

# WHO RABIES BULLETIN EUROPE

INFORMATION  
SURVEILLANCE  
RESEARCH



WHO Collaborating Centre for Rabies Surveillance and Research

FRIEDRICH-LOEFFLER-INSTITUT



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# RABIES BULLETIN EUROPE

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# **1. Editorial**

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The last issue for 2009 provides information on rabies surveillance from most European countries. In 2009, a total of 6697 animal rabies cases and eleven human cases were reported from European countries. Unfortunately, for Turkey only data for the first quarter is available. We are hoping that the technical difficulties will soon be resolved and we will update the database retrospectively once the data are available.

The global decreasing trend as compared to previous years can be observed especially in those countries that successfully implement oral rabies vaccination of foxes. However, in 2009 in Italy despite control efforts, the fox epidemic spread further westward. The Italian authorities reacted by drastically enlarging the oral vaccination area. At the end of 2009 and beginning of 2010 an emergency vaccination was undertaken with the aim to stop further spread. It is anticipated that control efforts will halt the spread and eventually eliminate rabies in Italy.

The miscellaneous article was provided by the Russian colleagues in the Far East describing a clinical human rabies case after a bat bite. The causative agent was found to be closely related to the Irkut lyssavirus species (IRKV). This is the first record of a bat associated human rabies case in Asia, and it exemplifies that bats should be regarded a potential transmitter of rabies in any region of the world. A special thank to Ivan Kuzmin (CDC) for providing first information on this case and helping to establish contacts.

Conrad Freuling  
Thomas Müller

## 2. SUMMARY OF RABIES CASES IN EUROPE

RABIES CASES

4th QUARTER 2009

01.10.09-31.12.09

Name	Code	Total	Wildlife	Domestic animals	Bats	Human
ALBANIA	ALB	1	0	1	0	0
AUSTRIA	AUT	0	0	0	0	0
BELARUS	BLR	246	163	83	0	0
BELGIUM	BEL	0	0	0	0	0
BOSNIA - HERCEGOVINA	BIH	1	0	1	0	0
BULGARIA	BGR	7	7	0	0	0
CROATIA	HRV	205	183	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	2	0	0	2	0
GERMANY	DEU	2	0	0	2	0
GREECE	GRC	0	0	0	0	0
HUNGARY	HUN	1	1	0	0	0
ICELAND	ISL	0	0	0	0	0
IRELAND	IRE	0	0	0	0	0
ITALY	ITA	47	44	3	0	0
LATVIA	LVA	14	13	1	0	0
LITHUANIA	LTU	15	11	4	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	27	8	19	0	0
MONTENEGRO	MNE	13	10	3	0	0
NETHERLANDS	NED	0	0	0	0	0
NORWAY	NOR	0	0	0	0	0
POLAND	POL	0	0	0	0	0
PORTUGAL	PRT	0	0	0	0	0
ROMANIA	ROU	144	119	25	0	0
RUSSIAN FEDERATION	RUS	836	395	435	0	6
SERBIA	SRB	44	34	10	0	0
SLOVAK REPUBLIC	SVK	0	0	0	0	0
SLOVENIA	SVN	12	12	0	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	660	288	372	0	0
UNITED KINGDOM	UNK	0	0	0	0	0
<b>TOTAL</b>		<b>2277</b>	<b>1288</b>	<b>979</b>	<b>4</b>	<b>6</b>

Wildlife: excluding bats

\* no data

### **3. Miscellaneous Articles**

---

#### **3. 1 A fatal case of bat lyssavirus infection in Primorye Territory of the Russian Far East**

Leonova G.N.<sup>1</sup>, Belikov S.I.<sup>2</sup>, Kondratov I.G.<sup>2</sup>, Krylova N.V.<sup>1</sup>, Pavlenko E.V.<sup>1</sup>, Romanova E.V.<sup>2</sup>, Chentsova I.V.<sup>3</sup>, Petukhova S.A.<sup>3</sup>

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In the Old World lyssavirus infections in bats are reported only sporadically and human rabies cases of bat origin are even rarer. In Europe, confirmed human rabies cases following bat bites were reported in the Ukraine, Russia, Finland, the Netherlands and the United Kingdom (Johnson et al., 2010). The indigenous cases are associated with European bat lyssavirus type 1 (EBLV-1) and 2 (Fooks et al., 2003). Although the risk of bat lyssavirus infection in humans seems low; single cases are of special interest and highlight the need for adequate preventive measures. In 2007, a case of a fatal bat lyssavirus infection in human occurred in Primorye Territory (the Russian Far East). The given report describes this rare case.

The patient was a twenty-year-old girl named Zh. who was a resident of Ozernoye village (Yaroslavsky Region, Primorye Territory). She got an acute disease on September 10, 2007 (medical record № 11063). The epidemiological anamnesis contained two facts to be paid attention to. Firstly, on July 12 – 13, 2007 the patient was bitten by a tick into lumbar region, while being in forest zone of Yaroslavsky Region. Prior to this, she had been vaccinated against tick-borne encephalitis (TBE) and had routine

revaccinations. Secondly, on August 10, 2007 the girl was bitten in the lip by a bat of unknown species which had entered into the house in Ozernoe. The bat bite caused two thin parallel slightly bleeding stripes which healed in a short period of time. During one month the girl's mother, who was a health-care worker, did not notice any inflammatory infiltration in the wound or increase of regional lymph nodes. The girl felt well and did not have any complaints. She was not vaccinated against rabies. One month later (on September 10, 2007) the girl got an acute disease with body temperature rising up to 38°C, intensive headache, repeated vomiting, diplopia, head and hand tremor. On September 11, 2007 she was hospitalized to infectious disease ward of Ussuriysk hospital. The patient's health status worsened: the general brain symptomatology (constricting diffuse headache and multiple vomiting without any relief) and toxic syndrome increased (the body temperature reached 38.6°); photophobia occurred. The bulbar disturbances (choking when swallowing, baryphonia [difficulty of speech]) increased; profuse discharge of phlegm from the upper respiratory tract was noticed;

meningeal symptoms and depression of consciousness (soporific state) occurred. On September 13, 2007, the patient was taken into the Primorye Clinical Hospital No. 1 of Vladivostok with a diagnosis of meningoencephalitis. On her arrival at hospital the patient was in deep sopor. Kernig's sign was not observed. Pupils with the diameter of 3 mm were sluggish in respond to the light, D<S. The diagnosis set was infectious (virus) meningoencephalitis of unknown origin, an acute stage with a severe course attended by deep flaccid paresis and bulbar syndrome.

On September 14, 2007, the patient was examined by a neurologist who indicated poor general state and depressed consciousness up to the level of superficial coma. The skin of arms, legs and upper shoulder girdle was covered with punctulated hemorrhagic rash (D=1-1,5 mm). There was Kernig's sign of 160° – 170° on both sides. Pupils were mydriatic, D=S; pupillary reactions were lively. Amyotonia of limbs was observed. Deep reflexes were very weak, D=S; pathological reflexes were not recorded. An assumption of rhabdovirus infection was made upon epidemiological anamnesis, presence of hemorrhagic rash on the skin, ecchymoses at sites of injection, bloody vaginal discharges, hypersalivation, and neurologic symptomatology, as well as lack of vaccination against rabies. Despite the intensive therapy (antibacterial, antiviral, neurometabolic, symptomatic, and artificial lung ventilation (ALV) via bronchostomy) the patient was getting worse every day due to the increase of general brain symptoms coupled with multiple organ failure, bilateral hypostatic pneumonia, arterial blood pressure (ABP) fall up to 60/40 mm Hg, and apparent tachycardia of 140 – 160 beats per minute. On the

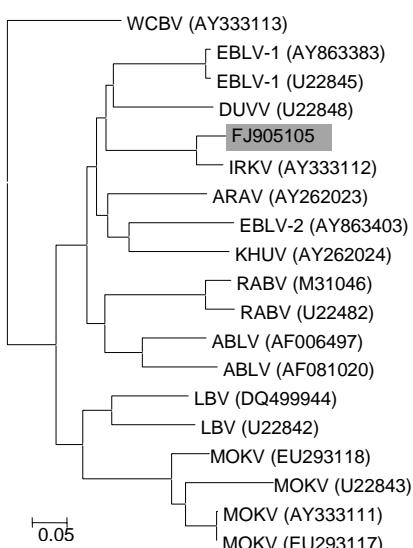
eleventh day the disease resulted in fatal outcome.

Pathologic-anatomical diagnosis was an acute stage of meningoencephalitis as an underlying disease with complications of edema, swelling and dislocation of brain, as well as bilateral hypostatic pneumonia and parenchymatous degeneration of myocardium, liver and kidney. The brain specimens taken post-mortem were used to prepare a 10% suspension, with which the two-day-old noninbred white mice were infected. All mice started to show clinical signs on the seventh day; and after infection with re-isolated material they fell ill on the sixth day (physical inactivity and respiratory impairment were observed). With the first passage the incubation period shortened to 5 – 6 days. The isolated virus was named after the village Ozernoe and is now kept in the virus archive.

The patient's blood serum of September 14, 2007 (the fourth day from the beginning of disease) was studied with enzyme immunoassay (EIA), and IgM-class antibodies to TBE virus were not found. IgG-class antibodies to TBE virus were found in titre 1:800, and were identified as response to prior vaccination. The antibodies to a homologous antigen prepared to the Ozernoe virus were found in titre 1:20 with hemagglutination-inhibition reaction, as well as in titre 1:40 using enhancement fluoroimmunoassay.

The suspicion of rhabdovirus infection was supported by the fact that antibodies isolated from a woman who was bitten by a dog and vaccinated three times against rabies cross-neutralized the Ozernoe virus with a titre of 1:160. Virus identification by RT-PCR and subsequent sequencing was undertaken as described before (Heaton et al, 1997). An amplicon

of the expected length was obtained using PCR with the primers ATGTAACACCCCTACAATGG and CAATTGCACACATTGG. The nucleotide sequence was the closest to the bat lyssavirus species Irkut virus (IRKV) with 95% identity. IRKV had been isolated earlier from a dead Greater Tubenosed Bat *Murina leucogaster* in Irkutsk (Botvinkin et al., 2003). A set of primers was synthesized to amplify overlapping fragments of the virus genome, and the sequence of complete genome was identified (Accession FJ905105). The full genome of Ozernoe virus is 91 % identical to the Irkut virus genome, and 77% to the EBLV-1 complete genome. Phylogenetic analysis of complete-genome nucleotide sequences on all lyssavirus species showed that the Irkut and Ozernoe strains are located on the same branch and have a common ancestor.



**Fig 1: NJ phylogenetic tree based on N-gene sequences of lyssavirus representatives**

Conclusively, the medical case of bat lyssavirus infection resulting in a

lethal outcome was for the first time described on the territory of Siberian and Far-Eastern Region. Despite the bite wound on the lip the patient was not given post exposure prophylaxis. Representatives of the health care service in the Primorye Territory were not aware that an accidental contact of a human with a bat would cause a clinical picture typical for rabies. Cases of bats entering into houses and non-residential premises are not rare and therefore pose a risk to human health. Thus preventive measures analogous to those used after other wild animal bites should be implemented.

There are 15 known species of chiropterans in the Far East, including *Murina leucogaster*. Most of them are referred to nonmigratory species; they hibernate in caves near summer habitats forming large assemblages. Some bat species from southern regions of Primorye Territory even spend winters in the balks giving possibility to further spread. Here, we have shown a real possibility of a lethal bat lyssavirus infection in a human who was accidentally bitten by a chiropteran. This is the first confirmed human rabies case of bat lyssavirus infection on the territory of the Asian continent.

## References

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### **3. 2 WHO Rabies Bulletin Europe - website updated**

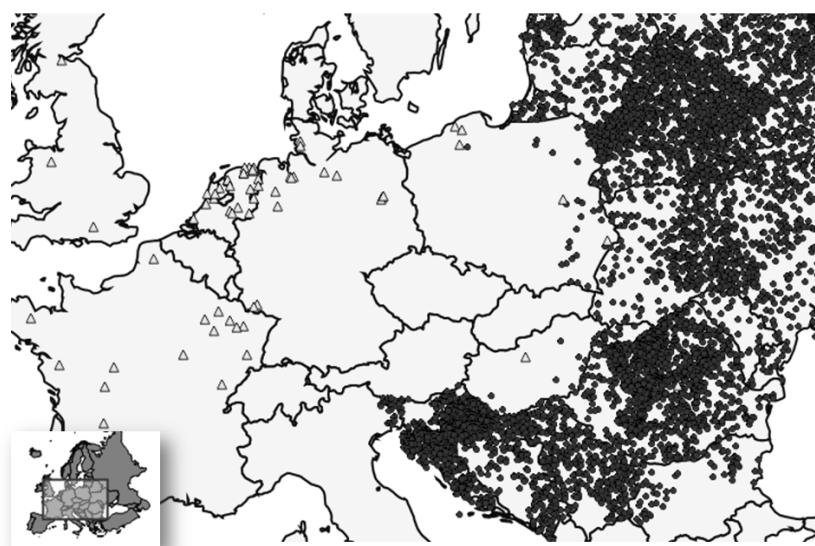
Editorial team of the WHO CC,

Friedrich-Loeffler-Institute, Wusterhausen

Starting with this quarter the WHO RBE website was restructured to offer more features to rabies experts and to the general public. Besides changes in the design of the front page, the most important change was made in the mapping tool. Here, it is now possible to display various layers of rabies data within one map. Also, a zoom-in feature allows the detailed view especially on border areas.

To increase the accuracy of data transfer to the RBE the

reporting of rabies data can now be done online. People responsible for reporting can log-in to a new members area for submission of data. The final dataset can be exported for internal documentation or for other reporting duties. To initiate online-reporting each country will be directly contacted by the editorial team. In any case, feedback on the usability is warmly welcome.



**Fig. 2: Map of rabies cases in Europe (2009) as displayed using the new mapping tool. Rabies in bats (triangles) and in other animals (dots) can be visualized.**

## 4 DISTRIBUTION OF RABIES IN EUROPE

### 4.1 Country summaries of rabies cases, 4th quarter 2009

01.10.09-31.12.09

Country	Name	Code	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
Albania	ALB	*			1						1	0													0	1		
Austria	AUT	*		29	19	4					0	0													0	0		
Belarus	BLR		31				1				83	140	20		1			2							163	246		
Belgium	BEL	*									0														0	0		
Bosnia - Hercegovina	BIH										1														0	1		
Bulgaria	BGR										0	7													7	7		
Croatia	HRV		8	7	1		6			22	178													1	183	205		
Cyprus	CYP	*								0															0	0		
Czech Republic	CZL	*								0															0	0		
Denmark	DNK	*								0															0	0		
Estonia	EST	*								0															0	0		
Finland	FIN	*								0															0	0		
France	FRA											0													0	2		
Germany	DEU											0													0	2		
Greece	GRC	*								0															0	0		
Hungary	HUN									0		1													1	1		
Iceland	ISL	*								0															0	0		
Ireland	IRE	*								0															0	0		
Italy	ITA		2							1	3	43												44	47			
Latvia	LVA		1							1	6	5												13	14			
Lithuania	LTU				4					4	2	8					1	2						11	15			
Luxembourg	LUX	*								0														0	0			
Macedonia	MKD	*								0														0	0			
Malta	MLT	*								0														0	0			
Moldova	MDA		3	3	13					19	8													8	27			
Montenegro	MNE		1		1		1			3	10													10	13			
Norway	NOR	*								0														0	0			
Poland	POL	*								0														0	0			
Portugal	PRT	*								0														0	0			
Romania	ROU		13	5	7					25	114						1	1	1	1	1	1	1	119	144			
Russian Federation	RUS		148	138	121	1	20	3	4	435	320	61				2	2	1	1	1	1	1	1	395	6	836		
Serbia	SRB		2	8						10	31							2						34	44			
Slovak Republic	SVK	*								0		12												0	0			
Slovenia	SVN									0														12	12			
Spain	ESP	*								0														0	0			
Sweden	SWE	*								0														0	0			
Switzerland + Liechtenstein	CHE	*								0														0	0			
The Netherlands	NED	*								0														0	0			
Turkey	TUR	**								0														0	0			
Ukraine	UKR		94	184	88	2	4			372	259	12	2	3	2	6							4	288	660			
United Kingdom	UNK	*								0														0	0			
<b>TOTAL</b>			<b>303</b>	<b>374</b>	<b>256</b>	<b>7</b>	<b>31</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>979</b>	<b>1131</b>	<b>106</b>	<b>2</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>11</b>	<b>1288</b>	<b>4</b>	<b>6</b>	<b>2277</b>
<b>PER CENT</b>			13,3%	16,4%	11,2%	0,3%	1,4%	0,1%	0,2%	0,0%	43,0%	49,7%	4,7%	0,1%	0,4%	0,4%	0,4%	0,1%	0,1%	0,1%	0,1%	0,0%	0,0%	0,5%	56,6%	0,2%	0,3%	100%

\* NO CASES

\*\* NO DATA



## 4.3 Rabies cases per country and administrative units, 4th quarter 2009

01.10.09-31.12.09

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 mustelids	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal		
<b>ALBANIA</b>																									
Peshkopi			1						1													0		1	
TOTAL	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
PER CENT	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100%	
<b>BELARUS</b>																									
Brest		3		1					4	8												8		12	
Gomel	6	7	6	2					21	19	2											22		43	
Grodno	9	3	4						16	40	8											49		65	
Minsk	4	8		1					13	38	3											41		54	
Mogilev	1	1	1						3	15	1											16		19	
Vitebsk	11	7	8						26	20	6											27		53	
TOTAL	31	29	19	4	0	0	0	0	83	140	20	0	1	0	2	0	0	0	0	0	0	163	0	246	
PER CENT	12,6%	11,8%	7,7%	1,6%	0,0%	0,0%	0,0%	0,0%	33,7%	56,9%	8,1%	0,0%	0,4%	0,0%	0,8%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	66,3%	0,0%	0,0%	100%
<b>BOSNIA - HERCEGOVINA</b>																						0		1	
Unsko-sanski			1						1																
TOTAL	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
PER CENT	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100%	
<b>BULGARIA</b>																									
Kyustendil									0	1												1		1	
Pernik									0	1												1		1	
Pleven									0	1												1		1	
Razgrad									0	1												1		1	
Sofia									0	1												1		1	
Sofia stolitsa									0	1												1		1	
Vratsa									0	1												1		1	
TOTAL	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	7	0	7	
PER CENT	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	100%
<b>FRANCE</b>																						0	1	1	
Overseas (French Guyana)									0													0	1	1	
Centre									0													0	1	1	
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	
PER CENT	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%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	100%
<b>GERMANY</b>																						0	1	1	
Lüneburg									0													0	1	1	
Saarpfalz-Kreis									0													0	1	1	
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	
PER CENT	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%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	100%

### 4.3 Rabies cases per country and administrative units, 4th quarter 2009

01.10.09-31.12.09

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 mustelids	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal			
<b>CROATIA</b>																										
Bjelovarsko - Bilogorska	1								1	9												9		10		
Brodsko - Posavska	1								1	1												1		2		
Dubrovacko - Neretvanska					1				1													0		1		
Istarska	1								1	10												10		11		
Karlovacka	1	2	1		1				5	15												15		20		
Koprivnicko - Krizevaska									0	12												13		13		
Krapinsko - Zagorska	1	1							2	29												29		31		
Medimurska	1								1	2												2		3		
Osjecko - Baranjska		1							1	4												4		5		
Pozesko - Slovenska	1					4			5	17												17		22		
Primorsko - Goranska									0	1												2		2		
Sibensko - Kninska									0	1												1		1		
Sisacko - Moslavacka		1							1	8								1				9		10		
Splitsko - Dalmatinska									0	1												1		2		
Varazdinska									0	10												10		10		
Virovicko - Podravска									0	3												3		3		
Vukovarsko - Srijemska		1							1	6												6		7		
Zadarska									0	2												2		2		
Zagreb									0	16				1								17		17		
Zagrebacka	1	1							2	31												31		33		
TOTAL	8	7	1	0	6	0	0	0	22	178	0	0	0	1	0	1	0	0	2	0	0	1	183	0	0	205
PER CENT	3,9%	3,4%	0,5%	0,0%	2,9%	0,0%	0,0%	0,0%	10,7%	86,8%	0,0%	0,0%	0,0%	0,5%	0,0%	0,5%	0,0%	1,0%	0,0%	0,0%	0,5%	89,3%	0,0%	0,0%	100%	
<b>HUNGARY</b>																										
Szabolcs-Szatmar-Bereg									0	1												1		1		
TOTAL	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
PER CENT	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	100%
<b>ITALY</b>																										
Belluno	2								1	3	29											30		33		
Pordenone									0	0	9											9		9		
Trieste									0	1												1		1		
Udine									0	4												4		4		
TOTAL	2	0	0	0	0	0	0	0	1	3	43	0	0	0	0	1	0	0	0	0	0	44	0	0	47	
PER CENT	4,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,1%	6,4%	91,5%	0,0%	0,0%	0,0%	2,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	93,6%	0,0%	0,0%	100%	
<b>MOLDOVA</b>																										
Moldova	3	3	13						19	8												8		27		
TOTAL	3	3	13	0	0	0	0	0	0	19	8	0	0	0	0	0	0	0	0	0	0	8	0	0	27	
PER CENT	11,1%	11,1%	48,1%	0,0%	0,0%	0,0%	0,0%	0,0%	70,4%	29,6%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	29,6%	0,0%	0,0%	100%	

**4.3 Rabies cases per country and administrative units, 4th quarter 2009**

**01.10.09-31.12.09**

Location	<i>Domestic animals</i>								<i>Wildlife</i>													bat	Human cases	total	
	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		
<b>LATVIA</b>																									
Daugavpils r.									0														1		1
Dobeles r.									0														1		1
Kraslava r.	1								1	1													2		2
Liepajas r.									0	1	1												2		2
Ludzas r.									0	3													3		3
Preiū r.									0	1													1		1
Saldus r.									0		1												1		1
Talsu r.									0														1		1
Tukuma r.									0		1												1		1
Valmieras r.									0		1												1		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>1</b>	<b>6</b>	<b>5</b>	<b>0</b>	<b>0</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>13</b>	<b>0</b>	<b>0</b>
<b>PER CENT</b>	<b>7,1%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>7,1%</b>	<b>42,9%</b>	<b>35,7%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>14,3%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>92,9%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>100%</b>
<b>LITHUANIA</b>																									
Alytaus									0	1													1		1
Kauno			1						1													0		1	
Klaipedos		1							1		2											2		3	
Marijampoles		1							1													0		1	
Panėvezio		1							1													0		1	
Utenos			1						0	1	5			1								1		1	
Vilniaus									0													7		7	
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>8</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>11</b>	<b>0</b>	<b>0</b>	
<b>PER CENT</b>	<b>0,0%</b>	<b>0,0%</b>	<b>26,7%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>26,7%</b>	<b>13,3%</b>	<b>53,3%</b>	<b>0,0%</b>	<b>6,7%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>73,3%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>100%</b>
<b>MONTENEGRO</b>																									
Montenegro	1		1		1				3	10												10		13	
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>10</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>10</b>	<b>0</b>	<b>0</b>	
<b>PER CENT</b>	<b>7,7%</b>	<b>0,0%</b>	<b>7,7%</b>	<b>0,0%</b>	<b>7,7%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>23,1%</b>	<b>76,9%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>76,9%</b>	<b>0,0%</b>	<b>0,0%</b>	<b>100%</b>

**4.3 Rabies cases per country and administrative units, 4th quarter 2009**

**01.10.09-31.12.09**

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 mustelids	other carnivores	wild boar	roe deer	red deer	fallow deer	other
<b>ROMANIA</b>																								
Arges										1	1										1		2	
Bacau	1									1	5										1	7	8	
Bihor	1			1						2	2										3	3	5	
Bistrita-Nasaud	1									1	8										8	9	9	
Botosani				1						1											0	1	1	
Braila								0		0	2										2	2	2	
Brasov		1								1	3										3	3	4	
Buzau		1								1	7										7	8	8	
Calarasi									0	0	6										6	6	6	
Cluj								0		0	2										2	2	2	
Covasna										0	3										3	3	3	
Dambovita										0	8										8	8	8	
Galati	1									1											0	1	1	
Giurgiu										0	2										2	2	2	
Gorj										0	2										2	2	2	
Harghita										0	1										1	1	1	
Hunedoara	1									1	2										2	3	3	
Iasi								2		2	15										15	17	17	
Maramures										0	1										1	1	1	
Mehedinti										0	1										1	1	1	
Mures										0	4										4	4	4	
Neamt	1			1						2	2										2	4	4	
Olt	2	1								3	4										4	7	7	
Prahova										0	1										1	1	1	
Salaj	1									1	6										6	7	7	
Satu Mare	3									3	4										4	7	7	
Suceava		1								1	8										9	10	10	
Teleorman										0	2										2	2	2	
Timis										0	1										1	1	1	
Tulcea										1											0	1	1	
Valcea										0											1	1	1	
Vaslui	1			1						2	10										10	12	12	
Vrancea										0	1										1	1	1	
<b>TOTAL</b>	<b>13</b>	<b>5</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>114</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>119</b>	<b>0</b>	<b>0</b>	<b>144</b>	
PER CENT	9,0%	3,5%	4,9%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	17,4%	79,2%	0,0%	0,0%	0,7%	0,7%	0,7%	0,0%	0,0%	0,7%	82,6%	0,0%	0,0%	100%	
<b>SERBIA</b>																								
Central Serbia	1	5								6	20										21		27	
Vojvodina	1	3								4	11										13		17	
<b>TOTAL</b>	<b>2</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>34</b>	<b>0</b>	<b>0</b>	<b>44</b>
PER CENT	4,5%	18,2%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	22,7%	70,5%	0,0%	0,0%	0,0%	0,0%	0,0%	4,5%	0,0%	2,3%	0,0%	77,3%	0,0%	0,0%	100%

## 4.3 Rabies cases per country and administrative units, 4th quarter 2009

01.10.09-31.12.09

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 mustelids	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal		
<b>RUSSIAN FEDERATION</b>																											
no region specified										0															0	1	1
Astrahanskaja obl.	4	12	6			1				23			2											1	3	26	
Belgorodskaja obl.	12	23	18			3	1			57	24													24	81		
Bjanskaja obl.		2								2	6	2													9	11	
Cecenskaja resp.			3							3															0	3	
Cuvasskaja resp.	1		2			1				4	6														6	10	
Dagestan resp.		1	2							3															1	1	
Jaroslavskaja obl.										0	1	1													2	4	
Kabardino-Balkanskaja resp.			1							1															0	1	
Kaliningradskaja obl.	1		2							3	2	2													4	7	
Kalmykija resp.	3					1				4															0	4	
Kaluzskaja obl.	3	1				1				5	7	2													9	14	
Karacaevo-Cerkesskaja resp.	1	1	2					1		5															0	5	
Krasnodarskij kr.	10	7								17	3														1	21	
Kurskaja obl.	4	5	1							10	2														2	12	
Lipeckaja obl.		1	2				1			4	5														5	9	
Marij El resp.	1									1	5														5	6	
Mordovija resp.	4	5	8			1				18	23													23	42		
Moskovskaja obl.	11	6								17	30	13												43	60		
Moskva g.	3									3															0	3	
Nizegerodskaja obl.	4	7								11	17	1												1	19		
Orlovskaja obl.	2	2								4	9														9	13	
Penzenskaja obl.	11	6	5			2				24	44													1	45		
Pskovskaja obl.										0	3	2			1										6	6	
Rjazanskaja obl.								1		1	1														1	2	
Rostovskaja obl.			5							5	5														1	11	
Saratovskaja obl.	12	11	17					2		42	28	1		1										30	72		
Severnaja Osetija-Alanijskaja resp.	10	2	4							16	5														5	21	
Smolenskaja obl.	1	2								3	7	8													15	18	
Stavropol'skij kr.	4	12	5		1	7				28	4													4	32		
Tambovskaja obl.	5	3	17	1						26	29													29	55		
Tul'skaja obl.										0	3				1										5	5	
Tverskaja obl.	10	9	2			1				22	13	27			2									42	67		
Ul'janovskaja obl.	8									8	7														7	15	
Vladimirskaja obl.	2	2								4	2														2	6	
Volgogradskaja obl.	4	9	10			1				24	12													12	37		
Voronezhskaja obl.	17	9	9			1	1			37	17													18	55		
<b>TOTAL</b>	<b>148</b>	<b>138</b>	<b>121</b>	<b>1</b>	<b>20</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>435</b>	<b>320</b>	<b>61</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>395</b>	<b>0</b>	<b>6</b>	<b>836</b>
PER CENT	17,7%	16,5%	14,5%	0,1%	2,4%	0,4%	0,5%	0,0%	52,0%	38,3%	7,3%	0,0%	0,2%	0,2%	0,1%	0,1%	0,0%	0,1%	0,1%	0,0%	0,1%	0,0%	0,1%	47,2%	0,0%	0,7%	100%

**4.3 Rabies cases per country and administrative units, 4th quarter 2009**

01.10.09-31.12.09

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 mustelids	other carnivores	wild boar	roe deer	red deer	fallow deer	other	subtotal
<b>SLOVENIA</b>																									
Podravska										0	5										5			5	
Pomurska										0	1										1			1	
Savinjska										0	6										6			6	
TOTAL	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	12	0	0	12
PER CENT	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	100%
<b>UKRAINE</b>																									
Bolynskaja o.		3								3	3										3			6	
Cherkasskaja o.	3	4	2							9	4	1									6			15	
Chernigovskaja o.	4	15	7	1						27	11	1	1								13			40	
Chernovitskaja o.										0											1			1	
Dnepropetrovskaja o.	18	18	18		1					55	15	5			1						21			76	
Donetskskaja o.	15	21	7		1					44	28	1									30			74	
Ivano-Frankovskaja o.		1								1	1										1			2	
Khar'kovskaja o.	9	25	11							45	18										19			64	
Khersonskaja o.	10	22	9	1	1					43	33		1		1						34			77	
Khmel'nitskaja o.	8	10	7							25	31										31			56	
Kirovogradskaja o.	2	1	2		1					6	9										9			15	
Kiyevskaja o.	2	3	1							6	4										4			10	
Luganskaja o.	4	4	2							10	4	2									6			16	
L'vovskaja o.	3	2	1							6	3	1			1						6			12	
Nikolayevskaja o.		3	1							4	3										3			7	
Odesskaja o.	8	3								11	7				1						1			20	
Poltavskaja o.	1	2	1							4	3										3			7	
Rovenskaja o.		1								1	1	1									2			3	
Sumskaja o.	1	5	3							9	10										10			19	
Ternopol'skaja o.		2								2	4										5			7	
Vinnitskaja o.	10	20	4							34	45										2			81	
Zakarpatskaja o.		1	1							2	1										1			3	
Zaporozhskaja o.	1	10	3							14	11										12			26	
Zhitomirskaja o.	3	3	5							11	10										1			23	
TOTAL	94	184	88	2	4	0	0	0	0	372	259	12	2	3	2	6	0	0	0	0	4	288	0	0	660
PER CENT	14,2%	27,9%	13,3%	0,3%	0,6%	0,0%	0,0%	0,0%	0,0%	56,4%	39,2%	1,8%	0,3%	0,5%	0,3%	0,9%	0,0%	0,0%	0,0%	0,0%	0,6%	43,6%	0,0%	0,0%	100%

#### 4.4 Summary of animals tested for rabies in Europe (total 2009)

ANIMAL TESTED

01.01.09-31.12.09

Name	Code	Total	Wildlife	Domestic animals	Bats	Remarks
ALBANIA	ALB	68	35	4	29	
AUSTRIA	AUT*	8826	8313	153	360	
BELARUS	BLR	0	0	0	0	no data
BELGIUM	BEL*	575	229	317	29	
BOSNIA - HERCEGOVINA	BIH	29	1	28	0	
BULGARIA	BGR	505	401	103	1	
CROATIA	HRV	5385	4282	1103	0	
CYPRUS	CYP*	0	0	0	0	no data
CZECH REPUBLIC	CZH*	7451	7102	327	22	
DENMARK	DNK*	14	0	5	9	
ESTONIA	EST	228	150	77	1	
FINLAND	FIN*	548	495	32	21	
FRANCE	FRA*	1819	94	1476	249	
GERMANY	DEU*	17852	17390	396	66	
GREECE	GRC*	15	1	11	3	
HUNGARY	HUN	8848	8080	757	11	
ICELAND	ISL*	0	0	0	0	no data
IRELAND	IRE*	0	0	0	0	no data
ITALY	ITA	4605	3970	628	7	
LATVIA	LVA	648	478	170	0	
LITHUANIA	LTU	1059	784	275	0	
LUXEMBOURG	LUX*	29	27	2	0	
MACEDONIA	MKD	0	0	0	0	no data
MALTA	MLT*	0	0	0	0	no data
MOLDOVA	MDA	108	28	80	0	
MONTENEGRO	MNE	64	63	1	0	
NETHERLANDS	NED*	181	8	13	160	
NORWAY	NOR*	0	0	0	0	no data
POLAND	POL	25453	23795	1549	109	
PORTUGAL	PRT*	0	0	0	0	no data
ROMANIA	ROU	0	0	0	0	no data
RUSSIAN FEDERATION	RUS	0	0	0	0	no data
SERBIA	SRB	409	140	269	0	
SLOVAK REPUBLIC	SVK	3701	3281	418	2	
SLOVENIA	SVN	2980	2576	233	171	
SPAIN	ESP*	0	0	0	0	no data
SWEDEN	SWE*	0	0	0	0	no data
SWITZERLAND + LIEC.	CHE*	110	39	30	41	
TURKEY	TUR	64	2	62	0	1st quarter
UKRAINE	UKR	8606	8606	0	0	
UNITED KINGDOM	UNK*	1134	7	30	1097	
<b>TOTAL</b>		<b>101314</b>	<b>90377</b>	<b>8549</b>	<b>2388</b>	

Wildlife: excluding bats

\* rabies free

## 4.5 Trend tables

### 4.5.1 Comparison of the reporting quarter (IV/2009) with the previous quarter (III/2009)

NAME	Total			Wildlife			Domestic animals			Bats			Human		
	IV 2009 (no.)	III 2009 (no.)	Difference												
Albania	1		1				1		1						
Austria															
Belarus	246	205	41	163	130	33	83	75	8						
Belgium															
Bosnia - Hercegovina	1	6	-5		4	-4	1	2	-1						
Bulgaria	7	9	-2	7	7			2	-2						
Croatia	205	134	71	183	126	57	22	8	14						
Cyprus															
Czech Republic															
Denmark															
Estonia		1	-1		1	-1									
Finland		1	-1										1	-1	
France	2	7	-5									2	7	-5	
Germany	2	2										2	2		
Greece															
Hungary	1	1		1		1						1	-1		
Iceland															
Ireland															
Italy	47	11	36	44	11	33	3		3						
Latvia	14	19	-5	13	14	-1	1	5	-4						
Lithuania	15	19	-4	11	15	-4	4	4							
Luxembourg															
Macedonia															
Malta															
Moldova	27	9	18	8	5	3	19	4	15						
Montenegro	13	4		10	3		3	1							
Norway															
Poland		1	-1									1	-1		
Portugal															
Romania	144	75	69	119	47	72	25	27	-2			1	-1		
Russian Federation	836	502	334	395	313	82	435	189	246				6		6
Serbia	44	29	15	34	24	10	10	5	5						
Slovak Republic															
Slovenia	12	2	10	12	2	10									
Spain															
Sweden															
Switzerland + Lichtenstein															
The Netherlands		7	-7									7	-7		
Turkey*															
Ukraine	660	253	407	288	110	178	372	143	229						
United Kingdom		1	-1									1	-1		
<b>TOTAL</b>	<b>2277</b>	<b>1298</b>	<b>970</b>	<b>1288</b>	<b>812</b>	<b>469</b>	<b>979</b>	<b>465</b>	<b>512</b>	<b>4</b>	<b>21</b>	<b>-17</b>	<b>6</b>	<b>0</b>	<b>6</b>

Wildlife: excluding bats

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

Difference: no. of cases in IV/2009 minus cases in III/2009

\* no data

**4.5.2 Comparison of the reporting quarter (IV/2009) with the same quarter of the previous year (IV/2008)**

NAME	Total			Wildlife			Domestic animals			Bats			Human		
	IV 2009 (no.)	IV 2008 (no.)	Difference												
Albania	1		1				1		1						
Austria															
Belarus	246	247	-1	163	173	-10	83	74	9						
Belgium															
Bosnia - Hercegovina	1	11	-10		7	-7	1	4	-3						
Bulgaria	7	18	-11	7	15	-8		3	-3						
Croatia	205	239	-34	183	224	-41	22	15	7						
Cyprus															
Czech Republic															
Denmark															
Estonia															
Finland															
France	2	2						1	-1	2	1	1			
Germany	2	3	-1					1	-1	2	2				
Greece															
Hungary	1	3	-2	1	2	-1		1	-1						
Iceland															
Ireland															
Italy	47	9	38	44	9	35	3		3						
Latvia	14	23	-9	13	21	-8	1	2	-1						
Lithuania	15	11	4	11	7	4	4	4							
Luxembourg															
Macedonia															
Malta															
Moldova	27	12	15	8	3	5	19	9	10						
Montenegro	13	8		10	7		3	1							
Norway															
Poland		7	-7		6	-6		1	-1						
Portugal															
Romania	144	240	-96	119	158	-39	25	82	-57						
Russian Federation	836	763	73	395	373	22	435	384	51				6	6	
Serbia	44	66	-22	34	52	-18	10	14	-4						
Slovak Republic															
Slovenia	12	13	-1	12	12			1	-1						
Spain															
Sweden															
Switzerland + Lichtenstein															
The Netherlands															
Turkey	*	65		*	5		*	60		*			*		
Ukraine	660	497	163	288	215	73	372	282	90						
United Kingdom	1	-1								1	-1				
<b>TOTAL</b>	<b>2277</b>	<b>2238</b>	<b>99</b>	<b>1288</b>	<b>1289</b>	<b>1</b>	<b>979</b>	<b>939</b>	<b>98</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>6</b>	<b>6</b>	<b>0</b>

Wildlife: excluding bats

IV/2009 (no.), IV/2008 (no.): number of cases

Difference: no. of cases in IV/2009 minus cases in IV/2008

\* no data

#### 4.5.3 Comparison of the reporting year (2009) with the previous year (2008)

NAME	Total				Wildlife				Domestic animals				EBLV				Human					
	No. 2009	No. 2008	Difference	in %	No. 2009	No. 2008	Difference	in %	No. 2009	No. 2008	Difference	in %	No. 2009	No. 2008	Difference	No. 2009	No. 2008	Difference	No. 2009	No. 2008	Difference	
ALBANIA									1	0	1											
AUSTRIA																						
BELARUS	913	964	-51	94,7	620	735	-115	84,4	293	229	64	127,9										
BELGIUM	0	0	0								0											
BOSNIA & HERZEGOV.	25	83	-58	30,1	15	71	-56	21,1	10	12	-2	83,3										
BULGARIA	58	51	7	113,7	48	41	7	117,1	10	10	0	100,0										
CROATIA	784	1061	-277	73,9	718	982	-264	73,1	66	79	-13	83,5										
CYPRUS																						
CZECH REPUBLIC																						
DENMARK	1	0	1								1											
ESTONIA	3	3	0	100,0	3	1	2	300,0		2	-2	0,0				1						
FINLAND																1						
FRANCE	14	8	6	175,0					1	3						13	5	8				
GERMANY	5	11	-6	45,5					1	1						5	10	-5				
GREECE																						
HUNGARY	3	7	-4	42,9	2	6	-4	33,3		1	-1	0,0	1									
ICELAND																						
IRELAND																						
ITALY	68	9	59		64	9	55		4													
LATVIA	69	110	-41	62,7	58	90	-32	64,4	11	20	-9	55,0										
LITHUANIA	63	69	-6	91,3	49	47	2	104,3	14	22	-8	63,6										
LUXEMBOURG																						
MACEDONIA																						
MALTA																						
MOLDOVA	60	46	14		23	12	11		37	34												
MONTENEGRO	49	43	6	114,0	42	38	4		7	5												
NORWAY																						
POLAND	8	29	-21	27,6	6	21	-15	28,6		5	-5	0,0	2	3								
PORTUGAL																						
ROMANIA	516	1089	-573	47,4	408	906	-498	45,0	107	183	-76	58,5	1									
RUSSIAN FEDERATION	2490	3353	-863	74,3	1345	1628	-283	82,6	1134	1713	-579	66,2	1			1	10	12	-2			
SERBIA	181	234	-53	77,4	141	201	-60		40	33												
SLOVAK REPUBLIC																						
SLOVENIA	34	55	-21	61,8	33	53	-20	62,3	1	2												
SPAIN	4	3	1	133,3					3	2	1					1	1	0				
SWEDEN																						
SWITZERLAND/LIECHTEN.																						
THE NETHERLANDS	11	11	0	100,0												11	11	0				
TURKEY	64	301	-237	21,3	2	44	-42	4,5	62	257	-195	24,1										
UKRAINE	1281	2164	-883	59,2	537	822	-285	65,3	744	1339	-595	55,6				1	-1		2	-2		
UNITED KINGDOM	2	3	-1	66,7					1							1	2	-1	1			
<b>TOTAL</b>	<b>6708</b>	<b>9707</b>	<b>-2999</b>	<b>69,1</b>	<b>4114</b>	<b>5707</b>	<b>-1593</b>	<b>72,1</b>	<b>2545</b>	<b>3953</b>	<b>-1408</b>	<b>64,4</b>	<b>38</b>	<b>33</b>	<b>5</b>	<b>11</b>	<b>14</b>	<b>-3</b>				

Wildlife: excluding bats

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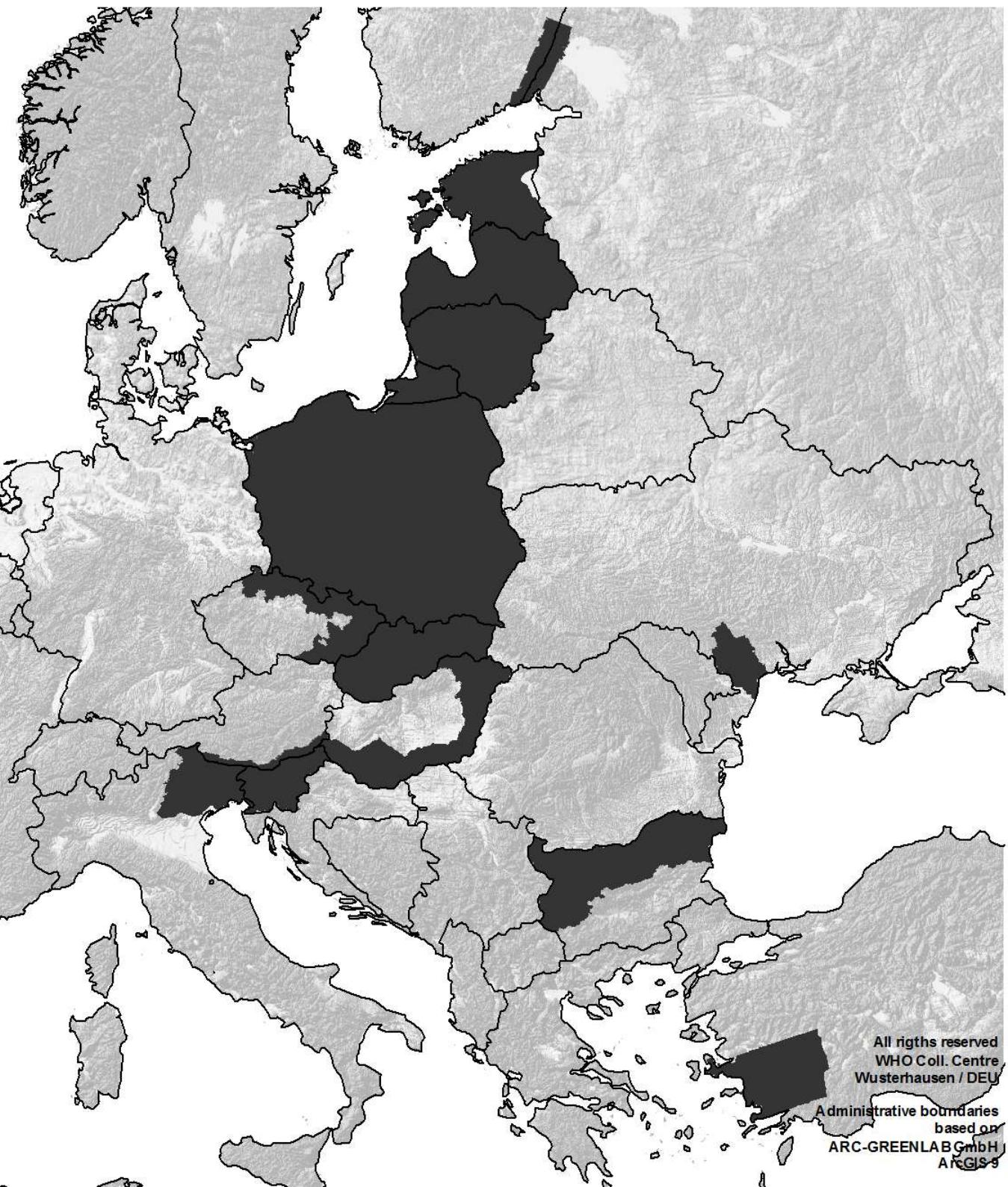
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Please inform the editor about changes  
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# Oral Immunisation of Foxes (OIF) Programmes 2009



total area covered 2009





**RABIES CASES EUROPE**  
**4th QUARTER 2009**  
**2277 CASES REPORTED**

**4 BAT RABIES CASES INCLUDED**  
**6 HUMAN RABIES CASES INCLUDED**

■ rabies free (terrestrial rabies)  
■ no data

200 km

Black Sea

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