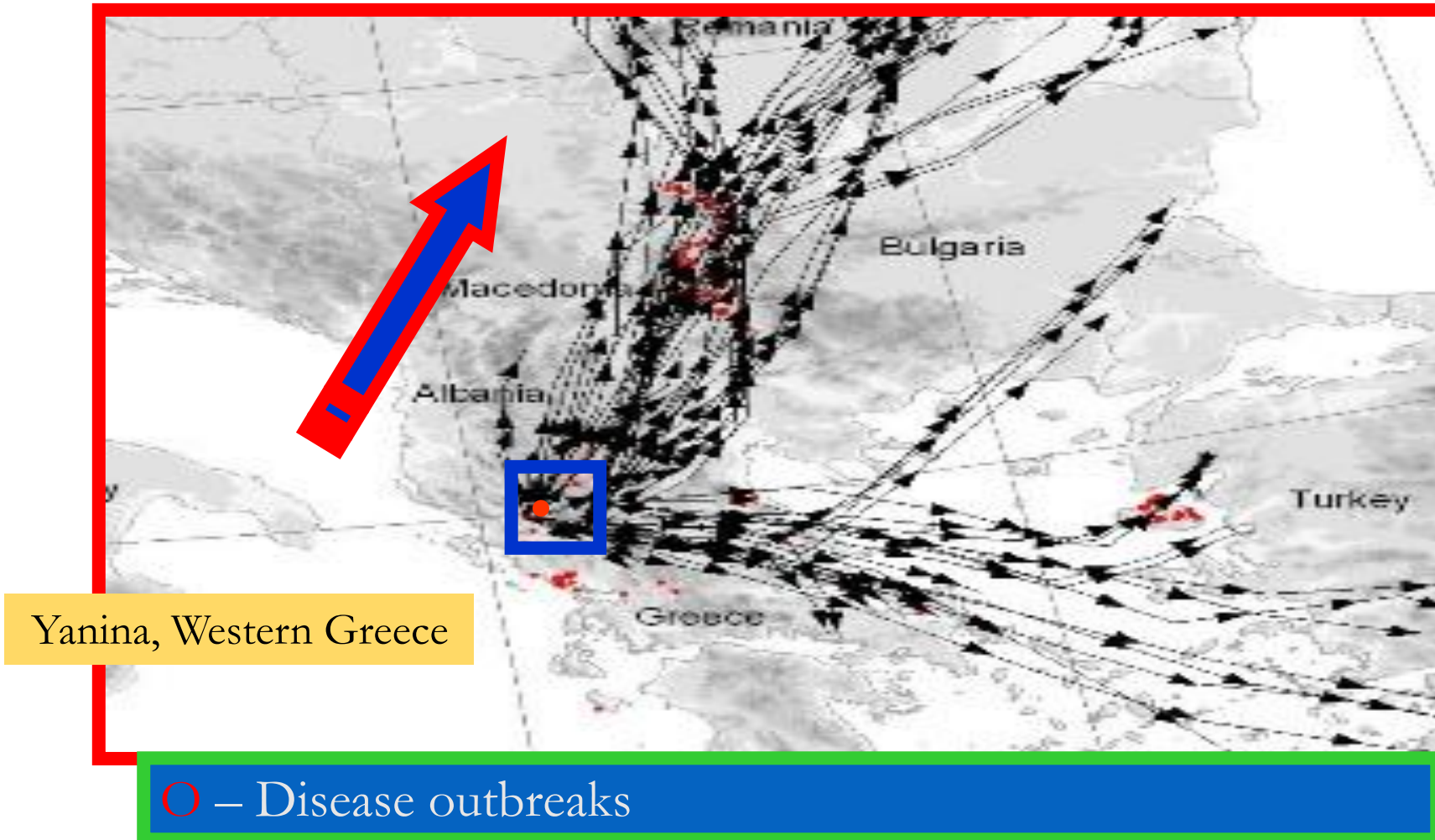
# First Epizooty of BTV-9 in Bulgaria - 1999



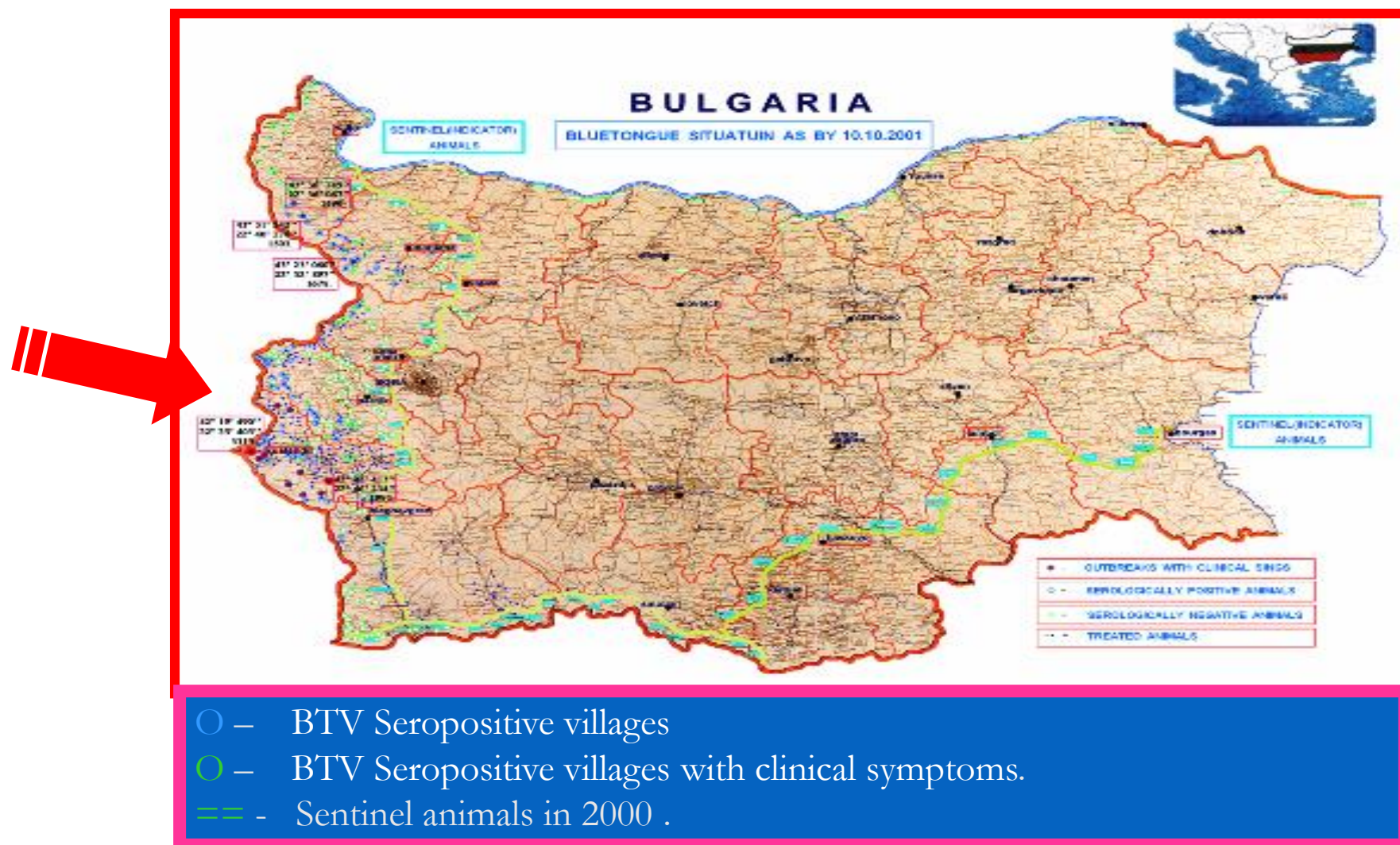
# Outbreaks of BTV-9 registered by the period 27.07. – 30.09. 1999



# Trajectories of wind patterns from West Balkans 2001 – July – September and dispersing BTV-9 to Bulgaria



# BTV-9 Outbreaks in West Bulgaria September - October 2001

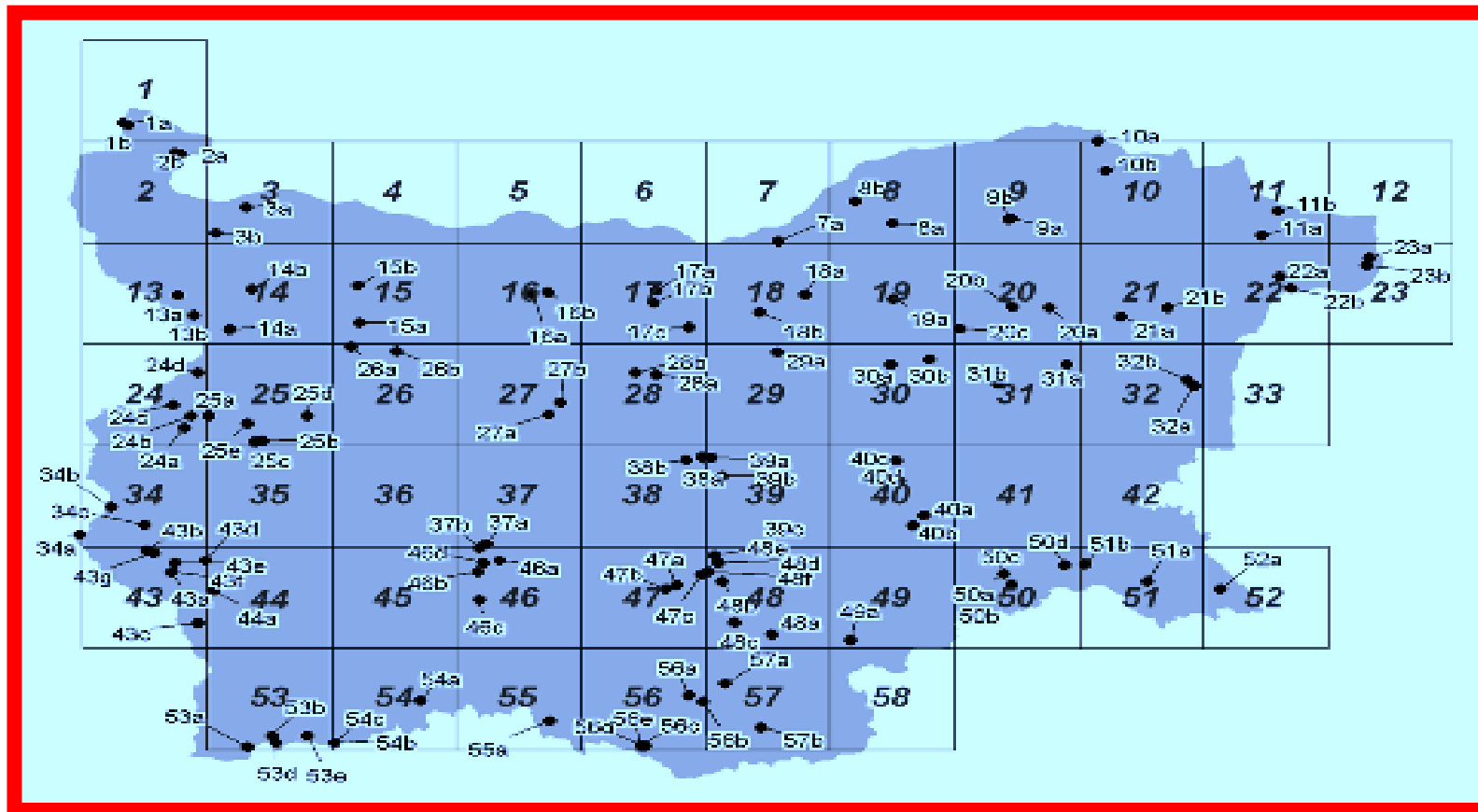


# Affected Districts with BTV-9 in Bulgaria 2001



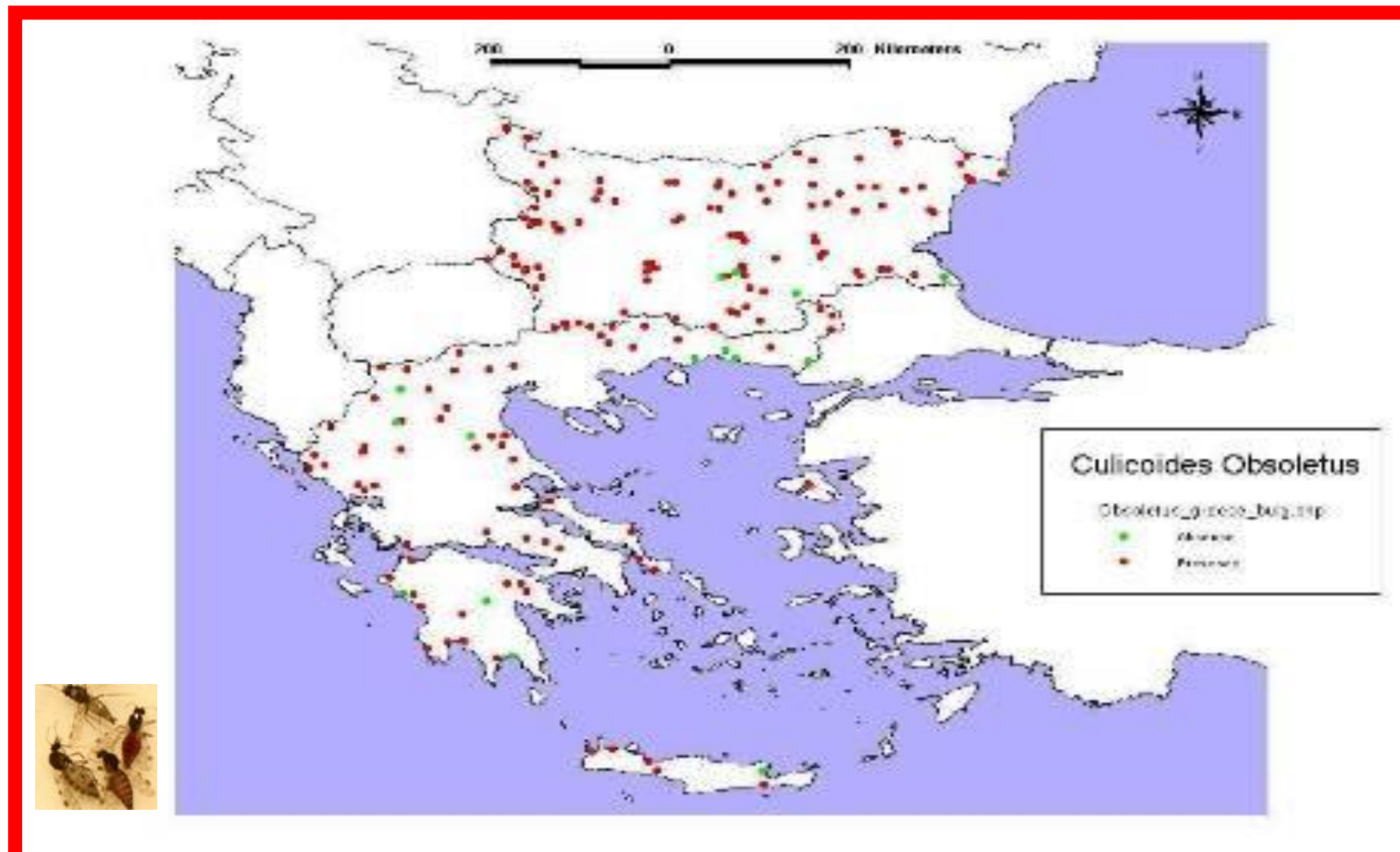
# Vector Surveillance - 2000-2003

*Culicoides* Surveillance Grid 50X50km (2000-2003)



# Vector Surveillance Results 1999-2004 –Bulgaria and Greece

*C.obsoletus* Mengen complex



# Vector Surveillance Results 1999-2004 –Bulgaria and Greece

*C.pulicaris* Linacus complex

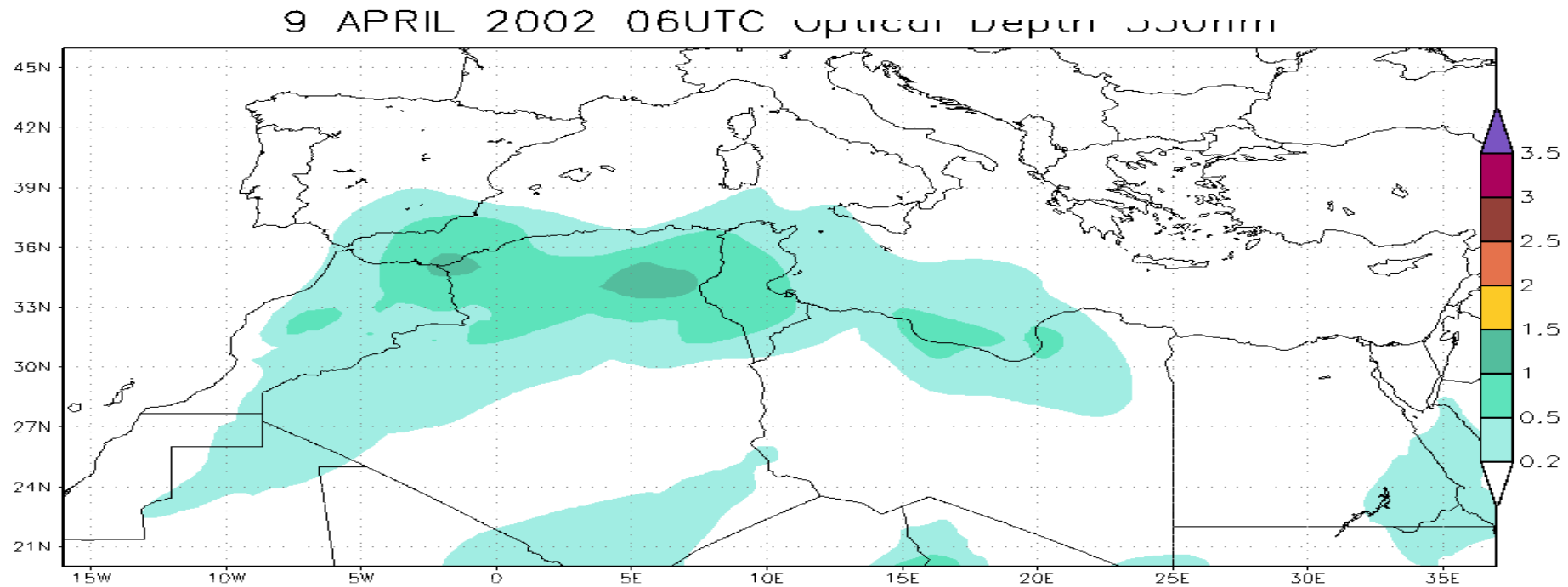


# Vector Surveillance Results 1999-2004 –Bulgaria and Greece

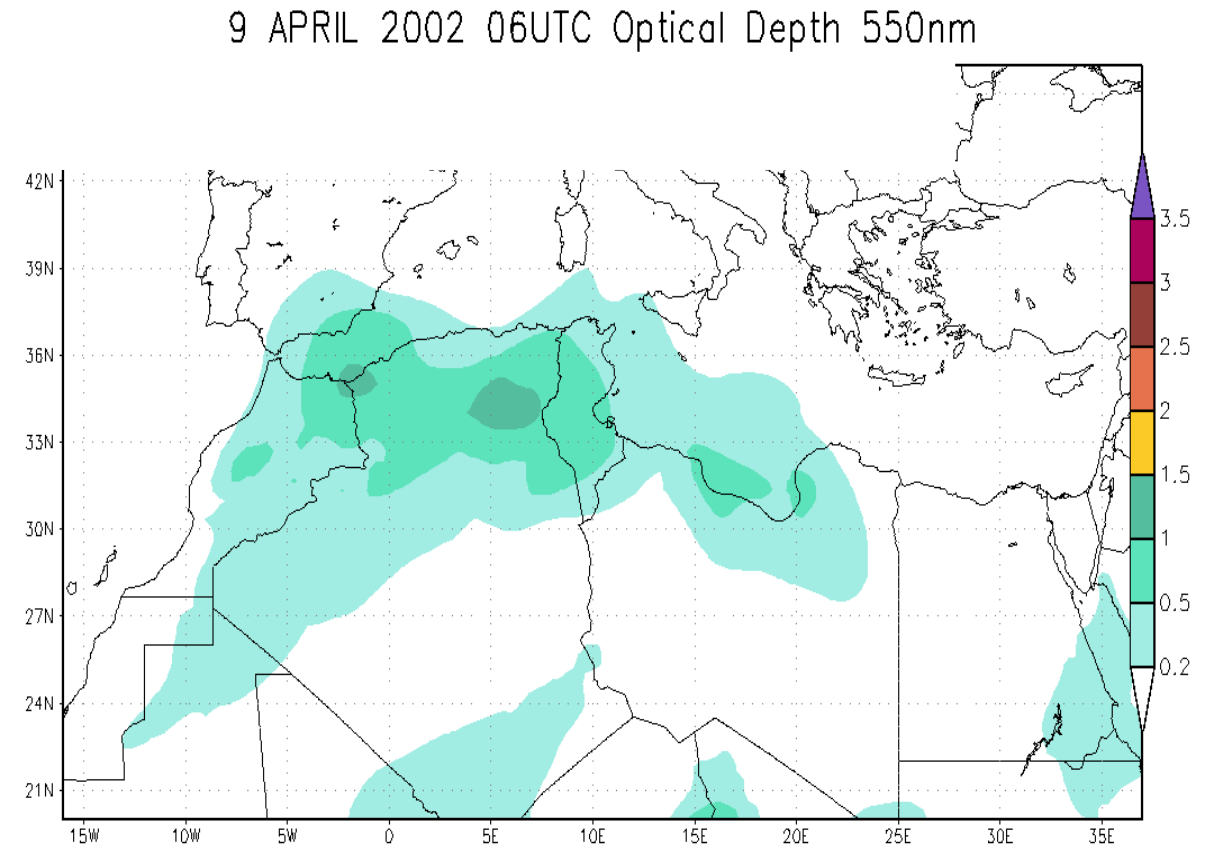
*C.imicola* Keifer complex



# Estimation of Wind Patterns Temporal and Spatial Analysis



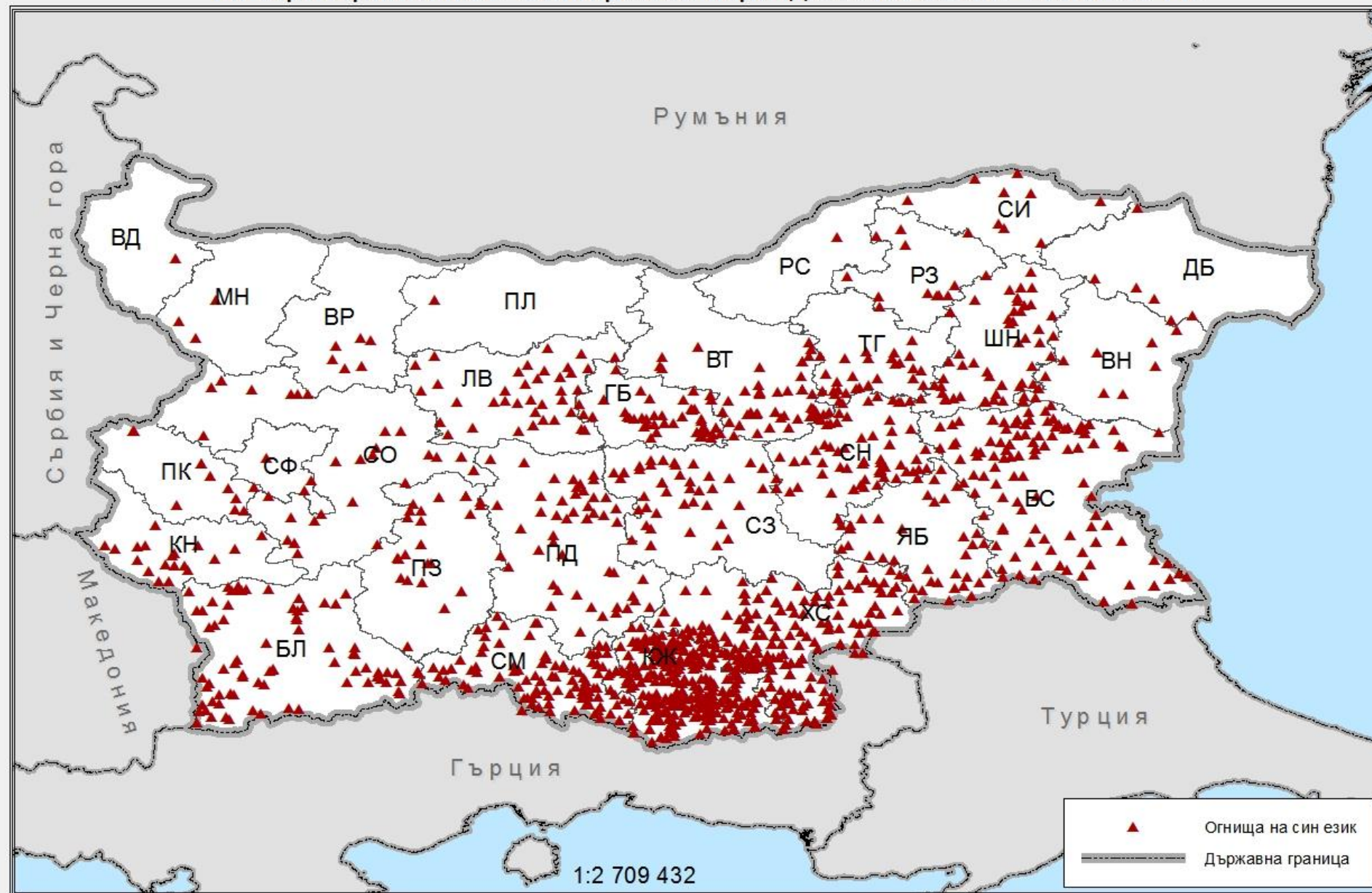
- **Temporal and Spatial análisis of dust introduction into Europe\*:**
  - **When and where:**
    - Time series analysis
    - ArcGIS
- **There correlation between the outbreak occurrence in North Africa, dust introduction and outbreak occurrence in Central Mediterránea and Greec Islands of Europe.**



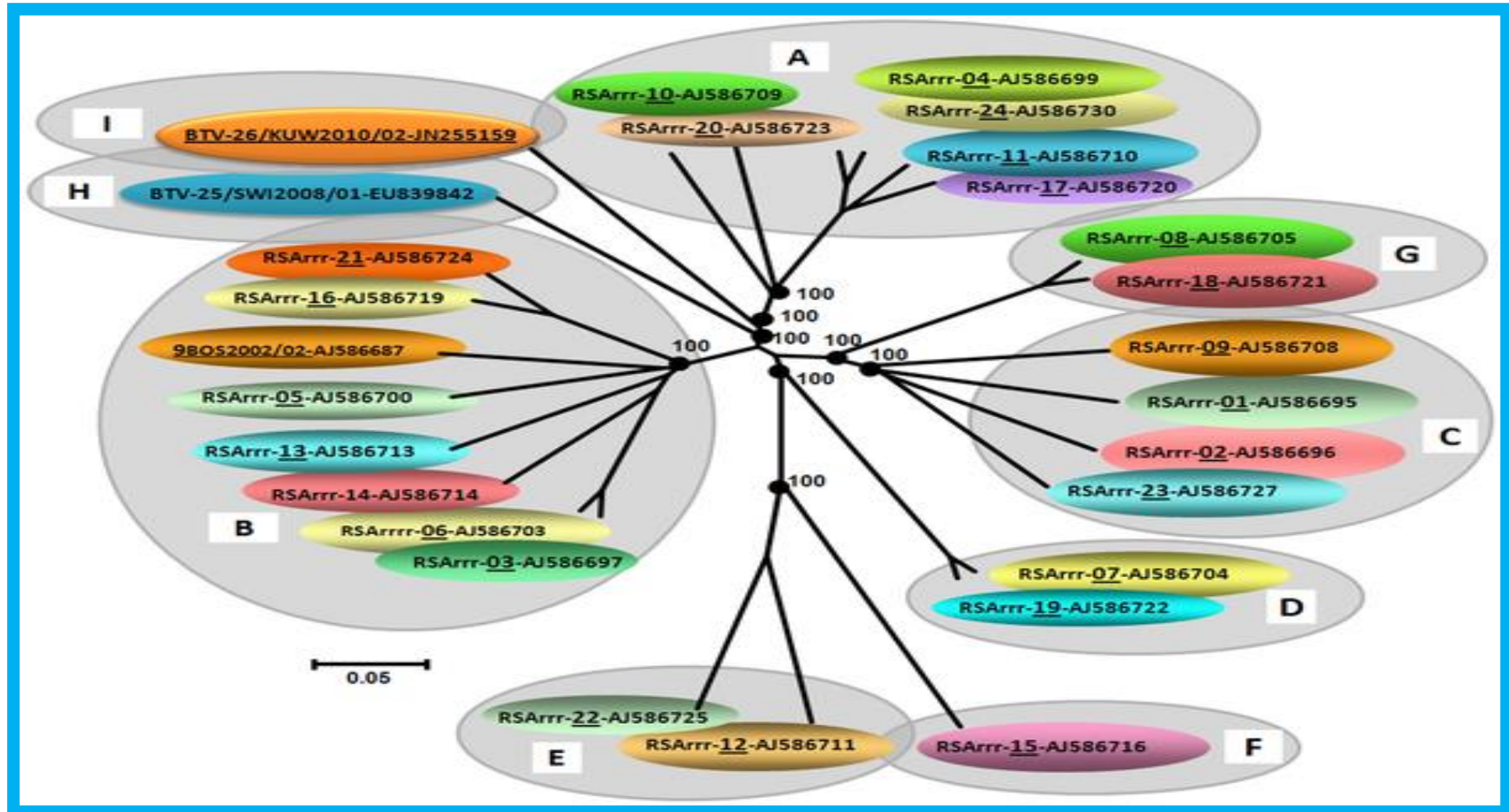
# **Bluetongue in Central Mediterranean and Balkan Regions of Europe 30.09.2014г.**



Разпространение на болестта син език по преживните животни,  
на територията на Р. България за периода 30.06.2014г. - 30.09.2014г.



# Today we have 27 BTV serotypes – Torrenburd, Kuwait and Corsica after 2006



# Reoccurrence of BTV in Bulgaria after 16-th year pause

Разпространение на болестта син език по преживните животни на 11.07.2014г.



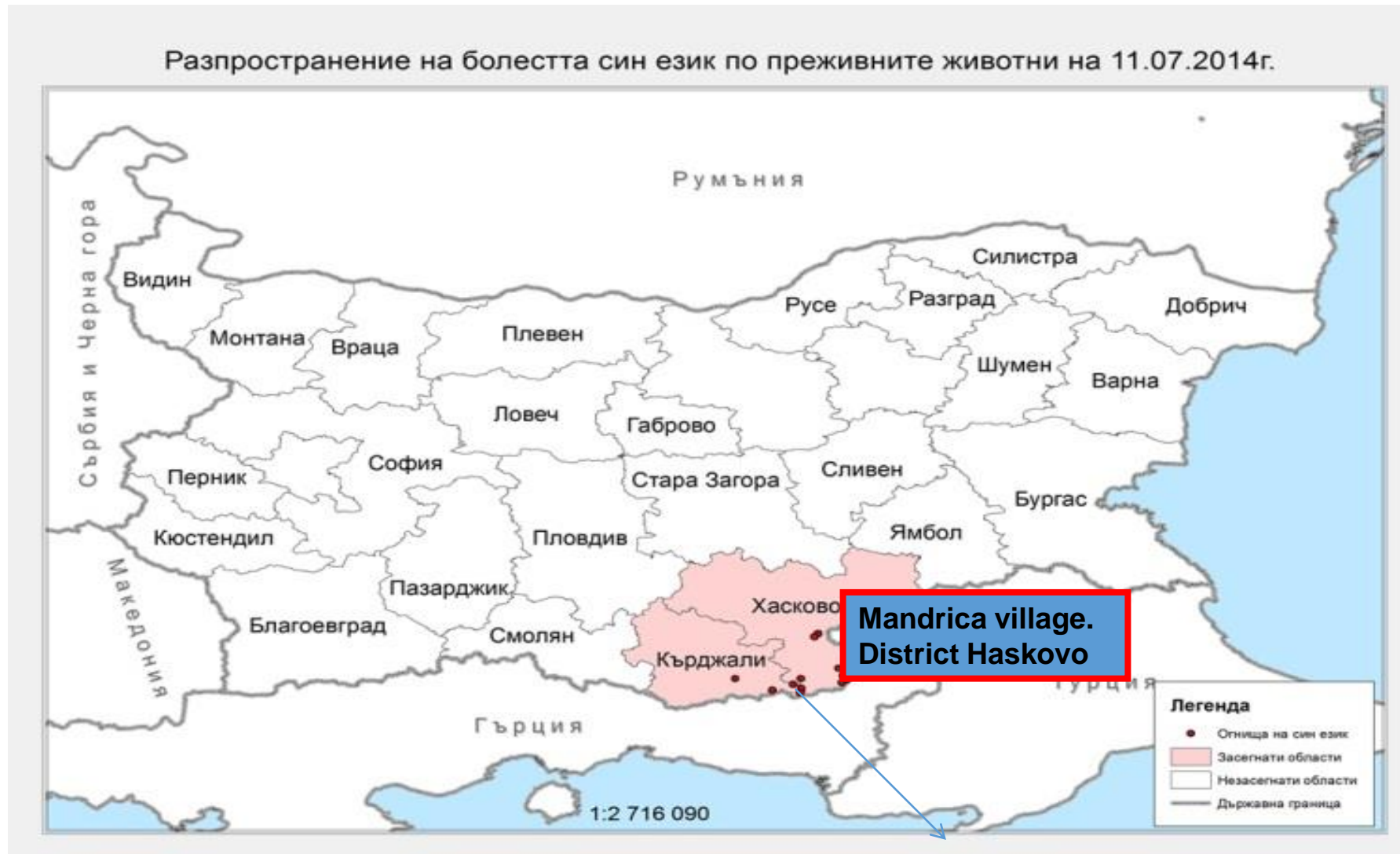
# Clinical symptoms in sheep



# Clinical symptoms in cattle



# Index Case of BTV-4 11 July 2014



Разпространение на болестта син език по преживните животни към 15.07.2014г.



Разпространение на болестта син език по преживните животни към 17.07.2014г.



Разпространение на болестта син език по преживните животни към 18.07.2014г.





Разпространение на болестта син език по преживните животни към 29.07.2014г.



Разпространение на болестта син език по преживните животни към 30.07.2014г.

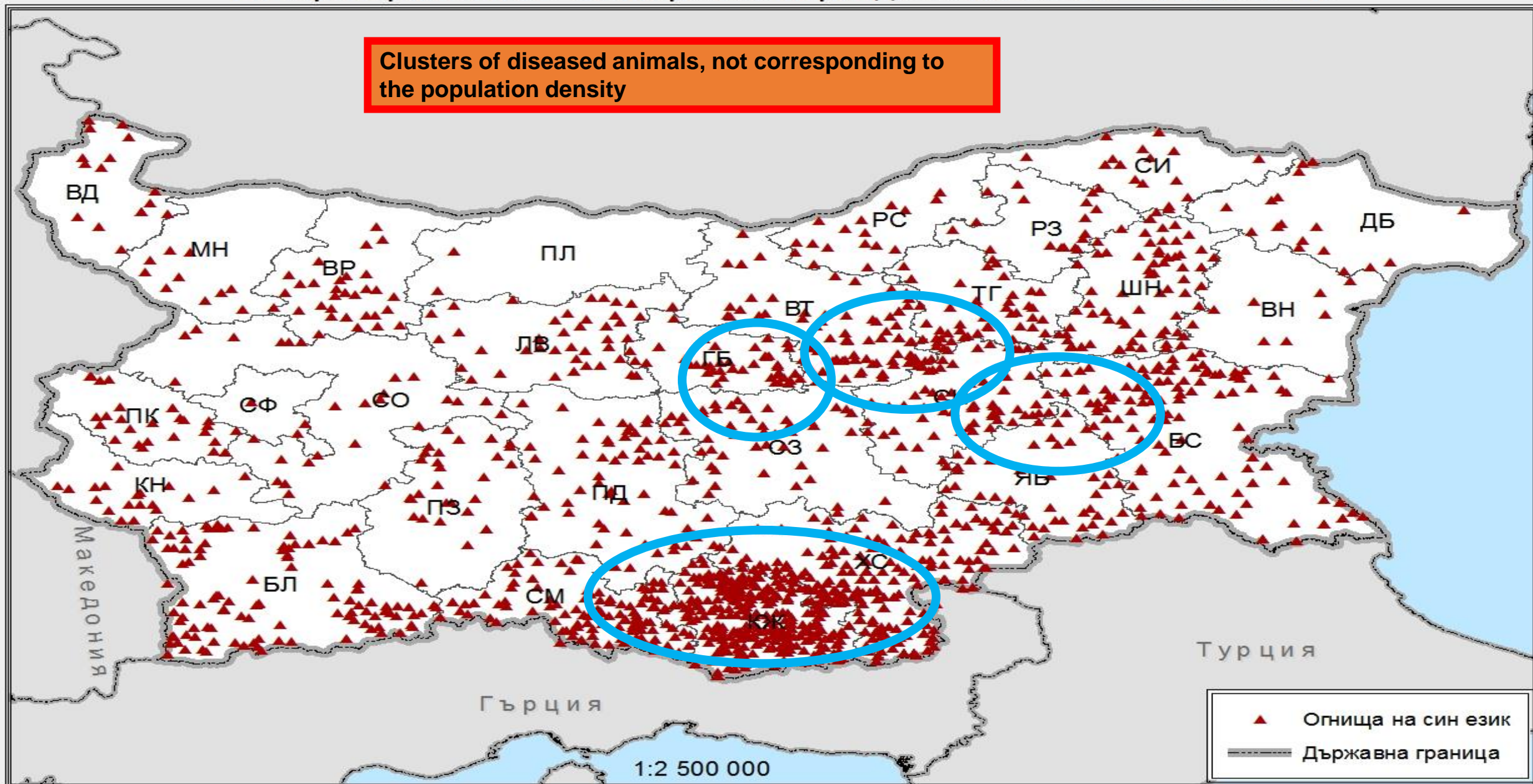


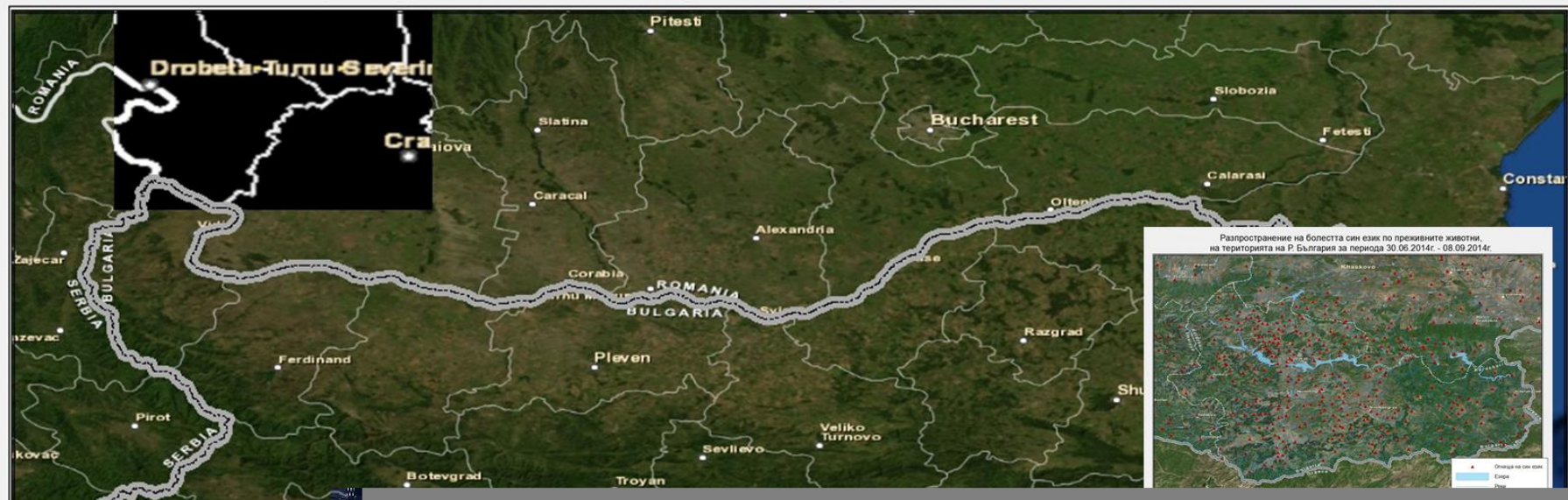
Разпространение на болестта син език по преживните животни към 31.07.2014г.



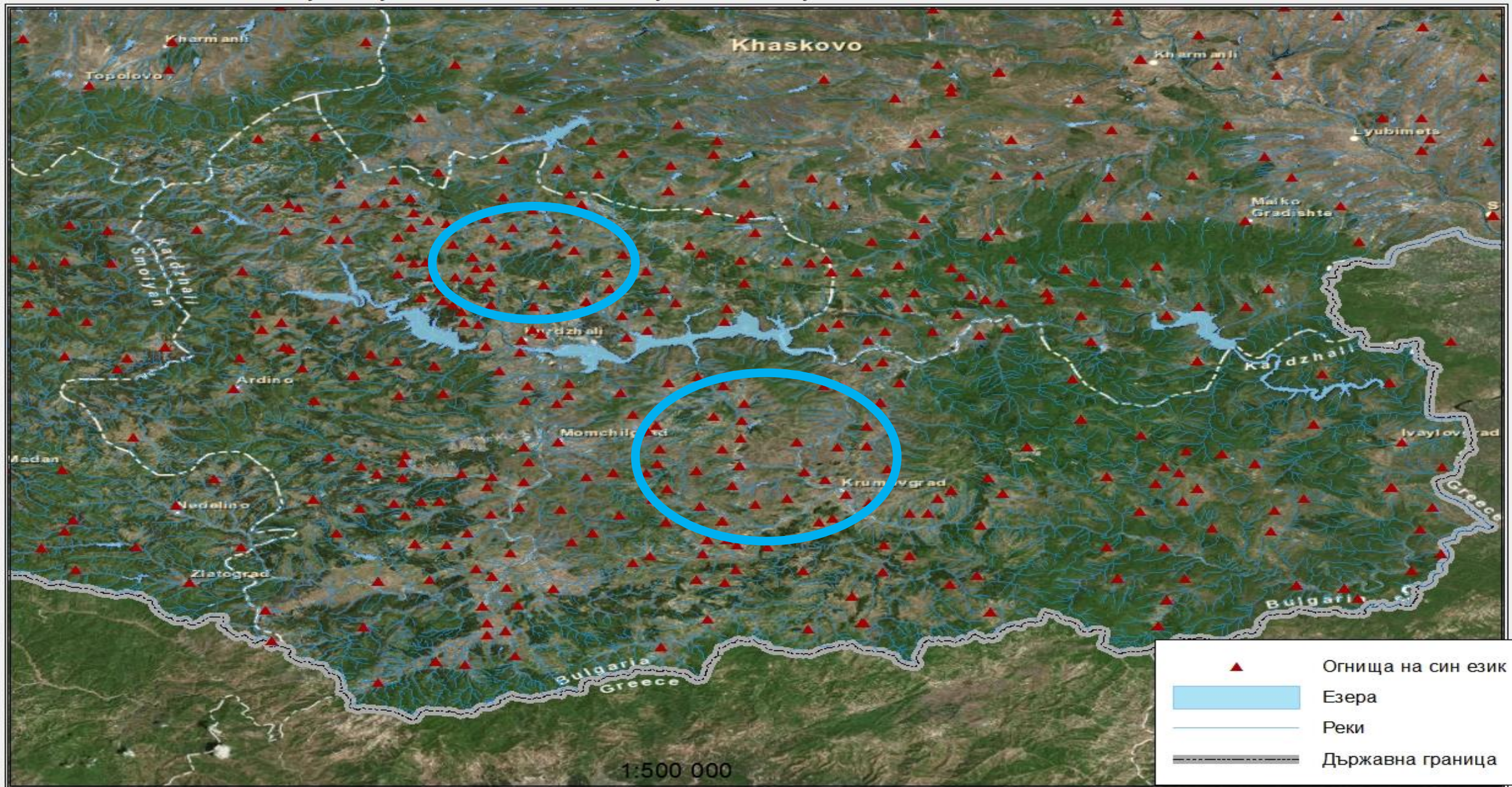
Разпространение на болестта син език по преживните животни,  
на територията на Р. България за периода 30.06.2014г. - 07.10.2014г.

Clusters of diseased animals, not corresponding to  
the population density





Разпространение на болестта син език по преживните животни,  
на територията на Р. България за периода 30.06.2014г. - 08.09.2014г.



# Reporting Data on Infected Herds and Animals

## Data on infected herds and animals

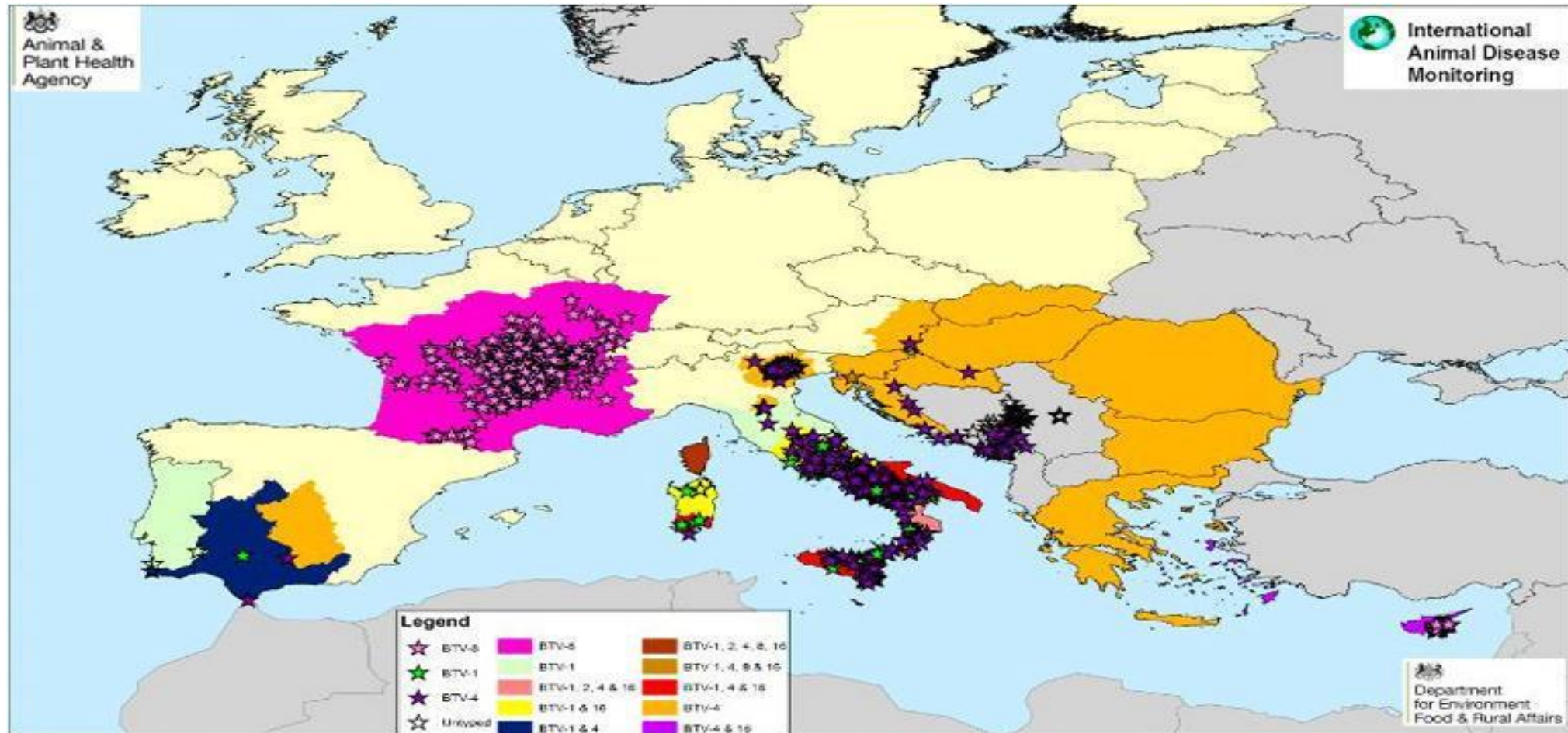
Reporting period: 04 July – 02 October 2014

	Bovines	Goats	Sheep
Total number of herds	83747	49816	86266
Total number of animals	632553	383755	1558222
Infected holdings	664 (0,8%)	308 (0,6%)	4655 (5,4%)
Morbidity	17 874 (2,8%)	8 943 (2,3%)	432486 (27,8%)
Fallen stock/Culled animals	246	117	19003

# Overview of BTV Affected Countries 2014 on the Balkans and Central Mediterranean



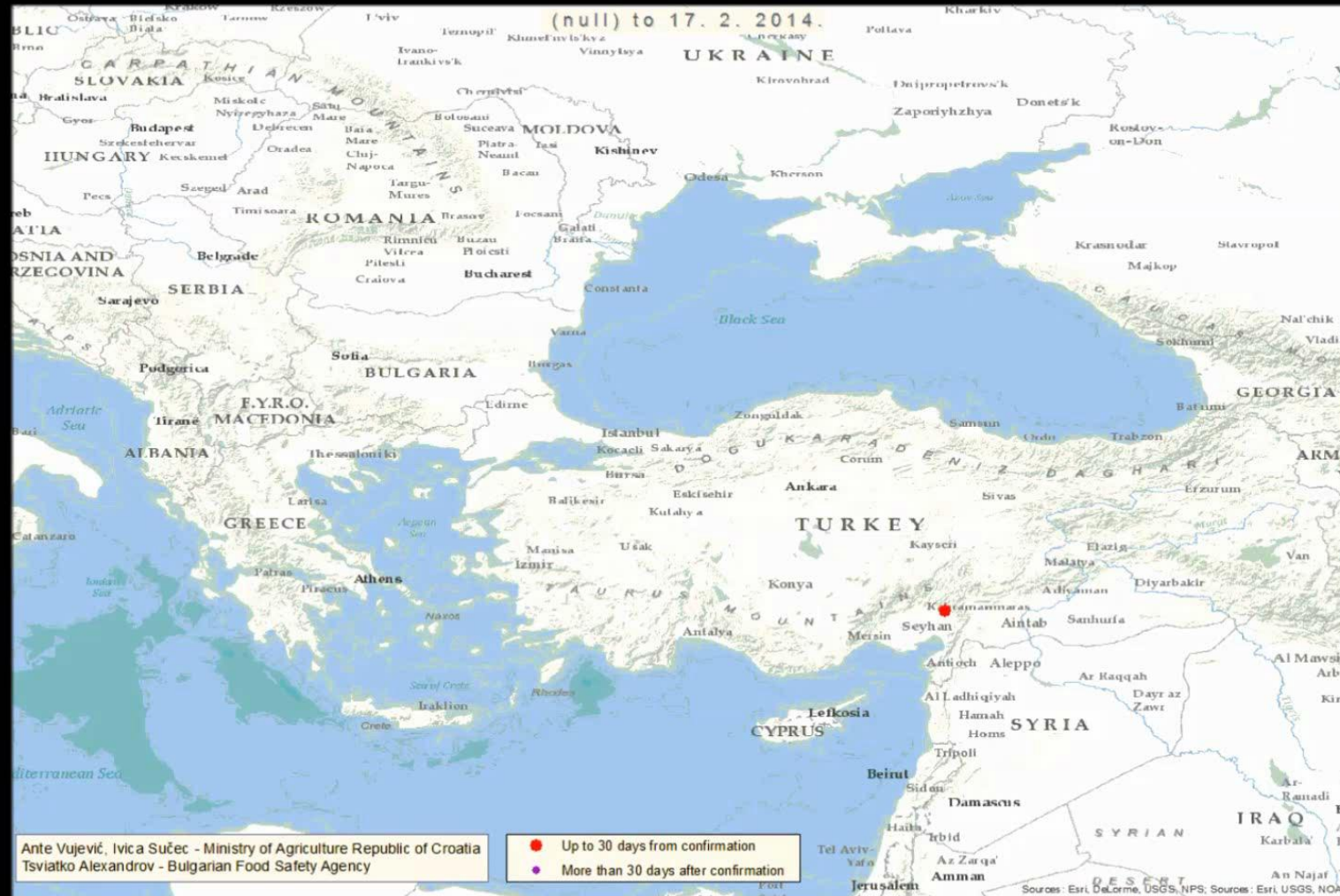
# BTV Restriction zones 2016 in Europe

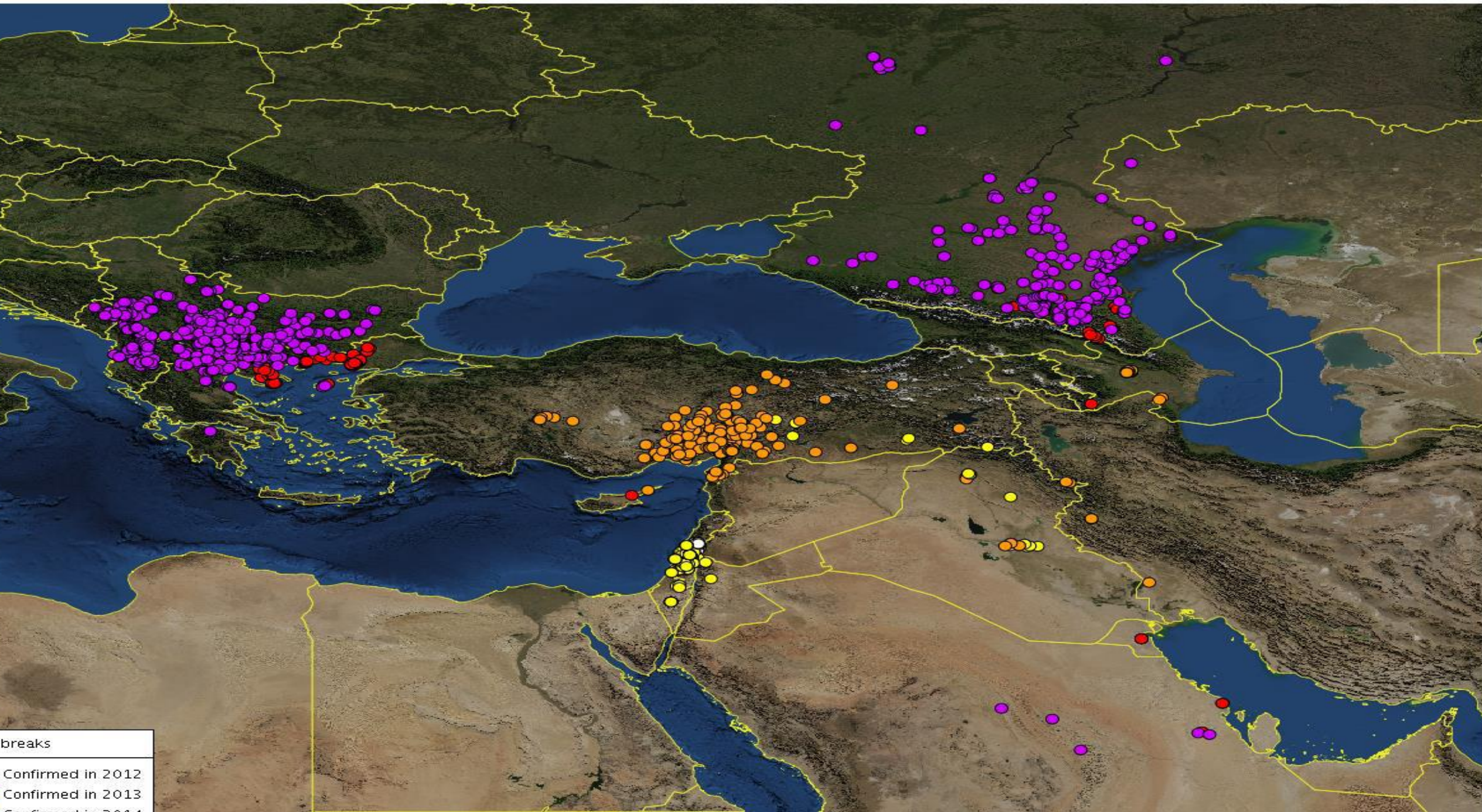


BTV-8 in France, current Restriction Zones\* and other BTV outbreaks for 2016

\* restriction zones are available on the EC website and not necessarily correctly represented here due to GIS issues

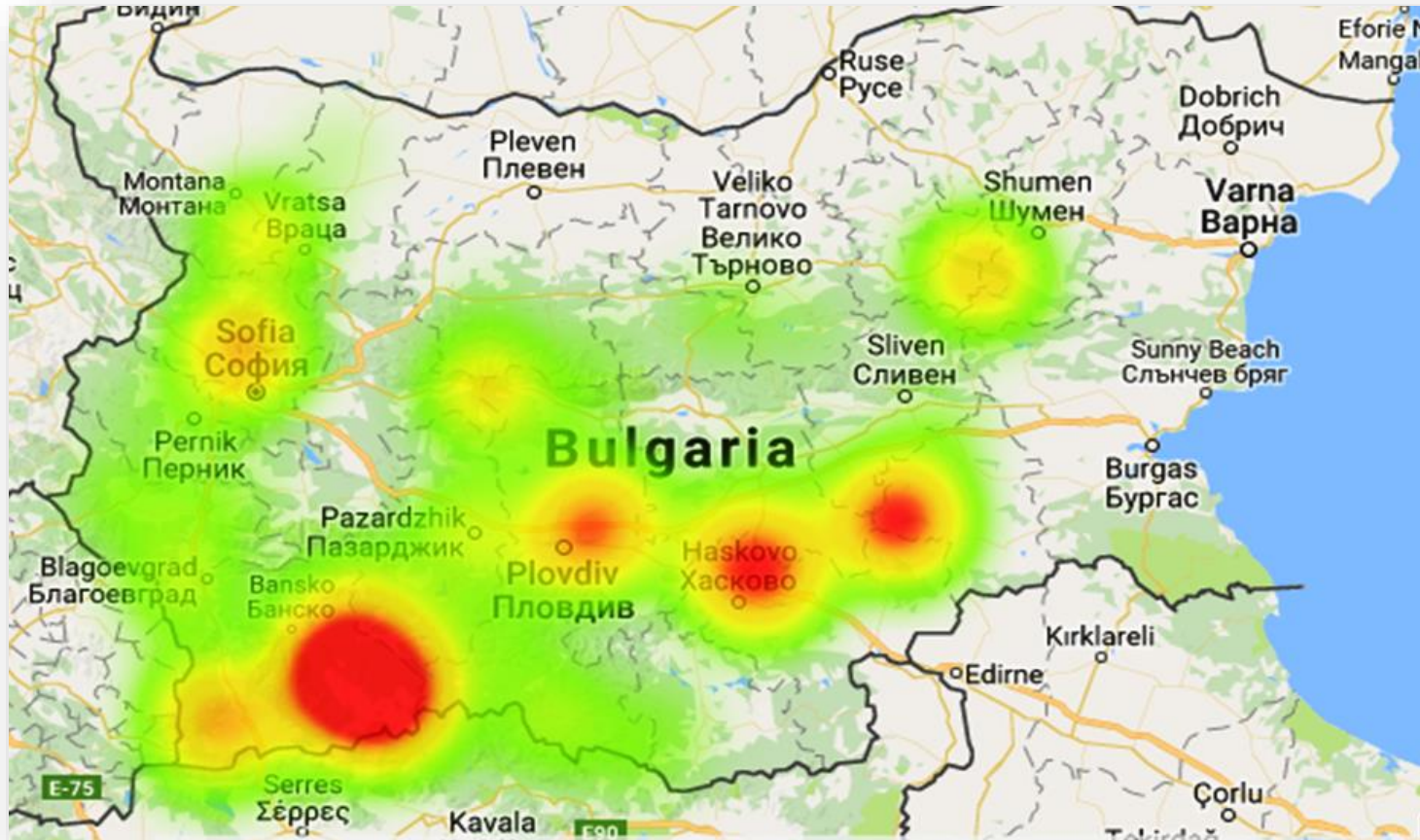
# Lumpy Skin Disease (LSD) Expansion on the Balkans 2015-2016



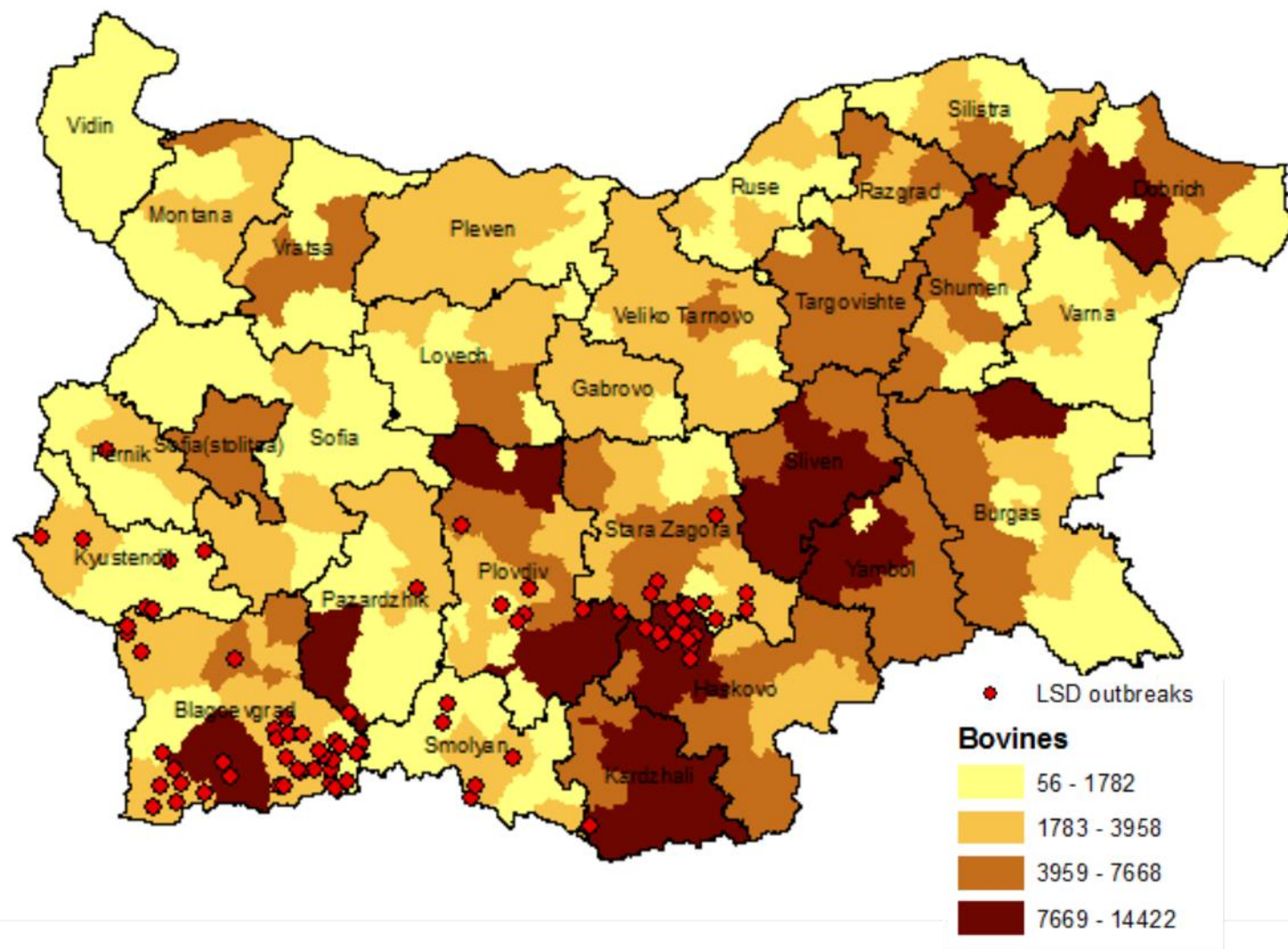


# Density of the LSD outbreaks

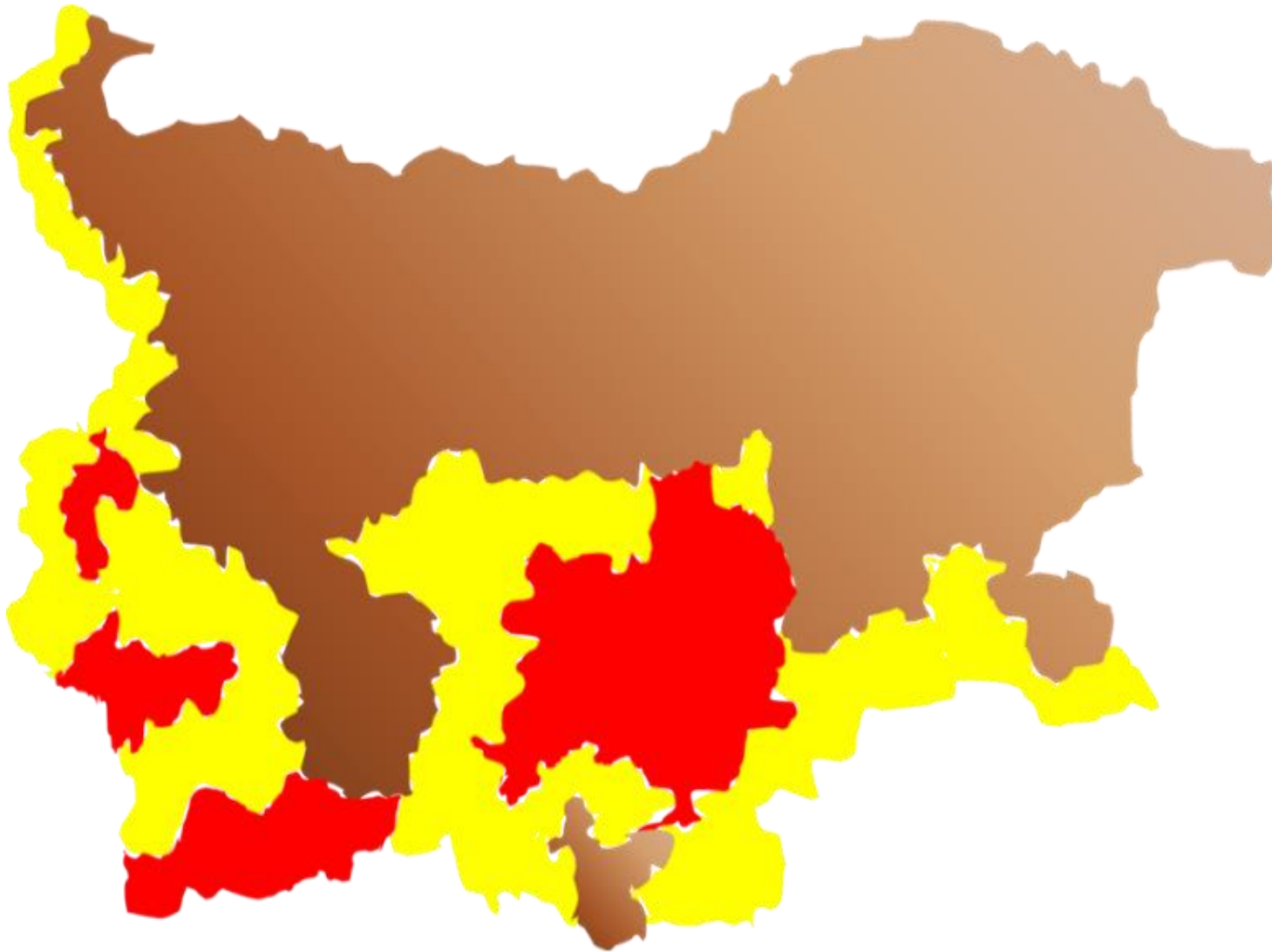
- 17 affected regions (out of 28) in total



# LSD outbreaks and bovine density



# Vaccination



*I st vacc round / 18 Apr – 05 May/ - 150 000 doses OBP / from EU bank (Neetling strain) around the LSD outbreaks at that time;*

*II nd vacc. round: /19 May – 5 June/ - 275 000 doses Intervet (SIS type) used for the rest of South, North-western areas of Bulgaria;*

*III th vacc. round: 10 June – 15 July - 350 000 doses OBP used for the rest of Bulgaria; **100% vaccine coverage***



# Key challenges and problems faced

- For a first time – New “African” Exotic Disease
- New disease for Europe and lack of officially registered vaccines
- Many countries involved in the same time
- Tender procedures – slow and create problems in emergency!!!
- Quick response to multiple outbreaks at the same time needed!
- Vaccine delivery – Need of vaccine bank for emergency!
- Outbreaks after vaccination – pharmacovigilance needed!
- Laboratory capacity (serology and DIVA tests not present)



**Благодаря за вниманието!**

**Thank you for your  
attention!**



**Fighting VBD Diseases Together !!!!!**