

# RABIES BULLETIN EUROPE

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Map of rabies cases in Europe, 1st quarter 2010

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# **1. Editorial**

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The first miscellaneous article covers monkey bites in southern France. The increasing monkey-human interactions are potentially dangerous as they promote zoonosis transmission like rabies. In this issue we also provide a miscellaneous article covering a travel related human case in Northern Ireland. The results of the diagnostics applied suggest that there is a narrow window for ante-mortem diagnosis of disease based on detection of virus in accessible samples such as saliva, CSF, and skin biopsy.

As usual, we present the rabies situation in Europe in tables and maps. For more information, see also the online version of the Rabies Bulletin Europe at [www.who-rabies-bulletin.org](http://www.who-rabies-bulletin.org).

Conrad Freuling  
Thomas Müller

## 2. SUMMARY OF RABIES CASES IN EUROPE

RABIES CASES

1st QUARTER 2010

01.01.10-31.03.10

Name	Code	Total	Wildlife	Domestic animals	Bats	Human
ALBANIA	ALB	0	0	0	0	0
AUSTRIA	AUT	0	0	0	0	0
BELARUS	BLR	209	167	42	0	0
BELGIUM	BEL	0	0	0	0	0
BOSNIA - HERCEGOVINA	BIH	10	9	1	0	0
BULGARIA	BGR	4	2	2	0	0
CROATIA	HRV	209	187	22	0	0
CYPRUS	CYP	0	0	0	0	0
CZECH REPUBLIC	CZH	0	0	0	0	0
DENMARK	DNK	0	0	0	0	0
ESTONIA	EST	0	0	0	0	0
FINLAND	FIN	0	0	0	0	0
FRANCE	FRA	0	0	0	0	0
GERMANY	DEU**	2	0	1	1	0
GREECE	GRC	0	0	0	0	0
HUNGARY	HUN	7	6	1	0	0
ICELAND	ISL	0	0	0	0	0
IRELAND	IRE	0	0	0	0	0
ITALY	ITA	131	122	9	0	0
LATVIA	LVA	7	6	1	0	0
LITHUANIA	LTU	8	6	2	0	0
LUXEMBOURG	LUX	0	0	0	0	0
MACEDONIA	MKD	0	0	0	0	0
MALTA	MLT	0	0	0	0	0
MOLDOVA	MDA*	0	0	0	0	0
MONTENEGRO	MNE*	0	0	0	0	0
NETHERLANDS	NED	0	0	0	0	0
NORWAY	NOR	0	0	0	0	0
POLAND	POL	9	9	0	0	0
PORTUGAL	PRT	0	0	0	0	0
ROMANIA	ROU	194	162	32	0	0
RUSSIAN FEDERATION	RUS	776	387	386	0	3
SERBIA	SRB	45	44	1	0	0
SLOVAK REPUBLIC	SVK	0	0	0	0	0
SLOVENIA	SVN	8	7	1	0	0
SPAIN	ESP	0	0	0	0	0
SWEDEN	SWE	0	0	0	0	0
SWITZERLAND + LIEC.	CHE	0	0	0	0	0
TURKEY	TUR *	*				
UKRAINE	UKR	588	259	329	0	0
UNITED KINGDOM	UNK	0	0	0	0	0
<b>TOTAL</b>		<b>2207</b>	<b>1373</b>	<b>830</b>	<b>1</b>	<b>3</b>

Wildlife: excluding bats

\* no data

\*\* dog imported from Bosnia-Hercegovina

### 3. Miscellaneous Articles

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#### 3. 1 Non-travel-related monkey bites in Marseille, France

P. Gautret<sup>1</sup>, E. Adehossi<sup>2</sup>, J.-C. Gérard<sup>3</sup>, and P. Parola<sup>1</sup>

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<sup>2</sup>Faculté des Sciences de la Santé, Université de Niamey, Niger.

<sup>3</sup>Espace Zoologique, 42800 Saint Martin La Plaine, France.

##### Observation

On 01/07/2008, a 19 year-old woman while walking along the streets in Marseille, was attacked by a free roaming monkey which ran away after biting her. She took a picture of the animal with her mobile phone and noticed that the animal had a necklace and a lead. She consulted her general practitioner and was referred to the Rabies Vaccination Centre, 2 days later. On admission, she presented 4 minor wounds on her arms, one foot and her face. The wounds were washed and disinfectant was applied on the day of injury. Amoxicillin-clavulanic acid based antibiotic therapy was ongoing. Rabies post exposure prophylaxis (PEP) by vaccination only was applied with a 2.1.1 intramuscular regimen, using Vero-cell cultured vaccine. The patient remained well over the 3 month-follow up. On examination of the picture, the monkey was identified as a young Barbary macaque (*Macaca sylvanus*). On 10/07/2008, a 2 year-old female Barbary macaque with necklace and lead was captured on a Marseille beach and transferred to a zoo on 17/07/2008 (figure 1). The monkey's clinical examination was normal and the animal remained safe over the 3 following months. Serologic test for rabies resulted positive (7.92 UI/ml) suggesting that the animal had been very likely vaccinated previously against

rabies, given its absence of neurological symptoms and the high titre of antibodies. However antibodies resulting from a preventive vaccination cannot be distinguished from antibodies resulting from rabies infection and the animal was therefore kept under quarantine for 6 month duration to comply with French legislation. Serologic tests against common viruses in macaques were performed. They were not reactive for herpes B virus (*Cercopithecine Herpesvirus 1*), hepatitis A and B viruses, simian immunodeficiency virus (SIV), simian T-cell lymphotropic virus and type D retrovirus (SRV). Like hepatitis A and B viruses, herpes B virus, SIV and SRV can infect humans.

##### Discussion

Rabies cases in humans resulting from transmission by rabid non-human primate (NHP) are rare [1-3] but 8 human fatal rabies cases related to Brazilian white-tufted-eared marmoset-related injuries (*Callithrix jacchus*) were recently published [4]. WHO and CDC provide no guidelines regarding rabies PEP following NHP-related injuries. We consider that NHP living in rabies endemic countries could potentially be infected by the rabies virus. A rabies PEP treatment should be offered when the involved animal cannot be kept under veterinarian surveillance or tested for rabies.

This is in accordance with practice in canine rabies-endemic areas where NHP-related injuries are common [5,6]. Barbary macaque is a unique species that occurs in Morocco and Algeria and settled a colony in Gibraltar. Therefore, the Marseille monkey had been very likely imported from these countries which are endemic for rabies.

A total of 50 patients injured by NHP were seen in our centre from March 2001 through December 2008, involving travellers injured abroad in 83% of cases. Among NHP-related injuries acquired abroad, 33% occurred in Thailand, 20% in other Asian countries, 32% in sub-Saharan Africa, 10% in North Africa and 5% in Latin America. Ten cases were acquired near Marseille involving principally pet-Barbary macaques from Morocco and pet-capuchin monkeys from Brazil.

We report here the first fully documented case of monkey-related injury occurring in Marseille where free-roaming NHP are not expected. The Barbary Macaque has been facing a decline in numbers over recent decades, fuelled in large part by their demand for the illegal pet trade. An estimated 300 animals are caught from the wild annually for the illegal trade into Europe, mainly in Morocco. Although most of the trade concerns France, it exists in several other European countries such as Belgium, Germany, the Netherlands and Italy [7]. Barbary macaque have never been found infected with B virus [8], a naturally occurring infectious agent that is endemic among macaque monkeys from Asia [9] but is naturally infected with simian foamy virus which does not seem to cause any illness in humans [8].

#### Conclusion

NHP account for 20% of animal-related injuries in travellers [10] and the illegal introduction of exotic

monkey-pets in Europe will contribute to expose the population to increasing monkey-human interactions and potential dangerous zoonosis transmission like rabies and herpes B virus infection.

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## References

### 3. 2 Tracking the Infection in Real Time in a Fatal Case of Human Rabies

Harkess, G<sup>1</sup>., Johnson, N<sup>1</sup>., Marston, D<sup>1</sup>., Goddard, T<sup>1</sup>., Goharriz, H<sup>1</sup>., Voller, K<sup>1</sup>., Solomon, T<sup>2</sup>., Hunter, M<sup>3</sup>., Hedderwick, S<sup>3</sup>., McCaughey, C<sup>3</sup>., Willoughby, R<sup>4</sup>. and Fooks, A.R<sup>1</sup>.

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<sup>2</sup> University of Liverpool, UK

<sup>3</sup> Royal Victoria Hospital, Belfast, UK

<sup>4</sup> Medical College Wisconsin, USA

Rabies is endemic in many regions of the world and causes a fatal encephalomyelitis following infection of the central nervous system. The causative agent, rabies virus, is a member of the genus lyssavirus, family Rhabdoviridae. Many island states have actively excluded the disease (including the United Kingdom). Others have taken action to control and eliminate rabies in dogs (North America) and terrestrial wildlife (Western Europe). Across the developing world the burden of rabies continues to fall particularly heavily where dog rabies remains a notable public health problem. It is estimated by the World Health Organisation that over 50,000 rabies deaths occur annually as a result of dog bites, although this figure is considered to be a conservative estimate.

It is widely accepted that there is no proven effective treatment once clinical symptoms of rabies are observed. However, a recent report

has described a form of induced-coma that is suggested to have contributed to the survival of a teenager infected with rabies in Milwaukee, US, now commonly referred to as the "Milwaukee protocol". This was in a child infected with bat rabies, who unusually had anti-rabies antibodies at the time of presentation. Although subsequent attempts to repeat this therapy have failed for a number of human presentations with rabies, there have been promising developments that have led to 3 survivors from approximately 30 attempts across the globe (2005, Wisconsin, USA), (2008, Brazil), (2009, Equatorial Guinea). Whilst this sample size is limited, it does present an encouraging trend. However, the absence of suitable animal models to develop this approach has limited investigation into its mode of action or refinement.

Here we report on a 37-year-old woman resident in Northern Ireland, who presented with a history of exposure to rabies virus whilst in South Africa. The decision was taken to instigate the Milwaukee protocol once a diagnosis of rabies was confirmed and with the support of the patient's relatives. In this case therapy failed to prevent the death of the patient. However, the patient was monitored extensively over time for virus expression in saliva and for seroconversion to rabies virus in both blood and cerebrospinal fluid.

The patient was initially admitted to hospital with progressive encephalitis. Nuchal skin biopsy analysed using a Rabies TaqMan® PCR, demonstrated the presence of rabies virus RNA. The patient had not received pre-or post-exposure prophylaxis. Rabies virus was isolated from cerebral spinal fluid (CSF) and saliva, and rabies antibody was demonstrated in serum (from day 11 onwards) and CSF (day 13 onwards). She died 35-days after being hospitalized. Samples at autopsy demonstrated the presence of rabies antigen, viral RNA, and viable rabies virus in the central nervous system, displaying a heterogeneous distribution throughout the brain. Molecular methods of diagnosis demonstrated utility in terms of speed of diagnosis in this case. Rabies TaqMan provided a rapid, reliable method for detecting rabies in a range of samples. This re-affirms the use of RT-PCR for ante-mortem diagnosis of rabies. However, conventional virus isolation did detect virus in some samples that were PCR negative.

Analysis of the samples that were positive in this patient suggests that the ability to detect virus in ante-mortem samples is highly dependent on the immune status of the patient. Once peripheral seroconversion had occurred (day 11) only one further saliva sample (day 12) was positive by rabies TaqMan PCR. This suggests that there is a narrow window for ante-mortem diagnosis of disease based on detection of virus in accessible antemortem samples such as saliva, CSF, and skin biopsy.

This travel related human case highlights the importance of rabies vaccination. Vaccination against rabies should be considered for all persons who travel to a rabies endemic region for either recreational or occupational purposes bearing in mind that the majority of dog-bite exposures occur in urban and not rural regions.

A full description of this case is available in: Hunter et al. (2010) *Immunobiological correlates in human rabies treated with therapeutic coma*. Journal of Medical Virology 82:1255–1265

## 4 DISTRIBUTION OF RABIES IN EUROPE

### 4.1 Country summaries of rabies cases, 1st quarter 2010

Country	Name	Code	Domestic animals										Wildlife										01.01.10-31.03.10					
			dog	cat	cattle	equine	goat	sheep	pig	stray dog	other	subtotal	fox	raccoon	dog	raccoon	wolf	badger	marten	other mustelids	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal	bat
Albania	ALB	*									0	0													0		0	0
Austria	AUT	*									0	0													0		0	0
Belarus	BLR	20	9	10	3						42	157	6												167		209	
Belgium	BEL	*									0														0		0	0
Bosnia - Hercegovina	BIH	1									1	9													9		10	
Bulgaria	BGR	1	1								2	2													2		4	
Croatia	HRV	5	3								22	185													187		209	
Cyprus	CYP	*									0														0		0	
Czech Republic	CZK	*									0														0		0	
Denmark	DNK	*									0														0		0	
Estonia	EST	*									0														0		0	
Finland	FIN	*									0														0		0	
France	FRA	*									0														0		0	
Germany	DEU	‡‡	1								1														0		2	
Greece	GRC	*									0														0		0	
Hungary	HUN	1									1	6													6		7	
Iceland	ISL	*									0														0		0	
Ireland	IRE	*									0														0		0	
Italy	ITA		8		1						9	109												122		131		
Latvia	LVA	1									1	4	1											6		7		
Lithuania	LTU	1	1								2	4	2											6		8		
Luxembourg	LUX	*									0													0		0		
Macedonia	MKD	*									0													0		0		
Malta	MLT	*									0													0		0		
Moldova	MDA	**									0													0		0		
Montenegro	MNE	*									0													0		0		
Norway	NOR	*									0													0		0		
Poland	POL										0	8	1											9		9		
Portugal	PRT	*									0													0		0		
Romania	ROU	16	7	6	4	2	1				32	153												162		194		
Russian Federation	RUS	159	97	70	4	48	2	5	1		386	346	30											1	387	3	776	
Serbia	SRB	1									1	43												44		45		
Slovak Republic	SVK	*									0													0		0		
Slovenia	SVN			1							1	7												7		8		
Spain	ESP	*									0													0		0		
Sweden	SWE	*									0													0		0		
Switzerland + Lichtenstein	CHE	*									0													0		0		
The Netherlands	NED	*									0													0		0		
Turkey	TUR	**									0													0		0		
Ukraine	UKR	160	118	39	5	7					329	242	5	1	2			6						3	259		588	
United Kingdom	UNK	*									0													0		0		
<b>TOTAL</b>			<b>367</b>	<b>244</b>	<b>126</b>	<b>13</b>	<b>71</b>	<b>3</b>	<b>5</b>	<b>1</b>	<b>830</b>	<b>1275</b>	<b>45</b>	<b>1</b>	<b>14</b>	<b>5</b>	<b>10</b>	<b>4</b>	<b>7</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>1373</b>	<b>1</b>	<b>3</b>	<b>2207</b>
<b>PER CENT</b>			<b>16,6%</b>	<b>11,1%</b>	<b>5,7%</b>	<b>0,6%</b>	<b>3,2%</b>	<b>0,1%</b>	<b>0,2%</b>	<b>0,0%</b>	<b>37,6%</b>	<b>57,8%</b>	<b>2,0%</b>	<b>0,0%</b>	<b>0,6%</b>	<b>0,2%</b>	<b>0,5%</b>	<b>0,2%</b>	<b>0,3%</b>	<b>0,0%</b>	<b>0,3%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,2%</b>	<b>62,2%</b>	<b>0,0%</b>	<b>0,1%</b>	<b>100%</b>

\* NO CASES

\*\* NO DATA

\*\*\* DOG IMPORTED FROM BOSNIA- HERCEGOVINA

## 4 DISTRIBUTION OF RABIES IN EUROPE

4.2 Rabies cases per country and administrative units, 1st quarter 2010

01.01.10-31.03.10

Location	Domestic animals										Wildlife										bat	Human cases	total			
	dog	cat	cattle	equine	goat	sheep	pig	stray dog	other	subtotal	fox	raccoon	dog	raccoon	wolf	badger	marten	other mustelides	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal	
<b>BELARUS</b>																										
Brest	6	3	6	1						0	17												17		17	
Gomel	7	2	1							16	26	1			3									30		46
Grodno										10	34					1								35		45
Minsk	2	2	1	1						6	30													30		36
Mogilev	1									1	24													24		25
Vitebsk	4	2	2	1						9	26			5										31		40
<b>TOTAL</b>	<b>20</b>	<b>9</b>	<b>10</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>157</b>	<b>6</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>167</b>	<b>0</b>	<b>0</b>	<b>209</b>
PER CENT	9,6%	4,3%	4,8%	1,4%	0,0%	0,0%	0,0%	0,0%	0,0%	20,1%	75,1%	2,9%	0,0%	1,4%	0,0%	0,5%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	79,9%	0,0%	0,0%	100%
<b>BOSNIA - HERZEGOVINA</b>																										
Srednjebosanski	1									1	9													9		10
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>10</b>						
PER CENT	10,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	10,0%	90,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	90,0%	0,0%	0,0%	100%
<b>BULGARIA</b>																										
Shumen		1								1													0		1	
Vratsa	1									1	2												2		3	
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>4</b>							
PER CENT	25,0%	25,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	50,0%	50,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	50,0%	0,0%	0,0%	100%
<b>GERMANY</b>																										
Hannover (Region)										0													0		1	
Neustadt/Aisch-Bad Windsheim *	1									1													0		1	
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	
PER CENT	50,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	50,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	50,0%	0,0%	0,0%	100%

\* dog imported from Bosnia-Herzegovina

#### 4.2 Rabies cases per country and administrative units, 1st quarter 2010

01.01.10-31.03.10

Location	Domestic animals										Wildlife										Human cases	total					
	dog	cat	cattle	equine	goat	sheep	pig	stray dog	other	subtotal	fox	raccoon	dog	raccoon	wolf	badger	marten	other mustelides	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal	bat	
<b>CROATIA</b>																											
Bjelovarsko - Bilogorska	1									1	11													11		12	
Brodsko - Posavska	1									1	2													2		3	
Istarska										0	20													20		20	
Karlovacka										0	13													13		13	
Koprivnisko - Krizevaska		1								7	29													29		36	
Krapinsko - Zagorska	1									1	14													14		15	
Medimurska										0	1													1		1	
Osjesko - Baranjska										0	7													7		7	
Pozesko - Slovenska	2									9	7													7		16	
Primorsko - Goranska										0	1													1		1	
Sibensko - Kninska										0														1		1	
Sisacko - Moslavacka	1									1	29													29		30	
Splitsko - Dalmatinska	1									1	3													3		4	
Varazdinska										0	7													8		8	
Viroticko - Podravска										0	2													2		2	
Vukovarsko - Srijemska										0	6													6		6	
Zadarcka										0	2													2		2	
Zagreb										0	8													8		8	
Zagrebacka										1	23													23		24	
<b>TOTAL</b>	5	3	0	0	14	0	0	0	22	185	0	0	0	1	0	0	0	0	0	0	0	0	0	187	0	0	209
<b>PER CENT</b>	2,4%	1,4%	0,0%	0,0%	6,7%	0,0%	0,0%	0,0%	10,5%	88,5%	0,0%	0,0%	0,5%	0,0%	0,5%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	89,5%	0,0%	0,0%	100%
<b>HUNGARY</b>																											
Csongrád	1									1	5													5		6	
Hajdú-Bihar										0	1													1		1	
<b>TOTAL</b>	1	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	7
<b>PER CENT</b>	14,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	14,3%	85,7%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	85,7%	0,0%	0,0%	100%
<b>ITALY</b>																											
Belluno		7	1	1						8	97													110		118	
Pordenone		1								1	2													2		3	
Trento										0	3													3		3	
Udine										0	7													7		7	
<b>TOTAL</b>	0	8	0	1	0	0	0	0	9	109	0	0	0	0	5	0	1	0	0	6	1	0	0	122	0	0	131
<b>PER CENT</b>	0,0%	6,1%	0,0%	0,8%	0,0%	0,0%	0,0%	0,0%	6,9%	83,2%	0,0%	0,0%	0,0%	3,8%	0,0%	0,8%	0,0%	0,0%	4,6%	0,8%	0,0%	0,0%	0,0%	93,1%	0,0%	0,0%	100%

#### 4.2 Rabies cases per country and administrative units, 1st quarter 2010

01.01.10-31.03.10

Location	Domestic animals										Wildlife										Human cases	total			
	dog	cat	cattle	equine	goat	sheep	pig	stray dog	other	subtotal	fox	raccoon	dog	raccoon	wolf	badger	marten	other mustelides	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal
<b>LATVIA</b>																									
Dobeles r.	1									0	1												1		1
Jelgavas r.										1													0		1
Kuldīgas r.										0	1												2		2
Rezeknes r.										0	1	1											2		2
Tukuma r.										0	1												1		1
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>14,3%</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>7</b>						
PER CENT	14,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	14,3%	57,1%	14,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	14,3%	0,0%	0,0%	85,7%	0,0%	100%
<b>LITHUANIA</b>																									
Klaipėdos										0		3	1										1		1
Utenos										0		1	1										3		3
Vilnius	1	1								2		1	1										2		4
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>25,0%</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>8</b>
PER CENT	12,5%	12,5%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	25,0%	50,0%	25,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	75,0%	0,0%	100%
<b>POLAND</b>																									
Lubelskie										0	6	1											7		7
Podkarpackie										0	2												2		2
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0,0%</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>9</b>
PER CENT	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	88,9%	11,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	100%
<b>SERBIA</b>																									
Central Serbia										0	27												28		28
Vojvodina	1									1	16												16		17
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2,2%</b>	<b>43</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>0</b>	<b>45</b>						
PER CENT	2,2%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,2%	95,6%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,2%	0,0%	0,0%	0,0%	0,0%	97,8%	0,0%	100%

#### **4.2 Rabies cases per country and administrative units, 1st quarter 2010**

01.01.10-31.03.10

#### 4.2 Rabies cases per country and administrative units, 1st quarter 2010

01.01.10-31.03.10

Location	Domestic animals										Wildlife										Human cases	total				
	dog	cat	cattle	equine	goat	sheep	pig	stray dog	other	subtotal	fox	raccoon	dog	raccoon	wolf	badger	marten	other mustelides	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal	bat
<b>RUSSIAN FEDERATION</b>																										
Astrahanskaja obl.	11	11	4		33			1		60	2	3		1										7	1	68
Belgorodskaja obl.	22	14	2		1					40	27													27	67	
Brjanskaja obl.	2	2	2		1					7	18	3												22	29	
Cecenskaja resp.										1														0	1	
Cuvasskaja resp.	1	1								2	14													14	16	
Ivanovskaja obl.										0	2													2	2	
Kabardino-Balkanskaja resp.		1	1							2	1													2	4	
Kaliningradskaja obl.	6	1								7	3													4	11	
Kalmykija resp.	2				4		1			7													0	1		
Kaluzskaja obl.	3	1								4	9												9	13		
Karacaevo-Cerkesskaja resp.	2	2	3	1						8		2		1									3	11		
Krasnodarskij kr.	7	2								9													0	9		
Kurskaja obl.	3	2								6	6												7	13		
Lipeckaja obl.	1	1	1					1		4	10												10	14		
Marij El resp.										4	3												3	7		
Mordovijskaja resp.	2	2	6							10	15												16	26		
Moskovskaja obl.	5									5	21	9											30	35		
Nizegorodskaja obl.	2	5	3		1					11	34												34	46		
Orlovskaja obl.	2	2			1					5	4												4	9		
Penzenskaja obl.	5	9	3	1	1					19	36	1											37	56		
Pskovskaja obl.										0	3	1											4	4		
Rjazanskaja obl.	2									3	1												1	4		
Rostovskaja obl.	4	3	5		1					13	1												1	14		
Saratovskaja obl.	10	2	9		1					22	22												24	46		
Severnaja Osetija-Alanija resp.	8		6							14													0	14		
Smolenskaja obl.	2	1								3	8	3											11	14		
Stavropol'skij kr.	7	4	9		2					22	6												6	28		
Tambovskaja obl.	3	5	1		1					10	39												39	49		
Tul'skaja obl.	2	2								4	9												9	13		
Tverskaja obl.	7	3								10	15	7											22	32		
Uljanovskaja obl.	1	4								5	1												1	6		
Vladimirska oblast	3	2								5	5												5	10		
Volgogradskaja obl.	8	1	7							16	2												2	18		
Voronezhskaja obl.	26	14	4						4	48	29	1											31	79		
<b>TOTAL</b>	<b>159</b>	<b>97</b>	<b>70</b>	<b>4</b>	<b>48</b>	<b>2</b>	<b>5</b>	<b>1</b>	<b>386</b>	<b>346</b>	<b>30</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>387</b>	<b>0</b>	<b>3</b>	<b>776</b>	
PER CENT	20.5%	12.5%	9.0%	0.5%	6.2%	0.3%	0.6%	0.1%	49.7%	44.6%	3.9%	0.0%	0.5%	0.0%	0.3%	0.1%	0.4%	0.0%	0.0%	0.0%	0.1%	49.9%	0.0%	0.4%	100%	

#### 4.2 Rabies cases per country and administrative units, 1st quarter 2010

01.01.10-31.03.10

Location	Domestic animals										Wildlife										Human cases	total					
	dog	cat	cattle	equine	goat	sheep	pig	stray dog	other	subtotal	fox	raccoon	dog	raccoon	wolf	badger	marten	other mustelides	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal	bat	
<b>UKRAINE</b>																											
Avtonomnaya Respublika Krym	1	5				1				7	4													4		11	
Bolyns'kaja o.	1	1								2														0		2	
Cherkass'kaja o.	5	3	3		1					11	1													1		12	
Chernigovskaja o.	6	8	3							18	15													15		33	
Chernovits'kaja o.	1	1								2	1													2		4	
Dnepropetrovskaja o.	19	7	5			1				32	18	1											19		51		
Donets'kaja o.	18	10	2							30	7												7		37		
Ivano-Frankovskaja o.		1								1	1												1	2	3		
Khar'kovskaja o.	12	14	3							29	8	1											1	10	39		
Khersonskaja o.	20	19	12	1	3					55	19		1										22		77		
Khmel'nits'kaja o.	17	4	1		1					23	25		2										26		49		
Kirovogradskaja o.	2	2	4							8	10												10		18		
Kyivs'kaja o.	7	2								9	2												2		11		
Lugansk'kaja o.	2	3								5	3												3		8		
L'vovsk'aja o.		1								1	6	1											7		8		
Nikolayevsk'aja o.	2	4	1							7	9												9		16		
Odess'kaja o.	10	5		1						15	26	1											27		42		
Poltavsk'aja o.										1	1												1		2		
Rovens'kaja o.	3	1								4	5												5		9		
Sums'kaja o.	4	5	1	2						12	5												5		17		
Ternopil's'kaja o.		2								2													1	1	3		
Vinnits'kaja o.	14	10	2	1						27	44												1	48	75		
Zakarpats'kaja o.	1									1	1												1		2		
Zaporozhsk'aja o.	7	8				1				16	13	1											14		30		
Zhitomirsk'aja o.	8	2	1							11	18												18		29		
<b>TOTAL</b>	<b>160</b>	<b>118</b>	<b>39</b>	<b>5</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>329</b>	<b>242</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>259</b>	<b>0</b>	<b>0</b>	<b>588</b>	
PER CENT	27,2%	20,1%	6,6%	0,9%	1,2%	0,0%	0,0%	0,0%	0,0%	56,0%	41,2%	0,9%	0,2%	0,3%	0,0%	1,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,5%	44,0%	0,0%	0,0%	100%
<b>SLOVENIA</b>																											
Notranjsko-kraska										0	2												2		2		
Podravska										1	3												3		4		
Savinjska										0	2												2		2		
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12,5%</b>	<b>87,5%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>8</b>							
PER CENT	0,0%	0,0%	12,5%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	12,5%	87,5%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,5%	87,5%	0,0%	0,0%	100%

## 4.3 Trend tables

### 4.3.1 Comparison of the reporting quarter (I/2010) with the previous quarter (IV/2009)

NAME	Total			Wildlife			Domestic animals			Bats			Human		
	I 2010 (no.)	IV 2009 (no.)	Difference	I 2010 (no.)	IV 2009 (no.)	Difference	I 2010 (no.)	IV 2009 (no.)	Difference	I 2010 (no.)	IV 2009 (no.)	Difference	I 2010 (no.)	IV 2009 (no.)	Difference
Albania		1	-1					1	-1						
Austria															
Belarus	209	246	-37	167	163	4	42	83	-41						
Belgium															
Bosnia - Hercegovina	10	1	9	9		9	1	1							
Bulgaria	4	7	-3	2	7	-5	2		2						
Croatia	209	205	4	187	183	4	22	22							
Cyprus															
Czech Republic															
Denmark															
Estonia															
Finland															
France		2	-2										2	-2	
Germany	2	2					1		1	1	1	2	-1		
Greece															
Hungary	7	1	6	6	1	5	1		1						
Iceland															
Ireland															
Italy	131	47	84	122	44	78	9	3	6						
Latvia	7	14	-7	6	13	-7	1	1							
Lithuania	8	15	-7	6	11	-5	2	4	-2						
Luxembourg															
Macedonia															
Malta															
Moldova	*	27		*	8		*	19		*		*			*
Montenegro	13	-13		10	-10		3	-3							
Norway															
Poland	9		9	9		9									
Portugal															
Romania	194	144	50	162	119	43	32	25	7						
Russian Federation	776	836	-60	387	395	-8	386	435	-49			3	6	-3	
Serbia	45	44	1	44	34	10	1	10	-9						
Slovak Republic															
Slovenia	8	12	-4	7	12	-5	1		1						
Spain															
Sweden															
Switzerland + Lichtenstein															
The Netherlands															
Turkey*															
Ukraine	588	660	-72	259	288	-29	329	372	-43						
United Kingdom															
<b>TOTAL</b>	<b>2207</b>	<b>2277</b>	<b>-43</b>	<b>1373</b>	<b>1288</b>	<b>93</b>	<b>830</b>	<b>979</b>	<b>-130</b>	<b>1</b>	<b>4</b>	<b>-3</b>	<b>3</b>	<b>6</b>	<b>-3</b>

Wildlife: excluding bats

I/2010 (no.), IV/2009 (no.): number of cases

Difference: no. of cases in I/2010 minus cases in IV/2009

\* no data

**4.3.2 Comparison of the reporting quarter (I/2010) with the same quarter of the previous year (I/2009)**

NAME	Total			Wildlife			Domestic animals			Bats			Human		
	I 2010 (no.)	I 2009 (no.)	Difference												
Albania															
Austria															
Belarus	209	262	-53	167	199	-32	42	63	-21						
Belgium															
Bosnia - Hercegovina	10	13	-3	9	7	2	1	6	-5						
Bulgaria	4	25	-21	2	22	-20	2	3	-1						
Croatia	209	323	-114	187	297	-110	22	26	-4						
Cyprus															
Czech Republic															
Denmark															
Estonia															
Finland															
France															
Germany	2	1	1				1			1	1	1			
Greece															
Hungary	7	1	6	6	1	5	1			1					
Iceland															
Ireland															
Italy	131	5	126	122	5	117	9			9					
Latvia	7	15	-8	6	15	-9	1			1					
Lithuania	8	15	-7	6	12	-6	2	3	-1						
Luxembourg															
Macedonia															
Malta															
Moldova	*	21		*	10		*	11		*			*		
Montenegro	14		-14		13	-13		1	-1						
Norway															
Poland	9	3	6	9	3	6									
Portugal															
Romania	194	209	-15	162	181	-19	32	28	4						
Russian Federation	776	595	181	387	316	71	386	279	107				3		3
Serbia	45	64	-19	44	53	-9	1	11	-10						
Slovak Republic															
Slovenia	8	13	-5	7	12	-5	1	1							
Spain															
Sweden															
Switzerland + Lichtenstein															
The Netherlands															
Turkey	*	64		*	2		*	62		*			*		
Ukraine	588	221	367	259	92	167	329	129	200						
United Kingdom	1	-1											1	-1	
<b>TOTAL</b>	<b>2207</b>	<b>1865</b>	<b>427</b>	<b>1373</b>	<b>1240</b>	<b>145</b>	<b>830</b>	<b>623</b>	<b>280</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>2</b>

Wildlife: excluding bats

I/2010 (no.), I/2009 (no.): number of cases

Difference: no. of cases in I/2010 minus cases in I/2009

\* no data

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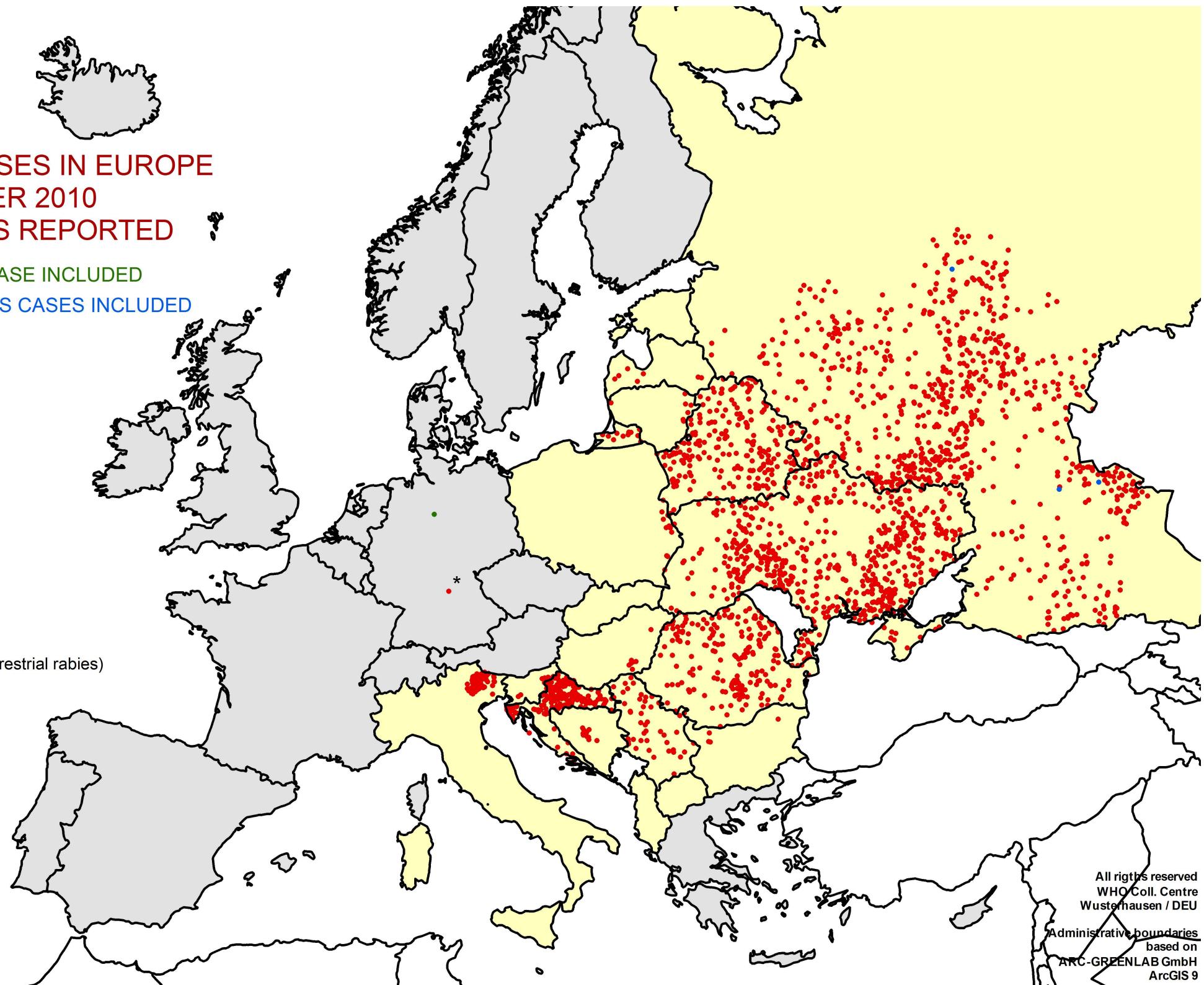


## RABIES CASES IN EUROPE 1st QUARTER 2010 2207 CASES REPORTED

1 BAT RABIES CASE INCLUDED

3 HUMAN RABIES CASES INCLUDED

rabies free (terrestrial rabies)  
 no data



\* IMPORT