

C O N T E N T S

	Page
1. INTRODUCTION	1
2. RABIES IN EUROPE, 4TH QUARTER 1988	2
2.1 - 2.26 Situation in Individual Countries	3 - 14
3. MISCELLANEOUS	15
3.1 Information	15
3.2 Review of Reported Rabies Case Data in Europe to the WHO Collaborating Centre, Tübingen from 1977 to 1988	16 - 19
3.3 Rabies Virus Strain Characterization with Monoclonal Antibodies	20 - 21
4. RABIES CASE DATA	
4.1 Table 1, Europe, 4th Quarter 1988	22
4.2 Table 2, Europe, Accumulated Totals 1988	23
4.3 Table 3, Rabies Case Rates (% of total) for Individual Countries	24
4.4 Table 4, Europe, Other Animal Species 4th Quarter 1988	25
4.5 Table 5, Europe, Other Animal Species 1988	26
4.6 Table 6, Europe, Quarterly Figures 1977-1988	27
4.7 Tables, European Countries 4th Quarter 1988	28 - 37
5. LIST OF CONTRIBUTORS	38 - 39
6. ANNEX 1: Map of Rabies Cases in EUROPE, 4th Quarter 1988	
ANNEX 2: Map of Rabies Cases in FINLAND, 4th Quarter 1988	
ANNEX 3: Map of Rabies Cases in TURKEY, 4th Quarter 1988	
ANNEX 4: GRAPH: 10 Years of Rabies Data Collection at the WHO Collaborating Centre, EUROPE 1977-1988	

The RABIES BULLETIN EUROPE is compiled and edited by the

WHO Collaborating Centre for Rabies
Surveillance and Research

Dr. L.G. SCHNEIDER, Chief
Dr. W.W. MÜLLER, Ass.Chief
K.-P. HOHNSBEEN, Statistician

at the
Federal Research Centre for Virus
Diseases of Animals

D 7400 TUEBINGEN, Postfach 1149
Federal Republic of Germany

TEL.: (0)7071-603 332, TELETEx: 707131=BFAVTue, TELEX: 17707131
NEW: T e l e f a x (0) 7071 - 603 201

The BULLETIN is sponsored by the WORLD HEALTH ORGANIZATION in Geneva, and the INTERNATIONAL OFFICE OF EPIZOOTICS in Paris.

The financial support of the WHO Centre by the BUNDESMINISTERIUM FÜR JUGEND, FAMILIE UND GESUNDHEIT, Bonn-Bad Godesberg, is gratefully acknowledged.

NEW

NEW

NEW

T E L E F A X

at the Federal Research Centre for Virus Diseases of Animals,
Tübingen (Bundesforschungsanstalt für Viruskrankheiten
der Tiere, Tübingen)

Country Code: - 7071 - 603 201

Suggestion: Transfer of letters, tables, maps are not always of good quality on arrival, depending on the original and the apparatus; therefore, when reports are late, please make use of TELEFAX but send off the report by usual mail as well!

1. INTRODUCTION

This BULLETIN describes the reported rabies cases in Europe for the fourth quarter 1988. The situation in general appears under 2., and in individual countries under 2.1 to 2.26.

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 article on rabies virus strain characterisation with monoclonal antibodies (MAB) relates to the different epidemiological rabies types in Europe. Under 3.3 information is given on cooperation of oral immunization of foxes in Europe, a meeting in Munich on "Jagd und Tollwut" (hunting and rabies) and a WHO consultation on requirements and criteria for field trials on oral vaccination of dogs and wild carnivores in Geneva.

The rabies case data are tabulated for the fourth quarter 1988 under 4.

The last part lists the official contributors to the BULLETIN.

The geographical distribution of cases in Europe of the fourth quarter 1988 is shown on maps of Europe, Finland and Turkey in the Annex. One graph in the Annex refers to the text under 3.1.

2. RABIES IN EUROPE (EUR), FOURTH QUARTER 1988 and COMMENTS ON DEVELOPMENTS AND TRENDS IN 1988

Fourth Quarter 1988

During the fourth quarter 1988, 5051 rabies cases were reported in Europe. These were 3950 in wild animals (78.2%) and 1100 in domestic animals (21.8%). Of the cases in wild animals 3536 (70% of total) were foxes, 81 raccoon dogs, 47 badgers, 98 other mustelids, 169 deer, 5 bats and 14 other wild animals. Of the 1100 cases in domestic animals 175 were dogs (of which 100 = 57.1% of all dogs were reported from Turkey, a country with dog-mediated rabies), 221 cats, 428 cattle, 15 horses, 251 small ruminants and 10 other domestic animals. These data are summarized in Table 1. Table 4 lists 'other animal species', less frequently involved in rabies.

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, Greece, Svalbard (Norway) and Spain, but their last indigenously acquired case was recorded less than two years ago.

Bat rabies was reported from the Netherlands (5 cases) and the Federal Republic of Germany (1 case).

There was one human case reported from Blackburn, United Kingdom, but it was imported from Pakistan.

Comments on Developments and Trends in 1988

Figures summarizing 1988 can be found in Tables 2, 3, 5 and 6.

The number of rabies cases in 1988 totals 16078. This is a reduction compared to 1987 (16690) by 3.7%.

The four quarters for 1988 compare as follows:

1st quarter	4394
2nd quarter	2969
3rd quarter	3664
4th quarter	5051

Wildlife or fox-mediated Rabies:

The wildlife rabies epizootic of central Europe has mainly the red fox as reservoir and this is also the animal that passes the infection on to other animals (wild and domestic). The epidemiological situation undergoes changes according to the changes in the fox population or while moving into new areas. But the front wave of the epizootic in Europe has not much changed since 1982 except for Finland (see below).

Several countries had an increase of case reporting compared to the previous year (Belgium, German Democratic Republic, France, Yugoslavia), other countries had less cases reported (Austria, Czechoslovakia, Federal Republic of Germany, Hungary, Poland, Romania).

After 29 years of being rabies-free Finland was reinfected in 1988. And contrary to all other European countries with wildlife rabies, here the raccoon dog is the animal mostly affected.

Italy as well became reinfected along the border with Yugoslavia after nearly 2 years of being without rabies.

Urban or Dog-mediated Rabies:

There is only one country in Europe showing a clear picture of urban rabies - **Turkey**. 76.9% of all cases in 1988 were in dogs, 99.6% were accounted for by domestic animals. The number of rabies cases totalled 710; there were 1005 cases recorded in 1987.

Bat Rabies:

Bat rabies can be clearly separated from the forementioned types and the arctic rabies and there is no evidence yet of this virus type in terrestrial animals.

Bat cases dropped from 140 in 1987 to 53 in 1988. Two countries (Denmark and Spain) affected in 1987 had no new cases; the Federal Republic of Germany and the Netherlands recorded less cases than in the previous year.

Arctic Rabies:

This type again can be distinguished from the other types of rabies. Cases occurred in Europe on the island of Svalbard in Norway, during 1980/81 and the last one in a reindeer in 1987.

Using the method of characterizing rabies strains with monoclonal antibodies, there is evidence that rabies in Finland may derive from arctic rabies. Several strains were tested and all were recognized by one specific monoclonal as arctic or polar.

Human Rabies:

There were 3 imported human cases during 1988, 2 in the United Kingdom (imported from Pakistan and Bangladesh) and 1 in Belgium (imported from Zaire) compared to 1 imported case to the United Kingdom (from India) in 1987.

No doubt there are indigenous cases in Turkey, the country with urban rabies but unfortunately, there is no regular reporting to the WHO Collaborating Centre in Tübingen.

Individual country reports follow:

2.1 Rabies in Austria (AUT) by H. Schnabl

During the fourth quarter 1988, 328 animals were diagnosed rabid, 2.5% more compared to the previous quarter (320 animals) and 43% less compared to the third quarter 1987 (579 animals). Of 294 rabid wild animals (90% of total) 262 were foxes (80%), 13 badgers (4%), 9 stone martens, 2 polecats and 8 roe deer. Of 34 rabid domestic animals (10% of total) 24 were cattle (7%), 5 cats, 4 sheep and 1 goat.

The disease occurs in the following Bundesländer (federal provinces) and Bezirke (districts):

<u>Burgenland</u>	(Bezirke Eisenstadt Umg., Güssing, Jennersdorf, Oberpullendorf)
<u>Kärnten</u>	(all Bezirke, except Klagenfurt Stadt and Feldkirchen)
<u>Niederösterreich</u>	(Bezirke Bruck/Leitha, Gmünd, Horn, Krems, Melk, Zwettl and Wiener Neustadt)
<u>Oberösterreich</u>	(Bezirke Freistadt and Vöcklabruck)
<u>Salzburg</u>	(Bezirke Salzburg Umg., St. Johann i. Pg., Tamsweg and Zell/See)
<u>Steiermark</u>	(all Bezirke except Feldbach, Fürstenfeld, Mürzzuschlag, Radkersburg)
<u>Tirol</u>	(Bezirk Lienz)

Free of rabies were the Bundesländer Vorarlberg and Wien.

A total of 1786 rabies cases in animals were diagnosed in 1988, a decrease of 13% in comparison with 1987 (2042 cases). Of 1701 rabid wild animals 1512 were foxes (1987=1722), 79 badgers (100), 36 stone martens (45), 65 roe deer (72), 7 polecats (8), 1 chamois and 1 fallow deer (1987=3 red deer, 1 wild boar, 1 mouflon, 1 large weasel, 1 hare). Of 85 rabid domestic animals 46 were cattle (1987=44), 15 cats (20), 5 dogs (3), 17 sheep (18), 1 goat (1), 1 pig (1987=2 horses).

The figure of samples to be examined for rabies dropped by 3% from 15600 in 1987 to 15132 in 1988.

2.2 Rabies in Belgium (BEL) by J. Tambreur

220 rabies cases were confirmed in 122 localities of the provinces LIÈGE, LUXEMBOURG and NAMUR during this quarter. Of these 88 were in domestic animals (1 dog, 7 cats, 66 cattle and 14 small ruminants) and 132 in wild animals (123 foxes, 3 badgers, 5 other mustelids and 1 roe deer).

There was an increase of cases by 20% compared to the third quarter 1988 (solely in domestic animals; there was a slight decrease in foxes) and an increase by 150% compared to the fourth quarter 1987.

The total of 1988 amounts to 515 cases resulting in an increase by 112% compared to 1987 (242 cases).

Since the oral vaccination of foxes against rabies with the SAD B19 vaccine was carried out in September 1988 in the whole infected area of Belgium, a decrease of rabies cases in foxes was registered. Considering the total of fox rabies cases in March 1988 as 100%, there was a reduction of cases by 49% in December 1988.

2.3 Bulgaria (BUL)

The country remained rabies-free.

2.4 Rabies in Czechoslovakia (CZE)

by M. Olach and J. Neumann

In the fourth quarter of 1988 a total of 416 rabies cases were ascertained in Czechoslovakia (CSR-336, SSR-80), which is nearly the same number as in the fourth quarter of 1987 (421 cases). In comparison with the third quarter of 1988, the number of rabies cases increased by 15.5% (by 56 cases), primarily in the wildlife species.

Wildlife accounted for 398 cases, i.e. for 95.7% of the total number of 416 rabies cases. They included 379 foxes, 1 badger, 9 martens, 8 roe-deer, 1 stag. The affected domestic animals included 12 cats, 4 dogs, 1 sheep and 1 goat (4.3%).

The total number of rabies cases ascertained in Czechoslovakia in 1988 amounted to 1580 (CSR - 1290; SSR - 290), which is 11.4% less than in 1987 (1783 cases).

Rabies was ascertained in 1422 foxes, 9 badgers, 31 martens, 19 roe-deer, 6 stags, 1 moufflon, 1 raccoon dog and 1 wild cat. The domestic cat accounted for the majority of affected domestic animals - 57 cases. The affected domestic animals included further 28 dogs, 2 sheep, 1 goat, 1 pig and 1 polar fox. The wildlife species represented 94.4% and the domestic animals 5.6% of the total number of affected animals.

The North Bohemian Region (390 cases) remained the region mostly affected by rabies. It was followed by the Central Bohemian Region (301), West Bohemian Region (284), East Slovakia Region (131), etc. In the fourth quarter of 1988, rabies markedly spread in the Central Bohemian Region becoming the mostly affected region (109) in this quarter. The highest number of cases were found in the district Louny (106), followed by Chomutov (91), Pribram (87), Karlovy Vary (71), Benesov (44), Rakovnik (41), etc.

The incidence of rabies reached its peak in the first quarter, the lowest incidence being recorded in the second quarter.

As of December 31, 1988, rabies was recorded in 400 foci involving 91 districts.

No case of rabies was recorded in man.

2.5 Rabies in Germany, Democratic Republic (DDR)

During the fourth quarter 1988, 847 rabies cases were diagnosed in the Democratic Republic of Germany, 160 cases more than during the previous quarter and 438 cases more in comparison with the fourth quarter 1987. Of the 847 cases 544 (64.2% of total) were in wild animals (471 foxes, 1 raccoon dog, 4 badger, 27 stone martens, 1 polecat, 36 roe deer, 1 red deer, 3 wild boar) and 303 (35.8% of total) were in domestic animals (33 dogs, 55 cats, 4 horses, 1 pig, 66 cattle, 142 sheep and 2 other domestic animals).

The distribution of cases was more concentrated in the south and the north, and less concentrated in the central parts of the country.

The annual total for 1988 amounted to 2390 cases, 697 more than during the previous year.

One case of bat rabies was reported in 1988.

2.6 Rabies in Denmark (DEN) by E. Stougaard

During the fourth quarter 1988, no case of rabies was reported in Denmark.

2.7 Rabies in Germany, Federal Republic (DEU)

4th Quarter 1988

A total of 923 rabies cases were reported during the fourth quarter 1988, 393 cases more than during the previous quarter and 31 more than during the fourth quarter 1987. 86.1% of the cases were in wild animals (693 foxes, 11 badgers, 15 stone martens, 2 polecats, 2 raccoons, 69 roe deer, 2 fallow deer and 1 bat), 13.9% were in domestic animals (2 dogs, 24 cats, 5 horses, 1 pig, 75 cattle, 19 sheep and 2 domestic rabbits).

490 rabies cases (53.1% of total) occurred in the Bundesland (federal state) Hessen. This was a substantial increase compared to the previous quarter (214). All other Bundesländer registered slight rises or remained stable.

Evaluation of rabies in 1988

The annual figure for 1988 amounts to 2628 cases showing a substantial decrease compared to 1987 with 3791 cases.

As the field trial for the oral vaccination of foxes was continued, several Bundesländer (federal states) had again a noticeable reduction in rabies cases; for example Nordrhein-Westfalen from 467 in 1987 to 94, Bayern from 1185 to 553, Baden-Württemberg from 761 to 461 and Rheinland-Pfalz from 430 to 259. Niedersachsen could keep the epizootiological situation stable. The Saarland experienced a fierce outbreak in the half of the Bundesland only once vaccinated. In Hessen the rabies situation deteriorated with 754 cases in 1987 to 1017 cases in 1988.

2.8 Rabies in Finland (FIN) by S. Reinius

4th Quarter 1988

During the fourth quarter 1988, 24 positive rabies cases out of 685 examined animals were registered compared to 20 out of 475 examined animals in the previous quarter. 20 cases were recorded in wildlife (17 raccoon dogs, 2 red foxes, 1 badger) and 4 cases in domestic animals (3 cats, 1 bovine). Two cases involved human exposure.

16 cases were reported in the west of the province of Kymi, 1 case in the south-east of the province of Häme and 7 cases in the north-east of the province of Uusimaa. Two cases in the south-west of Kymi were recorded outside the area where the oral vaccination campaign took place in September and October. The vaccination area will be extended in spring 1989.

The number of positive cases decreased towards the end of the quarter. This is probably due to the hibernation of the raccoon dog. The effect of the vaccination campaign will be evaluated during the spring of 1989.

Evaluation of rabies in 1988

Rabies reappeared in Finland in April 1988 after an interval of 29 years. The disease presumably was brought into the country from the South-East, possibly by wolves migrating along the coast among the winter ice. Another possibility, however, is provided by the fact that living as well as dead raccoon dogs occasionally are found in railroad freight cars crossing the border. There are no indications of rabies in the approx. 80 km zone between the outbreak and the national border.

At an early stage the character of endemic silvatic rabies was obvious, and equally obvious the role of the raccoon dog as principal vector and victim of the disease. As far as is known, silvatic rabies has not occurred earlier in Finland. Since the last outbreak in dogs in 1959, when the raccoon dog population was negligible, this species has reached a density of about 1-2/km², while the fox population has remained on a level of < 0.5/km².

The isolated virus was shown by monoclonal antibody tests to be of arctic fox origin (Tübingen, FRG), which raises interesting aspects as to the original reservoir and spreading pattern of the infection.

By the end of November 1988 some 180.000 dogs, 60.000 cats and 25.000 heads of cattle had been vaccinated. Vaccination of hunting dogs was made compulsory in the whole country on 11.04.1988.

By the end of 1988, 1716 animals of 32 different species including e.g. 137 dogs, 375 cats, 364 foxes, 576 raccoon dogs, 56 badgers and 19 cattle were examined for rabies by direct immunofluorescence. Of these, 45 raccoon dogs, 10 foxes, 4 cats, 2 badgers, 1 dog and 1 bovine were diagnosed rabid.

In the middle of June the decision was made by the Veterinary Department of the Ministry of Agriculture and Forestry to execute a field trial on oral immunization of raccoon dogs and foxes against rabies in the endemic area with Tübingen baits, according to the so-called Bavarian model. Planning and execution of the campaign was done under detail guidance by the WHO Collaborating Centre for Rabies Surveillance and Research, Tübingen, FRG. At the end of September, when some 800 volunteer hunters spread 36.000 vaccine baits over an area of about 2400 km², the infected area was estimated to be some 1500 km². Two weeks later 4500 additional baits were spread by air over approximately 225 km².

The SAD B19 vaccine had a virus concentration of 5×10^7 TCID₅₀/ml.

In the vaccination area the recorded incidence of rabies among wild predators was 12 cases in September and 11 in October. In November the number of cases dropped to 4 and in December to one case only; this in spite of an almost equally large number of animals examined from the area in September-October and November-December respectively.

Preliminary results of serum neutralization tests made on blood samples from 105 target animals from the area indicate immunity against rabies in > 80% of the raccoon dogs and 65% of the foxes, the mean for both species together being 76%.

As the above results are encouraging, the field trial will be continued next spring. Considering the fact that 3 cases have been obtained from an adjacent area south-east of the vaccination area and that the rivers and lakes provide no natural barriers for the disease during the winter, the spring campaign will have to cover a considerably larger area.

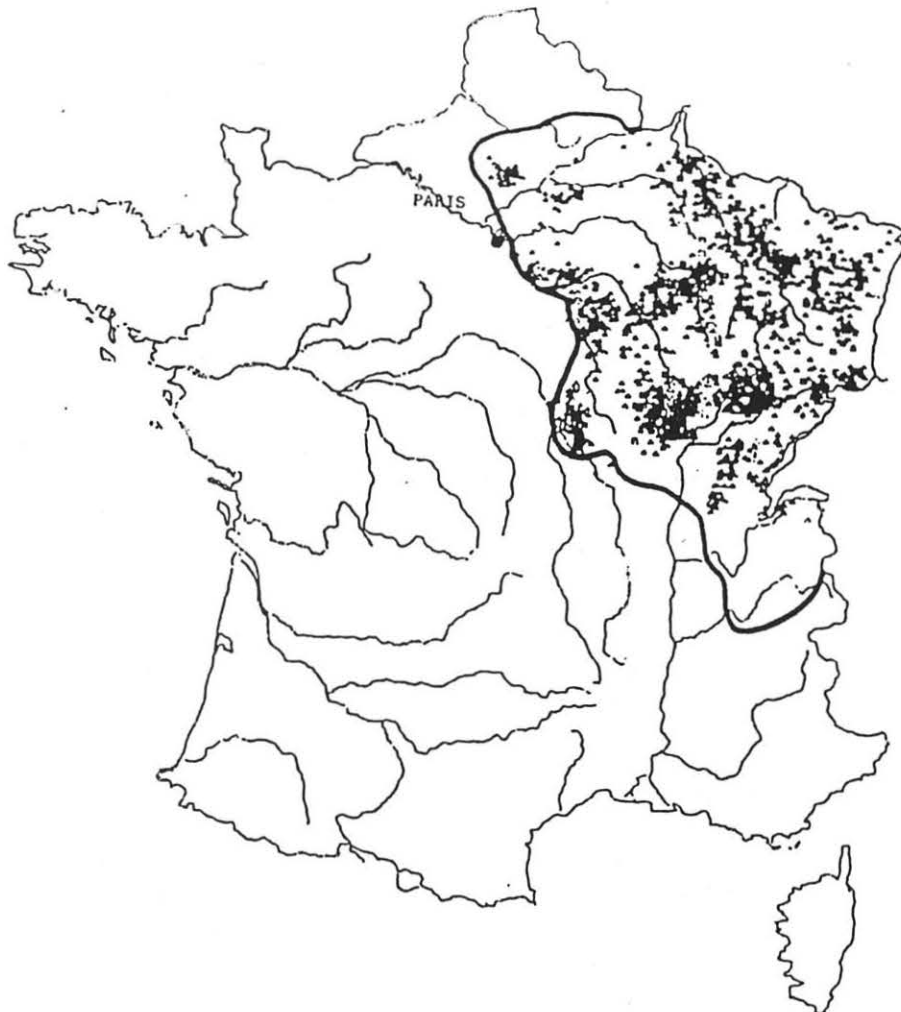
2.9 Rabies in France (FRA)

by J. Blancou

784 rabies cases were registered during the course of the fourth quarter 1988, 312 more than during the previous quarter. 582 cases were noted in the fox (74.2% of total), 19 in other wild animals and 183 in domestic animals (6 dogs, 37 cats, 82 cattle, 52 small ruminants, 5 horses, 1 pig).

The départements (départments) registering the greatest number of cases during this quarter were: Cote d'Or (135 cases), Meurthe et Moselle (102 cases) and Nièvre (91 cases).

During 1988 a total of 2223 rabies cases were reported in France. The distribution of these cases can be seen on the map. Note: the continuous line indicates the greatest extension of the rabies front line in the country since 1968 when it was infected.



2.10 Rabies in Greece (GRE)

by A. Saravanos

During the fourth quarter 1988, no case of rabies was reported in Greece.

2.11 Rabies in Hungary (HUN)

by L. Koltai

During the fourth quarter 1988, 372 rabies cases were registered in Hungary, close to the figure registered during the same period 1987 (381). The majority of cases occurred in the western half of the country, in Transdanubia, with the highest figures in Baranya (52), Somogy (45), Fejer (38) and Zala (33). Of the 372 cases 325 were recorded in foxes (87.4% of total).

In 1988 1,430,000 dogs were vaccinated against rabies, 6.6% more than during the previous year.

The total of rabies cases in 1988 amounted to 1176 and was 19.8% less than in the previous year (1466 cases).

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 4th quarter 1988, 19 rabies cases were diagnosed in foxes, 17 in the province of Trieste and 2 in the province of Gorizia. Both of these provinces border with Yugoslavia.

Two cases previously recorded in the province of Trieste during August and September had signalled that an epidemic could develop.

The disease arrived in a rabies-free area with a susceptible fox population. These are favourable conditions for the dissemination of the virus.

During 1988, surveillance was carried out in the Alpine regions as follows:

- 1) 327 wild (312 foxes) and 96 domestic animals were examined in Piemonte, Valle d'Aosta and Liguria - all of them revealed negative results.
- 2) 1305 wild (1151 foxes) and 255 domestic animals were examined in Lombardia - all of them were negative as well.
- 3) 3844 wild (2938 foxes) and 386 domestic animals were examined in Trentino Alto Adige, Veneto e Friuli Venezia Giulia - of these 21 foxes were positive, all others negative.

An oral vaccination of foxes is planned in the newly infected areas of the Friuli Venezia Giulia region during next spring. The vaccination will be carried out with SAD B19 vaccine from Tübingen. Yugoslavia and Austria plan, at the same time, a vaccination in the nearby border areas of the outbreak in Italy.

An Ordinance of the Ministry of Health of 5 March 1988, n. 98, makes additionally to the oral vaccination, a vaccination for dogs and grazing herbivores with ERA vaccine compulsory. This vaccination is still being carried out in areas which were infected by rabies before or which are at risk of infection at the moment: Piemonte, Valle d'Aosta, Lombardia, Trentino Alto Adige, Veneto and Friuli Venezia Giulia.

2.15 Rabies in Luxembourg (LUX)

by F. Kons

During the fourth quarter 1988 only one rabies case was recorded in the centre of the country. Eight foxes and 2 stone martens were examined but revealed negative results.

The total of 1988 amounts to 4 cases, these are 19 cases less than during the previous year (23). The following animal species were affected: 1 badger (22.3.88), 1 horse (30.3.88), 1 stone marten (17.5.88) and 1 fox (25.11.88).

No doubt there is a connection between the oral vaccination of foxes started in the Grand Duchy of Luxembourg and the bordering neighbours 1986 and the low figures of rabies cases of this country in the last two years. It is hoped that these oral vaccinations are to be continued in the interest of the control of rabies in the whole of Europe.

2.16 Rabies in the Netherlands (NET)

by J.H.M. Nieuwenhuijs

During the fourth quarter of 1988, 5 bats were found rabid.

The total number of rabid bats in 1988 comes to 43. The species of the positive bats have not all yet been determined. Those that have been determined belong to one species: Eptesicus serotinus. The number of investigated bats in 1988 has decreased considerably. While 1250 were examined in 1987, only 525 were examined in 1988.

As terrestrial animals 6 red foxes, 1 cat, 1 cow and 1 badger were found rabid in 1988, all in the border area with Belgium.

2.17 Rabies in Norway (NOR)

by H.O. Bach-Gansmo

No case of rabies has been reported in Svalbard during the fourth quarter 1988.

The mainland remained rabies-free.

2.18 Rabies in Poland (POL)

by J. Kolacz

4th Quarter 1988

During the fourth quarter 1988, 462 cases of rabies were registered in Poland, 359 cases in wild animals (77.7%) and 103 cases in domestic animals (22.3%).

There was concentration of cases in the western half of the country and in the north-east.

Evaluation of rabies in 1988

In 1988 a total of 1518 rabies cases were diagnosed in animals. This is a slight decrease (by 10%) in comparison to 1987 (1686) when the highest number of rabies cases in Poland had been registered since 1949 (3600 cases).

The disease was still predominant in wild life (82.5% of total cases). Among 1252 rabid wild animals 990 were foxes (65.2% of total cases), 125 raccoon dogs (8.2%), 59 roe deer (3.9%), 33 martens, 17 badgers and 28 others (8 different species).

Among 266 rabid domestic animals (17.5% of total cases), 121 were farm animals (8%), 87 cats (5.7%) and 58 dogs (3.8%).

Only three provinces (there is a total of 49) were rabies free in 1988. These were: Łódź, Piotrków and Tarnów. The highest incidence of the disease was noticed in the following provinces: Olsztyn (8.3% of total cases recorded in the country), Katowice (5.8%), Bydgoszcz (5.6%), Opole (5.4%) and Poznań (4.7%).

Rabid foxes were reported from 45 provinces with the highest incidence rate in Opole (7.7% of rabies cases recorded among foxes in the country), Katowice (5.9%), Jelenia Góra (5.8%), Gorzów (5%); and respectively **rabid cats** from 30 provinces with the highest incidence in Poznań (27.6%); **rabid dogs** from 27 provinces; **rabid farm animals** from 23 provinces with the highest incidence in Olsztyn (33%), Bydgoszcz (9.9%) and Katowice (9.9%); and **rabid raccoon dogs** from 17 provinces with the highest incidence in Olsztyn (26% of rabies cases recorded among raccoon dogs in the country), Bydgoszcz (14.3%), Suwałki (8.7%), Białystok (8.7%), Chzelm (7.9%) and Gdansk (7.1%).

In principal and practically the red fox is solely responsible for maintaining the current epidemic of rabies in Poland. From 1987 the raccoon dog became the second species on the list of animals infected with rabies. The following are the rabies case rates (% of a total) for raccoon dogs having been recorded during the years 1986-1988: 5.7%, 5.5% and 8.3%.

The data collected from the provinces where rabid raccoon dogs have been reported for a longer period of time (Suwałki, Olsztyn) indicate that during the last years the cases of these animals about equal the number of cases diagnosed in foxes.

Comparing the development of single animal species involved in the rabies epizootic in 1987 and 1988, it can be noticed that the incidence of certain animals decreased like foxes (by 18.3%), martens (by 19.5%) and badgers (by 5.5%). On the other hand there were animals with an increase of the incidence rate like raccoon dogs (by 26.2%), cattle (by 26.8%), cats (by 13.8%) and dogs (by 10.3%).

2.19 Portugal (POR)

The country remained rabies-free.

2.20 Rabies in Romania (ROM)

During the fourth quarter 1988, 14 cases of rabies were reported in Romania (2 dogs, 4 cats, 3 cattle, 4 foxes and 1 other wild animal). These cases were scattered over several provinces, all in the northern half of the country.

The total of the year 1988 amounts to 38 rabies cases (46 in 1987).

2.21 Rabies in Spain (SPA)

by J.L. de Filipe

During the fourth quarter 1988, the mainland of Spain remained rabies-free in terrestrial animals.

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

2.22 Sweden (SWE)

The country remained rabies-free.

2.23 Rabies in Switzerland (SWI)

by A.I. Wandeler

During the fourth quarter of 1988, the Swiss Rabies Diagnostic Center received 729 animals for examination. 16 (2.2%) of these were positive for rabies compared to 28 (7.5% of 375) in the previous quarter and 25 (3% of 839) in the fourth quarter of 1987. 11 were observed in foxes, 1 in a badger, 1 in a stone marten, 2 in cattle and 1 in a sheep. Five bats (2 Myotis myotis, 2 Pipistrellus nathusii, 1 Plecotus auritus) examined with immunofluorescence and i.c. inoculation into suckling mice revealed no rabies virus.

Most rabies cases originated in the northern canton Jura relatively close to the Swiss-French border. A few were observed in other parts of the Jura mountains, as well as two each in cantons Geneva and lower Valais.

No bite exposures of humans to proven rabid animals were recorded in the fourth quarter of 1988. The number of people treated for non-bite exposures is not recorded.

2.24 Rabies in Turkey (TUR)

During the fourth quarter 1988, 146 rabies cases were reported from Turkey. There were 145 cases in domestic animals: 100 dogs, 11 cats, 27 cattle, 6 sheep and 1 domesticated herbivore, and 1 in a fox. There has been an increase of 9 cases compared to the previous quarter.

In 5 coastal provinces of the west and north of the country, Izmir (13), Balikesir (10), Istanbul (12), Samsun (11), Ordu (15) between 10 and 15 cases were reported, all other provinces reported between 1 and 8 cases.

The annual figure for 1988 amounts to 710 cases, thus, Turkey continues to report an annual figure lower than the previous year starting in 1981 with 2260 cases.

Turkey stands for a country in Europe with typical urban rabies: 99.6% of all affected animals in 1988 were domestic animals; of the grand total 76.9% were dogs, 2% cats, 14.9% cattle, 1.3% horses, 3.2% small ruminants and 1.3% others.

The three provinces mostly affected in 1988 were Izmir, Samsun and Ordu with 66, 54 and 52 reported cases, respectively. All other provinces reported less than 35 cases.

2.25 United Kingdom (UNK)

by M.J. Marriott

4th quarter 1988

The country remained rabies-free (no indigenous cases!).

Surveillance 3rd and 4th Quarter 1988

During the third and fourth quarters 1988, there were 15 incidents outside quarantine, involving 6 dogs, 6 cats, 2 foxes and 1 African Swamp cat. One other case of suspected rabies occurred in a cat in authorised quarantine premises. Laboratory examination was carried out on 12 occasions. Two cases were excluded on post-mortem, and 2 after 15 days observation in isolation premises. During the above mentioned period laboratory examinations were also carried out on the brains of 68 animals which had died in authorised quarantine premises, and all results were negative.

From July to December 1988, 150 bats were examined for rabies and found negative. The total for 1988 was 350 bats submitted, of which 10 could not be tested because of decomposition. The species are as follows:

Pipistrellus pipistrellus	233	Pipistrellus nathusii	3
Plecotus auritus	53	Rhinolophus ferrumequinum	2
Eptesicus serotinus	16	Nyctalus leisleri	1
Myotis nattereri	13	Barbastella barbastellus	1
Myotis mystacinus	11	Myotis brandtii	1
Nyctalus noctula	8	Fruit (zoo)	1
Myotis daubentoni	4	Indeterminate	3

Total investigations 1988:

- 1) **Rabies incidents outside quarantine:**
9 cats, 8 dogs, 4 foxes, 1 mouse, 1 cow, 1 African swamp cat = total 24.
17 samples examined at laboratory,
4 negative by veterinary examination,
3 negative after observation at isolation premises.
- 2) **Rabies incidents in quarantine:**
1 cat. Negative laboratory examination.
- 3) **Deaths in quarantine premises:**
66 dogs, 50 cats, 4 rats, 4 meerkats; all negative.

Summary 1988 (Human rabies cases)

In 1988, two cases of human rabies were confirmed clinically in the United Kingdom. In the first case, the patient was a British engineer who was working in Bangladesh. Four months after being bitten on the finger by a puppy he developed clinical symptoms and died on 14 June, in Sheffield, UK. In the second case the patient had visited Pakistan in May 1988 and was known to have contacted stray dogs. He became ill on 16 December, was admitted to hospital on 21 December, and died on 23 December in Blackburn, UK. In both cases, rabies was the clinical diagnosis.

No post-mortem was carried out in either case, and laboratory tests on the limited amount of material available did not give positive results.

2.26 Rabies in Yugoslavia (YUG)

473 cases of rabies were reported in Yugoslavia during the fourth quarter 1988. Of these 406 were in foxes (85.8% of total), 4 in badgers, 8 in stone martens, 14 in roe deer, 4 in other wild animals and 37 in domestic animals (7.8% of total) - 9 dogs, 17 cats, 8 cattle, 2 sheep and 1 other domestic animal.

There was concentration of cases in Slovenia (337 = 71.2% of total) and at the Slovenian/Croatian border. Scattered cases occurred in the other northern parts of the country (Croatia, Wojwodina), the central parts (Bosnia and Hercegovina) and the coastal parts of Croatia.

The total number of cases of 1988 amounted to 1273. In comparison with 1987 (599 cases) there was an increase by 112%.

In Slovenia close to the borders of Austria and Italy a first field trial of oral immunisation of foxes against rabies was carried out in October 1988 using the SAD B19 vaccine produced in Tübingen at the WHO Reference Centre for Rabies Surveillance and Research.

3. MISCELLANEOUS

3.1 Information

3.1.1 Coordination on field trials to control rabies in 1989

In an effort to free border areas, several countries met to discuss oral immunization trials against rabies. After a short report on the development within the countries plans were discussed as to how to continue in the current year. Here are the places, times and participating countries:

Trieste, Italy - 30.01.1989:

Countries: Italy, Yugoslavia, Austria.

Malzeville, France - 21.02.1989:

Countries: Luxembourg, Netherlands, Belgium, France, Switzerland, Federal Republic of Germany.

Augsburg, Federal Republic of Germany - 15.03.1989:

Countries: Of the Federal Republic of Germany only the Bundesland (federal state) Bayern, of Austria the Bundesländer Oberösterreich, Salzburg, Tirol and Vorarlberg.

For the next year a coordination of all countries around Austria participating in oral immunisation trials is intended.

3.1.2 "Jagd und Tollwut" (hunting and rabies)

On 18.02.1989 the WHO Reference Centre, Tübingen, and the Deutsche Jagdschutz-Verband had invited German hunting authorities and the hunting press of the different Bundesländer for a meeting in Munich, called "**Jagd und Tollwut**" ("**Hunting and Rabies**"). The aim was to present results of the field trial up to this time and discuss success and shortcomings of cooperation with the hunters.

The "Bavarian Model", the active engagement of the hunter in his own hunting area by placing the vaccine baits, shooting control foxes and guaranteeing the surveillance after the area has become rabies-free, has in summary worked well. At times though, there were examples of weariness amongst hunters, which should be corrected with information and motivation.

3.1.3 WHO Consultation, Geneva, 1-2 March 1989

A WHO consultation on requirements and criteria for field trials on oral rabies vaccination of dogs and wild carnivores took place in Geneva. There were three working groups under the following headings:

Project planning and organisation.

Vaccines (modified live and recombinant live virus vaccines).

Bait composition and application.

Recommendations are to be expected soon.

3.2 Review of reported rabies case data in Europe to the WHO Collaborating Centre, Tübingen, from 1977 to 1988

It is intended to publish at least every two years in this **BULLETIN** a review of the data material reported to the WHO Reference Centre, Tübingen from the beginning in 1977. The last review appeared in **RABIES BULLETIN EUROPE 4/86**.

In this issue we present:

- A - Quarterly figures of all rabies cases received until now (Table 6).
- B - A graph summarizing the development of individual countries with annual figures (in the Annex).
- C - A table of human rabies cases (see page 17).
- D - A table on bat rabies. Here, some references have been included going back to 1954 (page 19).

A. Table of quarterly rabies case data 1977-1988

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 12 years. The columns are drawn to the same scale, figures below 100 are given in digits. Human and bat cases are included.

The status 'rabies free country' may in some cases refer to a period of no **indigenously** acquired case for two years, in others for longer (see as well the table under A.).

C. Human rabies cases 1977-1988

The data presented here have been supplemented since the review in the BULLETIN 4/86.

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	8	8 ²⁾	1977(2), 1978, 1981, 1986, 1987, 1988(2)
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	2	2 ⁵⁾	1981, 1988
Finland	1 ⁶⁾		1985
Fed.Rep.Germany	1	1 ⁷⁾	1986
	77	15	

- 1) Imported from Sudan
- 2) Imported from India (4), Pakistan (2), Zambia and Bangladesh
- 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 and Zaire
- 6) Possibly of bat origin, but till now no confirmed bat rabies in the country.
- 7) Imported from India

In regard to human rabies a tendency can be noticed: except for Turkey being a country with dog-mediated rabies, the indigenous cases of all other European countries were decreasing (the last three years, imported cases only).

D. Table of bat rabies cases 1954-1988

It can be seen from the table (page 19) that bat rabies cases increased only over the last few years. The following figures from 1977 to 1988 make this more obvious:

1977	1	1986	122
1982	1	1987	140
1985	14	1988	53

In 31 years (1954-1984) 14 cases were recorded in Europe, and in the last 4 years (1985-1988) 329 cases.

Nevertheless, from an epidemiological point of view bat rabies and rabies in terrestrial animals need to be separated. There is still no evidence to date that there is natural transmission from bats to terrestrial animals. On the other hand 2 human cases (1977 and 1985 in the USSR) and possibly one other in Finland derived from bats. One reason for the rare transmission of bat rabies is certainly: all European bats are insectivorous.

The countries mostly affected by bat rabies (notwithstanding an unknown figure in the reporting) in Europe were Denmark, the Federal Republic of Germany and the Netherlands. But in all three countries figures dropped in 1988.

BAT-RABIES CASES REPORTED IN EUROPE UNTIL 1988

Geogr. Location	Year/Month	Genus and Species	References
Federal Republic of Germany:			
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*
Tübingen	1986, March	Eptesicus fuscus (imported from Canada)	" "
Ottweiler	1986, June	-	Rabies Centre*
North.Germany	1983-1988	23 E. serotinus	" "
	May to	2 P. pipistrellus	" "
	October	1 M. daubentoni	" "
		1 P. nathusii	" "
		4 -	" "
Yugoslavia:	1954	3 Nyctalus noctula	Nicolic and Jelesic (1956)
Turkey:	1956	Rhinolophus ferrum-equinum	Tuncman (1958)
Democratic Republic of Germany:			
Jena	1963, July	Eptesicus serotinus	Pitzschke (1965)
Rostock	1986, Sept.	-	Rabies Centre*
Rostock	1988	Eptesicus serotinus	" "
Union of the Soviet Socialist Republics:			
Kiew	1964, Oct.	Eptesicus serotinus	Selimov et al. (1986)
Woroschilowgrad	1977	Human case of bat origin	" "
Belgorod	1985, May	" " " "	" "
Poland:			
Krakow	1972	-	Starzecka and Skutecka-Krzciuk (1973)
Danzig	1985, May	Eptesicus serotinus	Rabies Centre*
Denmark:			
Jutland, Sealand	1985-1987	160 E. serotinus	Rabies Centre*
		2 M. daubentoni	" "
		1 M. dasycneme	" "
Finland:			
Helsinki	1985, Oct.	Human case assumed to be of bat origin	Lumio et al. (1986)
Netherlands:			
	1987-1988	126 E. serotinus	Rabies Centre*
		3 M. dasycneme	" "
Spain:			
Valencia and Granada	1987, Aug. and Sept.	2 -	Rabies Centre*

* = 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

3.3 Rabies virus strain characterisation with monoclonal antibodies (MAB)

While different types of rabies can be described by epidemiological characteristics or clinical features, today the MAB technique has brought to light more subtle differences of rabies strains.

Research results using MAB's have led to a classification of the rabies group of Rhabdoviridae, genus Lyssavirus (WHO Expert Committee on Rabies, Technical Report Series 709, Seventh Report, 1984). It was decided on four serotypes each with a prototype strain.

The variety of MAB's produced in the different laboratories are finally selected for their characteristics after intensive testing. The table on page 21 shows a panel of 9 monoclonal anti-nucleocapsid antibodies produced and selected for routine use in the WHO Reference Centre for Rabies Surveillance and Research, Tübingen. The strains shown in the panel give an overview in respect to the epidemiological situation of rabies in Europe. The four blocks represent the above mentioned four serotypes. Lagos Bat and Mokola are the prototypes of serotype 2 and 3 and their results are given for comparison.

The wildtype of rabies virus is also called street virus comprising wildlife and urban rabies (fox- and dog-mediated).

MAB 9 (P41) recognises the arctic or polar type of rabies. Though animals affected in Finland which reacted positive are not polar, the outbreak starting in the polar region might no doubt have extended (via USSR) toward the south (in fact, there is a parallel to that in Canada where 2 skunks and one dog south of the polar region reacted with the P41 MAB).

Serotype 1 group includes many laboratory strains. Most of the better known vaccine strains (CVS, PM, HEP, LEP, PV) belong to this group. Nevertheless, the panel allows to distinguish between SAD and ERA vaccine strains and the field virus and thus, between the live virus of the widely used oral vaccine against rabies in foxes and in the same area occurring field isolates. In this way vaccine accidents can be located.

There is no MAB available at Tübingen to distinguish between wildlife and urban rabies, but the WHO Collaborating Centre, the Rabies Unit, Institut Pasteur, Paris, has developed one (see Rabies Bulletin Europe 4/87, pp 16 to 18).

In block four with the Duvenhage (Africa) virus (isolated from a human and a bat) as prototypes, the European bats are closely related (this is not so with the bats of northern America which belong to serotype 1 group). Interesting is the characterization of a virus of a human, bitten by a bat in the European part of the Soviet Union (the Yuli virus was kindly made available by Prof. Selimov, Moscow), which compares well with the European bat isolates.

	W239.17	W 187.5	W187.11.25	MW187.6.1	MSA 6.3	LBV 7.3.6	DUV6.15.13	S 62.1.2	P 41
Virus Strains	1	2	3	4	5	6	7	8	9
RABIES (Wild-Type)	+	+	+	+	-	-	-	-	-
2 STRAINS (Arctic Fox, Seal) NOR	+	+	+	+	-	-	-	n.t.	+
4 STRAINS (Dog, Fox, Racc. Dog) FIN	+	+	+	+	-	-	-	-	+
CVS, PM HEP, LEP, PV	+	+	+	+	-	-	-	-	-
SAD, ERA	+	-	+	-	-	-	-	-	-
LAGOS BAT	+	-	-	+	-	+	-	-	-
MOKOLA	+	-	-	+	+	-	-	-	-
DUVENHAGE AFRICA	+	-	-	-	-	-	+	-	-
DUVENHAGE (20 Bats) DEU, DEN, POL	+	-	-	-	+	-	+	+	-
YULI VIRUS (Human) SSR	+	-	-	-	+	-	+	+	-

n.t. = not tested

TABLE 1

EUR		EUROPE		4/88		RABIES CASES							1.10.88 - 31.12.88			
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	-	5	24	-	5	-	34	262	13	11	8	-	294		328
BEL	BELGIUM	1	7	66	-	14	-	88	123	3	5	1	-	132		220
BUL	BULGARIA	*						0						0		0
CZE	CZECHOSLOVAKIA	4	12	-	-	2	-	18	379	1	9	9	-	398		416
DDR	GERMAN DEM. REPUBLIC	33	55	66	4	142	3	303	471	4	28	37	4	544		847
DEN	DENMARK	*						0						0		0
DEU	FED.REP. OF GERMANY	2	24	75	5	19	3	128	693	11	17	71	3	795		923
FIN	FINLAND	-	3	1	-	-	-	4	2	1	-	-	17	20		24
FRA	FRANCE	6	37	82	5	52	1	183	582	3	8	8	-	601		784
GRE	GREECE	*						0						0		0
HUN	HUNGARY	7	24	12	1	-	1	45	325	-	1	1	-	327		372
ICE	ICELAND	*						0						0		0
IRE	IRELAND	*						0						0		0
ITA	ITALY							0	19	-	-	-	-	19		19
LUX	LUXEMBOURG							0	1	-	-	-	-	1		1
NET	NETHERLANDS							0	-	-	-	-	5	5		5
NOR	NORWAY	*						0						0		0
POL	POLAND	11	22	62	-	8	-	103	257	6	10	20	66	359		462
POR	PORTUGAL	*						0						0		0
ROM	ROMANIA	2	4	3	-	-	-	9	4	-	-	-	1	5		14
SPA	SPAIN	*						0						0		0
SWE	SWEDEN	*						0						0		0
SWI	SWITZERLAND + LIECHT	-	-	2	-	1	-	3	11	1	1	-	-	13		16
TUR	TURKEY	100	11	27	-	6	1	145	1	-	-	-	-	1		146
UNK	UNITED KINGDOM	1)						0						0	1	1
YUG	YUGOSLAVIA	9	17	8	-	2	1	37	406	4	8	14	4	436		473
TOTAL		175	221	428	15	251	10	1100	3536	47	98	169	100	3950	1	5051
PER CENT		3.5	4.4	8.5	0.3	5.0	0.2	21.8	70.0	0.9	1.9	3.3	2.0	78.2	0.0	100.0

* NO CASES, 1) ACQUIRED IN PAKISTAN.

TABLE 2

EUR		EUROPE						1988						RABIES CASES				1. 1.88 - 31.12.88	
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	5	15	46	-	18	1	85	1512	79	43	66	1	1701		1786			
BEL	BELGIUM	5	14	95	1	46	1	162	336	5	10	1	-	352	1	515			
BUL	BULGARIA	*						0						0		0			
CZE	CZECHOSLOVAKIA	28	57	-	-	3	1	89	1422	9	31	25	4	1491		1580			
DDR	GERMAN DEM. REPUBLIC	89	146	125	9	275	3	647	1531	31	85	89	7	1743		2390			
DEN	DENMARK	*						0						0		0			
DEU	FED. REP. OF GERMANY	19	74	118	19	75	3	308	2035	62	54	156	13	2320		2628			
FIN	FINLAND	1	4	1	-	-	-	6	10	2	-	-	45	57		63			
FRA	FRANCE	16	89	129	15	119	2	370	1786	21	27	17	2	1853		2223			
GRE	GREECE	*						0						0		0			
HUN	HUNGARY	36	83	39	1	12	2	173	988	1	6	4	4	1003		1176			
ICE	ICELAND	*						0						0		0			
IRE	IRELAND	*						0						0		0			
ITA	ITALY							0	21	-	-	-	-	21		21			
LUX	LUXEMBOURG	-	-	-	1	-	-	1	1	1	1	-	-	3		4			
NET	NETHERLANDS	-	1	1	-	-	-	2	6	1	-	-	43	50		52			
NOR	NORWAY	*						0						0		0			
POL	POLAND	58	87	108	-	13	-	266	990	17	46	64	135	1252		1518			
POR	PORTUGAL	*						0						0		0			
ROM	ROMANIA	4	6	9	1	-	-	20	16	1	-	-	1	18		38			
SPA	SPAIN	2)	4	-	-	-	-	4						0		4			
SWE	SWEDEN	*						0						0		0			
SWI	SWITZERLAND + LIE	3)	1	2	3	-	-	12	77	3	3	-	-	83		95			
TUR	TURKEY		546	14	106	9	9	707	2	-	-	-	1	3		710			
UNK	UNITED KINGDOM	4)						0						0	2	2			
YUG	YUGOSLAVIA		30	28	15	1	3	81	1143	15	8	20	6	1192		1273			
TOTAL		842	620	795	57	594	25	2933	11876	248	314	442	262	13142	3	16078			
PER CENT		5.2	3.9	4.9	0.4	3.7	0.2	18.2	73.9	1.5	2.0	2.7	1.6	81.7	0.0	100.0			

* NO CASES.

1) HUMAN CASE ACQUIRED IN ZAIRE, 2) IN NORTH AFRICA, 3) 1 DOG IMPORTED FROM ZAIRE, 4) ACQUIRED IN BANGLADESH AND PAKISTAN.

TABLE 3: RABIES CASE RATES (% TOTAL) FOR INDIVIDUAL ANIMAL SPECIES AND FOR TOTAL CASES OF 10 EUROPEAN COUNTRIES RANKING HIGHEST IN 1988.

EUR		EUROPE											1988		1. 1.88 - 31.12.88	
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
EUROPE																
TOTAL RABIES CASES		842	620	795	57	594	25	2933	11876	248	314	442	262	13142	3	16078
PER CENT INVOLVEMENT / COUNTRY																
DEU	FED.REP. OF GERMANY	2.3	11.9	14.8	33.3	12.6	12.0	10.5	17.1	25.0	17.2	35.3	5.0	17.7		16.3
DDR	GERMAN DEM. REPUBLIC	10.6	23.5	15.7	15.8	46.3	12.0	22.1	12.9	12.5	27.1	20.1	2.7	13.3		14.9
FRA	FRANCE	1.9	14.4	16.2	26.3	20.0	8.0	12.6	15.0	8.5	8.6	3.8	0.8	14.1		13.8
AUT	AUSTRIA	0.6	2.4	5.8	-	3.0	4.0	2.9	12.7	31.9	13.7	14.9	0.4	12.9		11.1
CZE	CZECHOSLOVAKIA	3.3	9.2	-	-	0.5	4.0	3.0	12.0	3.6	9.9	5.7	1.5	11.3		9.8
POL	POLAND	6.9	14.0	13.6	-	2.2	-	9.1	8.3	6.9	14.6	14.5	51.5	9.5		9.4
YUG	YUGOSLAVIA	3.6	4.5	1.9	1.8	0.7	12.0	2.8	9.6	6.0	2.5	4.5	2.3	9.1		7.9
HUN	HUNGARY	4.3	13.4	4.9	1.8	2.0	8.0	5.9	8.3	0.4	1.9	0.9	1.5	7.6		7.3
TUR	TURKEY	64.8	2.3	13.3	15.8	3.9	36.0	24.1	0.0	-	-	-	0.4	0.0		4.4
BEL	BELGIUM	0.6	2.3	11.9	1.8	7.7	4.0	5.5	2.8	2.0	3.2	0.2	-	2.7	33.3	3.2
TOTAL FROM 10 COUNTRIES		832	607	781	55	588	25	2888	11745	240	310	442	173	12910	1	15799
EQUAL % TOTAL		98.8	97.9	98.2	96.5	99.0	100.0	98.5	98.9	96.8	98.7	100.0	66.0	98.2	33.3	98.3

TABLE 4

EUR		EUROPE		4/88		RABIES CASES 'OTHER ANIMAL SPECIES'						1.10.88 - 31.12.88	
LOCATION		OTHER DOMESTIC ANIMALS				OTHER WILD ANIMALS						TOTAL	
CODE	NAME	PIG	OTH.DOM HERBIVO	DOMEST. RABBIT	OTHER	RACCOON DOG	RACCOON	WILD BOAR	HEDGEHOG	INSECTIV BAT	BLACK RAT		OTHER
DDR	GERMAN DEM. REPUBLIC	1	1	-	1	1	-	3	-	-	-	-	7
DEU	FED.REP. OF GERMANY	1	-	2	-	-	2	-	-	1	-	-	6
FIN	FINLAND	-	-	-	-	17	-	-	-	-	-	-	17
FRA	FRANCE	1	-	-	-	-	-	-	-	-	-	-	1
HUN	HUNGARY	1	-	-	-	-	-	-	-	-	-	-	1
NET	NETHERLANDS	-	-	-	-	-	-	-	-	5	-	-	5
POL	POLAND	-	-	-	-	63	-	-	2	-	1	-	66
ROM	ROMANIA	-	-	-	-	-	-	-	-	-	-	1	1
TUR	TURKEY	-	1	-	-	-	-	-	-	-	-	-	1
YUG	YUGOSLAVIA	-	-	-	1	-	-	-	-	-	-	4	5
TOTAL		4	2	2	2	81	2	3	2	6	1	5	110
PER CENT		3.6	1.8	1.8	1.8	73.6	1.8	2.7	1.8	5.5	0.9	4.5	100.0

TABLE 5

EUR		EUROPE					1988																RABIES CASES		1. 1.88 - 31.12.88	
		OTHER DOMESTIC ANIMALS					OTHER WILD ANIMALS																			
LOCATION	CODE	DONKEY	MULE	PIG	OTH. DOM. HERBIVOR	DOMESTIC RABBIT	OTHERS	ARCTIC FOX	RACCOON DOG	WILD CAT	RACCOON	WILD BOAR	EUROPEAN BISON	MOUFLON	CHAMOIS	HEDGEHOG	INSECTIV BAT	SQUIRREL	BLACK RAT	HOUSE MOUSE	OTH. SMAL RODENTS	OTHERS	TOTAL			
AUT	AUSTRIA	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2			
BEL	BELGIUM	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			
CZE	CZECHOSLOVAK	-	-	1	-	-	1	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	5			
DDR	GERMAN D. REP	-	-	1	1	-	1	-	-	-	3	1	1	-	-	-	1	-	-	-	-	-	10			
DEU	F. R. GERMANY	-	-	1	-	2	-	-	-	3	1	-	-	-	-	-	9	-	-	-	-	-	16			
FIN	FINLAND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45			
FRA	FRANCE	1	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	4			
HUN	HUNGARY	-	-	2	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	1	-	6			
NET	NETHERLANDS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	-	-	-	-	-	43			
POL	POLAND	-	-	-	-	-	-	-	-	-	3	-	-	-	2	-	-	1	4	-	-	-	135			
ROM	ROMANIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1			
TUR	TURKEY	5	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	10			
YUG	YUGOSLAVIA	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	9			
TOTAL		6	1	7	4	3	4	1	172	4	3	8	1	2	1	2	53	1	5	1	1	7	287			
PER CENT		2.1	0.3	2.4	1.4	1.0	1.4	0.3	59.9	1.4	1.0	2.8	0.3	0.7	0.3	0.7	18.5	0.3	1.7	0.3	0.3	2.4	100.			

AUT

A U S T R I A

R A B I E S C A S E S

1.10.88 - 31.12.88

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			TOTAL
103	EISENSTADT - LAND						0	1	-	-	-	-	1		1	
104	GUESSING						0	1	1	1	-	-	3		3	
105	JENNERSDORF						0	1	-	-	-	-	1		1	
108	OBERPULLENDORF	-	1	-	-	-	1	19	-	-	-	-	19		20	
202	VILLACH-STADT						0	1	-	-	-	-	1		1	
203	HERMAGOR						0	2	-	-	-	-	2		2	
204	KLAGENFURT-LAND						0	1	-	-	-	-	1		1	
205	SANKT VEIT AN DER GL	-	-	6	-	-	6	13	-	-	1	-	14		20	
206	SPITTAL AN DER DRAU	-	1	2	-	3	6	18	1	-	1	-	20		26	
207	VILLACH-LAND	-	-	1	-	-	1	9	-	-	-	-	9		10	
208	VOELKERMARKT	-	-	1	-	-	1	1	-	-	-	-	1		2	
209	WOLFSBERG	-	-	1	-	-	1	23	-	-	1	-	24		25	
307	BRUCK AN DER LEITHA						0	1	-	-	-	-	1		1	
309	GMUEND						0	1	-	-	1	-	2		2	
311	HORN						0	1	-	-	-	-	1		1	
313	KREMS AN DER DONAU-L	-	1	-	-	-	1	3	-	1	-	-	4		5	
315	MELK						0	2	-	-	-	-	2		2	
323	WIENER NEUSTADT-LAND						0	8	-	-	-	-	8		8	
325	ZWETTL						0	5	-	1	-	-	6		6	
406	FREISTADT						0	3	-	-	-	-	3		3	
417	VOECKLABRUCK	-	-	-	-	1	1	23	-	-	1	-	24		25	
503	SALZBURG-LAND						0	1	-	-	-	-	1		1	
504	SANKT JOHANN IM PONG	-	-	1	-	-	1	2	-	-	-	-	2		3	
505	TAMSWEG	-	-	4	-	1	5	7	-	-	-	-	7		12	
506	ZELL AM SEE						0	7	1	-	-	-	8		8	
601	GRAZ-STADT						0	1	-	-	-	-	1		1	
602	BRUCK AN DER MUR						0	2	2	-	-	-	4		4	
603	DEUTSCHLANDSBERG						0	4	1	-	-	-	5		5	
606	GRAZ-LAND						0	8	1	-	-	-	9		9	
607	HARTBERG						0	15	-	2	-	-	17		17	
608	JUDENBURG	-	-	2	-	-	2	9	-	-	-	-	9		11	
609	KNITTELFELD	-	-	1	-	-	1	1	-	-	-	-	1		2	
610	LEIBNITZ						0	18	-	-	-	-	18		18	
611	LEOBEN	-	-	2	-	-	2	6	2	1	1	-	10		12	
612	LIEZEN	-	1	-	-	-	1	12	1	1	-	-	14		15	
614	MURAU	-	1	3	-	-	4	14	-	2	2	-	18		22	
616	VOITSBERG						0	1	-	-	-	-	1		1	
617	WEIZ						0	11	3	-	-	-	14		14	
707	LIENZ						0	6	-	2	-	-	8		8	
TOTAL		0	5	24	0	5	0	34	262	13	11	8	0	294	0	328
PER CENT		0.0	1.5	7.3	0.0	1.5	0.0	10.4	79.9	4.0	3.4	2.4	0.0	89.6	0.0	100.0

R A B I E S C A S E S

1.10.88 - 31.12.88

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
BEL B E L G I U M																
LG	LIEGE	1	-	27	-	-	-	28	43	2	2	-	-	47		75
LX	LUXEMBOURG	-	3	31	-	8	-	42	34	-	2	-	-	36		78
NA	NAMUR	-	4	8	-	6	-	18	46	1	1	1	-	49		67
TOTAL		1	7	66	0	14	0	88	123	3	5	1	0	132	0	220
PER CENT		0.5	3.2	30.0	0.0	6.4	0.0	40.0	55.9	1.4	2.3	0.5	0.0	60.0	0.0	100.0
FIN F I N L A N D																
01	UUSIMAA	-	3	1	-	-	-	4	-	-	-	-	3	3		7
04	HDME							0	-	-	-	-	1	1		1
05	KYMI							0	2	1	-	-	13	16		16
TOTAL		0	3	1	0	0	0	4	2	1	0	0	17	20	0	24
PER CENT		0.0	12.5	4.2	0.0	0.0	0.0	16.7	8.3	4.2	0.0	0.0	70.8	83.3	0.0	100.0
LUX L U X E M B O U R G																
07	DIEKIRCH							0	1	-	-	-	-	1		1
NET N E T H E R L A N D S																
01	DRENTHE							0	-	-	-	-	2	2		2
02	FRIESLAND							0	-	-	-	-	2	2		2
07	NOORD-HOLLAND							0	-	-	-	-	1	1		1
TOTAL		0	0	0	0	0	0	0	0	0	0	0	5	5	0	5
UNK U N I T E D K I N G D O M O F G R E A T B R I T .																
65	LANCASHIRE	1)						0						0	1	1

1) ACQUIRED IN PAKISTAN.

CZE

CZECHOSLOVAKIA

RABIES CASES

1.10.88 - 31.12.88

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
00	DISTRICT OF PRAGUE	-	1	-	-	1	-	0	2	-	-	-	-	2	2	
01	CENTRAL BOHEMIA	-	1	-	-	-	-	2	103	-	3	1	-	107	109	
02	SOUTH BOHEMIA	-	1	-	-	-	-	1	11	-	2	-	-	13	14	
03	WEST BOHEMIA	-	1	-	-	-	-	1	81	-	1	3	-	85	86	
04	NORTH BOHEMIA	1	1	-	-	1	-	3	75	1	-	1	-	77	80	
05	EAST BOHEMIA	-	1	-	-	-	-	1	12	-	-	-	-	12	13	
06	SOUTH MORAVIA	-	-	-	-	-	-	0	14	-	2	2	-	18	18	
07	NORTH MORAVIA	-	-	-	-	-	-	0	14	-	-	-	-	14	14	
0	CZECH SOCIALIST REPUB	1	5	-	-	2	-	8	312	1	8	7	-	328	336	
10	DISTRICT OF BRATISLAV	-	-	-	-	-	-	0	-	-	-	-	-	0	0	
11	WEST SLOVAKIA	-	1	-	-	-	-	1	11	-	1	-	-	12	13	
12	CENTRAL SLOVAKIA	-	4	-	-	-	-	4	28	-	-	1	-	29	33	
13	EAST SLOVAKIA	3	2	-	-	-	-	5	28	-	-	1	-	29	34	
1	SLOVAC SOCIALIST REPUB	3	7	-	-	-	-	10	67	-	1	2	-	70	80	
TOTAL		4	12	0	0	2	0	18	379	1	9	9	0	398	0	416
PER CENT		1.0	2.9	0.0	0.0	0.5	0.0	4.3	91.1	0.2	2.2	2.2	0.0	95.7	0.0	100.0

DDR

GERMAN DEMOCRATIC REPUBLIC

R A B I E S C A S E S

1.10.88 - 31.12.88

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	-	-	-	1	-	1		1
02 COTTBUS	5	8	4	1	32	-	50	47	-	2	2	-	51		101
03 DRESDEN	1	9	14	-	48	-	72	80	-	3	4	1	88		160
04 ERFURT	3	5	2	-	2	-	12	60	-	1	4	-	65		77
05 FRANKFURT/ODER	3	2	-	-	-	-	5	44	-	3	7	2	56		61
06 GERA	1	1	5	-	11	-	18	21	-	1	3	-	25		43
07 HALLE	3	6	-	1	3	2	15	29	-	2	6	-	37		52
08 KARL-MARX-STADT	1	5	12	-	38	1	57	28	-	6	4	-	38		95
09 LEIPZIG	-	1	-	-	-	-	1	4	-	-	-	-	4		5
10 MAGDEBURG	-	1	6	1	-	-	8	16	-	-	-	-	16		24
11 NEUBRANDENBURG	6	3	1	-	-	-	10	18	-	1	-	-	19		29
12 POTSDAM	-	3	4	1	-	-	8	26	-	1	1	-	28		36
13 ROSTOCK	7	2	-	-	1	-	10	45	1	3	3	-	52		62
14 SCHWERIN	2	8	14	-	1	-	25	27	2	4	2	1	36		61
15 SUHL	1	1	4	-	6	-	12	26	1	1	-	-	28		40
TOTAL	33	55	66	4	142	3	303	471	4	28	37	4	544	0	847
PER CENT	3.9	6.5	7.8	0.5	16.8	0.4	35.8	55.6	0.5	3.3	4.4	0.5	64.2	0.0	100.0

DEU

FEDERAL REPUBLIC OF GERMANY

R A B I E S C A S E S

1.10.88 - 31.12.88

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		
010 SCHLESWIG-HOLSTEIN							0						0		0
020 HAMBURG							0						0		0
031 BRAUNSCHWEIG	-	2	2	-	-	-	4	15	-	-	2	-	17		21
032 HANNOVER	-	-	4	1	1	-	6	6	-	-	1	-	7		13
033 LUENEBURG							0	-	-	-	-	1	1		1
034 WESER-EMS							0						0		0
040 BREMEN							0						0		0
051 DUESSELDORF							0						0		0
053 KOELN	-	-	3	-	-	-	3	3	-	2	-	-	5		8
055 MUENSTER							0						0		0
057 DETMOLD	-	-	2	-	1	-	3	10	-	1	-	-	11		14
059 ARNSBERG	1	1	3	-	1	-	6	9	-	-	-	-	9		15
061 DARMSTADT	-	1	7	1	1	-	10	122	-	2	16	-	140		150
062 KASSEL	1	5	27	2	6	1	42	266	1	4	25	2	298		340
071 KOBLENZ	-	2	1	-	1	-	4	14	-	-	1	-	15		19
072 TRIER	-	-	8	-	2	-	10	15	-	-	1	-	16		26
073 RHEINHESSEN-PFALZ	-	1	1	1	1	1	5	24	1	1	2	-	28		33
081 STUTTGART	-	2	1	-	2	-	5	32	-	2	6	-	40		45
082 KARLSRUHE	-	1	-	-	-	-	1	16	-	-	1	-	17		18
083 FREIBURG	-	-	3	-	-	-	3	25	5	-	2	-	32		35
084 TUEBINGEN	-	-	1	-	-	-	1	17	-	-	-	-	17		18
091 OBERBAYERN	-	2	-	-	-	-	2	3	-	-	-	-	3		5
092 NIEDERBAYERN							0	3	-	-	-	-	3		3
093 OBERPFALZ	-	3	-	-	-	-	3	5	1	-	-	-	6		9
094 OBERFRANKEN							0	2	1	2	-	-	5		5
095 MITTELFRANKEN	-	2	-	-	-	-	2	19	-	-	3	-	22		24
096 UNTERFRANKEN	-	-	3	-	-	1	4	32	1	2	7	-	42		46
097 SCHWABEN	-	-	5	-	1	-	6	20	1	-	1	-	22		28
100 SAARLAND	-	2	4	-	2	-	8	35	-	1	3	-	39		47
110 BERLIN (WEST)							0						0		0
TOTAL	2	24	75	5	19	3	128	693	11	17	71	3	795	0	923
PER CENT	0.2	2.6	8.1	0.5	2.1	0.3	13.9	75.1	1.2	1.8	7.7	0.3	86.1	0.0	100.0

FRA

FRANCE

RABIES CASES

1.10.88 - 31.12.88

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	3	-	-	-	-	3		3
02	AISNE	-	2	1	-	-	-	3	9	-	-	-	-	9		12
08	ARDENNES	-	3	-	-	1	-	4	12	-	2	-	-	14		18
10	AUBE							0	38	-	-	-	-	38		38
21	COTE D'OR		9	16	1	19	-	45	89	-	-	1	-	90		135
25	DOUBS	1	1	1	-	-	-	3	23	-	-	1	-	24		27
39	JURA	-	-	1	-	-	-	1	26	-	-	-	-	26		27
51	MARNE	-	1	-	-	-	-	1	6	-	-	-	-	6		7
52	MARNE (HAUTE)	1	1	1	-	10	-	13	51	1	-	-	-	52		65
54	MEURTHE ET MOSELLE	1	8	30	1	2	-	42	58	1	-	1	-	60		102
55	MEUSE	1	3	18	-	5	-	27	40	-	1	3	-	44		71
57	MOSELLE	-	-	2	-	1	-	3	12	-	-	-	-	12		15
58	NIEVRE	-	-	6	2	6	-	14	77	-	-	-	-	77		91
60	OISE							0	13	-	-	-	-	13		13
67	RHIN (BAS)	-	2	2	-	1	-	5	11	-	-	1	-	12		17
68	RHIN (HAUT)	-	2	2	-	-	1	5	16	1	-	-	-	17		22
70	SAONE (HAUTE)	-	1	-	-	3	-	4	15	-	2	-	-	17		21
71	SAONE ET LOIRE	-	1	1	-	-	-	2	6	-	1	-	-	7		9
77	SEINE ET MARNE	-	-	-	1	-	-	1	20	-	-	-	-	20		21
88	VOSGES	2	1	1	-	4	-	8	37	-	-	1	-	38		46
89	YONNE	-	2	-	-	-	-	2	17	-	-	-	-	17		19
90	TERR.DE BELFORT							0	3	-	2	-	-	5		5
TOTAL		6	37	82	5	52	1	183	582	3	8	8	0	601	0	784
PER CENT		0.8	4.7	10.5	0.6	6.6	0.1	23.3	74.2	0.4	1.0	1.0	0.0	76.7	0.0	100.0

HUN HUNGARY

RABIES CASES

1.10.88 - 31.12.88

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	BUDAPEST						0	4	-	-	-	-	4		4	
02	BARANYA	2	4	1	-	-	7	45	-	-	-	-	45		52	
03	BACS-KISKUN	-	2	4	1	-	7	15	-	1	1	-	17		24	
04	BEKES	-	-	1	-	-	1	2	-	-	-	-	2		3	
05	BORSOD-ABAUJ-ZEMPLEN	-	1	-	-	-	1	5	-	-	-	-	5		6	
06	CSONGRAD	-	3	2	-	1	6	9	-	-	-	-	9		15	
07	FEJER	-	1	1	-	-	2	36	-	-	-	-	36		38	
08	GYOER-SOPRON	-	1	-	-	-	1	9	-	-	-	-	9		10	
09	HAJDU-BIHAR	-	5	-	-	-	5	6	-	-	-	-	6		11	
10	HEVES	-	-	-	-	-	0	4	-	-	-	-	4		4	
11	KOMAROM	-	2	-	-	-	2	22	-	-	-	-	22		24	
12	NOGRAD	-	1	-	-	-	1	1	-	-	-	-	1		2	
13	PEST	2	-	-	-	-	2	10	-	-	-	-	10		12	
14	SOMOgy	2	-	1	-	-	3	42	-	-	-	-	42		45	
15	SZABOLCS-SZATMAR	-	-	-	-	-	0	4	-	-	-	-	4		4	
16	SZOLNOK	1	-	-	-	-	1	2	-	-	-	-	2		3	
17	TOLNA	-	2	1	-	-	3	25	-	-	-	-	25		28	
18	VAS	-	-	-	-	-	0	28	-	-	-	-	28		28	
19	VESZPREM	-	1	1	-	-	2	24	-	-	-	-	24		26	
20	ZALA	-	1	-	-	-	1	32	-	-	-	-	32		33	
TOTAL		7	24	12	1	0	1	45	325	0	1	1	0	327	0	372
PER CENT		1.9	6.5	3.2	0.3	0.0	0.3	12.1	87.4	0.0	0.3	0.3	0.0	87.9	0.0	100.0

R A B I E S C A S E S																1.10.88 - 31.12.88	
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	19	-	-	-	-	19		19		
ROM R O M A N I A																	
01 ALBA		1	-	-	-	-	1	2	-	-	-	-	2		3		
24 IASI		1	-	2	-	-	3	1	-	-	-	-	1		4		
27 MURES							0	-	-	-	-	1	1		1		
32 SALAJ		-	2	-	-	-	2	1	-	-	-	-	1		3		
34 SUCEAVA		-	2	1	-	-	3						0		3		
TOTAL		2	4	3	0	0	9	4	0	0	0	1	5	0	14		
PER CENT		14.3	28.6	21.4	0.0	0.0	64.3	28.6	0.0	0.0	0.0	7.1	35.7	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																	
05 BASEL-LAND							0	2	-	-	-	-	2		2		
06 BERN							0	1	-	-	-	-	1		1		
08 GENEVE							0	1	-	1	-	-	2		2		
12 NEUCHATEL							0	1	-	-	-	-	1		1		
22 VAUD							0	-	1	-	-	-	1		1		
23 VALAIS		-	-	-	-	1	1	1	-	-	-	-	1		2		
26 JURA		-	-	2	-	-	2	5	-	-	-	-	5		7		
TOTAL		0	0	2	0	1	3	11	1	1	0	0	13	0	16		
PER CENT		0.0	0.0	12.5	0.0	6.3	18.8	68.8	6.3	6.3	0.0	0.0	81.3	0.0	100.0		
YUG Y U G O S L A V I A																	
10 SR BOSNA I HERCEGOVIN		-	1	3	-	-	4	18	-	-	-	-	18		22		
30 SR HRVATSKA		2	1	-	-	-	3	85	-	1	-	-	86		89		
50 SR SLOVENIJA		6	14	4	-	2	27	281	4	7	14	4	310		337		
61 SAP VOJVODINA		1	1	1	-	-	3	22	-	-	-	-	22		25		
TOTAL		9	17	8	0	2	37	406	4	8	14	4	436	0	473		
PER CENT		1.9	3.6	1.7	0.0	0.4	7.8	85.8	0.8	1.7	3.0	0.8	92.2	0.0	100.0		

POL POLAND

RABIES CASES

1.10.88 - 31.12.88

LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS		
01	WARSZAWA	-	1	-	-	-	-	1	1	-	-	-	-	1	2
03	BIALA PODLASKA	-	-	1	-	-	-	1	9	-	-	-	3	12	13
05	BIALYSTOK	1	-	-	-	-	-	1	2	-	-	-	3	5	6
07	BIELSKO-BIALA	-	-	-	-	-	-	0	1	-	-	-	-	1	1
09	BYDGOSZCZ	1	2	5	-	-	-	8	15	2	-	1	12	30	38
11	CHELM	-	2	2	-	-	-	4	11	2	-	-	3	16	20
13	CIECHANOW	1	1	1	-	-	-	3	4	-	1	-	3	8	11
15	CZESTOCHOWA	-	-	-	-	-	-	0	3	-	1	-	-	4	4
17	ELBLAG	-	-	1	-	-	-	1	-	-	-	-	-	0	1
19	GDANSK	-	-	-	-	-	-	0	7	-	-	1	2	10	10
21	GORZOW	-	1	-	-	-	-	1	15	-	-	1	3	19	20
23	JELENIA GORA	-	-	6	-	-	-	6	18	-	-	1	-	19	25
25	KALISZ	-	-	-	-	-	-	0	11	-	-	4	-	15	15
27	KATOWICE	1	2	-	-	8	-	11	9	-	-	-	-	9	20
29	KIELCE	-	-	-	-	-	-	0	1	-	-	-	-	1	1
31	KONIN	1	-	-	-	-	-	1	3	-	-	1	-	4	5
33	KOSZALIN	-	-	-	-	-	-	0	12	-	1	-	-	13	13
35	KRAKOW	-	-	-	-	-	-	0	2	-	-	-	-	2	2
39	LEGNICA	-	-	2	-	-	-	2	8	-	-	-	-	8	10
41	LESZNO	-	-	-	-	-	-	0	2	-	-	-	-	2	2
43	LUBLIN	-	1	1	-	-	-	2	4	-	-	-	-	4	6
45	LOMZA	-	1	-	-	-	-	1	2	-	-	-	-	2	3
51	OLSZTYN	-	2	25	-	-	-	27	7	1	1	2	24	35	62
53	OPOLE	-	1	-	-	-	-	1	32	-	-	1	-	33	34
55	OSTROLEKA	-	-	-	-	-	-	0	10	-	-	-	-	10	10
57	PILA	-	1	-	-	-	-	1	6	-	-	-	-	6	7
61	PLOCK	1	-	-	-	-	-	1	-	-	-	-	-	0	1
63	POZNAN	1	4	-	-	-	-	5	8	-	2	4	-	14	19
65	PRZEMYSL	-	-	-	-	-	-	0	3	-	-	-	-	3	3
67	RADOM	-	-	-	-	-	-	0	1	-	-	-	-	1	1
71	SIEDLCE	-	-	1	-	-	-	1	2	-	-	-	-	2	3
73	SIERADZ	-	-	-	-	-	-	0	1	-	-	-	-	1	1
77	SLUPSK	-	-	1	-	-	-	1	9	-	-	1	2	12	13
79	SUWALKI	-	-	6	-	-	-	6	4	-	2	1	8	15	21
81	SZCZECIN	1	1	-	-	-	-	2	2	1	1	1	2	7	9
83	TARNOBRZEG	-	-	-	-	-	-	0	4	-	-	-	-	4	4
87	TORUN	-	-	2	-	-	-	2	1	-	-	-	-	1	3
89	WALBRZYCH	1	1	7	-	-	-	9	11	-	-	1	-	12	21
91	WLOCLAWEK	1	-	-	-	-	-	1	-	-	-	-	-	0	1
93	WROCLAW	-	-	-	-	-	-	0	14	-	-	-	-	14	14
95	ZAMOSC	-	-	-	-	-	-	0	2	-	1	-	1	4	4
97	ZIELONA GORA	1	1	1	-	-	-	3	-	-	-	-	-	0	3
TOTAL		11	22	62	0	8	0	103	257	6	10	20	66	359	462
PER CENT		2.4	4.8	13.4	0.0	1.7	0.0	22.3	55.6	1.3	2.2	4.3	14.3	77.7	100.0

TUR T U R K E Y

R A B I E S C A S E S

1.10.88 - 31.12.88

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
001	ADANA	5	-	-	-	-	-	5						0	5
003	AFYON	-	-	1	-	-	-	1						0	1
007	ANTALYA	-	1	-	-	-	-	1						0	1
010	BALIKESIR	8	-	1	-	1	-	10						0	10
011	BILECIK	1	-	-	-	-	-	1						0	1
015	BURDUR	1	-	-	-	-	-	1						0	1
016	BURSA	4	1	-	-	1	-	6						0	6
017	CANAKKALE	1	-	-	-	-	-	1						0	1
020	DENIZLI	1	1	-	-	1	-	3						0	3
022	EDIRNE	3	-	-	-	-	-	3						0	3
023	ELAZIG	1	-	1	-	-	-	2						0	2
025	ERZURUM	-	-	-	-	1	-	1						0	1
027	GAZIANTEP	4	-	1	-	-	-	5						0	5
028	GIRESUN	1	-	-	-	-	-	1						0	1
031	HATAY	-	1	-	-	-	-	1						0	1
032	ISPARTA	1	-	-	-	-	-	1						0	1
033	ICEL	3	2	-	-	-	-	5						0	5
034	ISTANBUL	8	1	1	-	1	-	11	1	-	-	-	-	1	12
035	IZMIR	10	2	1	-	-	-	13						0	13
037	KASTAMONU	2	-	-	-	-	-	2						0	2
038	KAYSERI	1	-	3	-	-	-	4						0	4
039	KIRKLARELI	-	-	1	-	-	-	1						0	1
041	KOCAELI	4	-	-	-	1	-	5						0	5
042	KONYA	1	-	-	-	-	-	1						0	1
043	KUETAHYA	3	-	1	-	-	-	4						0	4
045	MANISA	2	-	-	-	-	-	2						0	2
046	KAHRAMAN MARAS	3	-	-	-	-	-	3						0	3
049	MUS	-	-	1	-	-	-	1						0	1
050	NEVSEHIR	2	-	-	-	-	-	2						0	2
051	NIGDE	1	-	-	-	-	-	1						0	1
052	ORDU	11	-	4	-	-	-	15						0	15
054	SAKARYA	2	-	3	-	-	-	5						0	5
055	SAMSUN	6	-	5	-	-	-	11						0	11
057	SINOP	6	-	2	-	-	-	8						0	8
059	TEKIRDAG	1	-	-	-	-	-	1						0	1
063	URFA	-	-	1	-	-	-	1						0	1
064	USAK	-	2	-	-	-	1	3						0	3
066	YOZGAT	1	-	-	-	-	-	1						0	1
067	ZONGULDAK	2	-	-	-	-	-	2						0	2
TOTAL		100	11	27	0	6	1	145	1	0	0	0	0	1	146
PER CENT		68.5	7.5	18.5	0.0	4.1	0.7	99.3	0.7	0.0	0.0	0.0	0.0	0.7	100.0

LIST OF CONTRIBUTORS

- AUT AUSTRIA
 Dr. W. S c h u l l e r
 Dr. H. S c h n a b l
 Bundesanstalt für Tierseuchen-
 bekämpfung
- BEL BELGIUM
 Dr. J. T a m b e u r
 Ministère de l'Agriculture
- BUL BULGARIA
 Dr. N. T. B e l e v
 Ministère de l'Agriculture
- CZE CZECHOSLOVAKIA
 Dr. M. O l a c h
 Dr. J. N e u m a n n
 Federal Ministry of Agriculture
 and Food
- DDR GERMAN DEMOCRATIC REPUBLIC
 Dr. K.-H. L e b e n t r a u
 Mininisterium für
 Gesundheitswesen
- DEN DENMARK
 Dr. E. S t o u g a a r d
 Veterinaerdirektoratet
- FIN FINLAND
 Dr. R. B e r g e r
 Dr. Saara R e i n i u s
 Ministry of Agriculture and
 Forestry
- FRA FRANCE
 Dr. J. B l a n c o u
 Centre d'Etudes sur la Rage
 de Nancy
- GRE GREECE
 Dr. E. T s a g l a s
 Ministry of Agriculture
- HUN HUNGARY
 Dr. A. G l ó z i k
 Dr. Laszlo K o l t a i
 Ministry of Agriculture
- ICL ICELAND
 Dr. Páll A. P á l s s o n
 Chief Veterinary Officer
- IRE IRELAND
 Dr. P. J. O' C o n n o r
 Dr. J. M o y n a g h
 Department of Agriculture
- ITA ITALY
 Dr. S. P r o s p e r i
 Istituto di Malatti Infettive
 Univ. degli Studi di Bologna
- LUX LUXEMBOURG
 Dr. F. K o n s
 Ministère de l'Agriculture
- NET NETHERLANDS
 Dr. J.H.M. Nieuwenhuijs
 Ministry of Welfare, Health
 and Cultural Affairs
 Dr. J.A. S m a k
 Veterinary Service
 Min. of Agricult. and Fisheries
- NOR NORWAY
 Dr. Olav S a n d v i k
 Dr. H.O. B a c h - G a n s m o
 Det Kongelige Landbruksdepartm.
- POL POLAND
 Dr. Jan K o l a s z
 Ministry of Agriculture
 Dr. Danuta S e r o k o w a
 National Institute of Hygiene

POR PORTUGAL

Dr. C.A.M. de Andrade Fontes
Direccao-Geral da Pecuaria

ROM ROMANIA

Dr. N. M o g o s
Ministère de l'Agriculture

SPA SPAIN

Dr. M.A. D i a z Y u b e r o
Ministerio de Agricultura,

Dr. J. N o m b e l a
Ministerio de Sanidad y Consumo

SWE SWEDEN

Dr. B. N o r d b l o m
National Board of Agriculture
Veterinary and Animal

SWI SWITZERLAND

Dr. A.I. W a n d e l e r
Vet. Bacteriological Institute
University of Berne

TUR TURKEY

Dr.E.İ s t a n b u l l u o g l u
Ministry of Agriculture,
Forestry and Rural Affairs

UNK UNITED KINGDOM

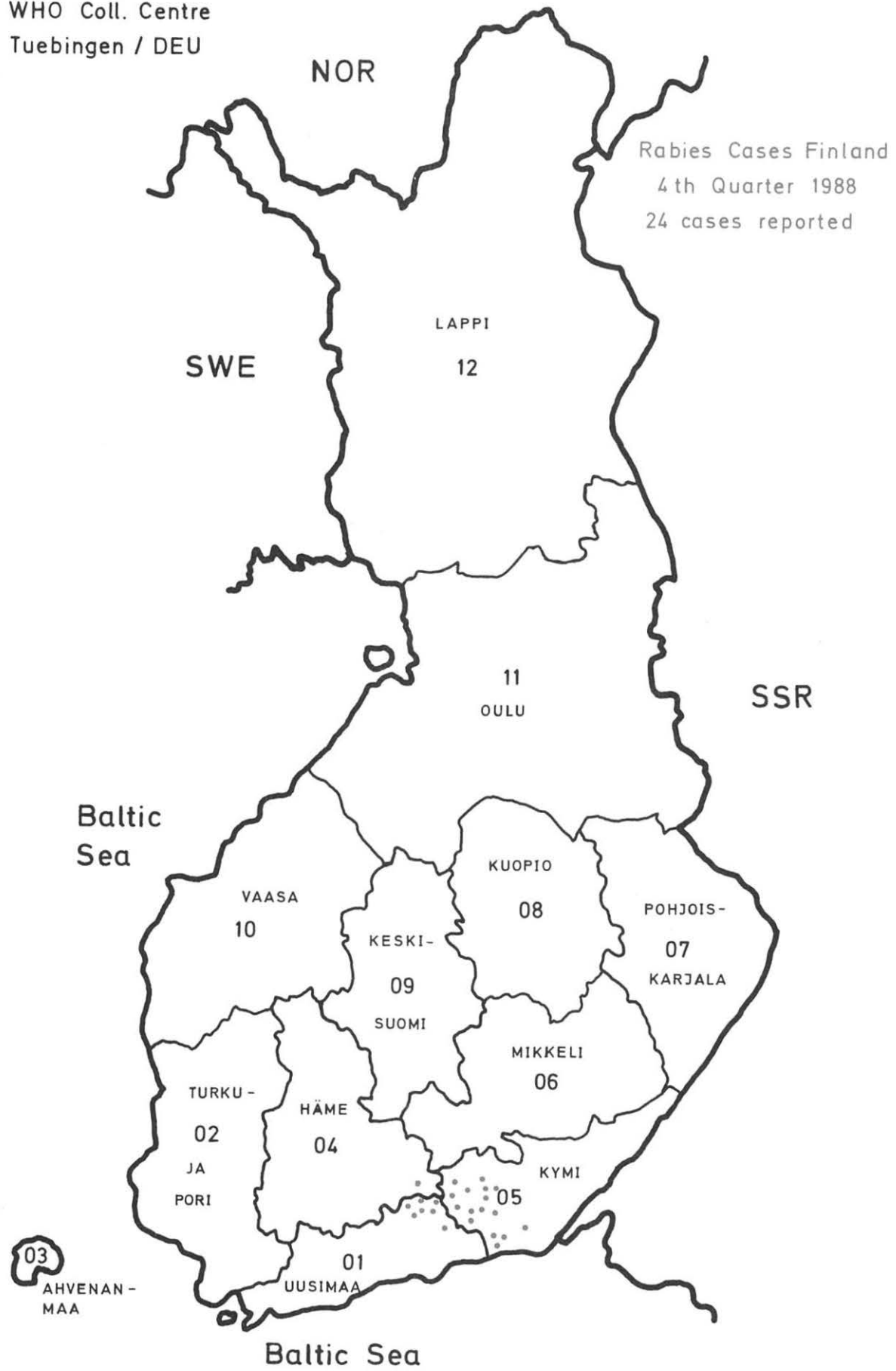
Dr. K.C. M e l d r u m
Ministry of Agriculture,
Fisheries and Food

YUG YUGOSLAVIA

Dr. M. R a d o v a n o v i c
Federal Committee for Agricult.

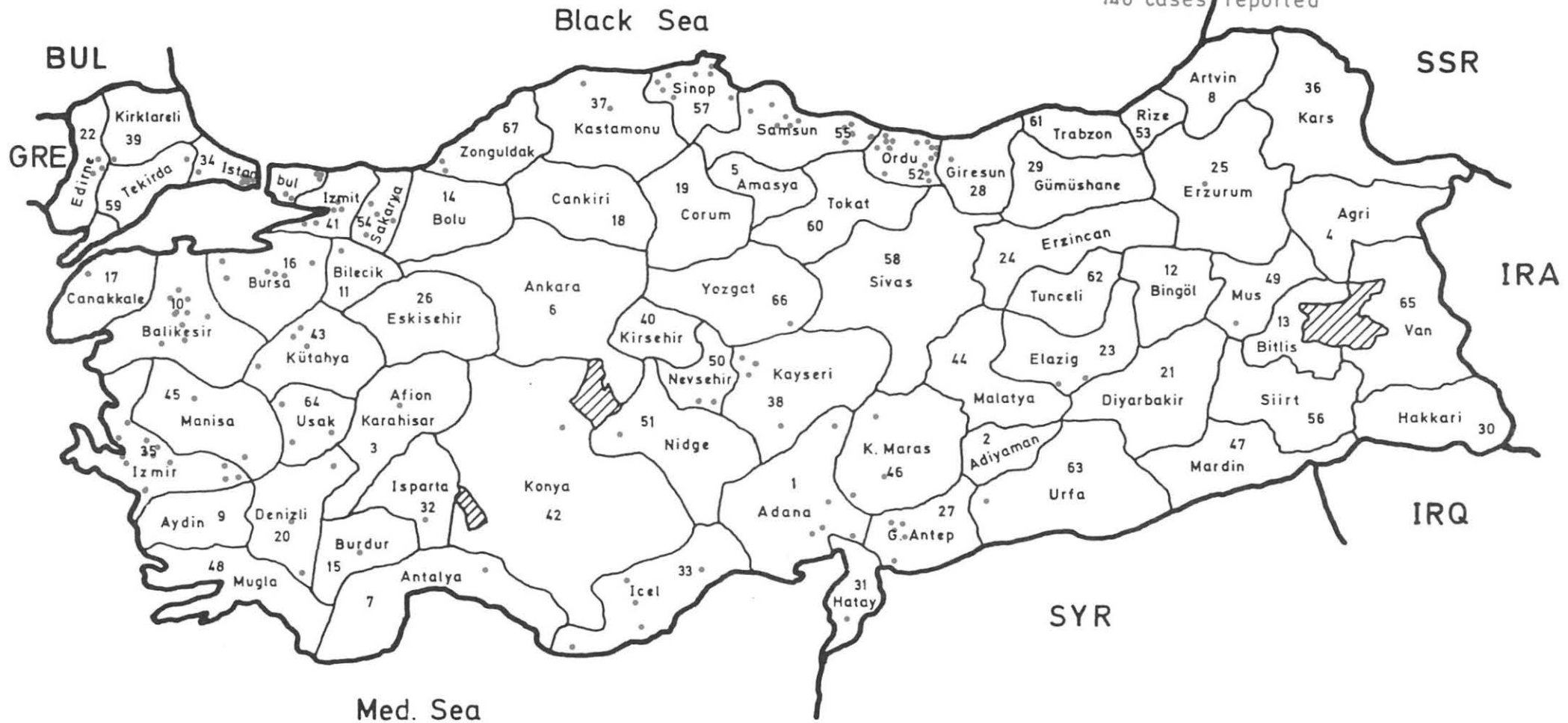
Dr. Milos P e t r o v i c
Pasteur Institute, Novi Sad

WHO Coll. Centre
Tuebingen / DEU



WHO Coll. Centre
Tuebingen / DEU

Rabies Cases Turkey
4th Quarter 1988
146 cases reported



ICE
(rabies free)

NOR
(mainland
rabies free)

FIN
(24)

SWE
(rabies free)

Rabies Cases Europe
4th Quarter 1988

5051 cases reported

6 bad rabies cases included

SSR
(no data)

IRE
(rabies free)

UNK
(1 human case-
acquired in Pakistan)

DEN
(0)

NET
(5)

DDR
(847)

POL
(462)

BEL
(229)

DEU
(923)

CZE
(418)

FRA
(784)

AUT
(328)

HUN
(372)

SWI
(16)

ROM
(14)

ITA
(19)

YUG
(473)

BUL
(rabies free)

POR
(rabies free)

SPA
(0)

ALB
(no data)

TUR
(146)

GRE
(0)

