

RABIES BULLETIN EUROPE - VOL 13/No 3/1989

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1. INTRODUCTION

This BULLETIN describes the reported rabies cases in Europe for the third quarter 1989. The situation in general appears under 2., and in individual countries under 2.1 to 2.27. Figures for the European part of the Union of the Soviet Socialist Republics are reported for the second quarter 1989 but not for the third quarter 1989.

In the miscellaneous section under 3.1 a report is given of the first occurrence of bat rabies in France. In 3.2 some notes are made on the clinical course of a rabid bat in the Federal Republic of Germany. In a continued annual reporting on the development of oral vaccination of wildlife against rabies new areas are being described for the fourth time under 3.3, supplemented by a map in the ANNEX. Under 3.4 some features of rabies surveillance of the United States of America are presented.

The rabies case data are tabulated for the third quarter 1989 under 4.

The last section lists the official contributors to the BULLETIN.

The geographical distribution of cases in Europe of the third quarter 1989 is shown on maps of Europe and Turkey in the ANNEX.

2. RABIES IN EUROPE (EUR), THIRD QUARTER 1989

During the third quarter 1989, 4535 rabies cases were reported in Europe. These were 3593 in wild animals (79.2%) and 942 in domestic animals (20.8%). Of the cases in wild animals 3225 were foxes (71.1% of total), 69 badgers, 26 raccoon dogs, 119 stone martens, 15 pine martens, 9 polecats, 1 ferret, 1 raccoon, 1 other wild carnivore, 93 roe deer, 1 red deer, 1 moose, 3 wild boars, 1 mouflon, 3 hedgehogs, 21 insectivorous bats, 1 black rat, 1 house mouse, 2 other wild animals. Of the 942 domestic animals 173 were dogs (105 dogs = 60.7% of all dogs in Europe were reported from Turkey, a country with dog-mediated rabies), 188 cats, 1 farm ferret, 13 horses, 1 donkey, 2 pigs, 318 cattle, 233 sheep, 10 goats, 1 domesticated rabbit, 2 other domesticated animals. These data have been summarized in Tables 1 and 3.

Table 2 summarizes the quarters 1 to 3 1989, except for the third quarter 1989 of the Union of the Soviet Socialist Republics.

In comparison with the third quarter 1988 (3664 cases) Europe experienced an increase of rabies cases by 23.7%.

Rabies-free countries in Europe participating in the surveillance were: Bulgaria, Iceland, Ireland, the mainland of Norway, Portugal, Sweden and the United Kingdom of Britain and Northern Ireland. There were no cases reported from Denmark, Finland, Greece and Svalbard (Norway), but their last indigenously acquired case was recorded less than two years ago.

Two countries reported bat rabies for the first time: Czechoslovakia (1) and France (1). Further reports came from the German Democratic Republic (1), the Federal Republic of Germany (4), the Netherlands (10) and Spain (4).

Four human cases were subsequently reported for the second quarter 1989 by the Union of the Soviet Socialist Republics.

Individual country reports follow:

2.1 Rabies in Austria (AUT)

by H. Schnabl

During the third quarter 1989, 295 rabies cases in animals were registered out of 4797 examined. Compared to the second quarter 1989 (391 cases) there was a decrease by 25%.

Of 284 rabid wild animals (96% of total) 247 were foxes (84% of total), 8 badgers, 20 stone martens, 1 polecat, 7 roe deer and 1 wild boar. Of 11 rabid domestic animals (4% of total) 6 were cats, 4 cattle and 1 sheep.

The distribution of rabies cases by Bundesländer (federal provinces) and Bezirke (districts) was as follows:

Burgenland - 24 cases (8% of total) in the Bezirke Rust, Eisenstadt-Umgebung, Güssing, Mattersburg and Oberpullendorf.

Kärnten - 39 cases (13%) in the Bezirke Klagenfurt-Stadt, St. Veit/Glan, Spittal/Drau, Villach-Land, Völkermarkt and Wolfsberg.

Niederösterreich - 81 cases (27%) in the Bezirke Krems/Donau, Melk, Neunkirchen, Wiener Neustadt and Zwettl.

Oberösterreich - 58 cases (20% in the Bezirke Braunau/Inn, Freistadt, Gmunden, Perg, Ried/Innkreis and Vöcklabruck.

Salzburg - 7 cases (2%) in the Bezirke Salzburg/Umgebung and Tamsweg.

Steiermark - 86 cases (29%) in the Bezirke Bruck/Mur, Hartberg, Judenburg, Leibnitz, Leoben, Liezen, Mürzzuschlag, Murau, Radkersburg and Weiz.

Free of rabies were the Bundesländer Wien, Vorarlberg, and Tirol.

2.2 Rabies in Belgium (BEL)

by J. Tambreur

212 rabies cases were confirmed during the third quarter 1989 in 111 localities of the provinces Liège, Luxembourg and Namur. Of these were 75 cases in domestic animals (7 cats, 41 cattle, 3 horses, 24 small ruminants) and 137 cases in wild animals (131 foxes, 2 badgers and 4 other mustelids).

There was an increase of cases by 37% compared to the previous quarter and by 15% compared to the same quarter in 1988.

A substantial decrease of cases had been noticed during the second quarter 1989, but it could not be maintained as an oral vaccination of foxes planned in spring 1989 could not be carried out. This vaccination campaign has now been organised during September 1989 in the whole territory of Belgium infected by rabies using 15 vaccine baits per km² and it is going to be repeated in this manner in spring and autumn 1990.

2.3 Bulgaria (BUL)

The country remained rabies-free.

2.4 Rabies in Czechoslovakia (CZE)

by M. Olach and J. Neumann

In the third quarter of 1989 a total of 336 rabies cases were ascertained in Czechoslovakia. 282 cases were recorded in the CSR (83.9% of total) and 54 cases in the SSR (16.1% of total).

In comparison with the second quarter of 1989, the total number of rabies cases decreased by 134 cases. A reduction of the number of rabies cases was recorded in both the domestic animals (by 53.8%) and the wildlife animals (27%). In comparison with the third quarter of 1988 (360 cases), a decrease by 24 cases was recorded.

Rabies was ascertained in 324 wild animals (96.4%) and 12 domestic animals. The affected wildlife included 306 foxes, 3 badgers, 8 martens, 6 roe-deer, and for the first time a bat (in the district of Ziar n. Hronom). In regard to domestic animals, rabies was diagnosed in 9 cats, 1 dog, 1 bovine and 1 sheep.

The highest number of rabies cases was ascertained in the West Bohemian and North Bohemian regions. In the West Bohemian region 25.3% and in the North Bohemian region 17.5% of the total number of rabies cases were recorded. In regard to the districts, the highest incidence was found in the districts of Tachov (23), Klatovy (18), C. Lípa (17) and Domazlice (13).

At present, rabies cases have been recorded in 358 foci involving 81 districts in the whole territory of Czechoslovakia (310 foci in 59 districts in CSR and 48 foci in 22 districts in SSR).

No case of rabies was recorded in man.

2.5 Rabies in Germany, Democratic Republic (DDR)

During the third quarter 1989, 1018 rabies cases were diagnosed in animals in the Democratic Republic of Germany. This is the highest figure for one quarter since reporting to this WHO Collaborating Centre started in 1977. Compared to the previous quarter (659) there was an increase of 359 cases (54%), and compared to the third quarter 1988 (687) an increase of 331 cases (48%).

734 cases of the total (72%) were in wild animals - 625 foxes, 20 badgers, 47 stone martens, 1 polecat, 2 raccoon dogs, 1 mink, 33 roe deer, 1 red deer, 2 wild boar, 1 mouflon, 1 bat; 284 cases of the total were in domestic animals - 26 dogs, 53 cats, 97 cattle, 3 horses, 102 sheep, 1 goat, 1 pig, 1 farm mink.

Of the 15 Bezirke (departments) of the country the three with the highest figures were Dresden (196 cases), Potsdam (160 cases) and Halle (106 cases). All others had less than 79 cases.

2.6 Rabies in Denmark (DEN)

by E. Stougaard

During the third quarter 1989, there was no case of bat rabies reported.

The country remained rabies-free in terrestrial animals.

2.7 Rabies in Germany, Federal Republic (DEU)

A total of 594 rabies cases were reported during the third quarter 1989, 82 cases less than during the previous quarter and 64 more compared to the third quarter 1988. Of the total 520 cases were in wild animals (458 foxes, 16 badgers, 19 stone martens, 2 pine martens, 1 raccoon, 20 roe deer and 4 bats), 74 cases were in domestic animals (5 dogs, 18 cats, 29 cattle, 15 sheep, 3 goats and 4 horses).

There were 4 cases of bat rabies, 3 in the city state Berlin (West) and 1 in the state of Schleswig-Holstein. All 4 were Eptesicus serotinus and characterized by the WHO Collaborating Centre for Rabies Surveillance and Research, Tübingen, as belonging into the serotype 4 group of Rhabdoviridae, genus Lyssavirus.

Close to the border with the German Democratic Republic there were 2 more cases in foxes in the state of Schleswig-Holstein, which was reinfected during the previous quarter after having been rabies-free for 4 years. Nevertheless, oral vaccination of foxes against rabies has been carried out in the area to stop a further extension of the disease.

Outbreaks with a greater tendency to spread were recorded in the states (Bundesländer) of Hessen (53% of all cases in the Federal Republic of Germany), Saarland, Baden-Württemberg and Bayern.

2.8 Rabies in Finland (FIN)

by S. Reinius

During the third quarter of 1989, there were no cases of rabies in Finland.

During the said period samples of 322 animals were examined for rabies by immunofluorescence, among them 16 dogs, 37 cats, 177 raccoon dogs, 54 foxes and 19 small predators of other species.

The field trial on oral immunization of raccoon dogs and foxes, which was started in April 1988, was continued with a third baiting campaign. In the middle of September 30.000 Tübingen baits were spread over the entire area where cases of rabies have been recorded during the present epizootic. 8.000 baits were distributed by local hunters over an area of 500 km² and 22.000 baits were spread by air over an area of 1200 km².

2.9 Rabies in France (FRA)

by J. Blancou

942 rabies cases were registered during the third quarter 1989, 2 more than during the previous quarter. 735 cases were noted in the fox (78% of total), 37 in other wild animals and 170 in domestic animals (9 dogs, 32 cats, 42 cattle, 83 small ruminants, 2 horses, 1 pig, 1 rabbit).

For the first time a bat, an Eptesicus serotinus was diagnosed rabid in France, in the département of Meurthe et Moselle (see as well under 3.1 of this BULLETIN).

The départements (departments) registering the greatest number of cases during this quarter were Nièvre (132 cases) and Doubs (123 cases).

During the third quarter 1989, eleven French departments carried out autumn vaccination campaigns to vaccinate foxes against rabies covering a total area of 15.606 km².

Previously vaccinated areas withstood rabies very well (Haute-Savoie), except when they were bordering infected zones (Moselle).

2.10 Rabies in Greece (GRE)

by A. Saravanos

During the third quarter 1989, no case of rabies was reported in Greece.

2.11 Rabies in Hungary (HUN)

by L. Koltai

During the third quarter 1989, 224 rabies cases were diagnosed in Hungary, similar to the same period in 1988 (236 cases).

The majority of cases were again registered in Transdanubia (67.2% of total).

82.6% of the total cases were in foxes. As a rare instance a hedgehog, which had bitten a person was diagnosed rabid.

2.12 Iceland (ICE)

The country remained rabies-free.

2.13 Ireland (IRE)

The country remained rabies-free.

2.14 Rabies in Italy (ITA)

by S. Prospero

During the third quarter of 1989, 6 cases of rabies have been diagnosed: 5 in foxes and one in a badger. All cases were reported in July in the provinces of Trieste and Gorizia, in municipalities previously infected. In the months of August and September no cases of rabies were reported, however an intensive surveillance continued.

The oral vaccination of foxes against rabies, performed during last spring in some areas of the Friuli Region (as mentioned in RABIES BULLETIN EUROPE 1/89), will be carried out again during the months of November/December 1989.

2.15 Rabies in Luxembourg (LUX)

by J. Kremer

During the third quarter 1989, the rabies situation deteriorated compared to the previous quarter. The new cases were entirely in the north of the country along the border with Belgium. There were a total of 47 rabies

cases, 26 in wild and 21 in domestic animals. Of the wild animals the fox was the animal mainly affected (22 cases), of the domestic animals it were the cattle (17 cases). Samples investigated during the quarter but with negative results were: 5 foxes, 2 stone martens, 2 roe deer, 1 hare.

In regard to the control of the disease the Veterinary and the Forestry Departments along with game-tenants have organized on 23. and 24. September 1989 the 5th oral vaccination campaign of foxes against rabies with the "Tübingen vaccine baits" covering the whole country. It is hoped that the previous success in freeing the country can be repeated.

Nevertheless, it should be the aim in Europe to cope with the disease by international cooperation so as to make the oral vaccinations unnecessary altogether.

2.16 Rabies in the Netherlands (NET)

by J.H.M. Nieuwenhuijs

During the third quarter 1989, 237 animals were investigated for rabies (of these were 4 bats and 2 foxes unsuitable for laboratory diagnosis).

Of the 108 bats examined 10 proved to be rabies positive. 7 rabid bats were found in the province Noord-Holland, 2 in Groningen, 1 in Overijssel.

One of the rabid bats was a Myotis dasycneme. A bat of the same species was diagnosed rabid in September 1987. All other bats were of the species Eptesicus serotinus.

Animals investigated for rabies; third quarter of 1989

Province	Red fox adult neg.	Red fox young neg.	Cat neg.	Cattle neg.	Sheep neg.	Polecat neg.	Marten neg.	Badger neg.	House neg.	Squirrel neg.	Owl neg.	Bat neg. pos.		Number in- vestigated per prov.
Groningen	12	2										17	2	33
Friesland			1									16		17
Drenthe	29	4										13		46
Overijssel	2					1						7	1	11
Gelderland	10	5									1	4		20
Utrecht	1											3		4
Flevoland														
N-Holland												14	7	21
S-Holland	1	1	1							1		7		11
Seeland												2		2
N-Brabant												13		13
Limburg	28	5	2	1	1	2	4	5	1			2		51
Unknown	1	1												2
Total Number	84	18	4	1	1	3	4	5	1	1	1	98	10	231

Total number of animals sent in: 237

Four bats and two red foxes adult were not suitable for investigation

2.17 Rabies in Norway (NOR)

by H.O. Bach-Gansmo

No case of rabies has been reported in Svalbard during the third quarter 1989.

The mainland remained rabies-free.

2.18 Rabies in Poland (POL)

A total of 445 cases of rabies was reported in Poland during the third quarter 1989, 152 cases more than in the previous quarter and 44 cases more than during the third quarter 1988.

356 cases were registered in wild animals (80% of total) - 289 foxes, 24 raccoon dogs, 8 badgers, 9 pine martens, 7 polecats, 1 ferret, 14 roe deer, 1 moose, 2 hedgehogs and 1 black rat, and 89 in domestic animals - 13 dogs, 31 cats, 43 cattle and 2 sheep.

As in the previous quarter, there was a concentration of cases in the provinces (voivodeships) of the western part of the country.

2.19 Portugal (POR)

The country remained rabies-free.

2.20 Rabies in Romania (ROM)

Only 3 rabies cases were reported in Romania during the third quarter 1989. Two sheep were rabid in the province Constanta in the south-east of the country and 1 bovine in the province of Iasi in the north-east of the country.

2.21 Rabies in Spain (SPA)

by J.L. de Felipe Gardón

During the third quarter 1989, the mainland and islands of Spain remained rabies-free in terrestrial animals.

There was no case of rabies in the Spanish territory in North Africa (Ceuta and Melilla).

In Huelva, Autonomous Region Andalusia, four bats were diagnosed rabid. They were of the species Eptesicus serotinus, captured on 19th and 27th July. The rabies strain characterisation revealed serotype 4 (Duvenhage).

No persons were bitten.

2.22 Rabies in the European part of the Union of Soviet Socialist Republics (SSR)

by G.F. Koromyslov and B.L. Cherkasskiy

Second quarter 1989

During the second quarter 1989, 691 cases of rabies were recorded in the European part of the USSR, 494 cases less than during the first quarter 1989.

Of the 691 cases were 490 (71% of total) in domestic animals - 95 dogs, 92 cats, 180 cattle, 112 small ruminants, 10 horses and 1 other domesticated animal, 197 were in wild animals - 155 foxes, 2 badgers, 4 other mustelids, 5 deer, 31 other wild animals.

There were 4 cases of rabies in man, 3 cases in the Russian Socialist Federated Soviet Republic and 1 case in the Ukrainian Socialist Soviet Republic.

2.23 Sweden (SWE)

The country remained rabies-free.

2.24 Rabies in Switzerland (SWI)

by A. Kappeler

During the third quarter of 1989, the Swiss Rabies Center received 621 animals for examination. 29 (4.7%) of these were positive for rabies compared to 8 (1.9% of 416) in the previous quarter and 28 (7.5% of 375) in the third quarter of 1988. All 29 cases were observed in foxes. 26 bats examined with immunofluorescence and i.c.-inoculation into suckling mice revealed no rabies virus.

Four rabies cases were observed in different locations in the Jura mountains, all less than 5 kilometers from the Swiss-French border (Neuchatel 2, Jura 1, Baselstadt 1). All other cases originated in northwestern Switzerland. For a part of this area oral vaccination campaigns of foxes against rabies had taken place only until autumn 1987. In November 1988 a first rabies case was observed behind the vaccination zone of autumn 1988, followed by 7 more cases during winter and spring. In April 1989 the area was vaccinated. As fox cubs could not be reached by this campaign, it wasn't surprising that the number of cases increased significantly during the summer months.

Fox immunisation campaigns conducted in autumn 1989 covered the area along the Swiss-French border in the Jura mountains and in the lower canton of Valais. Due to the increasing number of cases, in northwestern Switzerland a larger area was treated than in spring 1989.

No bite exposures of humans to proven rabid animals were recorded in the third quarter of 1989. The number of people treated for non-bite exposures is not recorded.

2.25 Rabies in Turkey (TUR)

During the third quarter 1989, 157 rabies cases were reported from Turkey. Only one case was registered in a house mouse, all others were in domestic animals: 105 dogs (66.9% of total), 12 cats, 33 cattle, 3 goats, 1 horse, 1 donkey, 1 sheep. There has been an increase of cases compared to the previous quarter by 39 cases.

The provinces Istanbul and Sakarya reported 43 and 10 cases respectively. All other provinces reported less than 10 cases. The distribution of cases was more in the coastal areas and less in the central and the eastern parts of the country.

2.26 United Kingdom (UNK)

by M.J. Marriott

The country remained rabies-free.

2.27 Rabies in Yugoslavia (YUG)

213 cases of rabies in animals were reported in Yugoslavia during the third quarter 1989. Of these were 201 in wild animals (193 foxes, 3 badgers, 1 stone marten, 2 roe deer, 2 other wild animals) and 12 in domestic animals (1 dog, 4 cats, 3 cattle, 2 sheep, 2 other domesticated animals). Compared to the previous quarter rabies cases decreased by 63 and compared to the third quarter 1989 by 33.

Half of the total cases of the country occurred in Slovenia (108 cases). Croatia reported 82 cases, mainly distributed in the north and Bosnia and Hercegovina and Wojwodina had scattered cases.

3. MISCELLANEOUS

3.1 Two Bats Diagnosed Rabid in France

by J. Barrat¹, M. Artois¹ and H. Bourhy²

First case:

It concerns a serotine bat, Eptesicus serotinus, killed at Briey (département Meurthe et Moselle) on 11 September 1989. The diagnosis was done at Institut Pasteur, Paris. The determination of the species was carried out by Prof. A. Brosset of the National Museum of Natural History in Paris.

- Case history: The animal was seen flying over a group of people at 16.00 hours in a garden. One of the people noticed that the bat, mostly wailing, changed its course when she whistled at it. This behaviour was repeated several times until the bat sat on this persons leg and bit through her trousers.

- Diagnostic: In the mouse inoculation test virus could be isolated from brain, heart, lung and spinal cord but not from spleen, liver, kidney, brown fat or salivary glands.

Other techniques applied were: direct immunofluorescence of the brain (positive), strain isolation in tissue (positive), Rapid Rabies Enzyme Immuno Diagnosis in spinal cord and brain (weakly positive).

The characterisation of the isolated strain with monoclonal antibodies revealed the virus "Duvenhage Europe".

Second case:

It concerns an other serotine bat, Eptesicus serotinus, a male, approx. 5 to 6 years old. This animal was found at Bainville-sur-Madon (département Meurthe et Moselle). The determination of the species was carried out by Mr. J.B. Popelard of the Société Française pour l'Etude et la Protection des Mammifères.

- Case history: This animal was seen on 29 September 1989 behind a shutter of a pavilion. Touched with a stick the bat cried and tried to bite into it. The next day it was observed anew looking immobile, the head was up and it continued to cry. It was captured and placed into a box. Nobody was bitten. On 2 October 1989 the animal was carried to a teacher of a Natural Science Highschool at Nancy who had the idea to have its species determined.

- Diagnostic: The diagnosis of rabies was made on 4 October 1989 at the Laboratoire d'Etudes sur la Rage et la Pathologie des Animaux Sauvages, Malzeville. The techniques applied were: direct immunofluorescence, mouse inoculation test and tissue culture growth with brain material. All three techniques gave positive results.

The characterisation of the isolated strain with monoclonal antibodies was carried out at the Institut Pasteur, Paris.

¹ = Laboratoire d'Etudes sur la Rage et la Pathologie des Animaux Sauvages, Malzeville

² = Institut Pasteur, Paris

Conclusion:

On these two rabies cases of serotine bats important changes of behaviour were noticed: flight during day time, wailing, facilitating to approach the animal as well as to catch it.

These observations confirm the old proverb, Louis ANDRAL, the former director of the Centre d'Etudes sur la Rage used to quote: "It is not the virus that goes to man, but the man who gets infected due to imprudence or ignorance...".

This was often true in regard to the virus originating from the fox, it seems that this is so with the virus of the bats as well.

3.2 Observations on the Course of a Bat Rabies Case in the Federal Republic of Germany (DEU)

Until now 46 bat rabies cases were registered at the WHO Collaborating Centre for Rabies Surveillance and Research in Tübingen for the Federal Republic of Germany.

In most of these cases, when bats were found alive, the bats were described as paralyzed, at times crying and quite often biting when approached. However, the biting could never be brought into connection to aggression as bats unable to fly for other reasons than rabies would react in the same manner.

A recent observation of two bat protectionists support that the aggressive form of rabies in bats does exist. The two bat protectionists near Osnabrück had taken a bat into care, thus, they could observe the clinical symptoms in the course of the disease.

Here is the report:

The bat was taken into care on 2 February 1989. The weight was 18 g. It gained weight up to 27 g and seemed to develop well. On 10 March 1989 it refused to eat. Then there were strong motoric activities during the nights. A few days later there was frequent aggression. The animal bit into dead objects and the cage. It died on 29 March 1989.

The diagnosis was done with the direct immunofluorescence test at the State Veterinary Investigation Centre, Braunschweig. The characterisation with monoclonal antibodies carried out by the WHO Collaborating Centre for Rabies Surveillance and Research, Tübingen, revealed serotyp 4, Duvenhage (Europe) virus.

3.3 New Areas of Oral Fox Vaccination in Europe, 1989

Oral vaccination was continued to be practiced in Europe in 1989. Five types of vaccine were in use: SAD Bern in Switzerland, SAD B19 Tübingen in the Federal Republic of Germany, Belgium, the Netherlands, Luxembourg, France, Austria, Italy, Yugoslavia, Finland and Czechoslovakia, S.A.G. in France, vaccinia-rabies recombinant virus in Belgium, SAD type in the German Democratic Republic.

As in previous reporting in this BULLETIN (issues 3/86, 3/87, 3/88) a map is presented in the ANNEX showing vaccinated areas from 1978 to 1988 hatched and the newly vaccinated areas in 1989 dotted.

Meanwhile two projects have been established to coordinate the sanitation of border areas as well as to exchange experience gained. The WEST EUROPEAN COOPERATION combines countries around Luxembourg plus Switzerland, the EAST EUROPEAN COOPERATION combines countries around Austria plus Finland and the German Democratic Republic. Meetings are usually held at the beginning of the year reporting the past experience and the planning of vaccination campaigns of the prevailing year.

A short description of the vaccination areas and the epizootiological development of the different countries follows:

WESTEUROPEAN COOPERATION

Luxembourg (LUX)

Luxembourg started oral vaccination in 1986 vaccinating the whole country. The country was free of rabies for a short time in 1988 but became reinfected. In 1989 the whole country was revaccinated.

Belgium (BEL)

Belgium started a vaccination belt adjacent to Luxembourg in 1986 (ca. 1700 km²). Today the entire infected part of the country is vaccinated (ca. 9000 km²). The success of the vaccination was hampered as it could not be practiced biannually due to financial restrictions.

In a certain area a field trial of fox vaccination is carried out using a vaccinia-rabies recombinant virus.

France (FRA)

In 1986 an area of 400 km² was vaccinated for the first time adjacent to Luxembourg. In 1987 a border area with Switzerland was vaccinated. In 1989 the latter area was extended and a new one started in the départements (departments) Seine et Marne and Essonne. During the autumn campaign 1989 a total of 15,606 km² was vaccinated. In a small area S.A.G. vaccine was tried for the first time.

Some of the areas started first along the Luxembourg border have become free of rabies.

Switzerland (SWI)

Switzerland started oral vaccination in 1978 and has only few infected areas left in the west and north-west of the country. All areas of the country were once or several times vaccinated except for one part in the centre of Switzerland where no vaccination was necessary. There are of course areas in mountains above altitudes of 2000 meters not vaccinated which can not be seen in the map.

Switzerland is the only country at this point where the oral vaccination is backed by legislation, all other countries practice it as field trials.

Federal Republic of Germany (DEU)

The field trial started in 1983. The federal states, except the city states Hamburg and Bremen, extended the vaccination areas according to their available financial resources. During the autumn campaign 1989 a total of 89,583 km² was vaccinated.

Large areas have become rabies-free, the gross total of rabies cases was reduced.

The following states participate in the WEST EUROPEAN COOPERATION: Nordrhein-Westfalen, Rheinland-Pfalz, Saarland and Baden-Württemberg.

The Netherlands (NET)

The very southeastern part of the Netherlands was infected in May 1988. When several cases followed it was decided on oral vaccination. The area covers 270 km².

Though rabies cases have not occurred for some time in this area, the vaccination is being continued.

EAST EUROPEAN COOPERATION

Austria (AUT)

Austria started the vaccination with the federal province Vorarlberg in 1986. The next provinces to join were Tirol and Steiermark. At this point Kärnten, Salzburg and Oberösterreich are vaccinating as well.

Vorarlberg became rabies-free in 1987, Tirol in 1988.

Italy (ITA)

The country started oral vaccination in 1984 and became rabies-free in 1986. In 1988 Italy was reinfected but at a different site, along the border with Yugoslavia. In 1989 a cordon vaccination has here been carried out twice.

Yugoslavia (YUG)

Yugoslavia started vaccinating for the first time in 1988 in the western part of Slovenia. This area has been extended in 1989.

Czechoslovakia (CZE)

The country started the vaccination in 1989 along the border with the Federal Republic of Germany.

German Democratic Republic (DDR)

The country too started the field trial on oral immunisation in 1989 in its north-western part bordering with the Federal Republic of Germany and on the island of Rügen.

Federal Republic of Germany (DEU)

The following states participate at this point in the EAST EUROPEAN COOPERATION: Bayern and Schleswig-Holstein (see as well under WEST EUROPEAN COOPERATION).

Finland (FIN)

After detection of sylvatic rabies (with the raccoon dog as main species involved) in the province of Kymi in April 1988 (Finland had been rabies-free for 29 years) it was decided on a field trial of oral vaccination. Distribution of vaccine baits was carried out manually by hunters as well as by air in 1988 and the area was enlarged when revaccinated in 1989.

The last rabies case reported in the country was in February 1989. Altogether 63 animals had been diagnosed rabid from April 1988 on.

3.4 Rabies Surveillance, United States of America, 1988

Figures and graphs on rabies surveillance of the United States of America have last been presented in issue 1/87 of this BULLETIN. In this issue certain features have been selected taken from a publication by the U.S. Department of Health and Human Services demonstrating the development of rabies until 1988.

Rabies cases for the year 1988 are summarized in Table 1.

TABLE 1. Cases of rabies, by state and category, United States, 1988

State	Total	Total	Dogs	Cats	Cattle	Horses/ mules	Sheep/ goats	Swine	Skunks	Foxes	Bats	Raccoons	Rodents and lagomorphs*	Other wild†	Percent change‡	
Species	total	domestic	wild	128	192	171	43	9	7	1,791	183	638	1,463	25	74	-0.1
AK	34	2	32	2	0	0	0	0	0	32	0	0	0	0	0	325.0
AL	94	3	91	2	1	0	0	0	1	3	19	67	0	1 [†]	0	16.1
AR	91	685	1	0	3	2	0	0	76	1	8	0	0	0	0	-26.0
AZ	45	045	0	0	0	0	0	10	5	30	0	0	0	0	0	-46.4
CA	402	8	394	3	1	2	2	0	0	256	8	129	1	0	0	1.8
CO	28	0	28	0	0	0	0	0	1	0	27	0	0	0	0	-15.2
CT	8	0	8	0	0	0	0	0	0	0	8	0	0	0	0	166.7
DC	13	2	11	1	1	0	0	0	0	0	0	11	0	0	0	-71.1
DE	61	2	59	0	2	0	0	0	7	4	8	36	4 [*]	0	0	577.8
FL	184	14	170	0	14	0	0	0	1	8	32	127	0	0	2 [†]	65.8
GA	292	13	279	7	6	0	0	0	24	9	6	237	0	0	3 [†]	39.7
HI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
IA	175	74	101	15	16	36	5	1	1	96	0	5	0	0	0	-35.7
ID	11	0	11	0	0	0	0	0	0	0	11	0	0	0	0	10.0
IL	32	4	28	2	0	1	1	0	0	16	0	11	0	0	1 [†]	-30.4
IN	36	0	36	0	0	0	0	0	26	2	8	0	0	0	0	80.0
KS	41	3	38	1	1	1	0	0	35	0	3	0	0	0	0	-2.4
KY	106	23	83	15	1	5	2	0	78	2	2	1	0	0	0	-22.6
LA	13	1	12	0	1	0	0	0	8	0	4	0	0	0	0	0.0
MA	3	0	3	0	0	0	0	0	0	0	3	0	0	0	0	-40.0
MD	338	16	322	0	13	2	0	1	0	19	21	21	255	5 [†]	1 [†]	-24.9
ME	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	-66.7
MI	35	4	31	2	2	0	0	0	8	2	21	0	0	0	0	25.0
MN	142	42	100	7	6	27	2	0	92	1	7	0	0	0	0	-44.3
MO	36	6	30	3	2	1	0	0	18	0	12	0	0	0	0	-39.0
MS	9	0	9	0	0	0	0	0	0	0	9	0	0	0	0	0.0
MT	214	16	198	1	4	8	3	0	182	0	16	0	0	0	0	14.4
NC	8	0	8	0	0	0	0	0	4	1	3	0	0	0	0	0.0
ND	105	24	81	4	6	11	3	0	78	0	1	2	0	0	0	-18.6
NE	21	5	16	1	1	3	0	0	12	0	4	0	0	0	0	23.5
NH	4	1	3	1	0	0	0	0	0	0	3	0	0	0	0	0.0
NJ	15	0	15	0	0	0	0	0	0	0	15	0	0	0	0	-16.7
NM	15	4	11	0	2	0	2	0	6	1	4	0	0	0	0	400.0
NV	20	0	20	0	0	0	0	0	0	0	20	0	0	0	0	33.3
NY	40	1	39	0	0	1	0	0	0	1	38	0	0	0	0	-29.8
OH	6	0	6	0	0	0	0	0	0	0	6	0	0	0	0	-60.0
OK	38	6	32	2	0	3	1	0	31	0	0	1	0	0	0	8.6
OR	6	0	6	0	0	0	0	0	0	0	6	0	0	0	0	20.0
PA	543	48	495	3	21	16	8	0	73	18	11	380	12 ^c	1 [†]	0	67.6
PR	73	21	52	9	9	3	0	0	0	0	0	0	0	0	52 [†]	4.3
RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-100.0
SC	127	26	101	5	20	0	0	1	10	11	9	67	2 ^d	2 [†]	0	115.3
SD	137	40	97	5	10	22	1	1	92	1	3	0	0	1 ^m	0	-39.9
TN	111	9	102	8	0	1	0	0	87	5	10	0	0	0	0	14.4
TX	434	78	356	21	30	14	9	4	266	20	57	4	0	0	9 ⁿ	0.5
UT	10	0	10	0	0	0	0	0	0	0	10	0	0	0	0	42.9
VA	366	19	347	1	13	2	1	2	89	24	11	220	2 [*]	1 [†]	0	1.1
VT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00.0
WA	4	0	4	0	0	0	0	0	0	0	4	0	0	0	0	-60.0
WI	55	14	41	4	3	6	1	0	38	0	3	0	0	0	0	14.6
WV	103	8	95	1	2	1	0	0	4	31	3	7	54	0	0	30.4
WY	39	6	33	1	3	2	0	0	20	0	13	0	0	0	0	-45.8
Percent ^d	100	11.6	88.4	2.7	4.1	3.6	0.9	0.2	0.2	37.9	3.9	13.5	31.0	0.5	1.6	
Total																
1987 [†]	4,729**	559	4,169	170	166	174	39	8	2	2,033	119	629	1,311	12	65	
% Chg [‡]	-0.1	-1.6	+0.1	-24.7	+15.7	-1.7	+10.3	+12.5	+250.0	-11.9	+53.8	+1.4	+11.6	+108.3	+13.9	

*Rodents and lagomorphs include: (a) 4 groundhogs; (b) 5 groundhogs; (c) 11 groundhogs, 1 rabbit; (d) 1 squirrel, 1 rat; (e) 2 groundhogs.

†Other wild includes: (f) 1 bobcat; (g) 2 otter, 1 bobcat; (h) 3 bobcats; (i) 1 coyote; (j) 1 deer; (k) 52 mongooses; (l) 2 bobcats; (m) 1 badger; (n) 6 coyotes, 1 deer, 1 ringtail, 1 bobcat.

‡Percent change from 1987.

^dPercentage of all rabid animals in 1988.

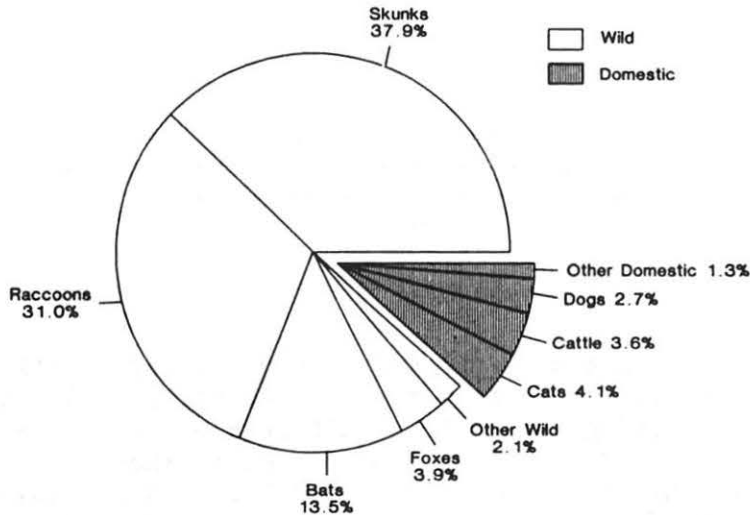
[†]1987 total by species.

**Total includes one human case.

A total of 4724 cases of animal rabies were reported. No human cases of rabies were registered. This total was essentially the same as in the previous year (1987 = 4729 cases).

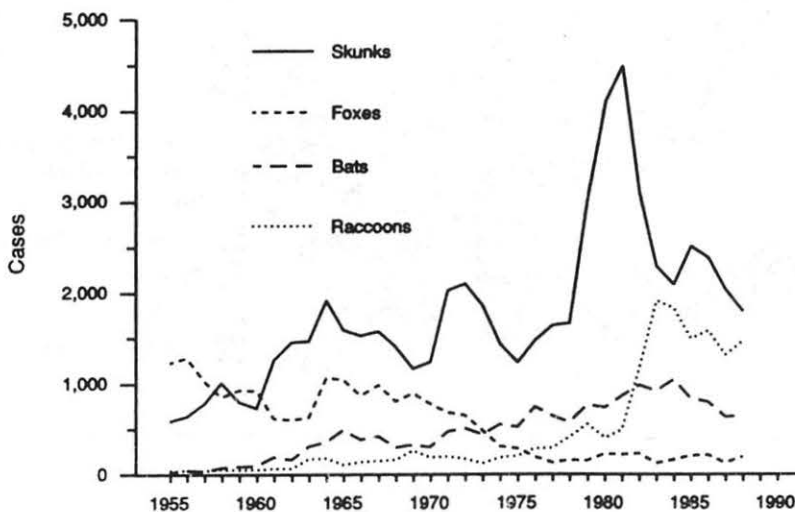
A comparison can be made to Europe in as much as the United States experiences predominantly wildlife rabies. While 88.4% of all cases in 1988 were diagnosed in wild animals (in Europe 81.8% for 1988), 11.6% were diagnosed in domestic animals (Europe 18.2%). This is illustrated more detailed in the following pie-chart.

Distribution of rabies cases in animals, United States, 1988

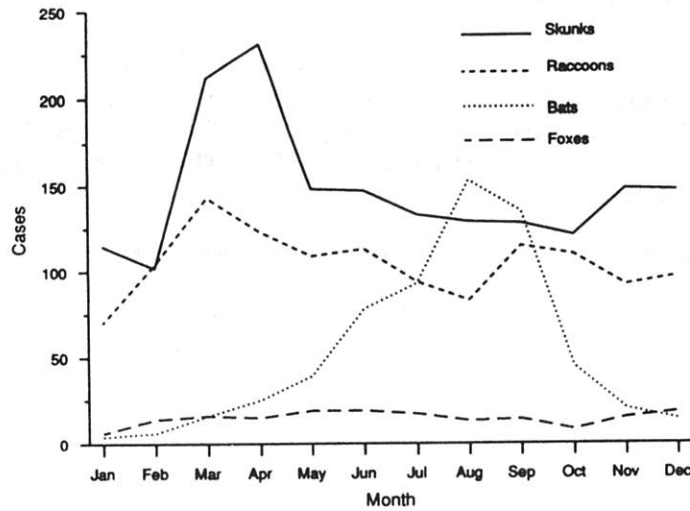


As can be seen from the Table 1 and the pie-chart, several wild animals can be made responsible to maintain rabies epizootics in different parts of the United States, namely skunks, foxes, bats and raccoons. The two following graphs show on the one hand their involvement in rabies over the period 1955 to 1988 and on the other hand their seasonal occurrence in 1988.

Cases of rabies in wild animals, by year, United States, 1955-1988

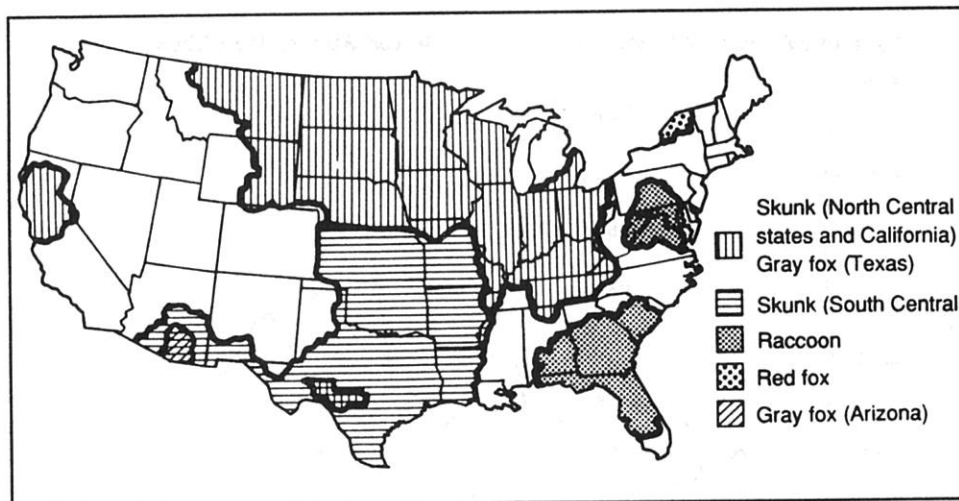


Cases of rabies in wild animals, by month, United States, 1988



Though the surveillance data suggest already characteristic features of the different epizootics, there is today a laboratory tool, the monoclonal antibody technique, showing very subtle differences on the rabies strains causing the epizootics. Many virus isolates have thus been used for an ecotype analysis (reference: Smith J.S. and Baer, G.M. "Epizootiology of rabies: the Americas". In: Campbell, J.B. and Charlton, K.M., eds. *Developments in veterinary virology: rabies*. Boston. Kluwer Academic Publishers, 1988: 267-99). This ecotype analysis has led to five major antigenically distinct virus strains which have been reproduced on the following map.

Distribution of five antigenically distinct rabies virus strains and the predominant wildlife species affected, contiguous United States, 1988



(Based on: *Morbidity and Mortality Weekly Report*, 38, No. SS-1; *CDC Surveillance Summaries*, August 1989; U.S. Department of Health and Human Services, Centers for Disease Control, Atlanta, Georgia 30333, U.S.A.).

TABLE 1

EUR EUROPE 3/89		RABIES CASES											1. 7.89 - 30. 9.89			
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	-	6	4	-	1	-	11	247	8	21	7	1	284		295
BEL	BELGIUM	-	7	41	3	24	-	75	131	2	4	-	-	137		212
BUL	BULGARIA *							0						0		0
CZE	CZECHOSLOVAKIA	1	9	1	-	1	-	12	306	3	8	6	1	324		336
DDR	GERMAN DEM. REPUBLIC	26	53	97	3	103	2	284	625	20	48	34	7	734		1018
DEN	DENMARK *							0						0		0
DEU	FED.REP. OF GERMANY	5	18	29	4	18	-	74	458	16	21	20	5	520		594
FIN	FINLAND *							0						0		0
FRA	FRANCE	9	32	42	2	83	2	170	735	6	21	9	1	772		942
GRE	GREECE *							0						0		0
HUN	HUNGARY	13	14	8	-	-	-	35	185	1	2	-	1	189		224
ICE	ICELAND *							0						0		0
IRE	IRELAND *							0						0		0
ITA	ITALY							0	5	1	-	-	-	6		6
LUX	LUXEMBOURG	-	1	17	-	3	-	21	22	1	1	2	-	26		47
NET	NETHERLANDS							0	-	-	-	-	10	10		10
NOR	NORWAY *							0						0		0
POL	POLAND	13	31	43	-	2	-	89	289	8	17	15	27	356		445
POR	PORTUGAL *							0						0		0
ROM	ROMANIA	-	1	-	-	2	-	3						0		3
SPA	SPAIN							0	-	-	-	-	4	4		4
SSR	SOVIET SOCIAL.REP.**							0						0		0
SWE	SWEDEN *							0						0		0
SWI	SWITZERLAND + LIECHT							0	29	-	-	-	-	29		29
TUR	TURKEY	105	12	33	1	4	1	156	-	-	-	-	1	1		157
UNK	UNITED KINGDOM *							0						0		0
YUG	YUGOSLAVIA	1	4	3	-	2	2	12	193	3	1	2	2	201		213
TOTAL		173	188	318	13	243	7	942	3225	69	144	95	60	3593	0	4535
PER CENT		3.8	4.1	7.0	0.3	5.4	0.2	20.8	71.1	1.5	3.2	2.1	1.3	79.2	0.0	100.0

* NO CASES, ** NO DATA.

TABLE 2

EUR		EUROPE		1-3/89		RABIES CASES							1. 1.89 - 30. 9.89			
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	2	24	10	-	2	-	38	1099	55	55	32	1	1242		1280
BEL	BELGIUM	10	23	82	7	52	-	174	416	8	9	3	-	436		610
BUL	BULGARIA *							0						0		0
CZE	CZECHOSLOVAKIA 1)	15	44	1	-	5	2	67	1255	7	28	14	3	1307	1	1375
DDR	GERMAN DEM. REPUBLIC	111	176	114	5	146	3	555	1810	40	110	90	13	2063		2618
DEN	DENMARK							0	-	-	-	-	1	1		1
DEU	FED.REP. OF GERMANY	25	53	63	7	71	2	221	1852	58	76	119	13	2118		2339
FIN	FINLAND							0	2	-	-	-	4	6		6
FRA	FRANCE	42	79	110	25	224	3	483	2549	25	56	17	4	2651		3134
GRE	GREECE *							0						0		0
HUN	HUNGARY	49	55	33	-	7	2	146	554	1	4	5	2	566		712
ICE	ICELAND *							0						0		0
IRE	IRELAND *							0						0		0
ITA	ITALY							0	50	3	-	-	-	53		53
LUX	LUXEMBOURG	-	1	18	-	3	-	22	34	1	1	2	-	38		60
NET	NETHERLANDS							0	-	-	-	-	18	18		18
NOR	NORWAY *							0						0		0
POL	POLAND	64	78	53	1	4	2	202	782	16	39	55	101	993		1195
POR	PORTUGAL *							0						0		0
ROM	ROMANIA	1	2	2	-	7	-	12	2	-	-	-	3	5		17
SPA	SPAIN							0	-	-	-	-	5	5		5
SSR	SOVIET SOCIAL.REP.**	231	174	547	32	303	24	1311	474	2	7	6	71	560	5	1876
SWE	SWEDEN *							0						0		0
SWI	SWITZERLAND + LIECHT							0	48	2	-	-	-	50		50
TUR	TURKEY	328	26	58	8	11	3	434	-	-	-	-	3	3		437
UNK	UNITED KINGDOM *							0						0		0
YUG	YUGOSLAVIA	14	28	9	3	3	2	59	945	25	8	9	3	990		1049
TOTAL		892	763	1100	88	838	43	3724	11872	243	393	352	245	13105	6	16835
PER CENT		5.3	4.5	6.5	0.5	5.0	0.3	22.1	70.5	1.4	2.3	2.1	1.5	77.8	0.0	100.0

* NO CASES, ** NO DATA FOR 3RD QUARTER, 1) HUMAN CASE ACQUIRED IN VIETNAM.

TABLE 3

EUR		EUROPE		3/89		RABIES CASES 'OTHER ANIMAL SPECIES'										1. 7.89 - 30. 9.89	
LOCATION		OTHER DOMESTIC ANIMALS					OTHER WILD ANIMALS										TOTAL
CODE	NAME	OTH.DOM CARNIVO	DONKEY	PIG	DOMEST RABBIT	OTHERS	RACCOON DOG	RACCOON	OTH.WILD CARNIVOR	WILD BOAR	MOUFLON	HEDGE HOG	INSECT BAT	BLACK RAT	HOUSE MOUSE	OTHERS	
AUT	AUSTRIA	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
CZE	CZECHOSLOVAKIA	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
DDR	GERMAN DEM. REP.	1	-	1	-	-	2	-	1	2	1	-	1	-	-	-	9
DEU	FED.REP. GERMANY	-	-	-	-	-	-	1	-	-	-	-	4	-	-	-	5
FRA	FRANCE	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-	3
HUN	HUNGARY	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
NET	NETHERLANDS	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	10
POL	POLAND	-	-	-	-	-	24	-	-	-	-	2	-	1	-	-	27
SPA	SPAIN	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	4
TUR	TURKEY	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	2
YUG	YUGOSLAVIA	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2	4
TOTAL		1	1	2	1	2	26	1	1	3	1	3	21	1	1	2	67
PER CENT		1.5	1.5	3.0	1.5	3.0	38.8	1.5	1.5	4.5	1.5	4.5	31.3	1.5	1.5	3.0	100.

AUT AUSTRIA

RABIES CASES

1. 7.89 - 30. 9.89

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		
102 RUST							0	2	-	-	-	-	2		2
103 EISENSTADT - LAND							0	7	-	-	-	-	7		7
104 GUESSING							0	3	-	-	-	-	3		3
106 MATTERSBURG							0	9	-	-	-	-	9		9
108 OBERPULLENDORF							0	3	-	-	-	-	3		3
201 KLAGENFURT-STADT							0	1	-	-	-	-	1		1
205 SANKT VEIT AN DER GL	-	-	1	-	-	-	1	17	-	-	-	-	17		18
206 SPITAL AN DER DRAU							0	2	-	-	-	-	2		2
207 VILLACH-LAND							0	1	-	-	-	-	1		1
208 VOELKERMARKT							0	7	-	-	-	-	7		7
209 WOLFSBERG							0	10	-	-	-	-	10		10
313 KREMS AN DER DONAU-L	-	2	-	-	-	-	2	15	-	1	-	-	16		18
315 MELK	-	-	1	-	-	-	1	11	1	1	-	-	13		14
318 NEUNKIRCHEN							0	9	-	-	-	-	9		9
323 WIENER NEUSTADT-LAND							0	19	-	1	1	-	21		21
325 ZWETTL	-	1	-	-	-	-	1	12	-	5	1	-	18		19
404 BRAUNAU AM INN							0	1	-	-	-	-	1		1
406 FREISTADT							0	-	-	1	-	-	1		1
407 GMUNDEN							0	5	1	-	-	-	6		6
411 PERG							0	2	-	1	-	-	3		3
412 RIED IM INNKREIS							0	1	-	-	-	-	1		1
417 VOECKLABRUCK	-	1	-	-	-	-	1	38	2	1	4	-	45		46
503 SALZBURG-LAND							0	4	1	-	-	-	5		5
505 TAMSWEG	-	-	1	-	-	-	1	1	-	-	-	-	1		2
602 BRUCK AN DER MUR							0	2	-	-	-	-	2		2
607 HARTBERG	-	-	1	-	-	-	1	14	1	3	1	-	19		20
608 JUDENBURG							0	2	-	-	-	-	2		2
610 LEIBNITZ							0	2	-	-	-	-	2		2
611 LEOBEN	-	1	-	-	-	-	1	2	-	1	-	-	3		4
612 LIEZEN	-	-	-	-	1	-	1	12	-	1	-	-	13		14
613 MUERZZUSCHLAG	-	1	-	-	-	-	1	12	1	1	-	-	14		15
614 MURAU							0	2	-	-	-	-	2		2
615 RADKERSBURG							0	1	-	-	-	-	1		1
617 WEIZ							0	18	1	4	-	1	24		24
TOTAL	0	6	4	0	1	0	11	247	8	21	7	1	284	0	295
PER CENT	0.0	2.0	1.4	0.0	0.3	0.0	3.7	83.7	2.7	7.1	2.4	0.3	96.3	0.0	100.0

RABIES CASES

1. 7.89 - 30. 9.89

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
BEL BELGIUM															
LG LIEGE	-	1	15	1	9	-	26	39	2	1	-	-	42		68
LX LUXEMBOURG	-	5	26	1	12	-	44	82	-	3	-	-	85		129
NA NAMUR	-	1	-	1	3	-	5	10	-	-	-	-	10		15
TOTAL	0	7	41	3	24	0	75	131	2	4	0	0	137	0	212
PER CENT	0.0	3.3	19.3	1.4	11.3	0.0	35.4	61.8	0.9	1.9	0.0	0.0	64.6	0.0	100.0
LUX LUXEMBOURG															
06 CLERVAUX	-	1	17	-	-	-	18	15	-	-	-	-	15		33
08 REDANGE	-	-	-	-	1	-	1	2	-	-	-	-	2		3
09 WILTZ	-	-	-	-	2	-	2	5	1	1	2	-	9		11
TOTAL	0	1	17	0	3	0	21	22	1	1	2	0	26	0	47
PER CENT	0.0	2.1	36.2	0.0	6.4	0.0	44.7	46.8	2.1	2.1	4.3	0.0	55.3	0.0	100.0
NET NETHERLANDS															
04 GRONINGEN							0	-	-	-	-	2	2		2
07 NOORD-HOLLAND							0	-	-	-	-	7	7		7
08 OVERIJSEL							0	-	-	-	-	1	1		1
TOTAL	0	0	0	0	0	0	0	0	0	0	0	10	10	0	10

CZE CZECHOSLOVAKIA

RABIES CASES

1. 7.89 - 30. 9.89

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
00	DISTRICT OF PRAGUE							0						0		0
01	CENTRAL BOHEMIA	-	3	-	-	-	-	3	27	-	2	-	-	29		32
02	SOUTH BOHEMIA							0	15	-	-	-	-	15		15
03	WEST BOHEMIA	-	2	-	-	-	-	2	81	-	1	1	-	83		85
04	NORTH BOHEMIA	1	-	-	-	-	-	1	56	-	-	2	-	58		59
05	EAST BOHEMIA							0	29	2	-	-	-	31		31
06	SOUTH MORAVIA							0	25	-	1	1	-	27		27
07	NORTH MORAVIA	-	2	1	-	1	-	4	26	-	1	2	-	29		33
0	CZECH SOCIALIST REPUB	1	7	1	-	1	-	10	259	2	5	6	-	272		282
10	DISTRICT OF BRATISLAV							0	2	-	-	-	-	2		2
11	WEST SLOVAKIA	-	1	-	-	-	-	1	12	-	1	-	-	13		14
12	CENTRAL SLOVAKIA							0	12	1	2	-	1	16		16
13	EAST SLOVAKIA	-	1	-	-	-	-	1	21	-	-	-	-	21		22
1	SLOVAC SOCIALIST REPUB	-	2	-	-	-	-	2	47	1	3	-	1	52		54
TOTAL		1	9	1	0	1	0	12	306	3	8	6	1	324	0	336
PER CENT		0.3	2.7	0.3	0.0	0.3	0.0	3.6	91.1	0.9	2.4	1.8	0.3	96.4	0.0	100.0

DDR		GERMAN DEMOCRATIC REPUBLIC						R A B I E S C A S E S						1. 7.89 - 30. 9.89		
LOCATION		D O M E S T I C A N I M A L S						W I L D A N I M A L S						HUMAN CASES	TOTAL	
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
01	HAUPTSTADT BERLIN							0	-	-	-	2	-	2	2	
02	COTTBUS	1	1	5	-	4	-	11	49	3	3	2	-	57	68	
03	DRESDEN	1	3	13	-	62	1	80	92	3	9	10	2	116	196	
04	ERFURT	1	5	1	-	1	-	8	33	1	-	-	-	34	42	
05	FRANKFURT/ODER	2	2	-	-	-	-	4	28	-	3	2	1	34	38	
06	GERA	1	1	1	-	4	-	7	10	-	-	-	-	10	17	
07	HALLE	7	16	5	1	2	-	31	69	-	3	3	-	75	106	
08	KARL-MARX-STADT	-	4	9	-	15	-	28	18	1	3	-	-	22	50	
09	LEIPZIG	1	-	2	-	4	-	7	31	1	3	2	-	37	44	
10	MAGDEBURG	1	3	4	-	1	-	9	50	3	1	-	-	54	63	
11	NEUBRANDENBURG	1	-	7	1	-	-	9	45	-	5	-	1	51	60	
12	POTSDAM	6	9	25	1	4	1	46	90	4	9	8	3	114	160	
13	ROSTOCK	-	5	3	-	-	-	8	34	1	1	2	-	38	46	
14	SCHWERIN	4	4	22	-	1	-	31	37	3	5	2	-	47	78	
15	SUHL	-	-	-	-	5	-	5	39	-	3	1	-	43	48	
TOTAL		26	53	97	3	103	2	284	625	20	48	34	7	734	0	1018
PER CENT		2.6	5.2	9.5	0.3	10.1	0.2	27.9	61.4	2.0	4.7	3.3	0.7	72.1	0.0	100.0

DEU

FEDERAL REPUBLIC OF GERMANY

R A B I E S C A S E S

1. 7.89 - 30. 9.89

LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS		
010	SCHLESWIG-HOLSTEIN						0	2	-	-	-	1	3		3
020	HAMBURG						0						0		0
031	BRAUNSCHWEIG	-	-	2	2	2	6	5	-	1	-	-	6		12
032	HANNOVER						0	1	-	-	-	-	1		1
033	LUENEBURG						0						0		0
034	WESER-EMS						0						0		0
040	BREMEN						0						0		0
051	DUESSELDORF						0						0		0
053	KOELN	-	-	1	-	-	1	3	-	-	1	-	4		5
055	MUENSTER						0						0		0
057	DETMOLD	-	-	2	-	-	2	2	-	-	-	-	2		4
059	ARNSBERG	-	-	1	-	-	1	3	-	-	-	-	3		4
061	DARMSTADT	1	3	6	-	7	17	152	10	7	10	-	179		196
062	KASSEL	2	5	8	1	6	22	84	-	7	3	1	95		117
071	KOBLENZ	-	1	-	-	-	1	9	-	-	-	-	9		10
072	TRIER	-	1	1	-	-	2	1	1	1	1	-	4		6
073	RHEINHESSEN-PFALZ	-	1	-	-	-	1	27	-	-	-	-	27		28
081	STUTTGART	1	4	1	1	2	9	59	2	3	2	-	66		75
082	KARLSRUHE						0	2	-	-	-	-	2		2
083	FREIBURG	-	-	3	-	-	3	2	3	-	-	-	5		8
084	TUEBINGEN	-	-	1	-	-	1	10	-	-	1	-	11		12
091	OBERBAYERN						0						0		0
092	NIEDERBAYERN						0						0		0
093	OBERPFALZ						0	5	-	1	-	-	6		6
094	OBERFRANKEN						0	2	-	-	-	-	2		2
095	MITTELFRANKEN						0	16	-	-	-	-	16		16
096	UNTERFRANKEN	-	1	-	-	-	1	16	-	-	-	-	16		17
097	SCHWABEN	-	1	3	-	1	5	27	-	-	1	-	28		33
100	SAARLAND	1	1	-	-	-	2	30	-	1	1	-	32		34
110	BERLIN (WEST)						0	-	-	-	-	3	3		3
TOTAL		5	18	29	4	18	74	458	16	21	20	5	520	0	594
PER CENT		0.8	3.0	4.9	0.7	3.0	12.5	77.1	2.7	3.5	3.4	0.8	87.5	0.0	100.0

FRA FRANCE

RABIES CASES

1. 7.89 - 30. 9.89

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
01	AIN							0	8	-	-	-	-	8		8
02	AISNE	-	2	-	-	-	-	2	7	-	-	-	-	7		9
08	ARDENNES	-	1	1	-	3	-	5	19	-	-	-	-	19		24
10	AUBE	1	2	-	-	-	-	3	21	-	-	-	-	21		24
21	COTE D'OR	2	2	2	-	5	-	11	26	1	-	-	-	27		38
25	DOUBS	-	2	2	-	2	-	6	111	2	2	2	-	117		123
39	JURA	-	-	2	-	-	-	2	50	-	-	-	-	50		52
51	MARNE	1	1	-	-	-	-	4	16	-	-	-	-	16		20
52	MARNE (HAUTE)	-	2	1	-	2	-	5	15	1	2	1	-	19		24
54	MEURTHE ET MOSELLE	2	3	3	-	2	-	10	34	-	-	-	1	35		45
55	MEUSE	-	8	9	1	7	-	25	45	-	4	2	-	51		76
57	MOSELLE	-	-	-	-	4	-	4	25	-	1	-	-	26		30
58	NIEVRE	-	1	4	-	19	1	25	105	-	2	-	-	107		132
60	OISE	1	1	4	-	6	-	12	51	-	2	1	-	54		66
67	RHIN (BAS)	1	2	-	-	1	1	5	12	-	-	-	-	12		17
68	RHIN (HAUT)	-	-	-	-	-	-	0	9	1	1	-	-	11		11
70	SAONE (HAUTE)	-	1	-	-	-	-	1	22	-	-	-	-	22		23
71	SAONE ET LOIRE	-	-	13	-	16	-	29	29	1	-	-	-	30		59
74	SAVOIE (HAUTE)	-	-	-	-	-	-	0	1	-	-	-	-	1		1
76	SEINE MARITIME	-	-	-	-	-	-	0	3	-	-	-	-	3		3
77	SEINE ET MARNE	-	-	-	-	2	-	2	27	-	-	-	-	27		29
78	YVELINES	-	-	-	-	-	-	0	6	-	-	-	-	6		6
80	SOMME	-	-	-	-	-	-	0	14	-	-	-	-	14		14
88	VOSGES	1	4	1	-	6	-	12	41	-	7	2	-	50		62
89	YONNE	-	-	-	1	5	-	6	34	-	-	1	-	35		41
90	TERR.DE BELFORT	-	-	-	-	1	-	1	3	-	-	-	-	3		4
95	VAL D'OISE	-	-	-	-	1	-	0	1	-	-	-	-	1		1
TOTAL		9	32	42	2	83	2	170	735	6	21	9	1	772	0	942
PER CENT		1.0	3.4	4.5	0.2	8.8	0.2	18.0	78.0	0.6	2.2	1.0	0.1	82.0	0.0	100.0

HUN

HUNGARY

RABIES CASES

1. 7.89 - 30. 9.89

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		
02 BARANYA	1	2	1	-	-	-	4	7	-	-	-	-	7		11
03 BACS-KISKUN	-	1	3	-	-	-	4	6	-	-	-	-	6		10
04 BEKES							0	2	-	-	-	-	2		2
05 BORSOD-ABAUJ-ZEMPLEN							0	9	-	-	-	-	9		9
06 CSONGRAD							0	5	-	-	-	-	5		5
07 FEJER	1	1	-	-	-	-	2	19	-	-	-	-	19		21
08 GYOER-SOPRON	1	-	-	-	-	-	1	7	-	-	-	-	7		8
09 HAJDU-BIHAR	2	-	-	-	-	-	2	2	-	-	-	-	2		4
10 HEVES	-	1	-	-	-	-	1	10	-	1	-	-	11		12
11 KOMAROM							0	13	-	-	-	-	13		13
12 NOGRAD							0	4	-	-	-	-	4		4
13 PEST	1	-	-	-	-	-	1	8	-	-	-	-	8		9
14 SOMOGY	1	3	-	-	-	-	4	17	-	-	-	1	18		22
15 SZABOLCS-SZATMAR	2	1	1	-	-	-	4	7	-	-	-	-	7		11
16 SZOLNOK	-	1	-	-	-	-	1	3	-	-	-	-	3		4
17 TOLNA	2	1	1	-	-	-	4	2	-	-	-	-	2		6
18 VAS	-	1	1	-	-	-	2	21	-	-	-	-	21		23
19 VESZPREM	-	1	-	-	-	-	1	13	-	1	-	-	14		15
20 ZALA	2	1	1	-	-	-	4	30	1	-	-	-	31		35
TOTAL	13	14	8	0	0	0	35	185	1	2	0	1	189	0	224
PER CENT	5.8	6.3	3.6	0.0	0.0	0.0	15.6	82.6	0.4	0.9	0.0	0.4	84.4	0.0	100.0

R A B I E S C A S E S

1. 7.89 - 30. 9.89

LOCATION CODE NAME	D O M E S T I C A N I M A L S							W I L D A N I M A L S					HUMAN CASES	TOTAL	
	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
ITA I T A L Y															
34 TRIESTE E GORIZIA							0	5	1	-	-	-	6		6
ROM R O M A N I A															
14 CONSTANTA	-	-	-	-	2	-	2						0		2
24 IASI	-	1	-	-	-	-	1						0		1
TOTAL	0	1	0	0	2	0	3	0	0	0	0	0	0	0	3
SPA S P A I N															
21 HUELVA							0	-	-	-	-	4	4		4
SWI S W I T Z E R L A N D A N D L I E C H T E N S T E I N															
04 BASEL-STADT							0	1	-	-	-	-	1		1
05 BASEL-LAND							0	20	-	-	-	-	20		20
06 BERN							0	1	-	-	-	-	1		1
12 NEUCHATEL							0	2	-	-	-	-	2		2
17 SOLOTHURN							0	4	-	-	-	-	4		4
26 JURA							0	1	-	-	-	-	1		1
TOTAL	0	0	0	0	0	0	0	29	0	0	0	0	29	0	29
YUG Y U G O S L A V I A															
10 SR BOSNA I HERCEGOVIN							0	5	-	-	-	-	5		5
30 SR HRVATSKA	1	3	-	-	2	-	6	74	1	1	-	-	76		82
50 SR SLOVENIJA	-	1	1	-	-	2	4	102	2	-	-	-	104		108
61 SAP VOJVODINA	-	-	2	-	-	-	2	12	-	-	2	2	16		18
TOTAL	1	4	3	0	2	2	12	193	3	1	2	2	201	0	213
PER CENT	0.5	1.9	1.4	0.0	0.9	0.9	5.6	90.6	1.4	0.5	0.9	0.9	94.4	0.0	100.0

POL POLAND

RABIES CASES

1. 7.89 - 30. 9.89

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		
01 WARSZAWA	1	-	-	-	-	-	1	-	1	-	-	-	1		2
03 BIALA PODLASKA							0	1	-	-	-	-	1		1
05 BIALYSTOK							0	2	-	-	-	1	3		3
09 BYDGOSZCZ	1	5	5	-	-	-	11	13	1	2	-	2	18		29
11 CHELM							0	1	-	-	-	-	1		1
13 CIECHANOW							0	1	-	1	-	-	2		2
15 CZESTOCHOWA	-	1	-	-	-	-	1	3	1	-	-	-	4		5
17 ELBLAG							0	1	-	-	-	2	3		3
19 GDANSK	-	-	18	-	2	-	20	20	-	-	1	3	24		44
21 GORZOW	-	1	2	-	-	-	3	24	-	-	-	-	24		27
23 JELENIA GORA	-	-	2	-	-	-	2	5	-	-	-	-	5		7
25 KALISZ	1	-	-	-	-	-	1	4	-	-	-	-	4		5
27 KATOWICE	-	1	-	-	-	-	1	14	-	3	1	-	18		19
29 KIELCE	1	1	-	-	-	-	2	2	-	-	2	-	4		6
31 KONIN	1	3	4	-	-	-	8	7	1	2	-	-	10		18
33 KOSZALIN							0	15	-	-	-	-	15		15
35 KRAKOW							0	4	-	-	-	-	4		4
37 KROSNO							0	1	-	-	-	-	1		1
39 LEGNICA							0	6	-	-	1	-	7		7
41 LESZNO	1	1	-	-	-	-	2	8	-	2	1	-	11		13
49 NOWY SACZ	-	-	1	-	-	-	1	1	-	-	-	-	1		2
51 OLSZTYN	-	6	5	-	-	-	11	7	1	1	-	10	19		30
53 OPOLE	-	2	-	-	-	-	2	20	-	-	1	-	21		23
57 PILA	-	2	-	-	-	-	2	18	1	2	2	2	25		27
63 POZNAN	3	4	-	-	-	-	7	23	1	3	3	2	32		39
65 PRZEMYSL							0	4	-	-	-	-	4		4
67 RADOM	-	1	-	-	-	-	1	2	-	-	-	-	2		3
71 SIEDLCE	2	-	-	-	-	-	2						0		2
73 SIERADZ							0	1	-	-	-	-	1		1
75 SKIERNIEWICE	1	-	-	-	-	-	1						0		1
77 SLUPSK	-	1	3	-	-	-	4	4	-	-	-	-	4		8
79 SUWALKI	-	1	2	-	-	-	3	9	1	-	1	1	12		15
81 SZCZECIN	1	-	-	-	-	-	1	16	-	-	-	-	16		17
87 TORUN	-	1	-	-	-	-	1	1	-	-	-	3	4		5
89 WALBRZYCH	-	-	1	-	-	-	1	8	-	-	-	-	8		9
93 WROCLAW							0	23	-	1	1	-	25		25
95 ZAMOSC							0	4	-	-	-	1	5		5
97 ZIELONA GORA							0	16	-	-	1	-	17		17
TOTAL	13	31	43	0	2	0	89	289	8	17	15	27	356	0	445
PER CENT	2.9	7.0	9.7	0.0	0.4	0.0	20.0	64.9	1.8	3.8	3.4	6.1	80.0	0.0	100.0

TUR TURKEY

RABIES CASES

1. 7.89 - 30. 9.89

LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
001	ADANA	5	-	1	-	-	-	6						0		6
006	ANKARA	2	2	-	-	-	-	4						0		4
007	ANTALYA	1	-	-	-	-	-	1						0		1
010	BALIKESIR	3	-	2	-	-	-	5						0		5
011	BILECIK	1	-	-	-	-	-	1						0		1
014	BOLU	-	-	1	-	-	-	1						0		1
016	BURSA	6	-	-	-	1	-	7						0		7
021	DIYARBAKIR	-	-	-	-	-	1	1						0		1
022	EDIRNE	1	-	-	-	-	-	1						0		1
023	ELAZIG	1	-	-	-	-	-	1						0		1
025	ERZURUM	-	2	-	-	-	-	2						0		2
027	GAZIANTEP	4	-	2	1	1	-	8						0		8
031	HATAY	3	2	1	-	-	-	6						0		6
034	ISTANBUL	34	4	5	-	-	-	43						0		43
035	IZMIR	5	1	-	-	-	-	6						0		6
036	KARS	1	-	-	-	-	-	1						0		1
037	KASTAMONU	1	-	-	-	-	-	1						0		1
038	KAYSERI	2	-	-	-	-	-	2						0		2
039	KIRKLARELI	4	-	-	-	-	-	4						0		4
041	KOCAELI	3	-	5	-	-	-	8						0		8
044	MALATYA	1	-	-	-	-	-	1						0		1
045	MANISA	1	-	-	-	-	-	1						0		1
046	KAHRAMAN MARAS	2	-	1	-	-	-	3						0		3
050	NEVSEHIR	2	-	-	-	-	-	2	-	-	-	-	1	1		3
051	NIGDE	2	-	-	-	-	-	2						0		2
052	ORDU	2	-	2	-	-	-	4						0		4
054	SAKARYA	9	-	1	-	-	-	10						0		10
055	SAMSUN	3	1	5	-	-	-	9						0		9
057	SINOP	1	-	3	-	-	-	4						0		4
058	SIVAS	1	-	-	-	-	-	1						0		1
059	TEKIRDAG	2	-	-	-	-	-	2						0		2
063	URFA	-	-	2	-	2	-	4						0		4
064	USAK	1	-	-	-	-	-	1						0		1
067	ZONGULDAK	1	-	2	-	-	-	3						0		3
TOTAL		105	12	33	1	4	1	156	0	0	0	0	1	1	0	157
PER CENT		66.9	7.6	21.0	0.6	2.5	0.6	99.4	0.0	0.0	0.0	0.0	0.6	0.6	0.0	100.0

SSR

UNION OF SOVIET SOCIALIST REPUBLICS

R A B I E S C A S E S

2/89

1. 4.89 - 30. 6.89

LOCATION CODE NAME		D O M E S T I C A N I M A L S						W I L D A N I M A L S						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
01	RSFSR	46	19	120	3	108	1	297	47	-	-	3	6	56	3	356
02	MOLDAVIAN SSR							0						0		0
03	UKRAINIAN SSR	24	51	39	-	2	-	116	37	-	3	-	3	43	1	160
04	BYELORUSSIAN SSR	7	4	8	7	1	-	27	22	-	-	1	4	27		54
05	LITHUANIAN SSR	5	2	8	-	-	-	15	4	-	-	-	2	6		21
06	LATVIAN SSR	9	5	1	-	-	-	15	36	2	-	1	9	48		63
07	ESTONIAN SSR	4	11	4	-	1	-	20	9	-	1	-	7	17		37
TOTAL		95	92	180	10	112	1	490	155	2	4	5	31	197	4	691
PER CENT		13.7	13.3	26.0	1.4	16.2	0.1	70.9	22.4	0.3	0.6	0.7	4.5	28.5	0.6	100.0

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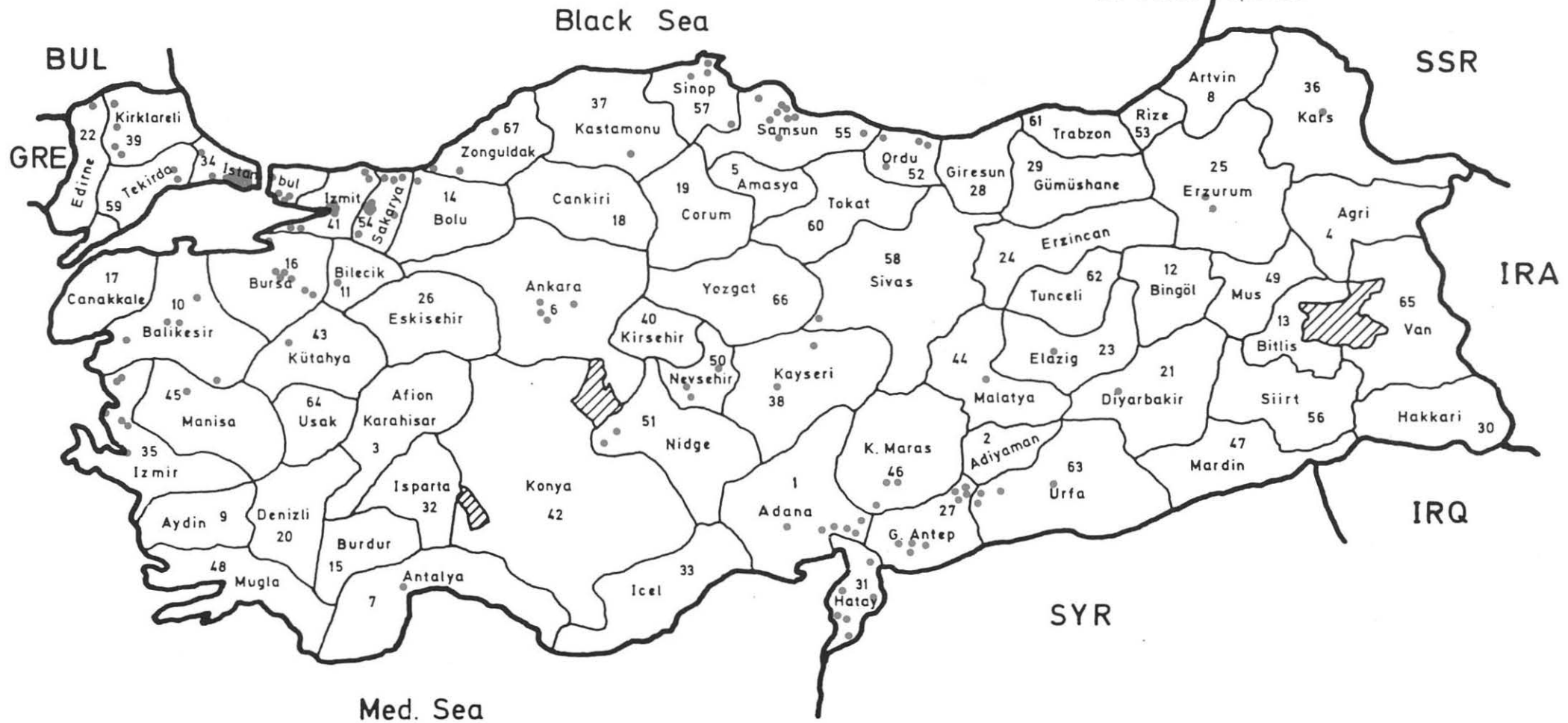
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Rabies Cases Turkey
3rd Quarter 1989
157 cases reported

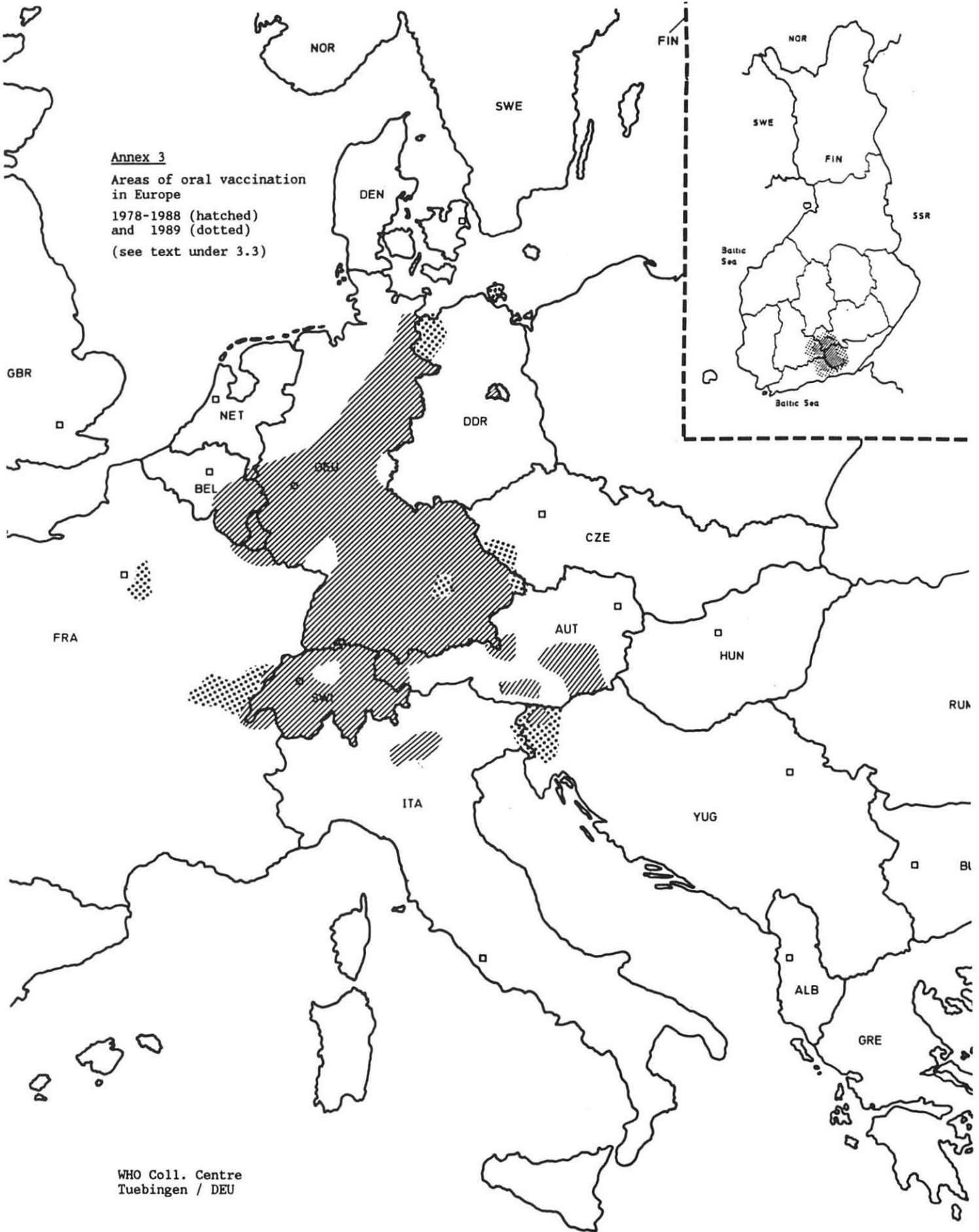


Annex 3

Areas of oral vaccination
in Europe

1978-1988 (hatched)
and 1989 (dotted)

(see text under 3.3)



ICE
(rabies free)

NOR
(mainland
rabies free)

FIN
(0)

SWE
(rabies free)

Rabies Cases Europe
3rd Quarter 1989

4535 cases reported

21 bat rabies cases included

SSR
(no data)

IRE
(rabies free)

UNK
(rabies free)

DEN
(0)

NET
(10)

BDR
(1017)

POL
(445)

DEU
(590)

BEL
(212)

CZE
(335)

FRA
(941)

AUT
(295)

HUN
(224)

SWI
(29)

ROM
(3)

ITA
(6)

YUG
(213)

BUL
(rabies free)

POR
(rabies free)

SPA
(4)

ALB
(no data)

TUR
(157)

GRE
(0)

0 50 100 km

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

