RABIES BULLETIN EUROPE

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Contents

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1. INTRODUCTION

This BULLETIN describes the **reported rabies cases in Europe** for the **Third Quarter 1997**, subsequently referred to as ***"This Quarter"***.

In SECTION 2 a **summary of the rabies situation** in general is given.

SECTION 3 (3.1-3.38) reflects the **situation for individual countries**. Unfortunately, not all countries report regularly yet. However, their contribution is expected.

In the **Miscellaneous** SECTION (4) under 4.1 the fairly seldom imported dog rabies cases reported to the WHO Collaborating Centre Tübingen have been summarized. A report under 4.2 gives data on the post-exposure treatment in Croatia for the year 1996. More recent research results in the field of molecular biology referring to rhabdo- and HIV viruses are described under 4.3.

The **rabies case data** are tabulated **for the Third Quarter 1997** in SECTION 5. The arrangement of countries follows practical considerations, not alphabetical ones.

SECTION 6 lists the **official contributors** to the BULLETIN.

The **geographical distribution** of rabies cases in Europe **of the Third Quarter 1997** is shown on maps of the Russian Federation, Turkey and Europe in the ANNEX.

2. SUMMARY OF RABIES IN EUROPE

During ***"This Quarter"***, **986 rabies cases** were reported **in Europe**. Of these 617 were in wild animals (62.6% of total), 365 in domestic animals and 4 in humans.

Of the **617 cases in wild animals**, 529 were foxes, 5 wolves, 36 raccoon dogs, 5 badgers, 3 stone martens, 12 pine martens, 4 polecats, 1 ferret, 3 roe deer, 2 moose, 16 bats and 1 unspecified wild animal. Of the **365 domestic animals**, 141 were dogs, 90 cats, 3 horses, 125 bovines, 4 sheep and 2 goats.

There were **4 human cases** reported, 3 from the Russian Federation and 1 from Lithuania.

The above data are summarized in TABLES 5.1 and 5.3. TABLE 5.2 addds up quarters 1 to 3 of 1997.

For the third quarter a seasonal increase of rabies cases is expected in countries with **fox-mediated rabies**, due to the dispersal of the young foxes born in spring increasing the contact rate in the population. Oral vaccination of foxes, now widely practiced in most of the countries in Europe interferes though with this seasonal pattern. For ***"This Quarter"*** thus, the total of cases in Europe (986) amounted to less than the previous quarter (1088, corrected figure for issue 2/97). The present trend of an improvement due to oral vaccination becomes even more obvious by comparing the first three quarters of 1996 and 1997. While in 1996 a total of 6320 rabies cases were registered in Europe (see TABLE 5.2 in issue 3/96), there were only 3657 in 1997 (see TABLE 5.2 in this issue).

Turkey, the only country with **dog-mediated rabies** in Europe, registered 43 cases, 42 in domestic animals and 1 in a wolf.

There were 16 **bat rabies** cases recorded, 6 in Denmark, 2 in Germany and 8 in the Netherlands. The latter country reported for the first time bat rabies in a zoo.

Rabies-free countries in Europe participating in the surveillance were: Finland, Greece, Iceland, Ireland, Norway, Portugal, the mainland and islands of Spain, Sweden and Macedonia.

There were **no cases** in Belgium, France, Italy, Switzerland and the United Kingdom of Britain and Northern Ireland, but the last indigenously acquired case (terrestrial or bat) was less than two years ago.

The status of the countries with data supplied irregularly cannot be judged.

3. RABIES IN INDIVIDUAL COUNTRIES

3.1 Albania ALB

No data.

3.2 Austria AUT

by Helmut Schnabl

Of 4635 animal samples examined for rabies ***"This Quarter"*** only 1 (0.02%) was diagnosed rabid. The animal, a fox, originated from the federal province of Burgenland along the border to Hungary.

3.3 Belgium BEL

by L. Hallet

During ***"This Quarter"***, no case of rabies was diagnosed in the country.

3.4 Bosnia and Hercegovina BIH

No data.

3.5 Bulgaria BUL

by L. Lavchev

During ***"This Quarter"***, only one rabies case in the province of Targovitche was reported in Bulgaria.

3.6 Belarus BYE

No data.

3.7 Croatia CRO

by Sanja Šeparović

During ***"This Quarter"***, there were 33 infected municipalities in Croatia with a total of 54 cases, 20 cases less than in the previous quarter and 13 cases less than during the same time span in 1996. Of the total, 47 cases were in foxes (87%), 1 in a stone marten and 6 cases in domestic animals (1 dog, 2 cats, 2 bovines, 1 goat).

3.8 Czech Republic CZH

by Oldrich Matouch

During ***"This Quarter"***, 1482 samples were examined for rabies in the Czech Republic. Rabies was diagnosed in 29 cases, 17 less than in the third quarter 1996 and 30 less than in the previous quarter. All cases were in foxes.

The majority of the cases was located in Central Bohemia (18).

3.9 Denmark DEN

by Eric Stougaard

During ***"This Quarter"***, 6 bat rabies cases were reported in Denmark. They were distributed throughout the country.

3.10 Germany, Federal Republic DEU

by Winfried W. Müller and Hartmut Schlüter

A total of 14 rabies cases was reported during ***"This Quarter"***, 12 cases in foxes and 2 in bats. Approx. half of the terrestrial animals were affected during the three quarters of 1997 (exactly 61) if compared to the same period in 1996 (112).

The 12 cases in foxes all occurred in western Germany, in areas which were previously affected. The two bat rabies cases occurred in northern Germany.

3.11 Estonia EST

by Matti Nautras

During *"This Quarter"*, 44 rabies cases were registered in Estonia. 32 were in wild animals (22 foxes and 10 raccoon dogs) and 12 in domestic animals (3 dogs, 4 cats, 4 bovines, 1 sheep).

Of 15 districts in the country 11 reported between 1 and 12 cases, 4 recorded no cases.

3.12 Finland FIN

by Riitta Heinonen

The country remained rabies-free.

Surveillance: A total of 83 animals were examined for rabies by immunofluorescence on brain tissue during *"This Quarter"*, all with negative results. Of the animals 52 were raccoon dogs, 6 foxes, 3 badgers, 11 other wild carnivores, 1 beaver, 1 bat, 5 cats, 3 dogs, 1 bovine.

3.13 France FRA

by Michel F.A. Aubert

No case of rabies was diagnosed in France during *"This Quarter"*.

Surveillance: 1369 samples were investigated for rabies with negative results.

3.14 Federal Republic of Yugoslavia FRY

by Milijana Simić

12 rabies cases in animals (5 foxes, 1 dog, 5 cats, 1 bovine) were registered during *"This Quarter"* in the Federal Republic of Yugoslavia. There were 3 cases in Serbia and 9 cases in Wojwodina.

3.15 Greece GRE

by B. Stylas

The country remained rabies-free.

3.16 Hungary HUN

by Bálint Kerekes

During *"This Quarter"*, 124 rabies cases in animals were registered, 27 cases more than during the previous quarter and 140 cases less than during the third quarter 1996.

The rabies situation has improved in the western part of the country where oral vaccination of foxes is practiced as well as in the eastern part. Rabies cases for the first three quarters in 1996 amounted to 1097 compared to 397 in the first three quarters of 1997.

3.17 Iceland ICE

The country remained rabies-free.

3.18 Ireland IRE

The country remained rabies-free.

3.19 Italy ITA

by Santino Prosperi

During *"This Quarter"*, no rabies cases were diagnosed in domestic or wild animals in Italy.

3.20 Lithuania LTU

by K. Lukauskas and A. Dranseika

During *"This Quarter"*, 55 rabies cases were diagnosed in animals and 1 in a human. Of the animals affected 8 were foxes, 5 raccoon dogs, 3 pine martens, 3 dogs, 5 cats and 31 bovines.

The most affected districts were Joniškis and Šilutė with 7 cases each. All other districts recorded between 1 and 5 cases.

The human case occurred in a man, 26 years old, who was bitten by a fox in July in Kėdainiai district.

During *"This Quarter"*, more than 30,000 dogs were vaccinated against rabies in the country.

3.21 Luxembourg LUX

by Joseph Kremer

On 12 September 1997, 13 months after the last rabies

case a new case was noticed. It was diagnosed in a young male fox at Remich close to the German state border (federal state of Saarland).

From 22 - 27 September 1997 an oral vaccination campaign against foxes was carried out covering the entire country. 48,000 RABORAL vaccine baits were distributed by helicopter resulting in a vaccine bait density of 18-19 per km².

During ***"This Quarter"***, 6 foxes, 1 stone marten, and 1 roe deer were investigated for rabies with negative results.

3.22 Latvia LVA

by J. Rimeicāns and Z. Andersons

During ***"This Quarter"***, there were 41 rabies cases in 15 districts, 6 cases less than during the previous quarter. Of these 29 were in wild animals (70.7% of total), 12 in domestic animals.

Of the cases in wild animals 18 were foxes, 7 raccoon dogs, 2 badgers and 2 pine martens. Of the 12 domestic animals 5 were dogs, 3 cats and 4 bovines. The most affected district was Saldus with 8 cases.

There were no rabies cases in humans.

3.23 Moldova MLD

by V. Bahau, V. Orlov and L. Tertiak

During ***"This Quarter"***, 24 animal samples (13 dogs, 7 cats, 2 bovines, 1 fox, 1 rat) of 19 regions of Moldova were investigated by the veterinary diagnostic centre for rabies. 5 of these proved to be rabid: 1 dog in Slobodzea, 1 dog and 1 cat in Shtefan Voda, 1 bovine in New Anena, 1 cat in Grigoriopol.

A total of 43,981 dogs in the country were vaccinated against rabies during ***"This Quarter"***.

3.24 Netherlands NET

by G. Visser

During ***"This Quarter"***, 224 animals (215 bats, 3 foxes, 2 dogs, 1 mouse, 2 squirrels and 1 bison) were investigated for rabies. Eight bats were rabid; five of them have been already determined as *E. serotinus*.

On 18 September 1997 the WHO-Collaborating Centre for Rabies in Weybridge and the Pasteur Institute in Paris confirmed rabies in the colony of *Roussettus aegyptiacus* in the Blijdorp zoo in Rotterdam. It is caused by the EBL 1 virus. Prior to the confirmation Danish veterinarians had suspected rabies in two bats which had been received in a Danish zoo from the Blijdorp zoo in Rotterdam. As a result of the Danish diagnosis the artificial cave in Blijdorp was closed for the public and cleaned and desinfected thoroughly. To investigate the disease 50 live bats were transported to the National Institute for Public Health and Environmental Protection (RIVM). In co-operation with the ID-DLO in Lelystad and the Erasmus University in Rotterdam, infection tests will be performed to gain more knowledge about the infection risk of the disease in man and animals. 399 other bats of the artificial cave were killed. Blood samples were taken as well as tissues from 100 bats. The tissues will be examined for the presence of the virus and the blood for antibodies.

3.25 Norway NOR

by Gudbrand Bakken

The country remained rabies-free.

3.26 Poland POL

by Henryk Maciolek

A total of 283 rabies cases was registered in Poland during ***"This Quarter"***, 81 cases less than in the previous quarter and 246 cases less than during the third quarter 1996.

The distribution of animal species involved in rabies changed from 13.5% domestic animals during the second quarter 1997 to 22.6% during ***"This Quarter"***. The difference was especially noticed in bovines from 7 cases (1.9% of total) to 41 cases (14.5% of total), the reason being the outdoor-keeping of these animals in late spring and sommer and in this way an increased con-

tact to foxes.

The western half of the country has a good record of rabies due to the oral vaccination practiced here for several years. There was a concentration of cases in the north-east of the country.

3.27 Portugal POR

The country remained rabies-free.

3.28 Romania ROM

by Ioan Liviu Mitrea

During *"This Quarter"*, 6 rabies cases were registered in 5 provinces of Romania. The cases occurred in 2 foxes, 2 cats, 1 dog and 1 horse.

3.29 Russia RUS (European part only)

by V.A.Vedernikov, P.N.Pitalev, V.E.Semljanova, B.L.Cherkasskiy, V.V.Seliverstov, V.F.Pilinin, and S.A. Kolomizev

During *"This Quarter"*, 187 rabies cases in animals were reported. Of the total number of cases 125 were in domestic animals - 65 dogs, 25 cats, 2 horses, 31 bovines, 2 sheep. There were 62 cases in wild animals - 55 foxes, 1 raccoon dog, 4 wolves, 1 badger, 1 elk.

Most affected areas in the country were: the Pskov Region with 28 cases, the Krasnodar Territory with 20 cases, the Moscow Region with 14 cases and the Republic of Bashkortostan with 15 cases.

There were 3 human rabies cases: in the Moscow Region, the Samara Region and in the Republic of Bashkortostan.

3.30 Spain SPA

by Carlos Abellán García

During *"This Quarter"*, the mainland and islands of Spain remained rabies-free.

There were 3 cases in dogs in Melilla in the Spanish territory of North Africa.

3.31 Slovak Republic SVK

by Jozef Sokol and Bohuslav Lovas

A total of 54 rabies cases in animals was reported in the Slovak Republic during *"This Quarter"*. Of these were 39 (72.2%) wild animals (39 foxes) and 15 (27.8%) domestic animals (4 dogs, 11 cats).

Concentration of rabies cases was reported from the western and eastern part of the country. In the central part the cases were more isolated.

3.32 Slovenia SVN

by Zoran Kovač

11 rabies cases (in 9 foxes, 1 stone marten and 1 polecat) were reported in Slovenia during *"This Quarter"*. These cases were distributed throughout the country.

3.33 Sweden SWE

The country remained rabies-free.

3.34 Switzerland SWI

by Urs Breitenmoser

During *"This Quarter"*, no rabies cases were diagnosed in Switzerland.

3.35 Turkey TUR

by Mehdi Eker

During *"This Quarter"*, 43 rabies cases were reported in Turkey in 38 dogs, 1 cat, 3 bovines and 1 wolf.

In the provinces Istanbul and Izmir 10 and 12 cases were reported respectively, in 10 further provinces between 1 and 6.

3.36 Macedonia TYM

The country remained rabies-free.

3.37 Ukraine UKR

No data.

3.38 United Kingdom UNK

by W.J. Pollitt

The country remained rabies-free in terrestrial mammals.

No cases of European Bat Lyssavirus have been reported during *"This Quarter"*.

4. MISCELLANEOUS ARTICLES

4.1 Frequency of Imported Dogs Incubating Rabies in Europe

by W.W. Müller
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It is common practice in this BULLETIN to distinguish between indigenous and imported human rabies cases if so reported. Imported human cases have increased over the last years due to a relaxing of custom controls throughout the world and especially due to an increased tourism (see issue 4/96, page 18 of this BULLETIN).

The change of residences and the tourism likewise increase the moving of pets as well, especially dogs and cats. Fortunately, it is not a common event that these pets are in the state of incubating rabies when crossing country borders.

Every country has a particular legislation involving health and vaccination certificates to avoid an importation of disease. However, absolute certainty cannot be achieved. Therefore, effort must be taken to keep the problem at a minimum.

In this article imported dog rabies cases in Europe which were reported to the WHO Collaborating Centre for Rabies Surveillance and Research Tübingen between 1977 and 1997 plus 6 cases from 2 information pamphlets, one of the Ministry of Agriculture, Forestry and Fishery of the United Kingdom and one 'Guide to Rabies' of the British Medical Association (see references) have been summarized.

It is impossible to say

TABLE 4.1.1

Countries	Year of Cases	Origin of Dogs	References
France	1983	Sierra Leone	RBE 4/83
	1995	Burkina Faso	RBE 4/95
Germany	1992	Hungary	RBE 3/92
	1995	Turkey	RBE 2/95
Italy	1989	Ivory Coast	RBE 4/89
	1992	Hungary	RBE 4/92
Portugal	1984	Mozambique	RBE 3/84
Switzerland	1997	Morocco	SRC 1997
United Kingdom	1969 Q	India	1)
	1969	not mentioned	1)
	1969 Q	not mentioned	1)
	1970	Pakistan	1)
	1983 Q	USA	2)
	1990 Q	Zambia	2)

RBE = Rabies Bulletin Europe issue .....
SRC = Swiss Rabies Centre, Berne (1997)
1) The BMA guide to RABIES (1995) - The British Medical Association. Radcliffe Medical Press Ltd, Oxon OX 14 1AA,U.K.
2) Rabies Prevention and Control. MAFF Publication London (1994)
Q = dog died in quarantine

how many cases are not reported. However, it can be expected that such cases will be more evident in areas free of rabies.

In the TABLE 4.1.1 on the previous page an overview is given summarizing 14 cases which will be described according to information available.

France

When in Aizney in the west of France, an area without rabies, a dog was diagnosed rabid on June 23, 1983, it was difficult to identify the origin of the animal. A connection with the rabies case of this "stray dog" to two further cases on 15 and 17 July 1983 was assumed. A virus strain characterization with monoclonal antibodies of the Aizney dog revealed a pattern similar to a dog in Morlaix in the Bretagne 200 km north-east of Aizney which had died of rabies on December 2, 1982, 6 months after its arrival in France from Sierra Leone. No further case with the rabies virus of canine African origin was recorded.

On 3rd November 1995 a puppy entered France from Burkina Faso. It was not vaccinated due to its young age, though an exact age was not given. Via the airport in Marseille province it travelled to the département Vaucluse. There it died 5 days after arrival.

Germany

On 20th July 1992 a 6 months old male dog was imported to southern Germany from Hungary. A veterinarian had been consulted on the necessary vaccinations. There must have been a misunderstanding since in the original certificate from Hungary only a parvo virus vaccination was entered. The animal showed first signs of disease on 31st August and was euthanized on 3rd September 1992.

A puppy had been imported to Düsseldorf from Turkey in April 1995. When the owner could not control the dog after several weeks, she consulted a private veterinarian. The latter gave notice to the state veterinarian to observe the animal or to initiate a possible rabies diagnosis. When the dog bit the owner it was killed on July 13, 1995 and rabies was confirmed by laboratory diagnosis. After 3 months of rather free roaming of the dog in Düsseldorf, a rabies free area, there were many suspected contacts. Therefore, the public had to be informed through newspaper, radio, and loudspeaker van. Roaming dogs and cats had to be killed and dogs to be kept on a leash in the whole city. 194 adults and 86 children were identified as contact persons and received post-exposure treatment.

Italy

A female Gordon Setter, seven years old, died fairly suddenly on 28 November 1989 in Milano. The animal was kept for several years in the Ivory Coast. She was vaccinated and passed customs 4 months previously. Additionally, the dog was examined by a state veterinarian in Italy in September and November. As rabies-like viruses were expected, the virus strain was characterized with monoclonal antibodies and could be classified serotype 1. Still, it was considered a virus from the Ivory Coast. Why the dog was not effectively immunized remains unresolved. An attempt to explain why the vaccination did not protect the dog could be related to a lack of antibody response or an ineffective vaccine.

Another dog was vaccinated and used as a hunting dog in Hungary. It incubated rabies in Brescia at the end of 1992 with the clinical picture of paralytic rabies.

Portugal

A female puppy passed veterinary authorities without control at Lisbon airport coming from Mozambique. The dog was approx. 2 months old on the 10th August 1984 . It died on the 30th August 1984 in the province of Algarve in the south of Portugal.

Switzerland

A young dog was diagnosed rabid on 29.10.1997 in the community of Adliswil near Zürich. It had arrived from Morocco only 9 days previously. It was not vaccinated.

United Kingdom

The 6 dogs mentioned in the TABLE are cited from 2 pamphlets. There was no reported rabid animal free in Britain from 1922 until 1969 and 1970 when two dogs developed rabies after release from quarantine. After initiation of a policy of vaccinating dogs on entering a 6 months quarantine, Britain has since remained free of reported disease outside quarantine.

Remarks

The above cases are few. The disease history is often not very comprehensive. As mentioned previously, we could not say how many reports of imported cases are not reported. Still, some remarks may be appropriate.

1. It can be noticed that often puppies or young dogs are affected. They are not vaccinated or they are too young for a durable vaccination.

2. The vaccine itself may not always be of appropriate potency.

3. The rare case of a deficient immune system may occur.

4. It is interesting to note that no follow-up cases occurred with the possible exception of the 1983 cases in France. However, the latter remained unresolved.

It is apparent that a good functioning cooperation between veterinarians, physicians and municipality authorities regarding animal restriction and observation with initiation of vaccination of suspected contacts will greatly reduce the chance of viral spread.

5. Suggestions to avoid imported rabies cases can be drawn from the aforementioned: vaccination, control by antibody determination, considering the age of the animal (if it can not be vaccinated there must be strict movement control), proper identification and efficient border control.

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4.2 Rabies Post-Exposure Treatment in Croatia 1996

Croatian National Institute of Public Health - Epidemiology Unit
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The Epidemiology unit of the Croatian National Institute of Public Health has gathered annual reports from all rabies treatment units (stations) in Croatia (29) and has, as every year, analysed and evaluated them. An excerpt of this evaluation is presented here.

In 1996, a total of 5709 persons visited one of the rabies treatment stations because of some kind of contact potentially dangerous for rabies. After a full examination and a detailed inquiry, 1437 underwent rabies post-exposure treatment. All of them received the HDC vaccine, while 192 (10.8%) also received hyperimmune gammaglobulin (HRIG). All figures and proportions are similar to previous years.

TABLE 4.2.1 shows the spectrum of animals involved with the persons presented for post-exposure treatment. As in all past years dogs rank first.

But, the incriminated dogs were mainly not rabid. As evident from TABLE 4.2.3, only 12 dogs were found rabies positive in 1996. So, the reason for treatment was either the unknown vaccinal status of the dog, or the dog escaped after the bite, or it was a stray dog. This suggests that better control of dogs especially by their owners as well as valid vaccination documentation, should reduce the expense occurred for HDC vaccine and, therefore, funds would be available for a wider application of the very expensive HRIG.

TABLE 4.2.1

Animal	No. treated
Dog	892
Cat	182
Fox	119
Rat	74
Mouse	7
Rodent, unspec.	25
Cattle	30
Goat	5
Sheep	4
Wild boar	3
Pig	1
Marten	12
Weasel	5
Skunk	3
Squirrel	5
Roe deer	2
Dormouse	2
Hedgehog	2
Monkey	4
Puma	1
Poultry	6
Hawk	2
Bird of Prey, unspec.	1
Unknown	7
Total	1394

In 1996, there were 29 persons treated because of exposure to a confirmed case of human rabies and 12 due to a suspected case of human rabies later excluded. The person ill with rabies, hospitalized in Croatia, was a foreign citizen exposed abroad. There has been no indigenous human rabies case in Croatia since 1964.

The TABLE 4.2.2 shows the anatomic distribution of injuries or contact points in treated persons.

TABLE 4.2.2

Exposed part	No. treated
Arm	710
Leg	499
Head and Neck	133
Trunk	39
Multiple	54
Total	1435

To evaluate the necessity of rabies post-exposure treatment, veterinary data concerning animal rabies are valuable. The TABLE 4.2.3, taken from the annual publication of the State Veterinary Administration of the Ministry of Agriculture and Forestry of Croatia (titled 'The Animal Health and Disease Control Position in Croatia in 1996)lists rabid animal species.

TABLE 4.2.3

Animal	No. positives
Fox	462
Cat	13
Dog	12
Cattle	6
Goat	5
Sheep	3
Marten	3
Wild cat	2
Skunk	1
Badger	1
Wolf	1
Jackal	1
Donkey	1
Unspecified	1
Total	512

4.3 Set a Thief to Catch a Thief: Tailored Rhabdoviruses Fight HIV

by Karl-Klaus Conzelmann
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The September 5 issue of *Cell* published two papers, one from our lab in Tübingen and the other from the group of J. Rose in Yale, that report a new approach to targeting and killing cells infected by human immunodeficiency virus (HIV) (1,2). The novelty of the approach is to use, rather than pharmaceutical drugs, sophisticatedly engineered viruses capable of specifically seeking out, infecting, and killing cells that display markers of HIV infection. At first glance it appears paradoxical that the engineered hunter-seeker viruses are derived from domesticated versions of an ancient enemy of humanity - the rabies virus (1) and the related vesicular stomatitis virus (2). The new work stems from the recent understanding of how HIV enters immune cells and how rhabdoviruses are assembled.

The presence of cell membrane surface proteins that act as virus receptors determine whether a cell can be invaded by a virus. HIV enters cells via a receptor complex composed of two different proteins, CD4 and a chemokine receptor, such as CXCR4, which is expressed primarily on T cells, or CCR5, which is expressed mainly on macrophages and T cells (3). HIV binds to this receptor complex via part of the Envelope (Env) protein (gp120), found at the surface of the virus, allowing physical association of the virus with the target cell. After binding, the conformation of the Env protein is changed such that another part (gp41) may pierce the membrane of the target cells and allows the viral membrane to fuse with the cell membrane. Once inside the cell, HIV starts reproducing, in the process placing many copies of the Env protein (gp120/gp41) on the surface of the infected cell.

With these elements understood and with newly enabled techniques to engineer, at the molecular level, the genome and the envelope constituents of rhabdoviruses (4,5), the stage was set. We could previously show that a recombinant rabies-derived virus mutant lacking the gene for its surface protein G yields spikeless particles that are not able to infect any cell because it cannot interact with cellular rabies virus receptors (6). The common feature in the two experiments is thus the introduction into the virus envelope of the cellular receptors for HIV (CD4 plus CXCR4) instead of G. This enables the new virus specifically to recognize cells that are infected with HIV, because the CD4 plus CXCR4 recognize the Env protein of HIV that is found on the surface of the HIV-infected cell. The cell-bound Env then mediates fusion of the viral and cell membranes allowing the rhabdovirus core to enter the cell cytoplasm and to initiate a lytic infection. Interestingly, the requirements for incorporation into the envelope of rabies or VSV-derived virions were quite different: while rabies virus required a specific incorporation signal added to the proteins, non-selective incorporation takes place into VSV-derived virions. For various reasons, our laboratory has initially used a deficient virus that is capable of only one round of infection: CD4 and CXCR4, which are required for entry into HIV-cells are not encoded on the virus genome, but "come along for the ride" from cells expressing these proteins. Schnell et al. took this a step further by creating self-replicating viruses carrying the CD4 and CXCR4 genes instead of the G gene. This virus controlled HIV infection of a T cell culture over a 30-day period and dropped HIV titers nearly 1.000-fold.

These results demonstrate a general strategy of targeting one virus to the envelope protein of another virus to control infection. As yet, the experiments have been performed with cell culture systems but they offer the potential of further development for thera-

peutic work. The approach of harnessing rhabdoviruses as "self-replicating anti HIV-drug", perhaps in conjunction with chemotherapy, in order to reduce HIV load appears attractive. At this early stage it is clear that more work needs to be done to confirm the specificity and safety of such agents, and to render us ready to use one type of viruses to fight the ravages of the other.

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Rabies Case Data from Europe are tabulated on the following pages

of Section 5

TABLE 5.1

EUR EUROPE 3/97 RABIES CASES 1. 7.97 - 30. 9.97

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
ALB	ALBANIA **							0						0		0
AUT	AUSTRIA							0	1	-	-	-	-	1		1
BEL	BELGIUM *							0						0		0
BIH	BOSNA I HERCEGOWI**							0						0		0
BUL	BULGARIA							0	-	-	-	-	1	1		1
BYE	BELARUS **							0						0		0
CRO	CROATIA	1	2	2	-	1	-	6	47	-	1	-	-	48		54
CZH	CZECH REPUBLIC							0	29	-	-	-	-	29		29
DEN	DENMARK							0	-	-	-	-	6	6		6
DEU	FED.REP. OF GERMANY							0	12	-	-	-	2	14		14
EST	ESTONIA	3	4	4	-	1	-	12	22	-	-	-	10	32		44
FIN	FINLAND *							0						0		0
FRA	FRANCE *							0						0		0
FRY	FED.REP.OF YUGOSLAVI	1	5	1	-	-	-	7	5	-	-	-	-	5		12
GRE	GREECE *							0						0		0
HUN	HUNGARY	7	15	7	-	2	-	31	90	-	2	1	-	93		124
ICE	ICELAND *							0						0		0
IRE	IRELAND *							0						0		0
ITA	ITALY *							0						0		0
LTU	LITHUANIA	3	5	31	-	-	-	39	8	-	3	-	5	16	1	56
LUX	LUXEMBOURG							0	1	-	-	-	-	1		1
LVA	LATVIA	5	3	4	-	-	-	12	18	2	2	-	7	29		41
MLD	MOLDOVA	2	2	1	-	-	-	5						0		5
NET	NETHERLANDS							0	-	-	-	-	8	8		8
NOR	NORWAY *							0						0		0
POL	POLAND	8	15	41	-	-	-	64	191	2	10	3	13	219		283
POR	PORTUGAL *							0						0		0
ROM	ROMANIA	1	2	-	1	-	-	4	2	-	-	-	-	2		6
RUS	RUSSIAN FEDERATION	65	25	31	2	2	-	125	55	1	-	1	5	62	3	190
SPA	SPAIN 1)	3	-	-	-	-	-	3						0		3
SVK	SLOVAK REPUBLIC	4	11	-	-	-	-	15	39	-	-	-	-	39		54
SVN	SLOVENIA							0	9	-	2	-	-	11		11
SWE	SWEDEN *							0						0		0
SWI	SWITZERLAND + LIEC*							0						0		0
TUR	TURKEY	38	1	3	-	-	-	42	-	-	-	-	1	1		43
TYM	MAKEDONIJA *							0						0		0
UKR	UKRAINE **							0						0		0
UNK	UNITED KINGDOM *							0						0		0
TOTAL		141	90	125	3	6	0	365	529	5	20	5	58	617	4	986
PER CENT		14.3	9.1	12.7	0.3	0.6	0.0	37.0	53.7	0.5	2.0	0.5	5.9	62.6	0.4	100.0

* NO CASES ** NO DATA 1) NORTH AFRICA

TABLE 5.2

EUR EUROPE 1-3/97 RABIES CASES 1. 1.97 - 30.09.97

LOCATION CODE NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
ALB ALBANIA **							0						0		0
AUT AUSTRIA	-	-	1	-	-	-	1	7	-	-	-	-	7		8
BEL BELGIUM	-	-	1	-	-	-	1	5	-	1	-	-	6		7
BIH BOSNA I HERCEGOWI**							0						0		0
BUL BULGARIA	1	-	-	1	-	1	3	-	-	-	-	11	11		14
BYE BELARUS 1)	11	3	1	-	-	-	15	-	-	-	-	37	37		52
CRO CROATIA	9	11	10	1	3	1	35	258	2	1	1	5	267		302
CZH CZECH REPUBLIC	-	6	-	-	-	-	6	192	1	4	2	-	199		205
DEN DENMARK							0	-	-	-	-	7	7		7
DEU FED.REP. OF GERMANY	-	2	5	-	1	-	8	52	-	-	2	2	56		64
EST ESTONIA	10	7	5	-	1	-	23	63	1	-	-	30	94		117
FIN FINLAND *							0						0		0
FRA FRANCE							0	-	-	-	-	1	1		1
FRY FED.REP.OF YUGOSLAVI	13	11	1	-	2	-	27	51	-	-	-	-	51		78
GRE GREECE *							0						0		0
HUN HUNGARY	18	41	16	-	2	1	78	307	-	5	6	1	319		397
ICE ICELAND *							0						0		0
IRE IRELAND *							0						0		0
ITA ITALY *							0						0		0
LTU LITHUANIA	5	11	35	1	-	-	52	27	-	6	-	8	41	1	94
LUX LUXEMBOURG							0	1	-	-	-	-	1		1
LVA LATVIA	15	5	5	-	-	-	25	71	2	2	-	18	93		118
MLD MOLDOVA	3	2	2	-	1	-	8	4	-	-	-	-	4		12
NET NETHERLANDS							0	-	-	-	-	9	9		9
NOR NORWAY *							0						0		0
POL POLAND	47	64	57	3	-	1	172	879	8	33	10	60	990		1162
POR PORTUGAL *							0						0		0
ROM ROMANIA	5	3	2	3	-	-	13	11	-	1	-	1	13		26
RUS RUSSIAN FEDERATION	223	91	131	7	21	4	477	145	1	1	1	13	161	8	646
SPA SPAIN 2)	3	-	-	1	-	-	4						0		4
SVK SLOVAK REPUBLIC	18	25	1	-	-	1	45	147	-	3	-	2	152		197
SVN SLOVENIA	1	6	1	-	-	-	8	16	-	3	-	-	19		27
SWE SWEDEN *							0						0		0
SWI SWITZERLAND + LIEC*							0						0		0
TUR TURKEY	90	6	8	-	-	1	105	1	-	-	-	3	4		109
TYM MAKEDONIJA *							0						0		0
UKR UKRAINE **							0						0		0
UNK UNITED KINGDOM *							0						0		0
TOTAL	472	294	282	17	31	10	1106	2237	15	60	22	208	2542	9	3657
PER CENT	12.9	8.0	7.7	0.5	0.8	0.3	30.2	61.2	0.4	1.6	0.6	5.7	69.5	0.2	100.0

* NO CASES ** NO DATA 1) NO DATA FOR JUNE - SEPTEMBER 1997 2) NORTH AFRICA

TABLE 5.3

EUR EUROPE 3/97	RABIES CASES 'OTHER ANIMAL SPECIES'				1. 7.97 - 30. 9.97
LOCATION CODE NAME	OTHER WILD ANIMALS			UNSPECIFIED	TOTAL
	WOLF	RACCOON DOG	INSECTIVOR.BATS		
BUL BULGARIA	-	-	-	1	1
DEN DENMARK	-	-	6	-	6
DEU FED.REP. OF GERMANY	-	-	2	-	2
EST ESTONIA	-	10	-	-	10
LTU LITHUANIA	-	5	-	-	5
LVA LATVIA	-	7	-	-	7
NET NETHERLANDS	-	-	8	-	8
POL POLAND	-	13	-	-	13
RUS RUSSIAN FEDERATION	4	1	-	-	5
TUR TURKEY	1	-	-	-	1
TOTAL	5	36	16	1	58
PER CENT	8.6	62.1	27.6	1.7	100.0

RABIES CASES															1. 7.97 - 30. 9.97	
LOCATION	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
CODE NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
AUT AUSTRIA															
106 MATTERSBURG							0	1	-	-	-	-	1		1
TOTAL	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
DEU FEDERAL REPUBLIC OF GERMANY															
01 SCHLESWIG-HOLSTEIN							0	-	-	-	-	1	1		1
02 HAMBURG							0	-	-	-	-	1	1		1
05 NORDRHEIN-WESTFALEN							0	1	-	-	-	-	1		1
06 HESSEN							0	1	-	-	-	-	1		1
07 RHEINLAND-PFALZ							0	5	-	-	-	-	5		5
10 SAARLAND							0	5	-	-	-	-	5		5
TOTAL	0	0	0	0	0	0	0	12	0	0	0	2	14	0	14
PER CENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85.7	0.0	0.0	0.0	14.3	100.0	0.0	100.0
LUX LUXEMBOURG															
13 REMICH							0	1	-	-	-	-	1		1
TOTAL	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1

RABIES CASES															1. 7.97 - 30. 9.97
LOCATION	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
CODE NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
BUL BULGARIA															
25 TARGOVITCHE							0	-	-	-	-	1	1		1
TOTAL	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
TUR TURKEY															
01 ADANA	2	-	-	-	-	-	2						0		2
10 BALIKESIR	1	-	-	-	-	-	1						0		1
16 BURSA	3	-	-	-	-	-	3						0		3
27 GAZIANTEP	1	-	-	-	-	-	1						0		1
34 ISTANBUL	10	-	-	-	-	-	10						0		10
35 IZMIR	11	1	-	-	-	-	12						0		12
37 KASTAMONU	1	-	2	-	-	-	3						0		3
41 KOCAELI	1	-	-	-	-	-	1						0		1
45 MANISA	5	-	1	-	-	-	6						0		6
46 KAHRAMANMARAS							0	-	-	-	-	1	1		1
63 SANLIURFA	2	-	-	-	-	-	2						0		2
73 SIRNAK	1	-	-	-	-	-	1						0		1
TOTAL	38	1	3	0	0	0	42	0	0	0	0	1	1	0	43
PER CENT	88.4	2.3	7.0	0.0	0.0	0.0	97.7	0.0	0.0	0.0	0.0	2.3	2.3	0.0	100.0

CRO CROATIA RABIES CASES 1. 7.97 - 30. 9.97

LOCATION		DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
001	BELI MANASTIR							0	1	-	-	-	-	1		1
002	BENKOVAC							0	1	-	-	-	-	1		1
004	BJELOVAR	-	1	-	-	-	-	1	1	-	-	-	-	1		2
009	CRIKVENICA							0	1	-	-	-	-	1		1
018	DRNIS							0	1	-	-	-	-	1		1
019	DUBROVNIK	-	-	1	-	1	-	2						0		2
024	DURDEVAC							0	1	-	-	-	-	1		1
034	JASTREBARSKO	-	1	-	-	-	-	1	2	-	-	-	-	2		3
036	KARLOVAC							0	1	-	-	-	-	1		1
038	KLANJEC							0	1	-	-	-	-	1		1
040	KOPRIVNICA							0	1	-	-	-	-	1		1
044	KRIZEVCI							0	6	-	-	-	-	6		6
046	KUTINA							0	1	-	-	-	-	1		1
050	MAKARSKA							0	-	-	1	-	-	1		1
054	NOVI MAROF							0	1	-	-	-	-	1		1
058	OMIS							0	1	-	-	-	-	1		1
062	OTOCAC							0	2	-	-	-	-	2		2
073	RIJEKA							0	1	-	-	-	-	1		1
076	SINJ	1	-	-	-	-	-	1						0		1
080	SLUNJ							0	1	-	-	-	-	1		1
081	SOLIN	-	-	1	-	-	-	1						0		1
082	SPLIT							0	1	-	-	-	-	1		1
083	SIBENIK							0	2	-	-	-	-	2		2
087	VARAZDIN							0	2	-	-	-	-	2		2
088	VINKOVCI							0	8	-	-	-	-	8		8
089	VIROVITICA							0	1	-	-	-	-	1		1
092	VRBOVEC							0	3	-	-	-	-	3		3
093	VRBOVSKO							0	1	-	-	-	-	1		1
094	VRGINMOST							0	1	-	-	-	-	1		1
096	VUKOVAR							0	1	-	-	-	-	1		1
099	SVETI IVAN ZELINA							0	1	-	-	-	-	1		1
100	ZLATAR BISTRICA							0	1	-	-	-	-	1		1
102	GRAD ZAGREB							0	1	-	-	-	-	1		1
TOTAL		1	2	2	0	1	0	6	47	0	1	0	0	48	0	54
PER CENT		1.9	3.7	3.7	0.0	1.9	0.0	11.1	87.0	0.0	1.9	0.0	0.0	88.9	0.0	100.0

RABIES CASES															1. 7.97 - 30. 9.97	
LOCATION	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
CODE NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
CZH CZECH REPUBLIC															
01 Central Bohemia							0	18	-	-	-	-	18		18
02 South Bohemia							0	5	-	-	-	-	5		5
03 West Bohemia							0	1	-	-	-	-	1		1
04 North Bohemia							0	1	-	-	-	-	1		1
05 East Bohemia							0	3	-	-	-	-	3		3
06 South Moravia							0	1	-	-	-	-	1		1
TOTAL	0	0	0	0	0	0	0	29	0	0	0	0	29	0	29
PER CENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0
SVK SLOVAK REPUBLIC															
1 Bratislavsky kraj							0	9	-	-	-	-	9		9
2 Trnavsky kraj	1	-	-	-	-	-	1	1	-	-	-	-	1		2
3 Trenciansky kraj							0	2	-	-	-	-	2		2
4 Nitriansky kraj	-	1	-	-	-	-	1						0		1
5 Zilinsky kraj	-	1	-	-	-	-	1						0		1
6 Banskobystricky kraj							0	3	-	-	-	-	3		3
7 Presovsky kraj	2	3	-	-	-	-	5	9	-	-	-	-	9		14
8 Kosicky kraj	1	6	-	-	-	-	7	15	-	-	-	-	15		22
TOTAL	4	11	0	0	0	0	15	39	0	0	0	0	39	0	54
PER CENT	7.4	20.4	0.0	0.0	0.0	0.0	27.8	72.2	0.0	0.0	0.0	0.0	72.2	0.0	100.0

RABIES CASES 1. 7.97 - 30. 9.97

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
DEN	DENMARK															
020	FREDERIKSBORG							0	-	-	-	-	2	2		2
025	ROSKILDE							0	-	-	-	-	1	1		1
030	HYIDEBHEK							0	-	-	-	-	1	1		1
055	RIBE							0	-	-	-	-	1	1		1
070	ARHUS							0	-	-	-	-	1	1		1
TOTAL		0	0	0	0	0	0	0	0	0	0	0	6	6	0	6
PER CENT		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	100.0
NET	NETHERLANDS															
02	FRIESLAND							0	-	-	-	-	4	4		4
03	GELDERLAND							0	-	-	-	-	1	1		1
06	NOORD-BRABANT							0	-	-	-	-	2	2		2
07	NOORD-HOLLAND							0	-	-	-	-	1	1		1
TOTAL		0	0	0	0	0	0	0	0	0	0	0	8	8	0	8
PER CENT		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	100.0
SPA	SPAIN															
52	MELILLA (NORTH AFRICA	3	-	-	-	-	-	3						0		3
TOTAL		3	0	0	0	0	0	3	0	0	0	0	0	0	0	3

RABIES CASES 1. 7.97 - 30. 9.97

LOCATION CODE NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
EST ESTONIA															
01 Harjumaa	-	1	-	-	-	-	1	8	-	-	-	3	11		12
03 Ida-Virumaa							0	-	-	-	-	1	1		1
04 Jogevamaa							0	2	-	-	-	-	2		2
05 Jaervamaa	1	1	-	-	-	-	2	3	-	-	-	4	7		9
06 Laeaenemaa	-	-	1	-	-	-	1	1	-	-	-	-	1		2
07 Laeaene-Virumaa	1	1	1	-	-	-	3	2	-	-	-	-	2		5
09 Paernumaa	-	1	2	-	-	-	3	2	-	-	-	1	3		6
10 Raplamaa	1	-	-	-	-	-	1	1	-	-	-	1	2		3
11 Saaremaa	-	-	-	-	1	-	1	1	-	-	-	-	1		2
12 Tartumaa							0	1	-	-	-	-	1		1
15 Vorumaa							0	1	-	-	-	-	1		1
TOTAL	3	4	4	0	1	0	12	22	0	0	0	10	32	0	44
PER CENT	6.8	9.1	9.1	0.0	2.3	0.0	27.3	50.0	0.0	0.0	0.0	22.7	72.7	0.0	100.0
LVA LATVIA															
01 Aizkraukle	-	-	1	-	-	-	1	2	-	-	-	2	4		5
02 Aluksne	1	-	-	-	-	-	1	-	-	-	-	1	1		2
05 Cesis							0	2	-	-	-	-	2		2
07 Dobele	1	-	-	-	-	-	1						0		1
09 Jekabpils	-	1	-	-	-	-	1	1	-	-	-	-	1		2
11 Kraslava	-	1	-	-	-	-	1	1	-	-	-	1	2		3
12 Kuldiga	-	-	1	-	-	-	1						0		1
13 Liepaja	1	-	-	-	-	-	1	-	1	1	-	-	2		3
15 Ludza	-	-	1	-	-	-	1	-	-	1	-	-	1		2
16 Madona							0	1	-	-	-	-	1		1
17 Ogre							0	-	-	-	-	1	1		1
19 Rezekne	-	-	1	-	-	-	1						0		1
20 Riga	1	1	-	-	-	-	2	3	-	-	-	-	3		5
21 Saldus	1	-	-	-	-	-	1	5	-	-	-	2	7		8
25 Valmiera							0	3	1	-	-	-	4		4
TOTAL	5	3	4	0	0	0	12	18	2	2	0	7	29	0	41
PER CENT	12.2	7.3	9.8	0.0	0.0	0.0	29.3	43.9	4.9	4.9	0.0	17.1	70.7	0.0	100.0

RABIES CASES 1. 7.97 - 30. 9.97

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
FRY	FED.REP.OF YUGOSLAVIA															
60	SR SRBIJA	1	-	1	-	-	-	2	1	-	-	-	-	1		3
61	SAP VOJVODINA	-	5	-	-	-	-	5	4	-	-	-	-	4		9
TOTAL		1	5	1	0	0	0	7	5	0	0	0	0	5	0	12
PER CENT		8.3	41.7	8.3	0.0	0.0	0.0	58.3	41.7	0.0	0.0	0.0	0.0	41.7	0.0	100.0
MLD	M O L D O V A															
01	MOLDOVA	2	2	1	-	-	-	5						0		5
TOTAL		2	2	1	0	0	0	5	0	0	0	0	0	0	0	5
ROM	R O M A N I A															
18	GALATI	-	1	-	-	-	-	1						0		1
26	MEHEDINTI	-	-	-	1	-	-	1						0		1
27	MURES							0	1	-	-	-	-	1		1
34	SUCEAVA							0	1	-	-	-	-	1		1
40	VRANCEA	1	1	-	-	-	-	2						0		2
TOTAL		1	2	0	1	0	0	4	2	0	0	0	0	2	0	6
PER CENT		16.7	33.3	0.0	16.7	0.0	0.0	66.7	33.3	0.0	0.0	0.0	0.0	33.3	0.0	100.0

RABIES CASES 1. 7.97 - 30. 9.97

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
HUN	HUNGARY															
02	Baranya	3	3	-	-	-	-	6	4	-	-	-	-	4		10
03	Bacs-Kiskun	-	1	-	-	-	-	1	2	-	-	-	-	2		3
04	Bekes	-	1	3	-	-	-	4	9	-	-	-	-	9		13
05	Borsod-Abauj-Zemplen	2	4	-	-	-	-	6	8	-	-	-	-	8		14
06	Csongrad	-	-	1	-	-	-	1	7	-	-	1	-	8		9
07	Fejer							0	5	-	-	-	-	5		5
09	Hajdu-Bihar							0	6	-	-	-	-	6		6
10	Heves	-	1	-	-	-	-	1	11	-	-	-	-	11		12
11	Komarom							0	2	-	-	-	-	2		2
12	Nograd							0	3	-	-	-	-	3		3
13	Pest	1	1	-	-	-	-	2	5	-	-	-	-	5		7
14	Somogy	1	2	-	-	-	-	3	12	-	2	-	-	14		17
15	Szabolcs-Szat	-	1	1	-	-	-	2	6	-	-	-	-	6		8
16	Szolnok	-	-	2	-	2	-	4	7	-	-	-	-	7		11
17	Tolna	-	1	-	-	-	-	1	1	-	-	-	-	1		2
19	Veszprem							0	2	-	-	-	-	2		2
TOTAL		7	15	7	0	2	0	31	90	0	2	1	0	93	0	124
PER CENT		5.6	12.1	5.6	0.0	1.6	0.0	25.0	72.6	0.0	1.6	0.8	0.0	75.0	0.0	100.0
SVN	SLOVENIA															
017	CRNOMELJ							0	-	-	1	-	-	1		1
023	DOMZALE							0	5	-	-	-	-	5		5
038	ILIRSKA BISTRICA							0	1	-	-	-	-	1		1
070	MARIBOR							0	1	-	1	-	-	2		2
080	MURSKA SOBOTA							0	1	-	-	-	-	1		1
128	TOLMIN							0	1	-	-	-	-	1		1
TOTAL		0	0	0	0	0	0	0	9	0	2	0	0	11	0	11
PER CENT		0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.8	0.0	18.2	0.0	0.0	100.0	0.0	100.0

LTU LITHUANIA RABIES CASES 1. 7.97 - 30. 9.97

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
36	Birzu	-	1	-	-	-	-	1						0		1
46	Jonavos	-	-	1	-	-	-	1						0		1
47	Joniskio	-	1	6	-	-	-	7						0		7
51	Marijampoles	1	-	1	-	-	-	2						0		2
53	Kedainiai							0						0	1	1
54	Kelmes	-	-	3	-	-	-	3						0		3
56	Kretdingos	-	-	4	-	-	-	4	1	-	-	-	-	1		5
62	Moletu							0	-	-	-	-	1	1		1
65	Pakruojo	-	-	1	-	-	-	1	-	-	2	-	1	3		4
67	Pasvalio							0	1	-	-	-	-	1		1
68	Plunges	-	-	2	-	-	-	2						0		2
71	Radviliskio	-	-	1	-	-	-	1						0		1
72	Raseiniai	-	-	3	-	-	-	3						0		3
77	Taurages	-	1	-	-	-	-	1	2	-	-	-	1	3		4
81	Ukmerges	-	-	1	-	-	-	1						0		1
82	Utenos	-	-	1	-	-	-	1	-	-	1	-	-	1		2
84	Sakiu	-	-	1	-	-	-	1						0		1
87	Silales	2	-	1	-	-	-	3						0		3
88	Silutes	-	1	3	-	-	-	4	3	-	-	-	-	3		7
89	Sirvintu	-	-	1	-	-	-	1	1	-	-	-	-	1		2
91	Siauliu							0	-	-	-	-	2	2		2
94	Jurbarko	-	1	1	-	-	-	2						0		2
TOTAL		3	5	31	0	0	0	39	8	0	3	0	5	16	1	56
PER CENT		5.4	8.9	55.4	0.0	0.0	0.0	69.6	14.3	0.0	5.4	0.0	8.9	28.6	1.8	100.0

POL POLAND — RABIES CASES — 1. 7.97 - 30. 9.97

LOCATION		DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
01	WARSZAWA							0	4	-	-	-	-	4		4
05	BIALYSTOK	1	1	2	-	-	-	4	15	-	1	-	-	16		20
09	BYDGOSZCZ							0	1	-	-	-	-	1		1
13	CIECHANOW	-	1	-	-	-	-	1	9	-	-	-	-	9		10
15	CZESTOCHOWA							0	2	-	-	-	-	2		2
17	ELBLAG	-	1	2	-	-	-	3	3	-	-	-	-	3		6
25	KALISZ							0	2	-	-	-	-	2		2
29	KIELCE	-	1	-	-	-	-	1	13	-	1	1	-	15		16
35	KRAKOW	1	1	-	-	-	-	2	13	1	-	-	-	14		16
43	LUBLIN							0	1	-	-	-	-	1		1
45	LOMZA	1	1	5	-	-	-	7	6	-	-	1	1	8		15
47	LODZ							0	1	-	-	-	-	1		1
49	NOWY SACZ							0	1	-	-	-	-	1		1
51	OLSZTYN	-	2	9	-	-	-	11	23	-	1	-	2	26		37
53	OPOLE	1	-	-	-	-	-	1						0		1
55	OSTROLEKA	-	2	8	-	-	-	10	24	-	-	-	2	26		36
59	PIOTRKOW TRYB							0	4	-	1	-	-	5		5
61	PLOCK	-	-	3	-	-	-	3	1	-	-	-	-	1		4
63	POZNAN							0	1	-	-	-	-	1		1
65	PRZEMYSL	1	1	-	-	-	-	2						0		2
67	RADOM							0	2	-	-	-	-	2		2
69	RZESZOW	-	1	-	-	-	-	1	11	-	-	-	-	11		12
71	SIEDLCE	-	1	-	-	-	-	1	12	-	2	1	-	15		16
79	SUWALKI	-	-	11	-	-	-	11	17	-	1	-	8	26		37
83	TARNOBRZEG	1	-	-	-	-	-	1	10	-	-	-	-	10		11
85	TARNOW	1	1	-	-	-	-	2	3	1	-	-	-	4		6
87	TORUN	-	1	1	-	-	-	2	8	-	2	-	-	10		12
91	WLOCLAWEK	1	-	-	-	-	-	1	2	-	1	-	-	3		4
95	ZAMOSC							0	2	-	-	-	-	2		2
TOTAL		8	15	41	0	0	0	64	191	2	10	3	13	219	0	283
PER CENT		2.8	5.3	14.5	0.0	0.0	0.0	22.6	67.5	0.7	3.5	1.1	4.6	77.4	0.0	100.0

RUS RUSSIAN FEDERATION — RABIES CASES — 1. 7.97 - 30. 9.97

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
08	Pskov Region	13	2	4	1	-	-	20	7	1	-	-	-	8		28
12	Twer Region	4	-	-	-	-	-	4	2	-	-	-	-	2		6
13	Kaluga Region	2	2	-	-	-	-	4	3	-	-	-	1	4		8
15	Moscow Region	-	2	1	-	-	-	3	10	-	-	-	1	11	1	15
16	Oryol Region							0	1	-	-	-	-	1		1
17	Ruazan Region	1	5	-	-	-	-	6						0		6
18	Smolensk Region	2	-	-	-	1	-	3	5	-	-	-	1	6		9
19	Tula Region							0	2	-	-	-	-	2		2
24	Rep. of Mordoviya	1	-	-	-	-	-	1	-	-	-	-	1	1		2
26	Belgorod Region	1	2	2	-	1	-	6	4	-	-	-	-	4		10
27	Voronezh Region	-	3	4	-	-	-	7	2	-	-	-	-	2		9
28	Kursk Region	2	1	2	-	-	-	5	5	-	-	-	-	5		10
29	Lipetsk Region							0	2	-	-	-	-	2		2
31	Astrakhan Region	-	-	1	-	-	-	1						0		1
32	Volgograd Region	1	-	5	-	-	-	6	1	-	-	-	-	1		7
33	Samara Region	-	1	2	-	-	-	3	2	-	-	-	-	2	1	6
34	Penza Region	1	-	-	-	-	-	1	4	-	-	1	-	5		6
35	Saratov Region	3	-	-	-	-	-	3						0		3
37	Rep. of Kalmykiya	-	1	-	-	-	-	1						0		1
38	Rep. of Tatarstan	1	-	1	-	-	-	2	2	-	-	-	-	2		4
39	Krasnodar Territory	15	3	1	-	-	-	19	1	-	-	-	-	1		20
40	Stavropol Territory	1	-	1	-	-	-	2	1	-	-	-	-	1		3
41	Rostov Region	-	1	1	1	-	-	3	-	-	-	-	1	1		4
42	Orenburg Region	6	2	3	-	-	-	11						0		11
44	Rep. of Bashkorto	11	-	3	-	-	-	14	1	-	-	-	-	1	1	16
TOTAL		65	25	31	2	2	0	125	55	1	0	1	5	62	3	190
PER CENT		34.2	13.2	16.3	1.1	1.1	0.0	65.8	28.9	0.5	0.0	0.5	2.6	32.6	1.6	100.0

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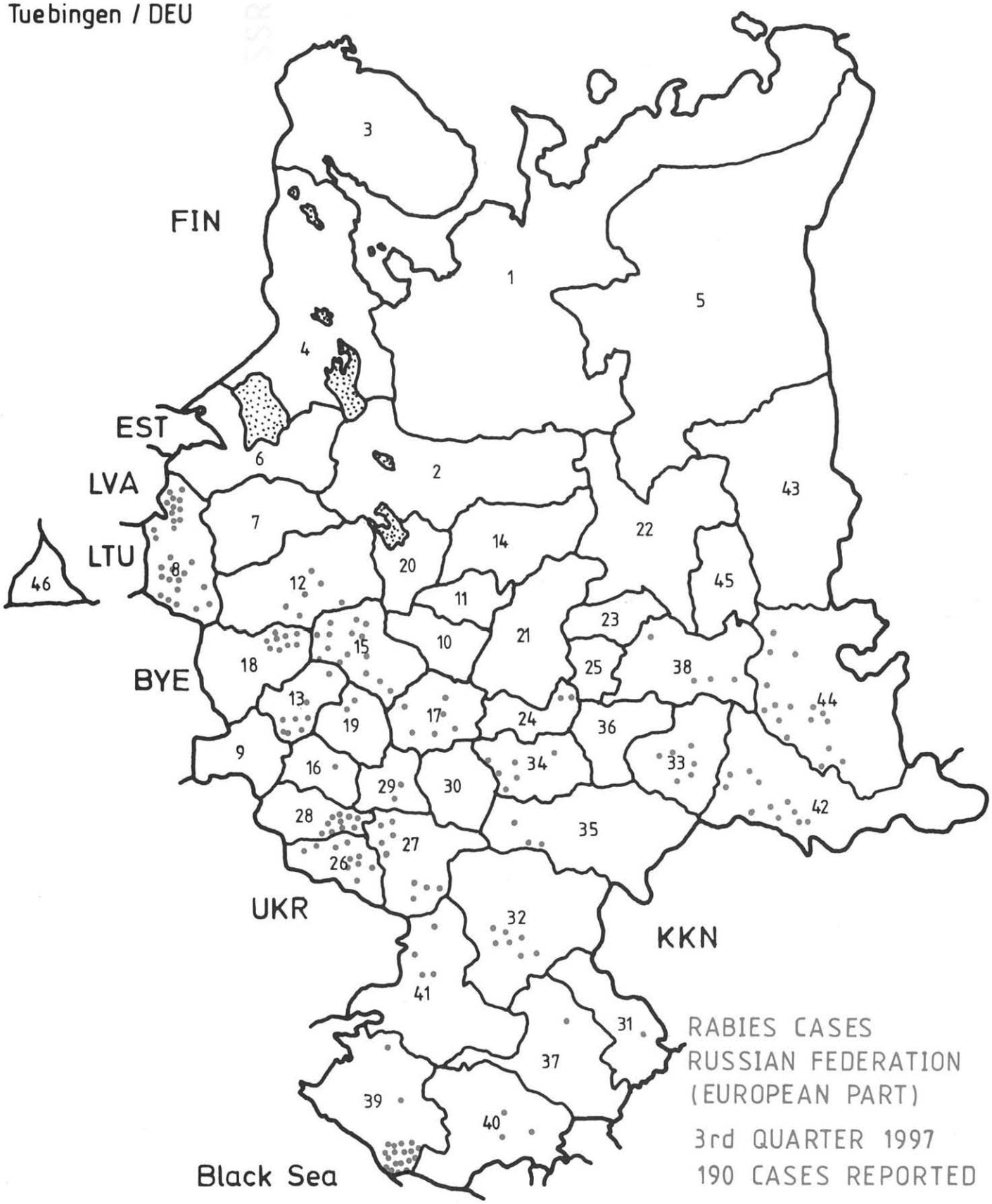

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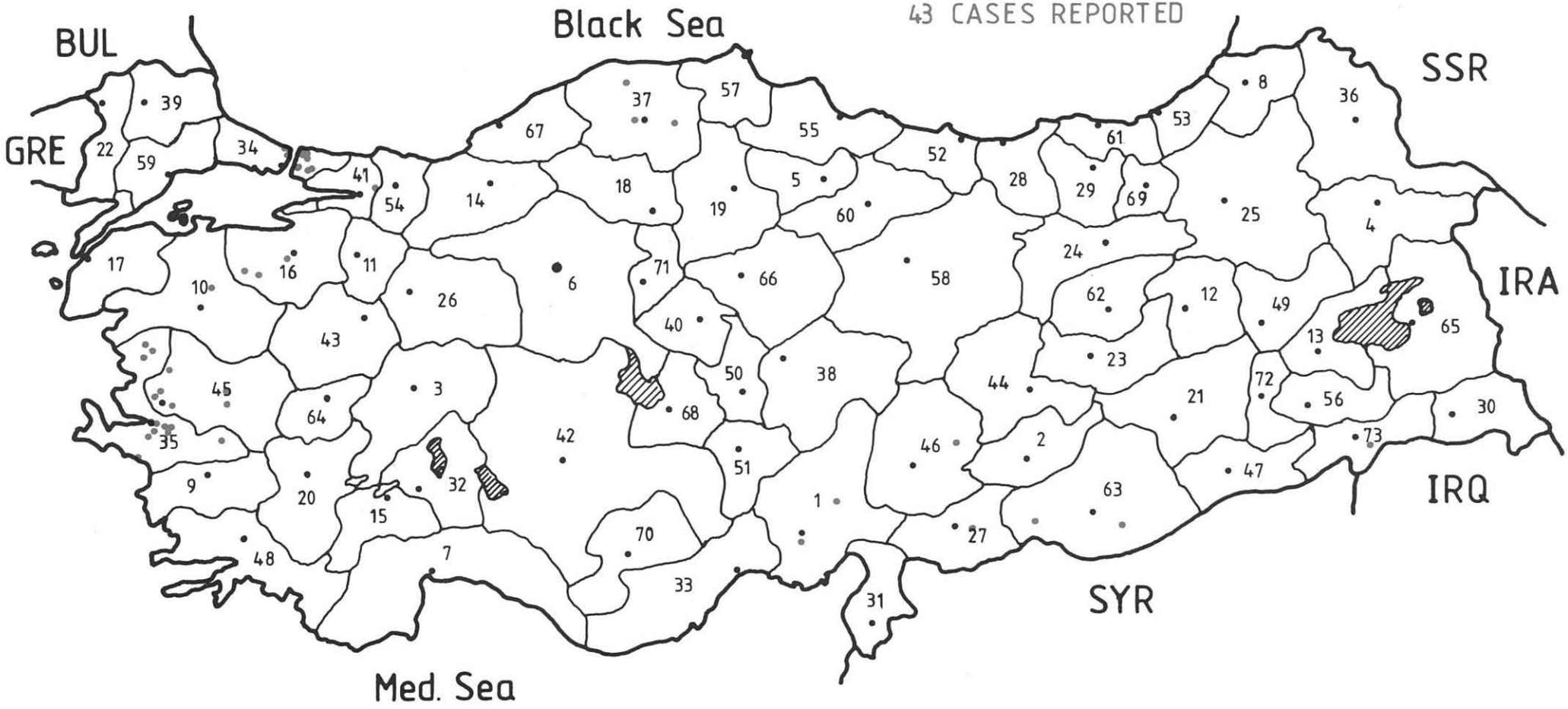
RABIES CASES TURKEY
3rd QUARTER 1997
43 CASES REPORTED



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RABIES CASES EUROPE
3rd QUARTER 1997
986 CASES REPORTED
16 BAT RABIES CASES INCLUDED

ICE
(rabies free)

NOR
(rabies free)

SWE
(rabies free)

FIN
(rabies free)

EST
(44)

LVA
(41)

RUS
(190)

DEN
(6)

LTU
(56)

RUS

BYE
(no data)

IRE
(rabies free)

UNK
(0)

NET
(8)

BEL
(0)

(1)

DEU
(12)
(2)

ROL
(283)

UKR
(no data)

CZH
(29)

SVK
(54)

AUT
(1)

HUN
(124)

MLD
(5)

FRA
(0)

SWI
(0)

ROM
(6)

SVN
(11)

CRO
(54)

ITA
(0)

BIH
(no data)

FRY
(12)

BUL
(1)

TYM
(rabies free)

POR
(rabies free)

SPA
(mainland rabies free)
North Africa
(3)

ALB
(no data)

TUR
(43)

GRE
(rabies free)

0 50 100 km

(rabies free) = no indigenous case reported for at least two years