

C O N T E N T S

	Page
1. INTRODUCTION	1
2. RABIES IN EUROPE, FOURTH QUARTER 1986	1
2.1 - 2.27 Situation in Individual Countries	2 - 9
3. MISCELLANEOUS	
3.1 Review of to the WHO Collaborating Centre, Tübingen, Reported Rabies Case Data in Europe from 1977 to 1986	10 - 13
3.2 Bat Rabies in the Union of Soviet Socialist Republics	12 + 14
4. RABIES CASE DATA	
4.1 Table 1, Europe, 4th Quarter 1986	15
4.2 Table 2, Europe, Accumulated Totals 1986	16
4.3 Table 3, Rabies Case Rates (% of total) for Individual Animal Species	17
4.4 Table 4, Europe, Other Animal Species 4th Quarter 1986	18
4.5 Table 5, Europe, Other Animal Species 1986	19
4.6 Table 6, Europe, Quarterly Figures 1977 - 1986	20
4.7 Tables, European Countries in the 4th Quarter 1986	21 - 31
5. LIST OF CONTRIBUTORS	32 - 33
6. ANNEX 1: Map of Rabies Cases in Europe, 4th Quarter 1986	
ANNEX 2: Map of Rabies Cases in Turkey, 4th Quarter 1986	
ANNEX 3: Graph: 10 Years of Rabies Data Collection at the WHO Collaborating Centre, Europe 1977-1986	

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1. INTRODUCTION

This BULLETIN describes the reported rabies cases in Europe for the fourth quarter 1986. The situation in general appears under 2., and in individual countries under 2.1 to 2.27.

Rabies data for the prevailing quarter have not yet been received for the European part of the Union of Soviet Socialist Republics (USR).

In the miscellaneous section under 3.1 a review is given of all rabies cases received at the WHO Collaborating Centre for Rabies Surveillance and Research, Tübingen, from the beginning of data collection in 1977 up to date. There is a table presented with quarterly data, a graph with annual data to show the development of individual countries, a table of human rabies cases and a table with bat rabies cases. Under 3.2 an abstract of a paper to be published is presented with reference to bat rabies cases and human cases originating from bat exposure in the Union of Soviet Socialist Republics. The strain originating from one human is characterized with monoclonal antibodies revealing a closely related pattern to Duvenhage virus similar to the bat isolates recently collected in Europe.

The rabies case data are tabulated for the fourth quarter 1986 as well as for the whole year 1986 under 4. Table 6 refers to the text under 3.1

The last part lists the official contributors to the BULLETIN.

The geographic distribution of cases in Europe in the fourth quarter 1986 is shown on the maps of Europe and Turkey in the Annex. One graph in the Annex refers once more to the text under 3.1.

2. RABIES IN EUROPE, 4TH QUARTER 1986

During the fourth quarter 1986, 4915 cases of rabies were reported in Europe. These were 3793 cases in wild animals (77.2%) and 1122 cases in domestic animals (22.8%). Of the cases in wild animals 3386 (68.9% of total) were foxes, 76 badgers, 110 other mustelids, 155 deer and 66 other and unspecified species. Of the 1122 cases in domestic animals 274 were dogs (of which 212 (77.3%) were reported from Turkey, a country with dog-mediated rabies), 229 cats, 449 cattle, 25 horses, 133 small ruminants, and 12 other domestic animals. Tables 4 and 5 of this BULLETIN list 'other animal species', less frequently involved in rabies.

Rabies-free countries in Europe participating in the surveillance are: Bulgaria, Finland, United Kingdom, Ireland, Iceland, Norway, Portugal, Spain and Sweden. There were no cases reported for this quarter from Greece and Italy. Denmark reported 5 bat rabies cases but had no rabies in terrestrial animals. There were 2 bat rabies cases in the Federal Republic of Germany.

The number of rabies cases in 1986 totals 17169. This is a reduction compared to 1985 (19046) by 9.9%, compared to 1984 (23619) by 27.3%.

One imported human case from India was reported from the Federal Republic of Germany in 1986.

There were 122 bat rabies cases reported during the year, 105 cases in Denmark, 16 in the Federal Republic of Germany and one in the Democratic Republic of Germany.

Individual country reports follow:

2.1 Rabies in Austria (AUT) by E. Scharfen

During the fourth quarter 1986, 375 rabies cases in animals were registered in Austria. In comparison with the previous quarter (297 animal cases) there was an increase by 26.5%. Of 354 rabid wild animals (94.4% of total), 322 were foxes (85.9%), 19 badgers (5.1%), 7 martens (1.9%), 4 roe deer (1.1%), 1 polecat and 1 muskrat. Of 21 rabid domestic animals (5.6%), 13 were cattle (3.5%), 4 sheep (1.1%), 2 cats (0.5%), 1 horse and 1 dog.

The epizootic covered the district (Bezirk) Kitzbühel of the federal province (Bundesland) Tyrol, all districts of the federal province Salzburg, in the federal province Carinthia the districts Feldkirchen, St. Veit an der Glan and Wolfsberg, in Styria the districts Liezen, Murau, Knittelfeld, Judenburg, Leoben, Voitsberg, Graz/Umgebung, Deutschlandsberg, Leibnitz and Feldbach. The Burgenland registers rabies in all districts except Mattersburg. Rabies occurred in Lower Austria to the north of the river Danube in Gmünd, Waidhofen an der Thaya, Zwettl, Krems an der Donau and Horn, as well as in the district Wiener Neustadt in the southern part of this federal province. In Upper Austria the southern part of the district Gmunden was affected, in Tyrol the district Reutte in the state border area.

Rabies-free was the federal province Vienna. In Vorarlberg only one case was reported in Bregenz district. In this federal province two oral vaccination campaigns of foxes against rabies were carried out in May and October 1986.

A total of 1387 rabies cases in animals were diagnosed in Austria in 1986, 357 cases or 20.5% fewer than 1985 (1744 cases). Of 1326 rabid wild animals 1159 were foxes (1985-1424), 84 badgers (103), 43 roe deer (52), 34 martens (46) and 6 others. Of 61 rabid domestic animals 27 were cattle (1985-51), 16 cats (41), 10 sheep (11), 4 horses, 3 dogs and 1 goat. The number of rabies cases in domestic animals decreased in 1986 by 45%.

2.2 Rabies in Belgium (BEL) by I. Fontaine

During the fourth quarter 1986, 84 rabies cases were registered in 66 previously infected communities of the provinces Liège, Luxembourg and Namur: 47 cases in wild animals (44 foxes, 1 badger, 1 stone marten and 1 roe deer) and 37 cases in domestic animals (29 cattle, 6 cats and 2 sheep).

There has been an increase by 5% in comparison with the previous quarter and a decrease by 50% when compared to the fourth quarter 1985.

As for the total of 1986, there was a decrease by 23.6% compared to 1985 (13.5% concerning wild animals and 30.7% concerning domestic

animals). It is noteworthy that the decrease in number of cases is less rapid after 1982 than after the years 1968 and 1976.

The disease hardly manifested itself on the lefthand side of the river Meuse.

2.3 Bulgaria (BUL)

The country remained rabies-free.

2.4 Rabies in Czechoslovakia (CZE)

by M. Capka and J. Neumann

In the 4th quarter of 1986 rabies was ascertained in 447 cases (CSR-381, SSR-66). In comparison with the 4th quarter of 1985, the total number of rabies cases was higher by 36.7%. The fox accounted for the majority of cases (399). In regard to other wildlife species, rabies was diagnosed in 2 badgers, 8 martens, 9 roe-deer, 1 mouflon and 1 stag. In regard to domestic animals, rabies was ascertained in 22 cats, 3 dogs and 2 sheep. In comparison with the 3rd quarter of 1986, the number of rabies cases increased by 36.7%, viz. in wildlife species by 38.6% and in domestic animals by 12.5%.

The total number of rabies cases in 1986 amounted to 1490 i.e. 9.7% less than in 1985. The highest incidence of rabies was found in the CSR (1245 cases - 83.6%), whereas in the SSR the incidence amounted to 245 cases - 16.4%. The fox accounted for the majority of cases - 1321 (CSR-1132, SSR-189). Other rabies affected wildlife species were as follows: 9 badgers (all in the CSR), 27 martens (CSR-23, SSR-4), 3 polecats (CSR-2, SSR-1), 22 roe-deer (CSR-18, SSR-4), 3 mouflons (CSR-2, SSR-1), 2 stags (all in the CSR), 2 wild boars (CSR-1, SSR-1), 1 racoon dog (CSR), 1 wolf and 1 European doormouse (both in the SSR). Rabies in domestic animals: 55 cats (CSR-33, SSR-22), 36 dogs (CSR-16, SSR-20), 2 cattle (CSR-1, SSR-1), 4 sheep (CSR), 1 goat (CSR). The incidence of rabies reached its peak in the 4th quarter, the lowest incidence was ascertained in the 2nd quarter.

Rabies penetrated into the following districts: Hradec Králové (up to now free from rabies), Dunajská Streda (free from rabies since 1977), Prague-East, Liptovský Mikuláš and Bardejov (free from rabies since 1984), Plzen-City, Trenčín, Trnava, Martin and Rožnava (free from rabies since 1985).

The South Bohemian, North Bohemian, West Bohemian and South Moravian regions have been found to be most affected by rabies. The absolutely highest incidence was found in the district Klatovy, followed by Chomutov, Karlovy Vary, Plzen-North, Znojmo and J. Hradec.

At the present time, rabies has been recorded in 467 foci involving 83 districts (CSR-397 foci in 61 districts, SSR-70 foci in 22 districts).

No case of rabies was recorded in man.

2.5 Rabies in Germany, Democratic Republic (DDR)

During the fourth quarter 1986, 496 cases of rabies were registered in the Democratic Republic of Germany, 67 cases more than during the previous quarter (an increase of 15.6%) and 93 cases more than during the fourth quarter 1985 (an increase of 23.1%). Of the 496 cases were 381 (76.8%) in wild animals - 325 foxes, 4 badgers, 22 stone martens, 2 polecats, 1 raccoon, 25 roe deer, 1 red deer, 1 rat, and 115 (23.2%) in domestic animals - 17 dogs, 28 cats, 34 cattle, 32 sheep, 1 goat, 3 horses. Except for the Hauptstadt Berlin all other Bezirke (departments) were affected by the disease. There were concentration of cases in the Bezirk Rostock (91) in the north of the country and in the Bezirke Erfurt (68), Gera (65) and Suhl (56) in the south-west of the country.

The annual total amounted to 1570 rabies cases.

2.6 Rabies in Denmark (DEN) by E. Stougaard

A total of 5 bat-rabies cases was diagnosed during the 4th quarter of 1986. Four cases occurred in Jutland and one on the island of Zealand. The intensified surveillance programme resulted during the reporting period in the submission of 81 bats and 45 other mammals for rabies examination.

Apart from bat-rabies, Denmark has remained rabies free since April 1983.

2.7 Rabies in Germany, Federal Republic (DEU)

A total of 1467 cases of rabies was reported during the fourth quarter 1986, 248 cases more than during the previous quarter (an increase of 20.3%) and 466 cases less than during the fourth quarter 1985 (a decrease of 24.1%).

1174 cases of the total (80%) were in wild animals: 1001 foxes, 33 badgers, 43 stone martens, 2 polecats, 1 mouse weasel, 83 roe deer, 6 fallow deer, 1 stag, 1 wild boar, 2 bats and 1 house mouse. Of 293 cases in domestic animals 7 were dogs, 38 cats, 179 cattle, 14 horses, 52 sheep, 1 goat, 1 donkey and 1 pig.

In continuation of the first accumulation of bat rabies cases in Lower Saxony during the third quarter 1986, there were 2 more cases in Schleswig-Holstein. Again, they were characterized as Duvenhage type virus and were diagnosed in two Eptesicus serotinus. There was no fox-mediated rabies in Schleswig-Holstein for more than a year.

Concentration of rabies cases were recorded in the federal states of (Bundesländer) Nordrhein-Westfalen and Hessen.

The annual total for 1986 amounts to 5260 rabies cases. Compared to 1985 (6863 cases) there was a reduction by 23.4%, compared to 1984 (7056 cases) by 25.5%.

Oral vaccination of foxes has been practiced in the country since 1983. From 1983 to 1986 1 721 000 vaccine baits have been placed in the Federal Republic of Germany in an area of 54 410 km². In 1986 25 Kreise (districts) of 5 federal states have become rabies free and oral vaccination could be stopped. This area comprises 19 319 km² and equals 7.8% of the Federal Republic of Germany.

2.8 Finland (FIN)

The country remained rabies-free.

2.9 Rabies in France (FRA) by J. Blancou

570 rabies cases were reported during the fourth quarter 1986, 35 cases less than during the previous quarter. 420 cases were registered in the fox (73.7% of total), 26 in other wild animals and 124 cases in domestic animals (8 dogs, 28 cats, 58 cattle, 24 small ruminants and 6 horses). The départements (departments) with the greatest number of cases during this quarter are: Doubs (72 cases) and Vosges (51 cases).

The situation at the rabies front remained, on the whole, stable.

An oral vaccination campagne of foxes against rabies has been carried out in October in the département de la Moselle, comprising an area of 700 km².

2.10 Rabies in Greece (GRE)

During the fourth quarter 1986, no case of rabies was reported in Greece.

2.11 United Kingdom (GBR)

The country remained rabies-free.

2.12 Rabies in Hungary (HUN) by L. Koltai

During the fourth quarter 1986, 484 rabies cases were registered in Hungary, an increase by 38.6% when compared to the same quarter in 1985 (349). The fox takes with 417 cases the greatest share, i.e. 86.2% (4/1985 88% of total). An increased number of cats were registered: 4/85-13, 4/86-42.

Considering the grand total of 1986 (1264 cases), again the western parts of Hungary were most affected by the disease - for the Komitat (province) Fejer there was 1 rabies case per 32.4 km², for Somogy 35.3 km², for Vas 40.5 km², for Veszprem 46.8 km². East of the river Danube the rate of infection is much lower - for the Komitat Csongrad there was 1 rabies case per 486 km², for Szolnok 417.5 km², for Bacs-Kiskun 164 km².

In 1986 1 303 304 dogs received the obligatory vaccination, 4.3% more than in the previous year. Cat vaccination is not obligatory, but in heavily infected area some tens of thousands of cats were vaccinated. It is not common to vaccinate farm animals. Nevertheless, it has been more and more recommended.

2.13 Iceland (ISL)

The country remained rabies-free.

2.14 Ireland (IRE)

The country remained rabies-free.

2.15 Rabies in Italy (ITA) by S. Proserpi

During the 4th quarter 1986, no case of rabies was reported in Italy.

In 1986, only 29 cases of rabies were diagnosed: 28 in wild animals (22 foxes, one roe-deer and 5 badgers)* in 15 municipalities, all of them in the province of Trento and only one affected for the first time; one dog in the municipality of Rome, which had previously participated in a hunt in Yugoslavia.

In 1986 rabies in the Alpine zones has decreased, in fact rabies hasn't been diagnosed in the Valle d'Aosta for more than two years, in Lombardia (last cases May 1985) and Friuli-Venezia-Giulia (last case in April 1985) for nearly two years.

The following are the results of the annual surveillance in the Alpine regions during 1986:

- 1) in Piemonte, Liguria and Valle d'Aosta: 255 wild animals and 90 domestic animals were examined, all proved negative;
- 2) in Lombardia: 1711 wild animals and 248 domestic animals were examined, all proved negative;
- 3) in Veneto, Trentino Alto Adige, Friuli Venezia Giulia: 4039 wild animals (22 foxes, one roe-deer, 5 badgers proved positive) and 313 domestic animals were examined.

The disappearance of the rabies in the Alpine regions may be explained in different ways:

- a) by a cyclic occurrence of four years, for example, as is reported in the literature;

*) ERRATA

During the first quarter 1986, 8 rabies cases were previously reported in foxes and 2 in badgers. This should read that there were 9 rabies cases in foxes and only 1 in a badger.

- b) the disease may have reached geographical areas with a high human density and low fox populations, from where it could not spread any further;
- c) as a consequence of the oral vaccination of foxes;
- d) a combination of the above three points plus the reduction of fox populations by hunting and the compulsory vaccination of domestic animals (under an Ordinance of the Ministry of Health, all dogs and grazing herbivores in the Alpine regions have to be vaccinated with ERA strain vaccine).

2.16 Rabies in Luxembourg (LUX)
by R. Frisch

The rabies situation of the Grand Duchy of Luxembourg continued to be on the rise during the fourth quarter 1986. There was a total of 67 cases, nearly as many as in the first three quarters of the year. 26 domestic animals and 41 wild animals (of these 37 foxes) were affected, the cases being scattered throughout the country.

The annual total of diagnosed rabies cases amounts to 137. The following animal species were affected:

1. <u>Domestic animals</u>	2. <u>Wild animals</u>
33 cattle	81 foxes
5 sheep	5 badgers
5 cats	4 stone martens
1 horse	1 roe deer
1 pig	1 wild boar

In regard to the present rabies control programme, the oral vaccination of foxes, which took place at the weekend of 20th and 21st September 1986, it is regrettable that the timing falls into an upward trend of the epizootic, as in that way the success might rather be impaired.

2.17 Rabies in the Netherlands (NET)
by J.H.M. Nieuwenhuijs

In the last quarter of 1986, there was one case of wild animal rabies diagnosed. A fox was found dead on 3rd December in the north-east of the Netherlands about 15 km from the border of the Federal Republic of Germany.

2.18 Norway (NOR)

The country remained rabies-free.

2.19 Rabies in Poland (POL)
by J. Kolacz

In 1986 a total of 1087 rabies cases were diagnosed in animals. This is a slight increase in comparison to 1985 (1073).

The disease was again predominant in wild animals (81.2% of total cases). Among 883 rabid wild animals 739 were foxes (68% of total cases), 63 racoon dogs (5.8%), 38 roe deer (3.5%), 18 martens, 16 badgers and 9 others.

Among 204 rabid domestic animals (18.8% of total cases), 81 were farm animals (7.5% of total cases), 73 cats (6.7%) and 48 dogs (4.4%).

Seven provinces (there is a total of 49) were rabies-free in 1986. These were: Biala Podlaska, Kraków, Lomza, Łódź, Piotrków, Rzeszów and Sieradz. The highest incidence of the disease was noticed in the following provinces: Opole (13.8% of total cases recorded in the country), Poznań (8.6%), Gdańsk (7.9%), Jelenia Góra (7.1%), Kielce (5.1%), Walbrzych (4.6%), Bydgoszcz (4.6%), Zielona Góra (4.4%), Gorzów (4.0%) and Ciechanów (3.6%).

Rabid foxes were reported from 42 provinces with the highest incidence in Opole, Jelenia Góra, Poznań, Walbrzych, Zielona Góra and Gdańsk; and respectively rabid cats from 24 provinces with the highest incidence in Poznań, Opole and Gdańsk, rabid farm animals from 20 provinces with the highest incidence in Gdańsk and Ciechanów and rabid dogs from 18 provinces with the highest incidence in Kielce, Jelenia Góra, Leszno, Toruń and Opole.

Comparing the development of single animal species involved in the rabies epizootic in 1985 and 1986, it can be noticed that the incidence of certain animals decreased like roe deer (by 49.4%), cats (by 16.1%) and foxes (by 1%), on the other hand there were animals with an increase - farm animals (by 47.7%), raccoon dogs (by 39.7%) and dogs (by 31.2%).

2.20 Rabies in Portugal (POR)

The country remained rabies-free.

2.21 Rabies in Romania (ROM)

There were 8 rabies cases reported in Romania during the fourth quarter 1986. Of the 8 cases were 2 dogs, 1 cat, 3 cattle, 1 fox and 1 badger.

The annual total of 1986 amounted to 69, 5 cases less than the previous year. The cases were scattered throughout the country with the fox taking the greatest share of all cases (49.3%), followed by cattle (17.4%) and the cat (10.1%).

2.22 Rabies in Spain (SPA)

The country remained rabies-free.

2.23 Sweden (SWE)

The country remained rabies-free.

2.24 Rabies in Switzerland (SWI) by A.I. Wandeler

During the fourth quarter of 1986, the Swiss Rabies Diagnostic Center received 1105 animals for examination. 32 (3%) of these were positive for rabies compared to 33 (6% of 583) in the previous quarter and 60 (4% of 1478) in the fourth quarter of 1985. 17 were observed in foxes, 11 in domestic animals. An additional 3 foxes were diagnosed histologically in canton Vaud. They bring the total of proven rabies cases to 35 (41 in the previous quarter).

Two badgers from canton Schaffhausen north of the river Rhine were diagnosed positive. One rabid fox was found close to national borders in canton Valais. The other 30 rabid animals originated from the western Jura mountains, from areas mostly not yet protected by oral fox immunization.

In the fourth quarter of 1986 2 persons were bitten by proven rabid animals, 1 by a cat and 1 by a fox. The number of people treated for non-bite exposures is not recorded.

2.25 Rabies in Turkey (TUR)

During the fourth quarter 1986, 336 rabies cases were registered in Turkey. Especially affected by the disease was the province of Izmir with 61 cases, followed by the province of Samsun with 28 cases. All other provinces report less than 19 cases.

The total for 1986 amounted to 1266 cases. Following the dog-mediated rabies pattern there were 1220 of all cases in domestic animals (96.4% of total) and 46 in wild animals. Of the latter 46 cases, there are still 34 in house mice, and only 8 in wolves and 4 in foxes.

In comparison with 1985 (1284 cases) there were only 18 rabies cases less during 1986.

2.26 Rabies in Yugoslavia (YUG)

131 cases of rabies were reported in Yugoslavia during the fourth quarter 1986, nearly three times as many in comparison with the previous quarter (45 cases). 120 cases were registered in foxes (91.6%), 3 in other wild animals and only 8 in domestic animals. The distribution of the cases was mainly in the northern part of the country (Slovenia, Croatia and Wojwodina) and some isolated cases in South-Croatia, Bosnia and Serbia.

The total number of rabies cases of 1986 amounted to 499. In comparison with the year 1985 (833 cases) there was a decrease by 40.1%.

2.27 Rabies in the Union of the Soviet Socialist Republics (USSR)

Data not received before going to press.

3. MISCELLANEOUS

3.1 Review of to the WHO Collaborating Centre, Tübingen, reported rabies case data in Europe from 1977 to 1986

It is the intention to publish at least every two years in this BULLETIN a review of the data material of hand at the WHO Reference Centre Tübingen. The last review appeared in RABIES BULLETIN EUROPE 4/84.

In this issue we present:

- A - Quarterly figures of all rabies cases received until now (table 6, page 20).
- B - A graph summarizing the development of individual countries with annual figures (in the Annex).
- C - A table of human rabies cases (see page 11).
- D - A table on bat rabies. Here, some references have been included going back to 1954 (page 13).

A. Table of quarterly rabies case data 1977-1986

It should be pointed out that certain figures of previous reviews may not agree with the ones presented here, as the editors continuously take effort to improve data, i.e. to fill gaps with data received late.

The figures in the table are totals: they comprise mainly fox-mediated animal rabies in Central Europe but include as well dog-mediated rabies in southern Europe, human cases and bat cases.

B. Development of rabies in individual countries (see map in the Annex)

In continuous columns the annual figures from the table under A. show the development of rabies over the last 10 years. The columns are drawn to the same scale, figures below 100 are given in digits.

The status 'rabies free country' may in some cases refer to a period of no i n d i g e n o u s l y acquired case for two years, in others for longer (see as well under A.).

C. Human rabies cases 1977-1986

The data presented here have been supplemented since the review in the BULLETIN 4/84.

Country	Number of Cases	Imported Cases	Year
Poland	7	1 ¹⁾	1977, 1979(2), 1980, 1983 ¹⁾ , 1984, 1985
Romania	3		1977
Switzerland	3		1977
Yugoslavia	8		1977 to 1980 each year 2
United Kingdom	4	4 ²⁾	1977(2), 1978, 1981
Turkey	39 ³⁾		1977(34), 1978(2), 1979(3)
Austria	1		1979
France	3	3 ⁴⁾	1979, 1980, 1982
German Dem.Rep.	1		1981
Belgium	1	1 ⁵⁾	1981
Finland	1 ⁶⁾		1985
Feder.Rep.Germ.	1	1 ⁷⁾	1986
	72	10	

1) Imported from Sudan

2) Imported from India (3) and Pakistan (1)

3) According to a personal communication with the Ministry of Health in Turkey, there are 30-60 cases every year. Unfortunately, there are no regular reports to the Centre.

4) Imported from Tunisia, Egypt and Senegal

5) Imported from Ruanda

6) Possibly of bat origin, but till now no confirmed bat rabies in the country.

7) Imported from India

D. Table of bat rabies cases 1954-1986

The occurrence of rabies in bats of Europe appeared to be restricted to rare incidences until 1985 (see references). Today, in certain areas like Jutland in Denmark (DEN) and Lower Saxony in the Federal Republic of Germany (DEU) the disease seems to have established itself. In 30 years (1954 to 1984) 14 cases were recorded in Europe, and lately in 2 years (1985/86) 138 cases.

Two facts have been learned from bat rabies. As can be seen from the table, there is one bat species predominantly affected - the serotine bat or Eptesicus serotinus. And secondly, the characterisation with monoclonal antibody identified the virus as Duvenhage, the prototype strain of serotype 4 of the genus Lyssavirus of the rhabdoviruses, an African virus type originating from southern Africa. - The bat rabies follows its own cycle amongst bats. Natural transmission of rabies from bats to terrestrial animals (all European bat species are insectivorous) has not been observed to date.

It needs close cooperation of bat specialists and veterinarians to learn epidemiological features of the disease and what means of control may be applied. To protect the human population educational work is needed. Handling of rabies suspected animals should be done with gloves, cartons, jars or cloth to prevent a bite.

Nevertheless, the bats need to be protected themselves. They are an endangered species. Hysteria in the press and the general public is by no means asked for, rather awareness and proper information.

3.2 Bat rabies in the Union of Soviet Socialist Republics

In an paper to be published entitled "The rabies related Yuli virus and its identification with a panel of monoclonal antibodies" by M. Selimov, A. Tatarov, A. Botvinkin, L. Kulikova and H. Hysmatullina of the Institute of Poliomyelitis and Viral Encephalitis of the Academy of Medical Sciences, Moscow, five rabies cases of chiropteran origin have been described. One virus isolate, the Yuli virus was characterized with a panel of monoclonal antibodies provided by the Wistar Institute, Philadelphia, USA, and the Federal Research Centre for Virus Diseases of Animals, Tübingen, Federal Republic of Germany.

The case histories

1. In October 1964, a 35-year old man was bitten by an insectivorous bat, Vespertilio (Eptesicus) serotinus, in the city of Kiev. Twenty five days after this bite the bat died without any apparent clinical symptoms. The patient had been treated with antirabies Fermi vaccine and did not develop rabies.

The laboratory examination of the bat virus strain revealed that white mice developed paralytic rabies 10-12 days after i.c. infection and died 2-3 days after onset of disease. Babes-Negri bodies in the mice could be demonstrated. The virus was neutralized by commercial antirabies gamma globulin. Laboratory animals immunized with Fermi vaccine were protected to challenge with the bat rabies (Reference: A.P. Ryaboshapka, N.M. Kroveletskaya 1967).

BAT-RABIES CASES REPORTED IN EUROPE

Geogr. Location	Year/Month	Genus and Species	References
<u>Federal Republic of Germany:</u>			
Hamburg	1954, Oct.	-	Mohr (1957)
Hamburg	1968, July	-	Wersching and Schneider (1969)
Stade	1970	-	Rabies Centre*
Berlin	1973	Myotis myotis	Hentschke and Hellmann (1975)
Bremerhaven	1982, Aug.	-	Rabies Centre*
Aurich	1983, Sept.	Eptesicus serotinus	" "
Bremerhaven	1985, May	Eptesicus serotinus	" "
Rodenberg	1985, June	Eptesicus serotinus	" "
Nienburg	1985, Oct.	Eptesicus serotinus	" "
Tübingen	1986, March	Eptesicus fuscus (imported from Canada)	" "
Ottweiler	1986, June	-	Rabies Centre*
North.Germany	1986,	9 E. serotinus	" "
	May	1 Myotis daubentoni	" "
	to	1 Pipistrellus	" "
	October	nathusii	" "
		3 -	" "
<u>Jugoslavia:</u>	1954	3 Nyctalus noctula	Nicolić and Jelesić (1956)
<u>Turkey:</u>	1956	Rhinolophus ferrum-equinum	Tuncman (1958)
<u>Democratic Republic of Germany:</u>			
Jena	1963, July	Eptesicus serotinus	Pitzschke (1965)
Bezirk Neu-brandenburg	1986, Sept.	-	Rabies Centre*
<u>Union of the Soviet Socialist Republics:</u>			
Kiew	1964, Oct.	Eptesicus serotinus	Selimov et al. (1986)
Woroschilowgrad	1977	Human case of bat origin	" "
Belgorod	1985, May	" "	" "
<u>Polen:</u>			
Krakau	1972	-	Starzecka and Skutecka-Krzciuk (1973)
Danzig	1985, May	Eptesicus serotinus	Rabies Centre*
<u>Denmark:</u>			
Jutland (mainly)	1985	10 E. serotinus	Rabies Centre*
	1986,	103 E. serotinus	" "
	June to	1 Myotis daubentoni	" "
	November	1 Myotis dasycneme	" "
<u>Finland:</u>			
Helsinki	1985, Oct.	Human case possibly of bat origin	Lumio et al. (1986)

*) WHO Collaborating Centre for Rabies Surveillance and Research at the Federal Research Centre for Virus Diseases of Animals, P.O.Box 1149, D-7400 Tuebingen

2. In a second instance a girl student, 15 years old, was bitten in a finger of the left hand by a bat on 16th August 1977 in Voroshilovgrad. She did not go for anti-rabies treatment. On the 16th September she developed the following clinical signs: fever, malaise, anxiety, insomnia, paresthesia at the left hand, excitation, salivation, convulsion, aukophobia, paraparesis of the extremities, paresis of the pharynx, paralysis musculus of the neck, visual hallucinations, heavy breathing. The patient died on the 21st September 1977.

The pathological findings and virological laboratory examinations confirmed rabies (Reference: Y.N. Sherbak, 1984).

3. On the 15th November 1984 a bat (Vespertilio murinus) entered the premises of an official building in the city of Omsk and was caught. It was kept until the 23rd April 1985 when the general condition of the animal worsened and both legs were paralysed. One day later it died.

The fluorescence antibody test was positive for rabies and virus was isolated from brain, salivary glands and brown fat of adult white mice inoculated with the bat virus. There was an incubation period of 5-8 days.

4. On the 8th May 1985, an eleven-year old girl, Yuli, was bitten by a bat in the lower lip while standing on the balcony of an apartment house in Belgorod. The bat was pulled off and escaped. There was no anti-rabies treatment to the child. 21 days after the bite first signs of disease developed: malaise, sleepiness, weakness of the legs, pain in the lower lip. After the patient was hospitalized she had the following symptoms: high fever, hyperesthesia, anxiety, excitation, ataxia, convulsions. 4 days after the onset of the disease the condition of the patient aggravated. She showed aero, hydro and aukophobia, mydriatic pupils, visual hallucination, heavy breathing, coma. She died 6 days after onset of the disease.

Several attempts to diagnose rabies with the fluorescing antibody technique and inoculation of adult white mice failed. The disease developed only in i.c. inoculated suckling mice, 12-24 days after inoculation. Fluorescence in these mice was faint, but there were numerous specific inclusions.

5. In 1985 a bat (Myotis daubentoni) was caught in the region of Novosibirsk.

Rabies was diagnosed by fluorescence antibody test and mouse inoculation.

Monoclonal antibody characterisation of the Yuli virus (case history 4.)

The Yuli isolate was tested with several panels of monoclonal antibodies supplied to the authors by the previously mentioned institutes, reference centres of the WHO, and compared with other virus types of the rabies group (by citing results presented at different instances).

The authors conclude that the Yuli virus relates to the Duvenhage virus, prototype strain of serotype 4 of the genus Lyssavirus of the rhabdoviruses.

TABLE 1

EUR		EUROPE		4/86		RABIES CASES							1.10.86 - 31.12.86			
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	1	2	13	1	4	-	21	322	19	8	4	1	354	375	
BEL	BELGIUM	-	6	29	-	2	-	37	44	1	1	1	-	47	84	
BUL	BULGARIA	*						0						0	0	
CZE	CZECHOSLOVAKIA	3	22	-	-	2	-	27	399	2	8	10	1	420	447	
DDR	GERMAN DEM. REPUBLIC	17	28	34	3	33	-	115	325	4	24	26	2	381	496	
DEN	DENMARK							0	-	-	-	-	5	5	5	
DEU	FED.REP. OF GERMANY	7	38	179	14	53	2	293	1001	33	46	90	4	1174	1467	
FIN	FINLAND	*						0						0	0	
FRA	FRANCE	8	25	59	6	26	-	124	420	7	9	10	-	446	570	
GBR	UNITED KINGDOM	*						0						0	0	
GRE	GREECE	*						0						0	0	
HUN	HUNGARY	9	42	10	-	3	-	64	417	-	1	1	1	420	484	
IRE	IRELAND	*						0						0	0	
ISL	ICELAND	*						0						0	0	
ITA	ITALY	*						0						0	0	
LUX	LUXEMBOURG	-	3	19	-	4	-	26	37	1	3	-	-	41	67	
NET	NETHERLANDS							0	1	-	-	-	-	1	1	
NOR	NORWAY	*						0						0	0	
POL	POLAND	13	23	32	-	2	-	70	278	5	8	12	36	339	409	
POR	PORTUGAL	*						0						0	0	
ROM	ROMANIA	2	1	3	-	-	-	6	1	1	-	-	-	2	8	
SPA	SPAIN	*						0						0	0	
SWE	SWEDEN	*						0						0	0	
SWI	SWITZERLAND + LIECHT	-	2	6	1	-	2	11	20	2	2	-	-	24	35	
TUR	TURKEY	212	32	64	-	4	8	320	1	-	-	-	15	16	336	
YUG	YUGOSLAVIA	2	5	1	-	-	-	8	120	1	-	1	1	123	131	
TOTAL		274	229	449	25	133	12	1122	3386	76	110	155	66	3793	0	4915
PER CENT		5.6	4.7	9.1	0.5	2.7	0.2	22.8	68.9	1.5	2.2	3.2	1.3	77.2	0.0	100.0

* NO CASES.

TABLE 2

EUR		EUROPE		1986		RABIES CASES							1. 1.86 - 31.12.86			
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	3	16	27	4	11	-	61	1159	84	38	44	1	1326		1387
BEL	BELGIUM	9	17	101	1	21	-	149	178	6	6	3	-	193		342
BUL	BULGARIA *							0						0		0
CZE	CZECHOSLOVAKIA	36	55	2	-	5	-	98	1321	9	30	24	8	1392		1490
DDR	GERMAN DEM. REPUBLIC	<u>63</u>	<u>94</u>	<u>78</u>	<u>8</u>	<u>88</u>	<u>2</u>	<u>333</u>	<u>1077</u>	15	71	66	<i>Red</i> 8	1237		1570
DEN	DENMARK							0	-	-	-	-	105	105		105
DEU	FED. REP. OF GERMANY	<u>45</u>	<u>148</u>	<u>363</u>	<u>41</u>	<u>187</u>	<u>6</u>	<u>790</u>	<u>3832</u>	132	152	327	26	4469	1	5260
FIN	FINLAND *							0						0		0
FRA	FRANCE	52	99	113	20	133	2	419	1953	22	41	28	2	2046		2465
GBR	UNITED KINGDOM *							0						0		0
GRE	GREECE *							0						0		0
HUN	HUNGARY	46	87	34	-	4	2	173	1067	-	3	18	3	1091		1264
IRE	IRELAND *							0						0		0
ISL	ICELAND *							0						0		0
ITA	ITALY	1	-	-	-	-	-	1	22	5	-	1	-	28		29
LUX	LUXEMBOURG	-	5	33	1	5	1	45	81	5	4	1	1	92		137
NET	NETHERLANDS							0	1	-	-	-	-	1		1
NOR	NORWAY *							0						0		0
POL	POLAND	48	73	74	-	6	3	204	739	16	23	40	65	883		1087
POR	PORTUGAL *							0						0		0
ROM	ROMANIA	6	7	12	2	5	-	32	34	3	-	-	-	37		69
SPA	SPAIN *							0						0		0
SWE	SWEDEN *							0						0		0
SWI	SWITZERLAND + LIECHT	1	12	13	1	4	2	33	130	12	18	4	1	165		198
TUR	TURKEY	848	90	212	8	42	20	1220	4	-	-	-	42	46		1266
YUG	YUGOSLAVIA	11	11	3	1	2	2	30	460	3	-	2	4	469		499
TOTAL		1169	714	1065	87	513	40	3588	12058	312	386	558	266	13580	1	17169
PER CENT		6.8	4.2	6.2	0.5	3.0	0.2	20.9	70.2	1.8	2.2	3.3	1.5	79.1	0.0	100.0

* NO CASES.

TABLE 3: RABIES CASE RATES (% TOTAL) FOR INDIVIDUAL ANIMAL SPECIES AND FOR TOTAL CASES OF 10 EUROPEAN COUNTRIES RANKING HIGHEST IN 1986.

EUR		EUROPE											1986		1. 1.86 - 31.12.86	
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
EUROPE																
TOTAL RABIES CASES		1169	714	1065	87	513	40	3588	12058	312	386	558	266	13580	1	17169
PER CENT INVOLVEMENT / COUNTRY																
DEU FED.REP. OF GERMANY	3.8	20.7	34.1	47.1	36.5	15.0	22.0	31.8	42.3	39.4	58.6	9.8	32.9	100.0	30.6	
FRA FRANCE	4.4	13.9	10.6	23.0	25.9	5.0	11.7	16.2	7.1	10.6	5.0	0.8	15.1		14.4	
DDR GERMAN DEM. REPUBLIC	5.4	13.2	7.3	9.2	17.2	5.0	9.3	8.9	4.8	18.4	11.8	3.0	9.1		9.1	
CZE CZECHOSLOVAKIA	3.1	7.7	0.2	-	1.0	-	2.7	11.0	2.9	7.8	4.3	3.0	10.3		8.7	
AUT AUSTRIA	0.3	2.2	2.5	4.6	2.1	-	1.7	9.6	26.9	9.8	7.9	0.4	9.8		8.1	
TUR TURKEY	72.5	12.6	19.9	9.2	8.2	50.0	34.0	0.0	-	-	-	15.8	0.3		7.4	
HUN HUNGARY	3.9	12.2	3.2	-	0.8	5.0	4.8	8.8	-	0.8	3.2	1.1	8.0		7.4	
POL POLAND	4.1	10.2	6.9	-	1.2	7.5	5.7	6.1	5.1	6.0	7.2	24.4	6.5		6.3	
YUG YUGOSLAVIA	0.9	1.5	0.3	1.1	0.4	5.0	0.8	3.8	1.0	-	0.4	1.5	3.5		2.9	
BEL BELGIUM	0.8	2.4	9.5	1.1	4.1	-	4.2	1.5	1.9	1.6	0.5	-	1.4		2.0	
TOTAL FROM 10 COUNTRIES	1161	690	1007	83	499	37	3477	11790	287	364	552	159	13152	1	16630	
EQUAL % TOTAL	99.3	96.6	94.6	95.4	97.3	92.5	96.9	97.8	92.0	94.3	98.9	59.8	96.8	100.0	96.9	

TABLE 4

EUR		EUROPE			4/86		RABIES CASES 'OTHER ANIMAL SPECIES'										1.10.86 - 31.12.86	
LOCATION		OTHER DOMESTIC ANIMALS					OTHER WILD ANIMALS										TOTAL	
CODE	NAME	DONKEY	MULE	PIG	OTH. DOM HERBIVO	DOMEST RABBIT	WOLF	RACoon DOG	WILD CAT	RACoon	WILD BOAR	MOUFLON	INSECT BAT	BLACK RAT	HOUSE MOUSE	MUSKRAT		OTHER
AUT	AUSTRIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
CZE	CZECHOSLOVAKIA	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
DDR	GERMAN DEM. REP.	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	2
DEN	DENMARK	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	5
DEU	FED. REP. GERMANY	1	-	1	-	-	-	-	-	1	-	2	-	-	1	-	-	6
HUN	HUNGARY	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
POL	POLAND	-	-	-	-	-	35	-	-	-	-	-	-	1	-	-	-	36
SWI	SWITZERLAND + LIE	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2
TUR	TURKEY	6	1	-	1	-	1	-	-	-	-	-	-	-	14	-	-	23
YUG	YUGOSLAVIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
TOTAL		8	1	1	1	1	1	35	1	1	1	7	2	15	1	1	1	78
PER CENT		10.3	1.3	1.3	1.3	1.3	1.3	44.9	1.3	1.3	1.3	9.0	2.6	19.2	1.3	1.3	1.3	100.0

TABLE 5

EUR		EUROPE						1986														RABIES CASES				1. 1.86 - 31.12.86	
		OTHER DOMESTIC ANIMALS						OTHER WILD ANIMALS																			
COUNTRY	OTH. DOM. CARNIVOR	DONKEY	MULE	PIG	OTH. DOM. HERBIVOR	DOMESTIC RABBIT	OTHERS	WOLF	RACCOON DOG	WILD CAT	RACCOON	WILD BOAR	MOUFLON	CHAMOIS	HEDGEHOG	INSECTIV BAT	DORMOUSE	BLACK RAT	HOUSE MOUSE	MUSKRAT	VOLE	HARE	OTHERS	TOTAL			
AUT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1			
CZE	-	-	-	-	-	-	-	1	1	-	-	2	3	-	-	-	1	-	-	-	-	-	-	8			
DDR	-	-	-	1	-	1	-	-	1	-	3	-	-	-	-	1	-	1	-	-	-	1	-	10			
DEN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	105			
DEU	-	2	-	3	-	1	-	-	-	-	1	3	3	-	1	16	-	-	2	-	-	-	-	32			
FRA	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	4			
HUN	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-	5			
LUX	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2			
POL	2	-	-	1	-	-	-	-	63	-	-	-	-	-	-	-	-	1	-	-	-	1	-	68			
SWI	-	1	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	3			
TUR	-	14	1	-	5	-	-	8	-	-	-	-	-	-	-	-	-	-	34	-	-	-	-	62			
YUG	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	6			
TOT.	2	17	1	10	5	3	2	9	65	4	2	9	6	1	1	122	1	2	36	1	1	2	4	306			
%	0.7	5.6	0.3	3.3	1.6	1.0	0.7	2.9	21.2	1.3	0.7	2.9	2.0	0.3	0.3	39.9	0.3	0.7	11.8	0.3	0.3	0.7	1.3	100.			

AUT

A U S T R I A

R A B I E S C A S E S

1.10.86 - 31.12.86

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
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS		
101	EISENSTADT-STADT						0	1	-	-	-	-	1		1
103	EISENSTADT-LAND						0	2	-	-	-	-	2		2
104	GUESSING						0	13	-	-	-	-	13		13
105	JENNERSDORF						0	12	-	-	-	-	12		12
107	NEUSIEDL AM SEE						0	3	-	-	-	-	3		3
108	OBERPULLENDORF						0	1	-	-	-	-	1		1
109	OBERWART	1	-	-	-	-	1	10	-	-	-	-	10		11
203	HERMAGOR						0	1	-	-	-	-	1		1
205	SANKT VEIT AN DER GL	-	-	2	-	1	3	38	3	2	-	-	43		46
206	SPITTAL AN DER DRAU						0	1	-	-	-	-	1		1
209	WOLFSBERG	-	-	-	-	1	1	6	-	-	-	-	6		7
210	FELDKIRCHEN						0	19	-	-	-	-	19		19
309	GMUEND						0	9	1	-	-	-	10		10
311	HORN						0	3	1	-	1	-	5		5
313	KREMS AN DER DONAU-L						0	3	-	-	-	-	3		3
316	MISTELBACH						0	1	-	-	-	-	1		1
322	WAIDHOFEN AN DER THA						0	11	-	1	-	-	12		12
323	WIENER NEUSTADT-LAND						0	5	-	-	-	-	5		5
325	ZWETTL						0	1	1	-	-	-	2		2
407	GMUNDEN						0	12	-	-	-	-	12		12
413	ROHRBACH						0	1	-	-	-	-	1		1
502	HALLEIN	-	-	2	-	-	2	11	1	-	-	-	12		14
503	SALZBURG-LAND						0	2	1	-	-	-	3		3
504	SANKT JOHANN IM PONG	-	-	1	-	-	1	8	-	-	-	-	8		9
505	TAMSWEG						0	1	-	-	-	-	1		1
506	ZELL AM SEE	-	-	4	-	1	5	39	-	-	-	1	40		45
603	DEUTSCHLANDSBERG						0	5	1	2	-	-	8		8
604	FELDBACH						0	3	-	-	-	-	3		3
606	GRAZ-LAND						0	4	-	-	-	-	4		4
608	JUDENBURG						0	4	-	-	-	-	4		4
609	KNITTELFELD	-	1	2	-	1	4	8	4	-	1	-	13		17
610	LEIBNITZ						0	3	-	-	-	-	3		3
611	LEOBEN						0	7	1	-	-	-	8		8
612	LIEZEN	-	1	1	1	-	3	36	1	2	1	-	40		43
614	MURAU						0	1	2	-	-	-	3		3
616	VOITSBERG	-	-	1	-	-	1	25	1	1	1	-	28		29
704	KITZBUEHEL						0	5	-	-	-	-	5		5
708	REUTTE						0	7	-	-	-	-	7		7
802	BREGENZ						0	-	1	-	-	-	1		1
TOTAL		1	2	13	1	4	21	322	19	8	4	1	354	0	375
PER CENT		0.3	0.5	3.5	0.3	1.1	5.6	85.9	5.1	2.1	1.1	0.3	94.4	0.0	100.0

RABIES CASES

1.10.86 - 31.12.86

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	14	-	-	-	15	13	-	1	-	-	14		29
LX LUXEMBOURG	-	4	13	-	2	-	19	26	1	-	1	-	28		47
NA NAMUR	-	1	2	-	-	-	3	5	-	-	-	-	5		8
TOTAL	0	6	29	0	2	0	37	44	1	1	1	0	47	0	84
PER CENT	0.0	7.1	34.5	0.0	2.4	0.0	44.0	52.4	1.2	1.2	1.2	0.0	56.0	0.0	100.0
DEN DENMARK															
025 ROSKILDE							0	-	-	-	-	1	1		1
050 SONDERJYLLAND							0	-	-	-	-	2	2		2
055 RIBE							0	-	-	-	-	2	2		2
TOTAL	0	0	0	0	0	0	0	0	0	0	0	5	5	0	5
LUX LUXEMBOURG															
02 CAPELLEN	-	-	1	-	-	-	1	1	-	-	-	-	1		2
03 ESCH	-	-	-	-	-	-	0	1	-	-	-	-	1		1
04 LUXEMBOURG-CAMPAGNE	-	1	-	-	-	-	1	3	-	-	-	-	3		4
05 MERSCH	-	-	1	-	2	-	3	5	-	1	-	-	6		9
06 CLERVAUX	-	-	1	-	-	-	1	2	-	-	-	-	2		3
07 DIEKIRCH	-	1	10	-	1	-	12	9	-	1	-	-	10		22
08 REDANGE	-	-	-	-	-	-	0	1	-	-	-	-	1		1
09 WILTZ	-	-	1	-	-	-	1	-	1	-	-	-	1		2
11 ECHTERNACH	-	-	2	-	-	-	2	10	-	-	-	-	10		12
12 GREVENMACHER	-	1	3	-	1	-	5	5	-	1	-	-	6		11
TOTAL	0	3	19	0	4	0	26	37	1	3	0	0	41	0	67
PER CENT	0.0	4.5	28.4	0.0	6.0	0.0	38.8	55.2	1.5	4.5	0.0	0.0	61.2	0.0	100.0
NET NETHERLANDS															
08 OVERIJSEL							0	1	-	-	-	-	1		1

CZE

C Z E C H O S L O V A K I A

R A B I E S C A S E S

1.10.86 - 31.12.86

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	-	2	-	-	1	-	0	31	-	2	-	1	0	0	
01	CENTRAL BOHEMIA	-	2	-	-	1	-	3	76	-	3	-	-	34	37	
02	SOUTH BOHEMIA	2	3	-	-	-	-	5	73	-	2	-	-	79	84	
03	WEST BOHEMIA	-	1	-	-	-	-	0	75	-	1	2	-	75	75	
04	NORTH BOHEMIA	-	1	-	-	-	-	1	75	1	1	2	-	79	80	
05	EAST BOHEMIA	-	3	-	-	-	-	0	26	-	-	-	-	26	26	
06	SOUTH MORAVIA	-	2	-	-	1	-	3	45	1	-	3	-	49	52	
07	NORTH MORAVIA	-	2	-	-	1	-	3	22	-	-	2	-	24	27	
0	CSR	2	11	-	-	2	-	15	348	2	8	7	1	366	381	
10	DISTRICT OF BRATISLAV	-	1	-	-	-	-	1	5	-	-	-	-	5	6	
11	WEST SLOVAKIA	-	2	-	-	-	-	2	10	-	-	-	-	10	12	
12	CENTRAL SLOVAKIA	1	2	-	-	-	-	3	10	-	-	3	-	13	16	
13	EAST SLOVAKIA	-	6	-	-	-	-	6	26	-	-	-	-	26	32	
1	SSR	1	11	-	-	-	-	12	51	-	-	3	-	54	66	
TOTAL		3	22	0	0	2	0	27	399	2	8	10	1	420	0	447
PER CENT		0.7	4.9	0.0	0.0	0.4	0.0	6.0	89.3	0.4	1.8	2.2	0.2	94.0	0.0	100.0

DDR

GERMAN DEMOCRATIC REPUBLIC

R A B I E S C A S E S

1.10.86 - 31.12.86

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	HAUPTSTADT BERLIN	-	-	-	-	-	-	0	-	-	-	-	-	0	-	0
02	COTTBUS	-	2	-	-	-	-	2	14	-	1	2	-	17	-	19
03	DRESDEN	-	-	-	-	2	-	2	5	-	-	2	-	7	-	9
04	ERFURT	2	3	2	-	3	-	10	57	-	1	-	-	58	-	68
05	FRANKFURT/ODER	1	-	-	1	-	-	2	15	-	-	1	-	16	-	18
06	GERA	1	2	7	-	6	-	16	43	1	2	3	-	49	-	65
07	HALLE	1	1	1	-	-	-	3	20	-	-	1	-	21	-	24
08	KARL-MARX-STADT	1	10	-	-	13	-	24	8	-	3	1	-	12	-	36
09	LEIPZIG	1	-	1	-	-	-	2	6	-	-	3	-	9	-	11
10	MAGDEBURG	-	-	4	-	-	-	4	19	-	-	-	-	19	-	23
11	NEUBRANDENBURG	3	1	7	1	-	-	12	18	-	5	3	-	26	-	38
12	POTSDAM	-	-	-	1	-	-	1	10	-	-	1	-	11	-	12
13	ROSTOCK	5	6	3	-	3	-	17	62	2	5	4	1	74	-	91
14	SCHWERIN	1	2	3	-	3	-	9	9	1	3	3	1	17	-	26
15	SUHL	1	1	6	-	3	-	11	39	-	4	2	-	45	-	56
TOTAL		17	28	34	3	33	0	115	325	4	24	26	2	381	0	496
PER CENT		3.4	5.6	6.9	0.6	6.7	0.0	23.2	65.5	0.8	4.8	5.2	0.4	76.8	0.0	100.0

DEU

FEDERAL REPUBLIC OF GERMANY

R A B I E S C A S E S

1.10.86 - 31.12.86

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
010	SCHLESWIG-HOLSTEIN							0	-	-	-	-	2	2	2	
020	HAMBURG							0						0	0	
031	BRAUNSCHWEIG	1	1	3	2	3	-	10	25	2	2	2	-	31	41	
032	HANNOVER	-	-	10	2	3	-	15	42	2	3	3	-	50	65	
033	LUENEBURG	-	-	-	1	-	-	1	1	-	2	-	-	3	4	
034	WESER-EMS							0						0	0	
040	BREMEN							0						0	0	
051	DUESSELDORF							0	2	-	-	2	-	4	4	
053	KOELN	-	2	39	4	10	-	55	47	1	2	4	-	54	109	
055	MUENSTER							0						0	0	
057	DETMOLD	-	5	28	3	13	-	49	126	1	3	18	-	148	197	
059	ARNSBERG	-	-	7	1	-	-	8	32	3	2	6	-	43	51	
061	DARMSTADT	-	2	14	1	1	-	18	93	1	6	10	-	110	128	
062	KASSEL	-	2	18	-	3	-	23	75	5	5	6	-	91	114	
071	KOBLENZ	2	1	5	-	-	1	9	43	1	1	1	-	46	55	
072	TRIER	1	3	26	-	12	-	42	32	-	3	5	1	41	83	
073	RHEINHESSEN-PFALZ	-	2	-	-	1	-	3	1	1	1	2	-	5	8	
081	STUTTGART	-	2	2	-	-	-	4	34	2	-	5	-	41	45	
082	KARLSRUHE							0	23	-	-	1	-	24	24	
083	FREIBURG	-	1	6	-	-	-	7	70	3	3	6	1	83	90	
084	TUEBINGEN	-	3	6	-	-	-	9	38	2	1	5	-	46	55	
091	OBERBAYERN	-	1	7	-	3	-	11	41	2	1	3	-	47	58	
092	NIEDERBAYERN	1	-	1	-	-	-	2	12	-	1	-	-	13	15	
093	OBERPFALZ	1	2	1	-	-	-	4	83	-	2	1	-	86	90	
094	OBERFRANKEN	1	4	-	-	4	1	10	62	4	3	6	-	75	85	
095	MITTELFRANKEN	-	1	-	-	-	-	1	27	1	1	-	-	29	30	
096	UNTERFRANKEN	-	3	-	-	-	-	3	52	2	4	4	-	62	65	
097	SCHWABEN	-	2	2	-	-	-	4	19	-	-	-	-	19	23	
100	SAARLAND	-	1	4	-	-	-	5	21	-	-	-	-	21	26	
110	BERLIN (WEST)							0						0	0	
TOTAL		7	38	179	14	53	2	293	1001	33	46	90	4	1174	0	1467
PER CENT		0.5	2.6	12.2	1.0	3.6	0.1	20.0	68.2	2.2	3.1	6.1	0.3	80.0	0.0	100.0

FRA FRANCE

RABIES CASES

1.10.86 - 31.12.86

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 AISNE	1	-	-	1	-	-	2	19	-	-	-	-	19		21
08 ARDENNES	-	-	-	-	-	-	0	2	-	-	-	-	2		2
10 AUBE	-	-	1	-	-	-	1	31	1	-	2	-	34		35
21 COTE D'OR	1	-	2	-	-	-	3	7	-	-	-	-	7		10
25 DOUBS	1	3	9	-	2	-	15	49	4	1	3	-	57		72
39 JURA	-	2	1	-	-	-	3	25	-	-	-	-	25		28
47 LOT ET GARONNE	-	-	1	-	-	-	1	-	-	-	-	-	0		1
51 MARNE	-	-	1	-	-	-	1	7	-	-	-	-	7		8
52 MARNE (HAUTE)	-	1	1	-	-	-	2	7	-	-	-	-	7		9
54 MEURTHE ET MOSELLE	-	7	6	-	-	-	13	18	-	1	1	-	20		33
55 MEUSE	-	1	10	1	3	-	15	6	-	-	-	-	6		21
57 MOSELLE	1	1	1	-	2	-	5	26	-	-	1	-	27		32
58 NIEVRE	1	-	4	-	4	-	9	23	-	1	-	-	24		33
60 OISE	-	1	-	-	-	-	1	10	-	1	1	-	12		13
67 RHIN (BAS)	1	1	14	1	-	-	17	8	-	-	1	-	9		26
68 RHIN (HAUT)	-	-	-	-	-	-	0	15	-	1	1	-	17		17
70 SAONE (HAUTE)	-	-	4	1	5	-	10	23	-	-	-	-	23		33
74 SAVOIE (HAUTE)	1	-	-	1	-	-	2	3	1	-	-	-	4		6
77 SEINE ET MARNE	-	3	-	-	-	-	3	18	1	-	-	-	19		22
80 SOMME	-	-	-	-	-	-	0	12	-	-	-	-	12		12
88 VOSGES	1	2	3	1	6	-	13	37	-	1	-	-	38		51
89 YONNE	-	1	1	-	3	-	5	26	-	2	-	-	28		33
90 TERR.DE BELFORT	-	-	-	-	1	-	1	4	-	-	-	-	4		5
91 ESSONNE	-	1	-	-	-	-	1	43	-	1	-	-	44		45
94 VAL DE MARNE	-	-	-	-	-	-	0	1	-	-	-	-	1		1
95 VAL D'OISE	-	1	-	-	-	-	1	-	-	-	-	-	0		1
TOTAL	8	25	59	6	26	0	124	420	7	9	10	0	446	0	570
PER CENT	1.4	4.4	10.4	1.1	4.6	0.0	21.8	73.7	1.2	1.6	1.8	0.0	78.2	0.0	100.0

HUN

HUNGARY

RABIES CASES

1.10.86 - 31.12.86

LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
01	BUDAPEST							0	6	-	-	-	-	6		6
02	BARANYA	-	5	-	-	-	-	5	24	-	-	-	-	24		29
03	BACS-KISKUN	-	4	1	-	-	-	5	27	-	-	-	-	27		32
04	BEKES	1	-	4	-	-	-	5	17	-	-	-	-	17		22
05	BORSOD-ABAUJ-ZEMPLEN	-	1	-	-	-	-	1	22	-	-	-	-	22		23
06	CSONGRAD	-	1	-	-	-	-	1	8	-	-	-	-	8		9
07	FEJER	-	3	2	-	-	-	5	51	-	-	-	-	51		56
08	GYOER-SOPRON	1	-	-	-	-	-	1	12	-	-	-	-	12		13
09	HAJDU-BIHAR	-	13	-	-	-	-	13	6	-	-	-	-	6		19
10	HEVES	1	1	-	-	-	-	2	16	-	-	-	-	16		18
11	KOMAROM	1	-	-	-	-	-	1	24	-	-	-	1	25		26
12	NOGRAD	-	1	-	-	-	-	1	16	-	-	-	-	16		17
13	PEST	-	2	-	-	1	-	3	33	-	-	-	-	33		36
14	SOMOgy	2	3	1	-	2	-	8	46	-	-	-	-	46		54
15	SZABOLCS-SZATMAR	1	4	1	-	-	-	6	20	-	-	-	-	20		26
16	SZOLNOK							0	8	-	-	-	-	8		8
17	TOLNA	1	2	1	-	-	-	4	22	-	-	-	-	22		26
18	VAS							0	21	-	1	-	-	22		22
19	VESZPREM	1	1	-	-	-	-	2	19	-	-	-	-	19		21
20	ZALA	-	1	-	-	-	-	1	19	-	-	1	-	20		21
TOTAL		9	42	10	0	3	0	64	417	0	1	1	1	420	0	484
PER CENT		1.9	8.7	2.1	0.0	0.6	0.0	13.2	86.2	0.0	0.2	0.2	0.2	86.8	0.0	100.0

POL POLAND

RABIES CASES

1.10.86 - 31.12.86

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	-	-	1	-	-	-	0	1	-	1	-	-	2	2	
05	BIALYSTOK	-	-	1	-	-	-	1	4	-	-	-	-	4	5	
09	BYDGOSZCZ	-	-	6	-	-	-	6	9	-	-	-	1	10	16	
11	CHELM	-	-	0	-	-	-	0	1	-	-	-	-	1	1	
13	CIECHANOW	-	-	7	-	-	-	7	14	1	2	-	1	18	25	
15	CZESTOCHOWA	-	-	0	-	-	-	0	-	-	2	-	-	2	2	
17	ELBLAG	-	-	0	-	-	-	0	4	-	-	-	1	5	5	
19	GDANSK	1	1	4	-	2	-	8	15	1	-	1	9	26	34	
21	GORZOW	3	2	-	-	-	-	5	9	-	-	-	-	9	14	
23	JELENIA GORA	-	-	3	-	-	-	3	23	-	-	-	-	23	26	
25	KALISZ	-	-	0	-	-	-	0	1	-	-	-	-	1	1	
27	KATOWICE	-	-	0	-	-	-	0	2	-	-	-	-	2	2	
29	KIELCE	3	4	-	-	-	-	7	30	2	1	1	-	34	41	
31	KONIN	-	-	0	-	-	-	0	1	-	-	-	-	1	1	
33	KOSZALIN	-	-	0	-	-	-	0	5	-	-	-	-	5	5	
39	LEGNICA	1	-	-	-	-	-	1	4	-	-	-	-	4	5	
41	LESZNO	2	3	-	-	-	-	5	11	-	-	2	-	13	18	
43	LUBLIN	-	-	0	-	-	-	0	1	-	-	-	-	1	1	
49	NOWY SACZ	-	-	0	-	-	-	0	1	-	-	-	-	1	1	
51	OLSZTYN	1	1	4	-	-	-	6	7	-	-	3	15	25	31	
53	OPOLE	1	4	-	-	-	-	5	22	-	-	-	-	22	27	
55	OSTROLEKA	-	1	1	-	-	-	2	1	-	-	-	1	2	4	
57	PILA	-	-	1	-	-	-	1	7	-	-	-	1	8	9	
61	PLOCK	-	-	0	-	-	-	0	2	-	-	-	-	2	2	
63	POZNAN	1	3	-	-	-	-	4	25	-	1	2	-	28	32	
67	RADOM	-	1	-	-	-	-	1	8	-	-	-	-	8	9	
71	SIEDLCE	-	-	0	-	-	-	0	1	-	-	-	-	1	1	
75	SKIERNIEWICE	-	-	0	-	-	-	0	4	-	-	-	-	4	4	
77	SLUPSK	-	1	-	-	-	-	1	8	-	-	1	-	9	10	
79	SUWALKI	-	-	0	-	-	-	0	2	-	-	-	4	6	6	
81	SZCZECIN	-	-	0	-	-	-	0	2	-	-	1	1	4	4	
83	TARNOBRZEG	-	2	-	-	-	-	2	7	-	-	-	1	8	10	
87	TORUN	-	-	2	-	-	-	2	-	1	-	-	-	1	3	
89	WALBRZYCH	-	-	2	-	-	-	2	19	-	-	1	-	20	22	
93	WROCLAW	-	-	0	-	-	-	0	7	-	-	-	-	7	7	
95	ZAMOSC	-	-	0	-	-	-	0	6	-	-	-	-	6	6	
97	ZIELONA GORA	-	-	1	-	-	-	1	14	-	1	-	1	16	17	
TOTAL		13	23	32	0	2	0	70	278	5	8	12	36	339	0	409
PER CENT		3.2	5.6	7.8	0.0	0.5	0.0	17.1	68.0	1.2	2.0	2.9	8.8	82.9	0.0	100.0

R A B I E S C A S E S

1.10.86 - 31.12.86

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
ROM R O M A N I A																
01 ALBA		1	-	-	-	-	-	1						0		1
02 ARAD		1	1	-	-	-	-	2						0		2
07 BOTOSANI								0	1	-	-	-	-	1		1
24 IASI		-	-	2	-	-	-	2						0		2
32 SALAJ								0	-	1	-	-	-	1		1
39 VILCEA		-	-	1	-	-	-	1						0		1
TOTAL		2	1	3	0	0	0	6	1	1	0	0	0	2	0	8
PER CENT		25.0	12.5	37.5	0.0	0.0	0.0	75.0	12.5	12.5	0.0	0.0	0.0	25.0	0.0	100.0
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																
06 BERN		-	1	-	-	-	-	1	1	-	-	-	-	1		2
12 NEUCHATEL		-	1	-	-	-	-	1	2	-	1	-	-	3		4
15 SCHAFFHAUSEN								0	-	2	-	-	-	2		2
22 VAUD		-	-	1	-	-	-	1	5	-	1	-	-	6		7
23 VALAIS								0	1	-	-	-	-	1		1
26 JURA		-	-	5	1	-	2	8	11	-	-	-	-	11		19
TOTAL		0	2	6	1	0	2	11	20	2	2	0	0	24	0	35
PER CENT		0.0	5.7	17.1	2.9	0.0	5.7	31.4	57.1	5.7	5.7	0.0	0.0	68.6	0.0	100.0
YUG Y U G O S L A V I A																
10 SR BOSNA I HERCEGOVIN								0	8	-	-	-	-	8		8
30 SR HRVATSKA		1	2	-	-	-	-	3	53	-	-	1	-	54		57
50 SR SLOVENIJA								0	29	1	-	-	-	30		30
60 SR SRBIJA								0	2	-	-	-	-	2		2
61 SAP VOJVODINA		1	3	1	-	-	-	5	28	-	-	-	1	29		34
TOTAL		2	5	1	0	0	0	8	120	1	0	1	1	123	0	131
PER CENT		1.5	3.8	0.8	0.0	0.0	0.0	6.1	91.6	0.8	0.0	0.8	0.8	93.9	0.0	100.0

TUR TURKEY

RABIES CASES

1.10.86 - 31.12.86

LOCATION CODE NAME		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS		
001	ADANA	4	-	2	-	-	-	6						0	6
002	ADIYAMAN	-	-	1	-	-	-	1						0	1
003	AFYON	6	-	1	-	1	-	8						0	8
004	AGRI	1	-	-	-	-	-	1						0	1
005	AMASYA	-	-	1	-	-	-	1						0	1
006	ANKARA	3	2	-	-	-	-	5						0	5
007	ANTALYA	-	1	2	-	1	-	4						0	4
009	AYDIN	14	-	4	-	-	-	18						0	18
010	BALIKESIR	10	2	2	-	-	-	14	-	-	-	-	1	1	15
014	BOLU	9	-	4	-	-	1	14						0	14
015	BURDUR	1	-	-	-	-	-	1						0	1
016	BURSA	2	-	2	-	1	-	5						0	5
017	CANAKKALE	1	-	-	-	-	-	1						0	1
019	CORUM	4	-	1	-	-	-	5						0	5
020	DENIZLI	4	5	-	-	-	-	9	-	-	-	-	1	1	10
023	ELAZIG	-	1	-	-	-	-	1						0	1
025	ERZURUM	2	-	-	-	-	-	2						0	2
027	GAZIANTEP	5	-	-	-	-	-	5						0	5
028	GIRESUN	1	-	1	-	-	-	2						0	2
029	GUEMUESHANE	-	-	-	-	-	-	0	1	-	-	-	-	1	1
031	HATAY	3	3	-	-	-	-	6						0	6
032	ISPARTA	2	-	-	-	-	-	2						0	2
033	ICEL	-	-	1	-	-	-	1						0	1
034	ISTANBUL	9	-	-	-	-	-	9						0	9
035	IZMIR	33	12	6	-	-	1	52	-	-	-	-	9	9	61
036	KARS	1	-	-	-	-	-	1						0	1

TUR CONTINUED

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
037	KASTAMONU	2	-	-	-	-	-	2						0	2	
038	KAYSERI	5	-	-	-	-	2	7						0	7	
039	KIRKLARELI	1	-	1	-	-	-	2						0	2	
041	KOCAELI	3	-	-	-	-	-	3						0	3	
042	KONYA	3	1	-	-	-	-	4						0	4	
043	KUETAHYA	10	-	1	-	-	-	11						0	11	
044	MALATYA	1	-	-	-	-	-	1						0	1	
045	MANISA	11	1	-	-	-	1	13	-	-	-	-	1	1	14	
046	KAHRAMAN MARAS	1	2	-	-	-	1	4						0	4	
048	MUGLA	2	-	-	-	-	1	3						0	3	
049	MUS							0	-	-	-	-	1	1	1	
051	NIGDE	1	-	-	-	-	-	1						0	1	
052	ORDU	9	-	1	-	-	-	10	-	-	-	-	1	1	11	
054	SAKARYA	6	-	-	-	-	-	6						0	6	
055	SAMSUN	14	-	12	-	-	1	27	-	-	-	-	1	1	28	
057	SINOP	6	-	5	-	-	-	11						0	11	
060	TOKAT	4	-	1	-	1	-	6						0	6	
061	TRABZON	2	-	1	-	-	-	3						0	3	
063	URFA	-	-	1	-	-	-	1						0	1	
064	USAK	4	2	6	-	-	-	12						0	12	
066	YOZGAT	3	-	2	-	-	-	5						0	5	
067	ZONGULDAK	9	-	5	-	-	-	14						0	14	
TOTAL		212	32	64	0	4	8	320	1	0	0	0	15	16	0	336
PER CENT		63.1	9.5	19.0	0.0	1.2	2.4	95.2	0.3	0.0	0.0	0.0	4.5	4.8	0.0	100.0

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WHO Coll. Centre
Tuebingen / DEU

Rabies Cases Turkey
4th Quarter 1986
336 cases reported



ISL
(rabies free)

NOR
(rabies free)

FIN
(0)

SWE
(rabies free)

Rabies Cases Europe
4th Quarter 1986

4915 cases reported

● bat rabies

USR
(no data)



IRE
(rabies free)

GBR
(rabies free)

DEN
(5)

NET
(1)

DDR
(496)

POL
(409)

BEL
(84)

DEU
(1467)

CZE
(447)

FRA
(570)

AUT
(375)

HUN
(484)

SWI
(35)

ROM
(8)

ITA
(0)

YUG
(131)

POR
(rabies free)

SPA
(rabies free)

BUL
(rabies free)

ALB
(no data)

GRE
(0)

TUR
(336)

0 50 100 km