RABIES BULLETIN EUROPE

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Contents

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1. Introduction

This BULLETIN describes the reported rabies cases in Europe for the **Fourth Quarter 1990**, subsequently referred to as ***"This Quarter"***.

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

SECTION 3 (3.1-3.26) reflects the situation for individual countries.

In the Miscellaneous SECTION under 4.1 a review is given of all rabies cases received at the WHO Collaborating Centre for Rabies Surveillance and Research, Tübingen, from the beginning of the 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 and a summary of Europe, a table of human rabies cases and a map, a table and two graphs in connection with bat rabies in Europe.

4.2 elaborates on a human rabies case which occurred in Slovakia during the fourth quarter 1990.

With 4.3 recommendations of a WHO Seminar on Wildlife Rabies are presented. It is PART 2 of the text started in the previous issue of this BULLETIN.

The rabies case data are tabulated for the fourth quarter 1990 in SECTION 5.

SECTION 6 lists the official contributors to the BULLETIN.

The geographical distribution of rabies cases in Europe for the fourth quarter 1990 is shown on maps of Europe and Turkey in the ANNEX. One graph and one map in the ANNEX refer to the text under 4.1.

2. Summary of Rabies in Europe

The following summarizes rabies in Europe, fourth quarter 1990, and comments on rabies developments and trends in 1990.

Fourth Quarter 1990

During ***"This Quarter"***, 5591 rabies cases were reported in Europe. Of these were 3964 cases in wild animals (70.9% of total) and 1626 in domestic animals. Of the cases in wild animals 3182 were foxes, 55 raccoon dogs, 67 badgers, 101 stone martens, 16 pine martens, 15 polecats, 2 ferrets, 1 large weasel, 1 brown bear, 104 roe deer, 3 fallow deer, 5 wild boars, 1 chamois, 1 wild horse, 3 bats, 1 squirrel, 1 beaver, 405 other wild animals. Of the 1626 cases in domestic animals 306 were dogs (of which 93 were reported from Turkey, a country with dog-mediated rabies), 365 cats, 29 horses, 776 cattle, 142 sheep, 7 goats, 1 pig. These data are presented in TABLE 1/SECTION 5. TABLE 4/SECTION 5 lists other animal species, less frequently involved in rabies.

There was **one human rabies case** reported from Czechoslovakia.

Bat rabies was reported from the Netherlands (3 cases).

Rabies-free countries in Europe participating in the surveillance were: Bulgaria, Greece, Iceland, Ireland, the mainland of Norway, Portugal, Sweden and the United Kingdom of Britain and Northern Ireland.

There were no cases reported during ***"This Quarter"*** from Denmark, Finland, Italy, the Island of Svalbard of Norway, and the mainland of Spain, but their last indigenously aquired case (in terrestrial animals or bats) was recorded less than two years ago.

Comments on Developments and Trends in 1990

Rabies case data summarizing the year 1990 can be found in TABLES 2, 3 and 5 of SECTION 5.

The number of rabies cases in 1990 totals 21044.
In 1989 there were 24372 cases reported.

The rabies cases of the four quarters of 1990 compare as follows:

1st quarter 6823
2nd quarter 4283
3rd quarter 4347
4th quarter 5591

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 density of the fox-population or while moving into new areas.

A year with a high fox population in Europe, most likely due to the two previous mild winters caused 3 countries to have an overall peak of rabies cases in 1989: Belgium, Democratic Republic of Germany and France. There has been a decrease of recorded rabies cases in most of the countries in 1990, except for Austria, Poland and Romania. The infected area in 1990 was not substantially increased compared to 1989.

Finland and Italy, both reinfected in 1988 practiced oral vaccination against rabies soon after the first cases occurred. Both countries reported no cases in 1990.

Considering that in 1990 the area for oral vaccination of foxes has been much enlarged (see BULLETIN 3/90), and is projected to be revaccinated in 1991, it can be expected that rabies cases will decrease further in Europe in 1991.

Urban or dog-mediated rabies

There is only one country in Europe showing a clear picture of dog-mediated rabies: Turkey. The number of cases declined here continously since 1981.

Bat rabies

Bat rabies continues to be reported mainly in areas without rabies in terrestrial animals. There was a total of 40 cases in 1990: 22 in the Netherlands, 17 in Germany and 1 in Poland.

Human rabies

There were 17 indigenously acquired reported in 1990: 15 in the European part of the Soviet Union, one in the former German Democratic Republic and one in Czechoslovakia.

3. Rabies in Individual Countries

3.1 Austria AUT

by Helmut Schnabl

During *"This Quarter"*, 628 cases of animal rabies were diagnosed of 5795 samples received. Compared to the previous quarter (406 rabid animals) there was an increase by 55%. Of 603 rabid wild animals (96% of total) were 510 foxes, 31 badgers, 31 stone martens, 6 polecats, 1 large weasel, 21 roe deer, 1 red deer, 1 chamois, 1 wild horse; of 25 rabid domestic animals were 2 dogs, 9 cats, 1 horse, 8 cattle, 5 sheep.

The distribution of rabies cases by Bundesländer (federal provinces) and Bezirke (districts) was as follows:
Burgenland: 121 cases (19.3% of total); all Bezirke affected
Kärnten: 4 cases in the Bezirke of Feldkirchen and Völkermarkt
Niederösterreich: 197 cases (31.4%) in the Bezirke Amstetten, Baden, Bruck/L., Gänserndorf, Gmünd, Hollabrunn, Horn, Krems, Lilienfeld, Melk, Neunkirchen, St.Pölten, Scheibbs, Tullen, Waidhofen/Thaya, Wiener Neustadt, Zwettl
Oberösterreich: 79 cases (12.6%) in the Bezirke Braunau/Inn, Freistadt, Gmunden, Kirchdorf/Krems, Perg, Ried/Innkreis, Vöcklabruck
Salzburg: 11 cases in the Bezirk Salzburg/Umgebung
Steiermark: 214 cases (34%) in the Bezirke Bruck/Mur, Feldbach, Fürstenfeld, Graz/Umgebung, Hartberg, Leibnitz, Leoben, Liezen, Mürzzuschlag, Radkersburg, Weiz
Tirol: 2 cases in the Bezirke Kitzbühel and Reutte

No rabies cases were reported from the federal provinces Vorarlberg and Wien.

The annual total amounted to 2514 cases, 624 cases more than in the previous year.

3.2 Belgium BEL

by J. Tambeur

During *"This Quarter"*, 15 rabies cases were confirmed in 9 localities of the provinces Liège, Luxembourg and Namur. Seven cases were in domestic animals (6 cattle and 1 cat); 8 cases were in foxes. Of the 9 localities infected 7 were close to the state borders of France (6) and Germany (1). There was a decrease of cases by 93% compared to the same quarter 1989.

The area which has been treated three times with the vaccinia rabies recombinant vaccine in the south of the province Luxembourg (2200 km^2), where no cases were reported during the third quarter 1990, remained free of rabies again during *"This Quarter"*.

The annual total for 1990

came to 144 confirmed cases, compared to 842 cases in 1989. That is a decrease of 83%. Two oral vaccination campaigns have been carried out during the year covering the entire infected area of the country. During the spring campaign SAD B19 and rabies recombinant vaccines were used, during the autumn campaign the rabies recombinant vaccine only. 15 vaccine baits were used per km² for the distribution by air (helicopter and and airplane).

3.3 Bulgaria BUL

The country remained rabies-free.

3.4 Czechoslovakia CZE

by Oldrich Matouch

Fourth Quarter 1990

There were 353 rabies cases in animals registered in Czechoslovakia during *"This Quarter"* and one case in man.

Of 353 cases 332 were in wild animals (94.1%) -320 foxes, 3 badgers, 7 martens, 1 roe deer and 1 squirrel. In domestic animals the disease was confirmed in 5 dogs, 11 cats, 4 sheep and one bovine.

Compared to the same period of 1989 there was an increase of 16 cases. The disease newly infected the district of Pardubice.

Summary 1990

Evaluating the year 1990, there was a total of 1384 cases being 19.1% less than in 1989. The disease was confirmed in 1231 foxes, 12 badgers, 35 martens, 4 polecats, 5 roe deer, 1 red deer, 1 moufflon and 1 squirrel. In domestic animals it was diagnosed in 51 cats, 31 dogs, 2 cattle, 9 sheep and 1 domestic rabbit. One case was diagnosed in man (see as well under 4.2 of this BULLETIN).

Of the regions with the highest number of cases were North Bohemia (293), West Bohemia (175) and East Bohemia (159). Of the districts the highest incidence was registered in Bruntál (79), Klatovy (55), Ceská Lípa (54), Usti n. Labem (43) and Blansko (41).

Oral immunization

The fourth campaign of oral vaccination was carried out in autumn 1990. The area treated included 13 districts of West and South Bohemia adjacent to the German border covering an area of 14,520 km². In this area 217,800 Tübingen vaccine baits were distributed. Besides hand placement, aerial bait distribution was practiced in a limited trial. About 14,000 doses were delivered by helicopter in an area of 920 km².

3.5 Denmark DEN

by Eric Stougaard

No case of bat rabies was reported during *"This Quarter"*. The country remained rabies-free in terrestrial animals.

3.6 Germany, Federal Republic DEU

by Winfried W. Müller and Klaus Stöhr

4th Quarter 1990

A total of 1445 rabies cases was reported during *"This Quarter"* for the "old" and "new" federal states of Germany. Of the 1445 cases were 1083 in wild animals (953 foxes, 14 badgers, 46 stone martens, 1 polecat, 1 ferret, 1 raccoon dog, 60 roe deer, 2 fallow deer, 5 wild boar) and 362 in domestic animals (453 dogs, 82 cats, 122 cattle, 99 sheep, 4 goats, 11 horses, 1 pig).

In regard to the present distribution of rabies cases in general it can be said: the efforts to combat rabies by method of oral vaccination in the "old" federal states since 1983 have led to a substantial reduction of cases. This trend can also be seen in the "new" federal states in areas where oral vaccination is practiced for the second or third time since 1989. There are two expanding outbreaks in Bayern, one which originated at the Austrian/Bavarian border during the second quarter 1990, the other originated in the Bavarian department of Schwaben and has a front wave heading toward the Austrian border, threatening the Austrian provinces of Vorarlberg and Tirol.

There was concentration of cases in nearly all federal states except for Nordrhein-Westfalen, Schleswig-Holstein and the city states Hamburg and Bremen. In some areas in the "new" federal states with a high incidence of rabies in 1990 like the departments Leipzig, Chemnitz and in the Nordharz, rabies cases diminished. In general there was a slight increase of cases in the "old" federal states and a slight decrease in the "new" federal states when compared to the previous quarter.

Summary 1990

The annual total amounted to 3009 cases. This figure includes the rabies cases of the area of the former German Democratic Republic (DDR) for the fourth quarter 1990. Considering the present area of Germany there was a reduction of cases from 6824 in 1989 to 5572 in 1990 (18.3% decrease).

There were 17 bats dia-

gnosed rabid during 1990, 10 cases in Niedersachsen, 5 in Schleswig-Holstein, 1 in Berlin and 1 in Nordrhein-Westfalen.

Oral vaccination was practiced in spring and autumn campaigns according to financial resources and specific plans of the federal states.

3.7 Finland FIN

by Bengt Westerling

During *"This Quarter"*, there were no cases of rabies detected in Finland. During the said period the brains of 308 animals were examined for rabies by immunofluorescence; among them 14 dogs, 5 cats, 204 raccoon dogs and 70 foxes.

During the first week of October 32.000 Tübingen baits were distributed by air over a 1.600 km² large area along the south-eastern border against the USSR, in order to establish an immune barrier against re-introduction of rabies. The 80 km long and 20 km deep barrier zone stretches from the Gulf of Finland to the Saimaa canal.

Summary 1990

No cases of rabies were detected during 1990. No cases have been found since 16.2.1989. From the whole country 1145 animals were examined for rabies by direct immunofluorescence on brain tissue; among them 39 dogs, 42 cats, 193 foxes, 727 raccoon dogs, 54 lynx, 19 badgers, 1 wolf and 26 wild predators of other species.

In mid-June 9.400 Tübingen baits were distributed by air over a 400 km² large part of the area estimated to have been infected by rabies 1988-89. By this time the entire infection area (1700 km²) has been vaccinated 3 times. Since the last case 372 target animals (fox, raccoon dog, badger) from this area have been examined for rabies with negative result and 885 animals from the entire field trial area (8.000 km²). There are no plans for continuation of the field trial, which was started in 1988.

The immune barrier along the south-eastern border is intended to be extended to a length of 200 km from the coast by distributing 80.000 Tübingen baits by air over a land area of 4.000 km² in early fall 1991.

3.8 France FRA

by M.F.A. Aubert

630 rabies cases were registered during *"This Quarter"*, 123 cases more than during the previous quarter. 493 cases were diagnosed in foxes (78% of total), 37 in other wild animals, and 100 cases in domestic animals (13 dogs, 18 cats, 42 cattle, 23 small ruminants and 4 horses).

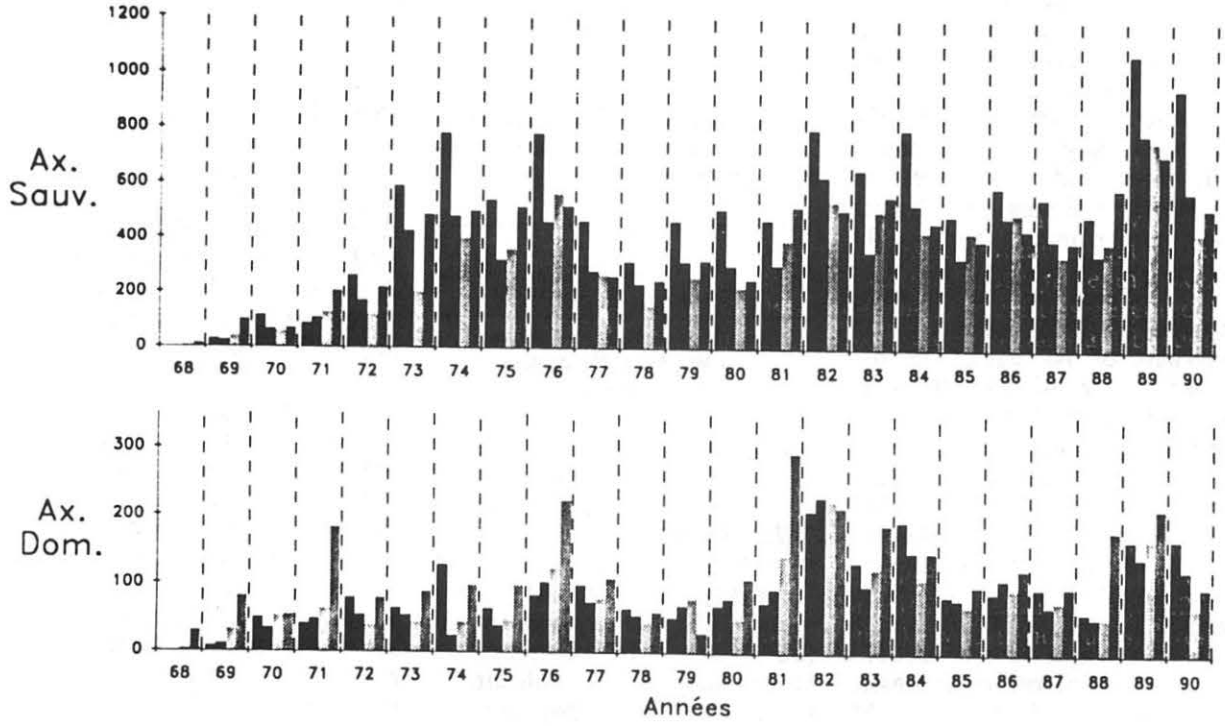


Figure 1. Evolution de la rage animale en France de 1968 à 1990. Statistiques trimestrielles.

The department (département) registering the greatest number of cases was Doubs with 77 cases.

The total number of cases in 1990 amounted to 2984. In comparison with the previous year (4212 cases) there was a diminution by 29%. This diminution can be seen in the histogramme considering the quarterly statistics of all rabid animals going back to the year 1968 (see figure 1). In that way 1990 has been a "good" year for the rabies; but it was not when one considers that this figure takes rank three since 1982.

3.9 Greece GRE

by A. Saravanos

The country remained rabies-free.

3.10 Hungary HUN

by Lazlo Koltai

There were 333 rabies cases registered during *"This Quarter"* in Hungary, nearly as many as during the same time span in 1989 (349). Comparing this time in regard to important animal species involved in rabies, there were 79.6% of the total foxes (81.9% in 4/89) and 10.5% cats (6.9% in 4/89).

The provinces (Komitate) mostly affected by the disease were Pest (34 cases), Vas (29 cases) and Bacs-Kiskun (28 cases).

Considering the total for the years 1989 and 1990, they come to similar figures - 1061 and 1092 cases respectively.

In 1990 1,569.538 dogs were vaccinated against rabies amounting to 4.6% more compared to the previous year.

Oral vaccination of foxes was intended to start in 1990 but had to be postponed because of financial restraint.

3.11 Iceland ICE

The country remained rabies-free.

3.12 Ireland IRE

The country remained rabies-free.

3.13 Italy ITA

by Santino Prosperi

During *"This Quarter"* no rabies cases were diagnosed.

In 1990, surveillance was carried out in Alpine Regions as follows:

1) 333 wild animals (304 foxes) and 43 domestic animals were examined in Piemonte, Valle d'Aosta and Liguria; all of them were negative.

2) 709 wild animals (664 foxes) and 275 domestic animals were examined in Lombardia; all of them were negative.

3) 3282 wild animals (2814 foxes) and 342 domestic animals were examined in Trentino Alto Adige, Veneto and Friuli Venezia Giulia; all of them were negative.

On the 15th of February 1990, the Ordinance of the Ministry of Health which makes the vaccination of dogs, cattle, sheep, goats and equines compulsary has been extended to Friuli Venezia Giulia Region. Hereby ERA vaccine is used. The Health Authorities of Piemonte, Valle d'Aosta, Liguria, Lombardia, Veneto and Trentino Alto Adige may make the vaccination compulsory in areas which are at risk of rabies.

3.14 Luxembourg LUX

by Joseph Kremer

During *"This Quarter"*, there were 6 rabies cases confirmed - 3 foxes, 1 horse, 1 head of cattle, 1 cat. These cases indicate that further control is needed. In 1991 two more oral vaccination campaigns covering the whole country are planned in spring and autumn.

During *"This Quarter"* 10 foxes, 1 stone marten and 3 roe deer were examined for rabies but reveiled negative results.

The total of rabies cases in 1990 amounted to 64, 75 cases less than during the previous year. Not much affected by the disese was the south of the country.

The following animal species were involved in 1990:

Domestic animals
14 cattle
7 sheep
2 horses
3 cats

Wild animals
35 foxes
1 stone marten
1 roe deer
1 fallow deer

3.15 Netherlands NET

by J.H.M. Nieuwenhuijs

During *"This Quarter"*, 174 animals were investigated for rabies. Three bats were found positive.

Summary 1990

In 1990 a total of 1248 animals were investigated (491 adult foxes, 343 young foxes, 11 dogs, 16 cats, 2 cattle, 41 badgers, 3 ferrets, 2 martens, 1 polecat, 1 mouse weasel, 2 rats, 1 muskrat, 4 squirrels, 1

hedgehog, 329 bats).

All rabies positive animals (22) were bats and belonged to the species *Eptesicus serotinus*. In comparison with the investigated bats in 1989 (249), the number in 1990 (329) was slightly increased.

The prevelance rate of rabid bats has not changed significantly in comparison with those rates in the years before. Approx. 7% of all investigated bat-samples were rabies positive.

Just like in 1989, all rabid bats were located in the northern provinces of The Netherlands.

3.16 Norway NOR

by Gudbrand Bakken

There was no case of rabies reported during ***"This Quarter"*** on the island of Svalbard.

The mainland of Norway remained rabies-free.

3.17 Poland POL

A total of 603 rabies cases were reported from Poland during ***"This Quarter"***. Of these were 481 in wild animals (382 foxes, 54 raccoon dogs, 3 badges, 15 pine martens, 7 polecats, 1 ferret, 1 beaver, 18 roe deer) and 122 in domestic animals (24 dogs, 51 cats, 4 horses, 41 cattle, 2 sheep).

There was an increase of 142 cases compared to the previous quarter but a decrese by 93 cases when compared to the fourth quarter 1989.

In the western half of the country rabies cases were concentrated, in the eastern half more scattered. 4 of 49 provinces (voivodeships) along the southeastern border with the USSR had no cases during ***"This Quarter"***.

The annual total amounted to 2045 cases, 154 more than during the previous year (1891 cases).

The animals mostly involved in the epizootic were the fox (67.2% of all cases in 1990), the cat (7.1%) and the raccoon dog (7%). Nevertheless, the latter was more often diagnosed rabid in the north of the country and cases were scattered in the rest of the country.

Provinces with a high incidence in 1990 were: Poznan (157 cases of total), Opole (139),Koszalin 133), Szczecin (130) and Bydgoszcz (123).

3.18 Portugal POR

The country remained rabies-free.

3.19 Romania ROM

by Horatiu Olaru

During ***"This Quarter"***, 23 rabies cases were reported from Romania, 16 in domestic animals (69.6% of total) - 2 dogs, 5 cats, 8 cattle, 1 horse, and 7 in wild animals - 5 foxes and 2 other wild animals. Of the 23 cases, 20 cases were located in the northern half of the country and only 1 in the southern half.

The annual total amounted to 49 cases, 26 cases more than during the previous year.

3.20 Spain SPA

by José Luis de Felipe Gardón

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

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

There was **no case of bat rabies.**

3.21 European Part of the Soviet Socialist Republics SSR

by G.F. Koromyslov

During ***"This Quarter"***, 1154 rabies cases in animals were reported in the European part of the Soviet Union. Of these were 752 cases in domestic animals (98 dogs, 137 cats, 505 cattle, 7 small ruminants, 5 horses) and 402 cases in wild animals.

Summary 1990

In 1990 the total of rabies cases amounted to 3722, 3707 animal cases and 15 human cases.

3.22 Sweden SWE

The country remained rabies-free.

3.23 Switzerland SWI

by Andreas Kappeler

During ***"This Quarter"***, the Swiss Rabies Center received 1148 animals for examination. 11 (1.0%) of these were positive for rabies. In the previous quarter 4 cases had been recorded (0.7% of 535), whereas 10 of 1083 (0.9%) were positive in the fourth quarter of 1989.

10 cases were observed in foxes, 1 in a bovine. As in previous quarters, all cases were relatively close (1 to 9 km, 17 km in one case) to an area in France which is known to be heavily infected. This particular area has been vaccinated for the first time now in

October 1990, whereas vaccination campaigns on the Swiss side of the border where performed for the 6th to 14th time (depending on the region).

43 bats (1 *Eptesicus nilssoni*, 1 *E.serotinus*, 3 *Myotis daubentonii*, 1 *M.myotis*, 2 *M.mystacinus*, 1 *M.nattereri*, 1 *Nyctalus leisleri*, 3 *N.noctula*, 11 *Pipistrellus nathusii*, 10 *P.pipistrellus*, 1 *Pipistrellus spec.*, 6 *Plecotus auritus*, 2 *Vespertilio murinus*) examined with immunofluorescence revealed no rabies virus. The total number of bats examined in 1990 is 92 (for species lists: see quarterly reports). Switzerland has not experienced any rabies cases in bats yet.

No bite exposures of humans to proven rabid animals were recorded in the fourth quarter of 1990. The number of people treated for non-bite exposures is not recorded.

Summary 1990

Despite the increasing number of cases in the 4th quarter, in 1990 Switzerland has recorded the lowest rabies incidence ever since the disease appeared in 1967: a total of 24 foxes and 1 bovine were found positive (0.9 of 2795) as compared to 60 in 1989 (2.2 % of 2723). As in previous years (1987, 1988, 1989) rabies remained a problem of border areas. For the first time however, some of the areas bordering France remained free of rabies. These areas had been repeatedly vaccinated over years, but finally they became free of rabies only after several vaccination campaigns had taken place on the French side of the border.

3.24 Turkey TUR

During *"This Quarter"*, 127 rabies cases were reported from Turkey. There were 126 cases in domestic animals: 93 dogs, 9 cats, 22 cattle, 1 horse, 1 sheep, and 1 case in a brown bear (province of Erzurum). There has been a decrease of 11 cases compared to the previous quarter.

In the provinces Bursa, Istanbul and Sakarya, 16, 14 and 13 cases were recorded respectively. All other provinces reported less than 9 cases.

Summary 1990

The annual figure for 1990 amounted to 583 cases, 1 case less than during the previous year.

Turkey stands for a country in Europe with typical urban or dog-mediated rabies: 98.3% of all affected animals in 1990 were domestic animals, 73.9% of the total were dogs.

The four provinces mostly affected by rabies in 1990 were Istanbul, Bursa, Izmir and Sakarya with 89, 63, 54 and 31 reported cases respectively. All other infected provinces reported less than 30 cases.

3.25 United Kingdom UNK

by P.J. Thomas

The country remained rabies free during *"This Quarter"*.

Surveillance of 3rd and 4th Quarters 1990

Reports of suspect rabies outside quarantine were investigated on 16 occasions during the 3rd and 4th Quarters 1990, involving 9 dogs, 3 cats, 3 foxes, 1 badger and 1 marmoset. Veterinary staff resolved 6 incidents at the initial clinical investigation and a further 3 after isolation in a secure unit. In 13 cases it was necessary to submit material to the laboratory, in every case with negative results.

102 animals died whilst in quarantine, and in every case material was submitted to the Central Veterinary Laboratory, Weybridge for examination. As a result rabies was confirmed in one dog imported from Zambia. The remaining examinations proved negative.

During this period 279 bats were examined for rabies, all with negative results.

No cases of human rabies occurred during this period.

Rabies in a Quarantine kennel

A 7.5 month old Welsh Terrier cross imported from Zambia on July 4th become ill on August 12th and was eventually destroyed on September 6th. A routine check for rabies was carried out and the Fluorescent antibody test gave an atypical positive reaction with the Centocor conjugate but a negative reaction with a conjugate prepared by the Pasteur institute, Paris. Histological examination revealed an encephalitis but no Negri bodies. There was no reaction to inoculation of BHK21 cell cultures or the intracerebral inoculation of both adult and suckling mice.

Initially the atypical FAT reaction was thought to be due to a rabies related virus. As a precaution, the quarantine of all animals in the same block of kennels was extended for 6 months, and recently released dogs were recalled whilst investigations continued.

Taking into account the clinical picture and the laboratory results a diagnosis of vaccine induced rabies was made. The dog had been vaccinated, in Zambia, with a modified live Flury strain of vaccine when only 6 weeks old. Recalled dogs were therefore released and the extended

quarantine periods revoked.

3.26 Yugoslavia YUG

259 cases of rabies were reported in Yugoslavia during ***"This Quarter"***. Of these were 236 cases in wild animals (91.1% of total), and 23 cases were in domestic animals.

Croatia registered most of the rabies cases (159) followed by Slovenia (55), Bosnia and Hercegovina (34) and Vojwodina (11). Concentration of cases occurred in the border areas of Slovenia and Croatia.

Summary 1990

The total of rabies cases in 1990 amounted to 836, 573 cases less than in the previous year. Of the 836 cases were 780 in wild animals (93.3% of total) - 763 foxes, 3 b adgers, 6 other mustelids, 3 deer, 5 others, and 56 were in domestic animals - 18 dogs, 22 cats, 8 cattle, 8 sheep.

A drastic reduction of cases can be noticed in Slovenia with 246 cases reported in 1990 when compared to 1988 (805 cases) and 1989 (761) cases). Here a scheme of oral vaccination was started in autumn 1988 and is still practiced to date.

4. MISCELLANEOUS ARTICLES

4.1 Review of Reported Rabies Case Data in Europe to the WHO Collaborating Centre Tübingen from 1977 to 1990

by W.W. Müller

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 4/88**.

In this issue we present:

A - Quarterly figures of all rabies cases received until now (Section 5/ TABLE 6).
B - A GRAPH summarizing the development of individual countries and Europe with annual figures (ANNEX 2).
C - A TABLE of human rabies cases.
D - A MAP on the distribution of bat rabies cases from 1977 to 1990 (ANNEX 4).
E - Some remarks on the incidence and characteristics of bat rabies in Europe including one TABLE (E) and two GRAPHS (Figures 2 and 3).

A. Table of quarterly rabies case data 1977-1990

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 later.

The figures in the TABLE 6 are totals: they comprise mainly fox-mediated animal rabies in Central Europe but include as well dog-mediated rabies in southern Europe, arctic rabies in northern Europe, human cases and bat cases.

B. Development of rabies in individual countries (see map in ANNEX 2)

In continuous columns the annual figures from the TABLE 6 show the development of rabies over the last 14 years. The columns are drawn to the same scale, figures below 100 are given in digits. Human and bat cases are included.

The term 'RABIES FREE COUNTRY' refers to a status whereby **indigeneously** acquired cases have not been documented for at least two years.

It should be noted that rabies case data for Germany-West and Germany-East in

Table 6 and in the Map in Annex 2 are shown separately for the last time.

The cases for the European part of the Soviet Union in 1977, 1985 and 1987 have been taken from data published in this BULLETIN and not from regular reporting.

C. Human rabies cases 1977-1990

The data presented here have been supplemented since the last review in this Bulletin 4/88.

COUNTRY	NUMBER OF CASES	IMPORTED Cases	YEAR
Poland	7	1[1)]	1977, 1979(2x), 1980, 1983[1)], 1984, 1985
Romania	3	-	1977
Switzerland	3	-	1977
Yugoslavia	9	1[9)]	1977-80 two each year; 1989[9)]
United Kingdom	8	8[2)]	1977(2x), 1978, 1981, 1986, 1987, 1988(2x)
Turkey	39[3)]	-	1977(34x), 1978(2x), 1979(3x),
Austria	1	-	1979
France	3	3[4)]	1979, 1980, 1982
Germany, Democr.Rep.	2	-	1981, 1990
Germany, Federal Rep.	1	1[5)]	1986
Belgium	2	2[6)]	1981, 1988
Finland	1[7)]	-	1985
Czechoslovakia	2	1[8)]	1989[8)], 1990
USSR, European Part	27[10)]	-	1977(1x), 1985(1x), 1989(10x), 1990
Totals	108	17	

1) Imported from Sudan.
2) Imported from India (4x), Pakistan (2x), Zambia & Bangladesh
3) According to a personal communication with the Turkish Ministry of Health, there are 30-60 cases every year.
4) Imported from Tunesia, Egypt and Senegal.
5) Imported from India.
6) Imported from Ruanda and Zaire.
7) Possibly of bat origin, but until now no confirmed bat rabies in the country.
8) Imported from Vietnam.
9) Imported from Algeria.
10) Data not complete.

D. Map of bat rabies, 1977-90 see Annex 4.

E. Some remarks on the incidence and characteristics of bat rabies in Europe

Initially reported as rare instances in literature since 1954, bat rabies seems to have established itself in Europe. Approx. 95% of all cases occur since 1985 in a more or less coherent area comprising Denmark, Northern Germany and the Netherlands (see map in ANNEX 4), not withstanding the unknowns in the reporting which may exist.

The figures for bat rabies known to us for the time 1977 to 1990 are as follows:

TABLE (E):

1977	1
1982	1
1983	1
1985	15
1986	122
1987	142
1988	53
1989	42
1990	40

The predominant bat species involved is *Eptesicus serotinus*.

The virus causing the disease in bats has recently been suggested to be a serotype of its own (see Report of the Sixth WHO Consultation on Monoclonal Antibodies in Rabies Diagnosis and Research-WHO/Rab.Res./90.34- on a meeting at the Wistar Institute, Philadelphia, USA, 2-3 April 1990).

Though different virus strains as distinguished by monoclonal antibodies, the frequencies of bat rabies by month in the United States of

America and in Europe show similarities as the following two graphs are showing.

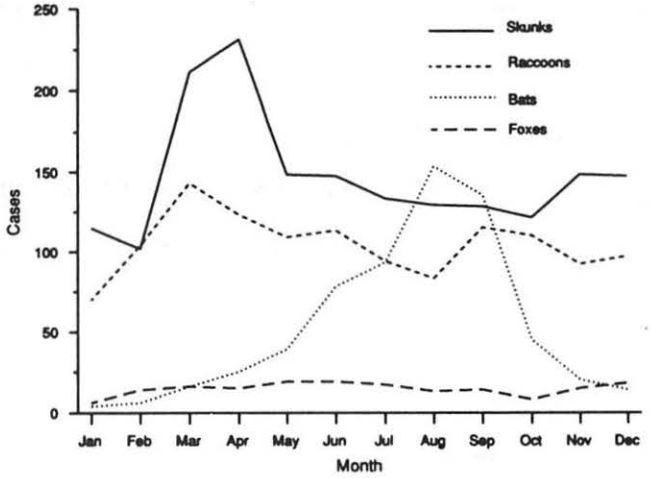
During the third quarter of the year, a time of great activity in the bat colonies, most of the rabid cases are diagnosed.

Sources of Figures:

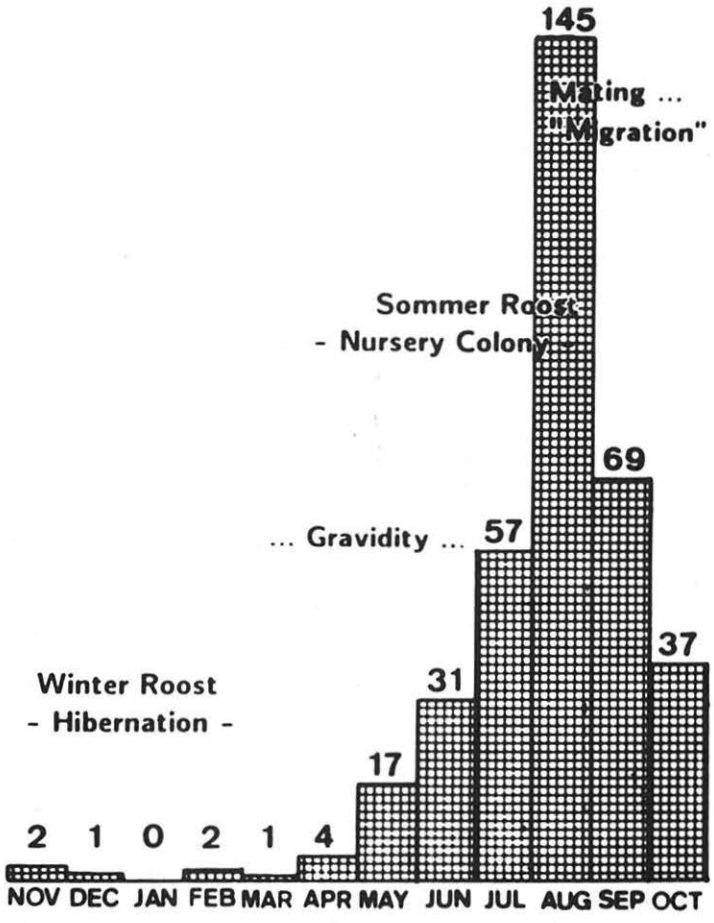
Fig.2 (right):
Centers for Disease Control. Rabies Surveillance, United States, 1988. In MMWR 1989; 38 (No. 55-1), page 14.

Fig.3 (bottom):
WHO Coll.Centre for Rabies Surveillance and Research, Tübingen, FRG.

FIGURE 9. Cases of rabies in wild animals, by month, United States, 1988



Frequency of 366 Bat Rabies Cases in Europe 1985-1989



4.2 Human Rabies in Slovakia, 1990

by Oldrich Matouch

On 1 December 1990 a fifty eight year old man died of rabies in the University Hospital of Kosice.

It was the first case of human rabies in the Slovak Republic since 1977.

The man lived on a disability pension in the village Dlhá Ves, district of Roznava.

The case history said that the patient was attacked and wounded on a finger of the right hand by the cat he owned since April 1990.

The cat died a day later after causing the injury and was buried by the owner.

As the wound was not serious he did not seek medical attention and antirabies treatment was not applied.

No information was given as to a possible other source of exposure to rabies.

The patient developed first symptoms on November 24, 1990. He complained of pain in the wounded hand progressing into arm and upper back. He also developed hypersalivation and had problems with swallowing and breathing. The patient was admitted to the District Hospital in Roznava on November 29.

Because his condition deteriorated to unconsciousness he was transferred to the University Hospital in Kosice on December 1, 1990. Despite of intensive care the patient died there on the same day.

The samples of brain tissue collected at autopsy were submitted to the State Veterinary Institute, Kosice.

Rabies diagnosis was confirmed by the direct fluorescent antibody as well as by the mouse inoculation test.

4.3 Report on Seminar of Wildlife Rabies Control

(- Part 2 -)

by Winfried W. Müller

This article continues to present recommendations given at the above seminar in July 1990 in Geneva. The following recommendations take up specific research in connection to vaccines and vaccination.

NEW ATTENUATED VIRUSES AND LIVE VECTORED RABIES VACCINES

The objectives of future research on attenuated and live vectored rabies vaccines are:

- to find vaccines and vaccine application systems for efficiently and safely immunising not only foxes, but also other rabies hosts (carnivora, chiroptera).
- to contribute to the understanding of the natural history of rabies (pathogenesis, epidemiology, evolution).

The attenuated rabies virus strains actually used for oral vaccination of wildlife exhibit residual pathogenicity, at least for non-target species. This could be abolished by specific mutations, obtained through selection of mutants resisting neutralization by specific monoclonal antibodies. A single mutant of SAD virus strain has been selected which is no longer pathogenic for adult foxes, dogs and rodents. Field testing of the protective power of this mutant for foxes and dogs should be encouraged. In view of the high reversion rate of RNA viruses, efforts should be made to select double avirulent mutants.

The development of recombinant-DNA technology initiated a new era in disease control. The possibility of selecting the vector and modifying both vector and foreign gene suggests that vaccines may be "designed" to meet several requirements. Vectors which are apathogenic for target and nontarget species and are specific for carnivore (and chiroptera) hosts will have the greatest potential. The rabies glycoprotein gene has been introduced into a variety of infectious vectors. Some recombinants hold considerable potential for oral wildlife vaccines. A derivative of vaccinia expressing rabies glyco-

protein has been the first recombinant used in trials in which a variety of mammal species were immunized by different routes. Other poxvirus - and adenovirus - rabies glycoprotein recombinants are presently being studied. Numerous problems remain to be studied:

- the insertion of DNA fragments into non-essential regions of the vector genome may alter pathogenicity and species specificity in ways which are not yet fully understood. The fact that species which were considered to be nonpermissive for the parent virus of a vector can be immunized by the recombinant raises numerous questions.
- The sites of vector virus infection and rabies antigen expression need to be further elucidated. An "intestinal route" of immunization may be desirable.
- The mechanisms of immune response after oral vaccination need to be studied, especially since there are large species differences. The poor knowledge of the immune system of the most important rabies hosts is a handicap in such investigations.
- It remains to be established whether the introduction of additional genes increases vaccine efficacy (different rabies strains-G, rabies N, immuno-modulators, lymphokines, etc.).
- Tests for field evaluation, vaccine identification and for monitoring the genetic stability of the construct need to be established.
- Possible target and non-target populations need to be monitored for the presence of viruses related to the vector.
- Properly designed small-scale field trials to study the dynamics of vaccine virus in target and non-target species need to be initiated.
- Vaccine delivery systems and baits need to be developed for species which become immunizable with the new vaccines.
- Protocols for tests to satisfy the licensing authorities need to be established.
- Recombinant baculoviruses need to be constructed in order to obtain large amounts of high quality individual rabies viral proteins so that the efficacy of oral application of inactivated subunit vaccines can be determined.
- The advantages and disadvantages of a vaccine virus which can be transmitted spontaneously among individuals in wild populations should be carefully explored. Safety for target and non-target species must be examined thoroughly, including reversion to the original virus host (an example would be the evidence that the human adenovirus recombinant passes from one skunk to another).

VACCINE POTENCY AND SAFETY

Regarding safety and potency requirements for vaccines used for oral applications research is needed on the following topics:

- Minimum requirements for oral vaccines for use in species other than foxes (The monograph of the European Pharmacapoeia for fox vaccines could serve as a model.)
- Criteria on which animal species should be investigated as "non-target species". Investigations on which species are attracted by the bait, and could be chosen for back passage experiments. (The dynamics of vaccine virus could also be studied in properly designed small-scale field trials.)
- Use of modern immunohistochemical and PCR techniques to study vaccine virus pathogenesis in selected species.
- Development of laboratory models for the assessment of safety among immunocompromised hosts.
- Standardization and comparative testing of virus safety and innocuity of recombinant vaccines that differ by parental virus ancestry, promoter system, etc. of present orthopox and adenoviruses.
- Investigation of the protective activity of present inactivated rabies vaccines against European bat rabies virus, as well as the potency of rabies immunoglobulins against that virus.

BAITS AND BAITING TECHNIQUES

Wild carnivores have differing behaviour patterns, ecology, and population dynamics, and baits and delivery techniques that are suitable for one species are seldom effective for others. Each species, therefore, requires very specific baiting systems to maximize acceptance by the target animal and to minimize bait disturbance by nontarget species.

Much research on baiting techniques for red foxes has already been conducted. Thus, for this species, information is already available to guide the field application of vaccine baits. Conversely, little effort has been focused on developing field baiting techniques for jackals, mongooses and skunks and therefore many more questions remain to be answered. For these various vector species the same sequence of laboratory and field studies are, however, applicable in the development of baits and baiting technologies.

Laboratory studies

(a) Review carnivore literature and unpublished material that report on bait formulation and evaluation and communicate with other researchers to solicit ideas, suggestions and approaches.

(b) Obtain information from industry as to presently available products useful for formulating baits and vaccine containers.

(c) Formulate various bait matrices and determine bait preferences.

(d) Develop test and statistical procedures for evaluating bait preferences of captive animals based upon accepted techniques described in the technical literature.

(e) Find and evaluate suitable rabies vaccine containers that can be incorporated into baits and are readily broken or ingested by species under test.

(f) Ensure information of vaccine containers and baits so that target animals do not separate them, leaving intact vaccine containers accessible to humans or nontarget animals. This will be especially important in oral vaccination of urban dogs.

(g) Select representative compounded oils, dried meal or powder coatings, or other taste enhancers, incorporate into bait matrices, and determine animal preferences.

(h) Using physical or chemical techniques, explore means of formulating baits to minimize consumption by nontarget species, including humans.

(i) Test compatibility of vaccines and bait materials, simulate conditions of temperature and humidity in the field and establish vaccine stability.

(j) Feed vaccine baits to captive animals and determine vaccine efficacy.

(k) Ensure non-transmission of communicable disease agents.

Field evaluation

(a) Review technical literature reporting on field techniques for evaluating carnivore baits and attractants and modify methodology as needed for evaluation of rabies vaccine baits.

(b) Develop detailed protocols for field evaluation, validate such protocols and determine criteria needed for field test sites.

(c) Review and consult regarding field sampling techniques and data analysis.

(d) Formulate baits and field test to determine if those preferred by captive animals are also selectively chosen by free-roaming individuals.

(e) Acquire data to show whether differences in seasonal or geographic bait preferences are significant, both for target and nontarget species.

(f) Measure the extent to which baits are removed or consumed by nontarget species.

(g) Explore ways to minimize non-target species disturbance of baits and for selectively delivering baits to intended species.

(h) Assess weather and climatic-associated hazards to baits and vaccines and seek methods for minimizing such degradation.

(i) Evaluate the extent to which odour attractants enhance bait discovery and consumption, relate attractant potential and use to differing baiting strategies and techniques.

(j) Determine the feasibility of concentrating target animals at bait stations and explore pre-baiting as a means of increasing efficacy.

(k) Modify existing or develop new technology for indexing population densities and field validate these techniques.

(l) Obtain indices of relative population densities of target and non-target species in relation to baiting field trials. Measure changes in vector population densities following successful field vaccination to determine if bait densities need adjustment.

(m) Acquire population dynamics data (sex, age, and reproduction rates, etc.) from field study sites and compare with results of field baiting efforts over varying periods of time and under varying conditions.

(n) Conduct vaccine field trials. Determine efficacy, hazards, the frequency and the size of zones or areas that must be baited to achieve the desired results.

(o) Determine numbers of baits required to reach varying proportions of target populations by distributing baits containing biomarkers at varying densities and under different environmental conditions.

(p) Design studies and conduct field tests to compare air versus ground bait distribution using baits containing biomarkers.

(q) Conduct baiting field trials in urban areas using methods designed specifically for such habitat and conditions.

EVALUATION OF VACCINE EFFICACY UNDER FIELD CONDITIONS

The following suggestions are made for future research:

a) The first priority must be to establish what constitutes protection from rabies in wild, free-ranging target animals. This should be correlated with indicators such as serum or chest cavity fluid

antibody.

b) Improvements must be made to methods for evaluating sera (and body fluids) collected in the field.

c) Quantitative methods must be developed to:
i) estimate dispersal of target species out of (and into) baited areas.
ii) assess how dispersal affects estimates of vaccine efficacy.
iii) express the dispersion as well as the density of baits.

d) The effects of different levels of population protection must be explored, both by field tests and by simulation.

e) Formal experiments (appropriate sampling within control programmes) must be conducted to improve understanding of the optimum number and timing of vaccination campaigns, particularly with reference to season and annual sequences.

f) More direct studies of target species behaviour when approaching, handling and eating bait must be made.

g) A larger panel of biomarkers must be assembled, with special emphasis on an agent which could be included directly in vaccine without reducing vaccine efficacy.

h) More research is required on background levels of rabies, rabies antibody, rabies immunity, and occurrence of tetracycline or other markers in untreated or pretreatment populations.

There is an urgent need for WHO to establish agreed protocols for collecting and reporting data concerning the evaluation of success of field applications of vaccine. Investigators are encouraged to seek more information and the following minimum requirements should be considered:

a) The following data must be carefully recorded:
- pattern of bait distribution
- - aerial
-number and location of flight lines
- number of baits dropped on each line
- - ground
- travel routes and approximate bait locations.

b) Estimates of background levels of rabies antibody and biomarker should be made before any field use of baits in each area to be treated.

c) Sample areas must be large enough to obtain adequate samples from target species. Samples should also be taken outside each baited area to help estimate the effects of dispersal, and the presence of ambient antibody and biomarkers in the population.

d) Experiments must be replicated, despite the cost.

e) Accurate records must be kept on each specimen:
i) date and location of capture;
ii) date(s) of processing for each step of analysis;
iii) storage conditions.

f) Standard analysis methods should be agreed and a standard data record format would be beneficial.

g) Evaluate tetracycline or other markers in appropriate tissues.

h) The preference for antibody evaluation should be:
i) RFFIT
ii) FIMT
iii) ELISA
but these methods should be reviewed regularly.

i) Samples for antibody estimation should be analysed by more than one laboratory. Blind numbering and submission of control samples should be normal practice.

j) WHO should sponsor workshops which bring workers from all teams together in one laboratory (at a time) to attempt to standardize tetracycline and other marker analysis techniques.

k) Observers from all rabies control teams should visit programmes in other countries. WHO may consider coordinating such exchange programmes.

There are moves to legalise the use of live vaccines in Europe. It is recommended that even when the use of such vaccines (other than in limited field trials) has been approved, an institute (laboratory) should be made responsible for supervising the control measures and evaluating them in accordance with preceding recommendations in this section.

STRATEGIES OF ORAL RABIES VACCINATION

Several oral vaccination strategies applicable to fox rabies have been studied and proven as basic tools in the eradication of this disease.

(a) **Large scale vaccination** is the initial strategy in attacking the rabies problem and usually requires 3-4 vaccination campaigns over a 2-year period.

- Vaccination during the decreasing slope of a rabies epidemic are most economic and efficient.
- Vaccinations into the rising slope of an epidemic require more time and effort in order to be successful.

(b) **Cordon vaccinations** creating an immune barrier become increasingly important during the second phase of rabies control, when it is necessary to prevent re-infection of areas already freed from rabies. The campaign must take account of circumstances.

Usually an area 10-30 kms deep is vaccinated once a year, but in case of an acute and dangerous situation, two vaccinations per year may be necessary. In the latter case the optimal approach is to vaccinate 15 kms in front of and 30 kms behind the rabies wave. (Re-infection of an area, especially when rabies-free for several years, requires immediate initial action which is best accomplished by use of aircraft).

(c) **Special strategies**

- Spot vaccinations into residual rabies foci after several preceding routine vaccinations are easily done by baiting from aircraft.

- A single vaccination per year is justifiable only under special conditions such as an extreme hot or cold climate; or low population densities together with low rabies frequences.

It is recommended that these already proven strategies of vaccination are tested under all existing territorial and ecological conditions, and by using the most stringent surveillance techniques.

(d) **Post-control assessment**

When rabies has been eliminated from an area using the oral vaccination technique, assessment within that area is needed to determine:

- effects on other causes of fox mortality;
- effects on other indigenous animal populations;
- other possible effects on the environment.

(Based on document WHO/-CDS/VPH/90.93 published at WHO Headquarter, Geneva, Switzerland)

Rabies Case Data from Europe
are tabulated on the following pages
of Section 5

TABLE 1

EUR EUROPE 4/90 RABIES CASES 1.10.90 - 31.12.90

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		
AUT	AUSTRIA	2	9	8	1	5	-	25	510	31	38	22	2	603		628
BEL	BELGIUM	-	1	6	-	-	-	7	8	-	-	-	-	8		15
BUL	BULGARIA *							0						0		0
CZE	CZECHOSLOVAKIA	5	11	1	-	4	-	21	320	3	7	1	1	332	1	354
DEN	DENMARK *							0						0		0
DEU	FED.REP. OF GERMANY	43	82	122	11	103	1	362	953	14	48	62	6	1083		1445
FIN	FINLAND *							0						0		0
FRA	FRANCE	13	18	42	4	23	-	100	493	16	18	3	-	530		630
GRE	GREECE *							0						0		0
HUN	HUNGARY	17	35	14	1	1	-	68	264	-	-	1	-	265		333
ICE	ICELAND *							0						0		0
IRE	IRELAND *							0						0		0
ITA	ITALY *							0						0		0
LUX	LUXEMBOURG	-	1	1	1	-	-	3	3	-	-	-	-	3		6
NET	NETHERLANDS							0	-	-	-	-	3	3		3
NOR	NORWAY *							0						0		0
POL	POLAND	24	51	41	4	2	-	122	382	3	23	18	55	481		603
POR	PORTUGAL *							0						0		0
ROM	ROMANIA	2	5	8	1	-	-	16	5	-	-	-	2	7		23
SPA	SPAIN *							0						0		0
SSR	SOVIET SOCIALIST REP	98	137	505	5	7	-	752	-	-	-	-	402	402		1154
SWE	SWEDEN *							0						0		0
SWI	SWITZERLAND + LIECHT	-	-	1	-	-	-	1	10	-	-	-	-	10		11
TUR	TURKEY	93	9	22	1	1	-	126	-	-	-	-	1	1		127
UNK	UNITED KINGDOM *							0						0		0
YUG	YUGOSLAVIA	9	6	5	-	3	-	23	234	-	1	-	1	236		259
TOTAL		306	365	776	29	149	1	1626	3182	67	135	107	473	3964	1	5591
PER CENT		5.5	6.5	13.9	0.5	2.7	0.0	29.1	56.9	1.2	2.4	1.9	8.5	70.9	0.0	100.0

* NO CASES.

TABLE 2

EUR EUROPE 1990 RABIES CASES 1. 1.90 - 31.12.90

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		
AUT	AUSTRIA	11	26	14	2	20	-	73	2091	110	142	94	4	2441		2514
BEL	BELGIUM	2	11	57	4	5	-	79	56	3	6	-	-	65		144
BUL	BULGARIA *							0						0		0
CZE	CZECHOSLOVAKIA	31	51	2	-	9	1	94	1231	12	39	6	2	1290	1	1385
DDR	GERMAN DEM. REP. 1)	140	138	111	10	169	2	570	1776	28	86	93	9	1992	1	2563
DEN	DENMARK *							0						0		0
DEU	FED.R. OF GERMANY 2)	52	129	161	24	145	1	512	2161	66	91	149	30	2497		3009
FIN	FINLAND *							0						0		0
FRA	FRANCE	50	82	130	32	168	1	463	2406	37	57	19	2	2521		2984
GRE	GREECE *							0						0		0
HUN	HUNGARY	45	87	38	1	4	3	178	902	1	3	6	2	914		1092
ICE	ICELAND *							0						0		0
IRE	IRELAND *							0						0		0
ITA	ITALY *							0						0		0
LUX	LUXEMBOURG	-	3	14	2	7	-	26	35	-	1	1	1	38		64
NET	NETHERLANDS							0	-	-	-	-	22	22		22
NOR	NORWAY 3)							0	-	-	-	-	1	1		1
POL	POLAND	93	145	102	4	3	29	376	1375	17	62	59	156	1669		2045
POR	PORTUGAL *							0						0		0
ROM	ROMANIA	7	12	12	1	1	-	33	13	1	-	-	2	16		49
SPA	SPAIN 4)	6	-	-	-	-	-	6						0		6
SSR	SOVIET SOC. REP.	396	440	1283	30	312	2	2463	-	-	-	-	1244	1244	15	3722
SWE	SWEDEN *							0						0		0
SWI	SWITZERLAND + LIECHT	-	-	1	-	-	-	1	24	-	-	-	-	24		25
TUR	TURKEY	431	36	81	3	13	9	573	-	-	-	-	10	10		583
UNK	UNITED KINGDOM *							0						0		0
YUG	YUGOSLAVIA	18	22	8	-	8	-	56	763	3	6	3	5	780		836
TOTAL		1282	1182	2014	113	864	48	5503	12833	278	493	430	1490	15524	17	21044
PER CENT		6.1	5.6	9.6	0.5	4.1	0.2	26.1	61.0	1.3	2.3	2.0	7.1	73.8	0.1	100.0

* NO CASES. 1) QUARTERS 1-3 ONLY. 2) QUARTER 4 INCLUDES FIGURE FOR NEW FEDERAL STATES (FORMER DDR). 3) ISLAND OF SVALBARD.
4) NORTH AFRICA.

TABLE 3: RABIES CASE RATES (% TOTAL) FOR INDIVIDUAL ANIMAL SPECIES AND FOR TOTAL CASES OF THE 10 EUROPEAN COUNTRIES RANKING HIGHEST IN 1990.

EUR EUROPE 1990 1. 1.90 - 31.12.90

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	1282	1182	2014	113	864	48	5503	12833	278	493	430	1490	15524	17	21044
PER CENT INVOLVEMENT / COUNTRY															
SSR SOVIET SOCIALIST REP	30.9	37.2	63.7	26.5	36.1	4.2	44.8	-	-	-	-	83.5	8.0	88.2	17.7
DEU FED.REP.OF GERMANY *	4.1	10.9	8.0	21.2	16.8	2.1	9.3	16.8	23.7	18.5	34.7	2.0	16.1		14.3
FRA FRANCE	3.9	6.9	6.5	28.3	19.4	2.1	8.4	18.7	13.3	11.6	4.4	0.1	16.2		14.2
DDR GERMAN DEM. REP. **	10.9	11.7	5.5	8.8	19.6	4.2	10.4	13.8	10.1	17.4	21.6	0.6	12.8	5.9	12.2
AUT AUSTRIA	0.9	2.2	0.7	1.8	2.3	-	1.3	16.3	39.6	28.8	21.9	0.3	15.7		11.9
POL POLAND	7.3	12.3	5.1	3.5	0.3	60.4	6.8	10.7	6.1	12.6	13.7	10.5	10.8		9.7
CZE CZECHOSLOVAKIA	2.4	4.3	0.1	-	1.0	2.1	1.7	9.6	4.3	7.9	1.4	0.1	8.3	5.9	6.6
HUN HUNGARY	3.5	7.4	1.9	0.9	0.5	6.3	3.2	7.0	0.4	0.6	1.4	0.1	5.9		5.2
YUG YUGOSLAVIA	1.4	1.9	0.4	-	0.9	-	1.0	5.9	1.1	1.2	0.7	0.3	5.0		4.0
TUR TURKEY	33.6	3.0	4.0	2.7	1.5	18.8	10.4	-	-	-	-	0.7	0.1		2.8
TOTAL OF 10 COUNTRIES	1267	1156	1930	106	851	48	5358	12705	274	486	429	1464	15358	17	20733
EQUAL % TOTAL	98.8	97.8	95.8	93.8	98.5	100.0	97.4	99.0	98.6	98.6	99.8	98.3	98.9	100.0	98.5

* INCLUDING THE 4TH-QUARTER-DATA OF THE FORMER DDR ** QUARTERS 1-3 ONLY

TABLE 4

EUR EUROPE 4/90 RABIES CASES 'OTHER ANIMAL SPECIES' 1.10.90 - 31.12.90

LOCATION CODE NAME	OTHER DOMESTIC ANIMALS	OTHER WILD ANIMALS									TOTAL
	PIG	RACCOON DOG	BROWN BEAR	WILD BOAR	CHAMOIS	WILD HORSE	INSECTIV. BAT	SQUIRREL	BEAVER	OTHERS	
AUT AUSTRIA	-	-	-	-	1	1	-	-	-	-	2
CZE CZECHOSLOVAKIA	-	-	-	-	-	-	-	1	-	-	1
DEU FED.REP. OF GERMANY	1	1	-	5	-	-	-	-	-	-	7
NET NETHERLANDS	-	-	-	-	-	-	3	-	-	-	3
POL POLAND	-	54	-	-	-	-	-	-	1	-	55
ROM ROMANIA	-	-	-	-	-	-	-	-	-	2	2
SSR SOVIET SOCIAL REP.	-	-	-	-	-	-	-	-	-	402	402
TUR TURKEY	-	-	1	-	-	-	-	-	-	-	1
YUG YUGOSLAVIA	-	-	-	-	-	-	-	-	-	1	1
TOTAL	1	55	1	5	1	1	3	1	1	405	474
PER CENT	0.2	11.6	0.2	1.1	0.2	0.2	0.6	0.2	0.2	85.5	100

TABLE 5

EUR EUROPE 1990 — RABIES CASES 'OTHER ANIMAL SPECIES' — 1. 1.90 - 31.12.90

COUNTRY	OTHER DOMESTIC ANIMALS							OTHER WILD ANIMALS																				TOTAL
	OTH.DOM. CARNIVOR	DONKEY	MULE	PIG	OTH.DOM. HERBIVOR	DOMESTIC RABBIT	OTHERS	ARCTIC FOX	OTH.FOX SPECIES	WOLF	RACCOON DOG	WILD CAT	BROWN BEAR	RACCOON	WILD BOAR	MOUFLON	CHAMOIS	WILD HORSE	HEDGEHOG	INSECTIV BAT	SQUIRREL	BEAVER	BLACK RAT	HOUSE MOUSE	MUSKRAT	OTHERS	
AUT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-	-	4
CZE	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	3
DDR	-	-	-	-	-	2	-	-	-	-	4	-	-	-	2	-	-	-	-	-	-	2	1	-	-	-	11
DEU	-	-	-	1	-	-	-	-	-	-	1	-	1	2	6	-	-	-	-	17	2	-	-	-	1	-	31
FRA	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	3
HUN	-	-	-	3	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
LUX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
NET	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-	-	-	-	22
NOR	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
POL	23	-	-	-	-	1	5	-	-	-	143	-	-	-	4	-	-	-	2	1	2	1	1	-	2	-	185
ROM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
SSR	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	906	908
TUR	-	5	1	-	3	-	-	-	-	6	-	-	1	-	-	-	-	-	-	-	-	-	-	3	-	-	19
YUG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
TOT	23	6	1	4	3	4	7	1	1	6	148	1	2	2	14	2	2	1	2	40	5	3	2	3	3	914	1200
PER	1.9	.5	.1	.3	0.2	0.3	.6	0.1	0.1	.5	12.3	0.1	0.2	.2	1.2	.2	.2	0.1	.2	3.3	.4	.2	0.2	0.2	.2	76.2	100

TABLE 6

EUROPE 1977 - 1990

SUR	QUARTER 1	2	3	4	YEAR 1977	QUARTER 1	2	3	4	YEAR 1978	QUARTER 1	2	3	4	YEAR 1979	QUARTER 1	2	3	4	YEAR 1980	QUARTER 1	2	3	4	YEAR 1981	QUARTER 1	2	3	4	YEAR 1982	QUARTER 1	2	3	4	YEAR 1983	SUR
AUT	852	683	508	1015	3058	1136	1139	868	901	4044	789	529	404	296	2018	250	288	167	111	816	137	209	188	185	779	259	290	154	259	962	406	375	264	329	1374	AUT
BEL	36	13	6	13	68	25	15	13	8	61	8	5	4	8	25	11	23	2	11	47	24	23	36	91	174	135	139	128	273	675	208	119	80	109	516	BEL
BUL	-	-	-	-	0	1	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	BUL
CZE	168	134	156	137	595	222	162	172	191	747	143	201	193	250	787	435	301	233	243	1212	272	254	225	349	1100	550	460	370	509	1889	659	466	428	537	2090	CZE
DDR	573	360	378	443	1754	329	225	361	343	1258	396	279	267	541	1483	535	461	527	533	2056	474	405	470	557	1906	504	399	417	635	1955	680	533	518	496	2227	DDR
DEN	-	-	3	3	6	14	24	69	56	163	37	41	46	41	165	22	11	2	2	37	2	1	-	-	3	1	-	-	-	1	-	-	-	-	0	DEN
DEU	1815	1047	1072	1050	4984	1094	741	916	1012	3763	1244	1035	1210	1600	5089	2014	1329	1582	1680	6605	1623	1102	1320	1376	5421	1738	1247	1557	2010	6552	2074	1333	1496	2033	6936	DEU
FIN	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	FIN
FRA	572	356	354	386	1668	384	289	212	317	1202	533	394	344	435	1706	589	381	275	375	1620	552	412	550	827	2341	1023	874	771	738	3406	802	464	637	760	2663	FRA
GRE	5	2	-	2	9	1	-	1	-	2	-	-	-	2	2	-	-	-	-	0	-	-	3	-	3	1	-	-	-	1	1	-	-	-	1	GRE
HUN	221	166	99	250	736	629	169	192	310	1300	546	159	222	355	1282	381	142	191	204	918	314	122	194	372	1002	601	246	187	339	1373	413	129	174	260	976	HUN
ICE	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	ICE
IRE	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	IRE
ITA	3	26	39	29	97	83	82	39	46	250	30	28	17	4	79	3	2	2	5	12	55	120	113	79	367	112	82	88	63	345	93	115	127	113	448	ITA
LUX	10	6	9	9	34	22	16	16	8	62	3	3	4	13	23	8	1	1	13	23	16	18	25	27	86	33	24	41	107	205	35	15	20	36	106	LUX
NET	1	-	1	-	2	-	-	-	-	0	-	1	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	1	-	1	13	15	NET
NOR	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	1	15	-	1	17	1	-	-	-	1	-	-	-	-	0	-	-	-	-	0	NOR
POL	297	252	395	343	1287	335	197	251	356	1139	215	189	287	350	1041	275	183	224	263	945	198	67	81	103	449	143	99	195	190	627	138	96	259	343	836	POL
POR	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	POR
ROM	33	20	11	49	113	*	*	*	*	*	*	*	*	*	*	35	23	15	14	87	26	20	50	32	128	32	20	20	19	91	21	14	9	15	59	ROM
SPA	-	1	4	1	6	1	-	-	2	3	-	-	1	-	1	1	-	-	-	1	1	-	-	-	1	1	-	-	-	1	5	2	2	1	10	SPA
SSR	*	*	1	1	2	309	187	237	340	1073	342	264	208	243	1057	286	178	167	185	816	142	98	81	160	481	216	138	168	220	742	153	117	100	228	598	SSR
SWE	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	SWE
SWI	330	207	211	293	1041	265	204	232	351	1052	365	312	318	375	1370	376	250	277	287	1190	383	353	349	328	1413	381	305	258	285	1229	213	204	269	378	1064	SWI
TUR	-)	-)	889	316	1205	313	410	387	372	1482	517	454	316	308	1595	507	486	483	612	2088	497	638	587	538	2260	503	645	529	495	2172	483	511	549	389	1932	TUR
UNK	1	-	-	1	2	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	1	-	1	-	-	-	-	0	-	-	-	-	0	UNK
YUG	17	16	-)	121	154	-)	-)	-)	313	313	126	120	72	100	418	224	202	173	336	935	686	858	250	322	2116	674	266	126	210	1276	381	251	103	414	1149	YUG
TOT	4934	3289	4136	4462	16821	5163	3860	3966	4927	17916	5294	4014	3913	4921	18142	5953	4276	4321	4875	19425	5463	4700	4523	5346	20032	6907	5234	5009	6352	23502	6766	4744	5036	6454	23000	TOT

LOC COD	QUARTER 1	2	3	4	YEAR 1984	QUARTER 1	2	3	4	YEAR 1985	QUARTER 1	2	3	4	YEAR 1986	QUARTER 1	2	3	4	YEAR 1987	QUARTER 1	2	3	4	YEAR 1988	QUARTER 1	2	3	4	YEAR 1989	QUARTER 1	2	3	4	YEAR 1990	LOC COD
AUT	401	441	303	277	1422	385	524	428	407	1744	367	348	297	375	1387	461	570	432	579	2042	681	457	320	328	1786	594	391	295	610	1890	908	572	406	628	2514	AUT
BEL	129	87	112	177	505	91	49	137	169	446	116	62	80	84	342	53	46	55	88	242	44	66	185	220	515	244	154	212	232	842	94	24	11	15	144	BEL
BUL	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	BUL
CZE	802	563	549	530	2444	574	432	317	327	1650	393	323	327	447	1490	465	504	393	421	1783	455	349	360	416	1580	569	470	336	338	1713	381	345	305	354	1385	CZE
DDR	570	415	572	458	2015	348	281	373	403	1405	346	299	429	496	1570	461	374	449	409	1693	474	382	687	847	2390	941	659	1018	978	3596	971	659	933	**	2563	DDR
DEN	-	-	-	-	0	-	-	1	9	10	-	3	97	5	105	1	11	32	4	48	-	-	-	-	0	-	1	-	-	1	-	-	-	-	0	DEN
DEU	2092	1516	1608	1840	7056	1641	1466	1824	1934	6865	1483	1092	1218	1467	5260	1197	856	846	892	3791	737	438	530	924	2629	1069	676	594	888	3227	725	419	420	1445	3009	DEU
FIN	-	-	-	-	0	-	-	-	1	1	-	-	-	-	0	-	-	-	-	0	-	19	20	24	63	6	-	-	-	6	-	-	-	-	0	FIN
FRA	1006	687	551	627	2871	579	425	505	504	2013	688	602	605	570	2465	660	478	432	498	2068	559	408	472	784	2223	1252	940	942	1080	4214	1132	715	507	630	2984	FRA
GRE	-	-	-	-	0	-	1	-	-	1	-	-	-	-	0	-	-	1	-	1	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	GRE
HUN	465	156	183	371	1175	361	157	164	349	1031	368	172	240	484	1264	568	276	241	381	1466	411	157	236	372	1176	350	138	224	349	1061	366	153	240	333	1092	HUN
ICE	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	ICE
IRE	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	IRE
ITA	128	141	54	31	354	49	45	25	3	122	10	17	2	-	29	-	-	-	-	0	-	-	2	19	21	38	9	6	2	55	-	-	-	-	0	ITA
LUX	36	9	9	10	64	5	10	24	28	67	10	13	47	67	137	11	4	4	4	23	2	1	-	1	4	5	8	47	79	139	40	13	5	6	64	LUX
NET	42	16	2	5	65	7	9	-	-	16	-	-	-	1	1	-	7	70	9	86	-	17	30	5	52	1	7	10	5	23	-	4	15	3	22	NET
NOR	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	1	2	3	-	-	-	-	0	-	-	-	-	0	-	1	-	-	1	NOR
POL	382	284	395	455	1516	258	161	349	306	1074	227	145	306	409	1087	317	345	496	528	1686	424	231	401	462	1518	457	293	445	696	1891	664	317	461	603	2045	POL
POR	-	-	1	-	1	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	POR
ROM	90	16	17	17	140	22	25	8	19	74	25	24	12	8	69	18	10	13	5	46	11	5	8	14	38	9	5	3	6	23	8	8	10	23	49	ROM
SPA	-	-	1	3	4	7	-	7	3	17	2	2	1	5	10	1	2	6	1	10	2	-	2	-	4	-	1	4	1	6	-	1	5	-	6	SPA
SSR	*	*	*	*	*	*	*	*	2	2	*	*	*	*	*	*	*	*	2	2	*	*	*	*	*	-)	-)	-)	-)	3632	1123	726	719	1154	3722	SSR
SWE	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	SWE
SWI	370	269	179	110	928	87	96	140	89	412	76	46	41	35	198	24	26	24	25	99	40	11	28	16	95	13	8	29	10	60	5	5	4	11	25	SWI
TUR	337	426	381	316	1460	334	336	325	289	1284	271	348	311	336	1266	354	242	199	210	1005	207	220	137	146	710	162	118	157	147	584	153	165	138	127	583	TUR
UNK	-	-	-	-	0	-	-	-	-	0	-	-	1	-	1	-	1	-	-	1	-	1	-	1	2	-	-	-	-	0	-	-	-	-	0	UNK
YUG	661	406	193	343	1603	351	158	112	212	833	233	90	45	131	499	137	113	122	227	599	347	207	246	473	1273	560	276	214	360	1410	253	156	168	259	836	YUG
TOT	7511	5432	5110	5570	23623	5099	4175	4739	5054	19067	4615	3586	4059	4920	17180	4728	3865	3816	4285	16694	4394	2969	3664	5052	16079	6270	4154	4536	5781	24373	6823	4283	4347	5591	21044	TOT

* no data, ** data included in 4th quarter of DEU, -) data included in next figure.

AUT AUSTRIA — RABIES CASES — 1.10.90 - 31.12.90

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		
103	EISENSTADT - LAND							0	7	-	-	-	-	7		7
104	GUESSING							0	28	-	3	-	1	32		32
105	JENNERSDORF							0	6	-	-	-	-	6		6
106	MATTERSBURG							0	2	-	-	-	-	2		2
107	NEUSIEDL AM SEE	-	1	-	-	-	-	1	38	1	1	-	-	41		42
108	OBERPULLENDORF							0	9	-	-	-	-	9		9
109	OBERWART	1	-	-	-	-	-	1	19	-	1	2	-	22		23
208	VOELKERMARKT	-	-	-	1	-	-	1	1	1	-	-	-	2		3
210	FELDKIRCHEN							0	-	-	1	-	-	1		1
305	AMSTETTEN							0	1	-	-	-	-	1		1
306	BADEN							0	1	-	-	-	-	1		1
307	BRUCK AN DER LEITHA							0	1	-	-	-	-	1		1
308	GAENSERNDORF							0	3	-	-	-	-	3		3
309	GMUEND							0	6	-	1	-	-	7		7
310	HOLLABRUNN							0	6	-	-	-	-	6		6
311	HORN	-	1	-	-	-	-	1	15	1	2	-	-	18		19
313	KREMS AN DER DONAU-L	1	1	-	-	-	-	2	11	2	2	1	-	16		18
314	LILIENFELD	-	-	2	-	1	-	3	45	3	1	2	-	51		54
315	MELK							0	5	-	2	3	-	10		10
318	NEUNKIRCHEN							0	18	-	1	-	1	20		20
319	SANKT POELTEN-LAND							0	5	-	-	-	-	5		5
320	SCHEIBBS	-	1	-	-	-	-	1	12	2	-	-	-	14		15
321	TULLN							0	6	-	-	-	-	6		6
322	WAIDHOFEN AN DER THA							0	5	1	3	-	-	9		9
323	WIENER NEUSTADT-LAND							0	5	-	-	-	-	5		5
325	ZWETTL	-	1	-	-	-	-	1	12	1	3	-	-	16		17

AUT 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		
404	BRAUNAU AM INN							0	7	2	1	4	-	14		14
406	FREISTADT							0	23	3	6	-	-	32		32
407	GMUNDEN							0	3	-	-	-	-	3		3
409	KIRCHDORF AN DER KRE							0	-	-	-	2	-	2		2
411	PERG	-	2	-	-	-	-	2	13	5	4	1	-	23		25
412	RIED IM INNKREIS							0	-	-	1	-	-	1		1
417	VOECKLABRUCK							0	1	-	1	-	-	2		2
503	SALZBURG-LAND							0	8	1	1	1	-	11		11
602	BRUCK AN DER MUR	-	1	1	-	4	-	6	36	6	1	3	-	46		52
604	FELDBACH							0	45	1	-	-	-	46		46
605	FUERSTENFELD							0	7	-	-	-	-	7		7
606	GRAZ-LAND							0	6	1	1	-	-	8		8
607	HARTBERG							0	1	-	-	-	-	1		1
610	LEIBNITZ							0	4	-	-	-	-	4		4
611	LEOBEN							0	12	-	-	2	-	14		14
612	LIEZEN	-	-	5	-	-	-	5	67	-	1	-	-	68		73
613	MUERZZUSCHLAG	-	1	-	-	-	-	1	1	-	-	-	-	1		2
615	RADKERSBURG							0	6	-	-	-	-	6		6
617	WEIZ							0	1	-	-	-	-	1		1
704	KITZBUEHEL							0	1	-	-	-	-	1		1
708	REUTTE							0	1	-	-	-	-	1		1
TOTAL		2	9	8	1	5	0	25	510	31	38	22	2	603	0	628
PER CENT		0.3	1.4	1.3	0.2	0.8	0.0	4.0	81.2	4.9	6.1	3.5	0.3	96.0	0.0	100.0

RABIES CASES 1.10.90 - 31.12.90

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	-	-	-	-	1	3	-	-	-	-	3		4
LX	LUXEMBOURG							0	2	-	-	-	-	2		2
NA	NAMUR	-	-	6	-	-	-	6	3	-	-	-	-	3		9
TOTAL		0	1	6	0	0	0	7	8	0	0	0	0	8	0	15
PER CENT		0.0	6.7	40.0	0.0	0.0	0.0	46.7	53.3	0.0	0.0	0.0	0.0	53.3	0.0	100.0
LUX	LUXEMBOURG															
02	CAPELLEN	-	1	1	-	-	-	2						0		2
05	MERSCH							0	1	-	-	-	-	1		1
06	CLERVAUX	-	-	-	1	-	-	1						0		1
08	REDANGE							0	1	-	-	-	-	1		1
11	ECHTERNACH							0	1	-	-	-	-	1		1
TOTAL		0	1	1	1	0	0	3	3	0	0	0	0	3	0	6
PER CENT		0.0	16.7	16.7	16.7	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	100.0
NET	NETHERLANDS															
01	DRENTHE							0	-	-	-	-	1	1		1
10	ZUID-HOLLAND							0	-	-	-	-	2	2		2
TOTAL		0	0	0	0	0	0	0	0	0	0	0	3	3	0	3

CZE CZECHOSLOVAKIA RABIES CASES 1.10.90 - 31.12.90

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
00	DISTRICT OF PRAGUE							0	1	-	-	-	-	1		1
01	CENTRAL BOHEMIA	-	2	-	-	-	-	2	24	1	1	1	-	27		29
02	SOUTH BOHEMIA	1	-	-	-	1	-	2	33	-	1	-	-	34		36
03	WEST BOHEMIA							0	21	-	2	-	-	23		23
04	NORTH BOHEMIA	-	3	-	-	-	-	3	95	-	-	-	-	95		98
05	EAST BOHEMIA	1	-	-	-	-	-	1	23	-	1	-	-	24		25
06	SOUTH MORAVIA							0	32	1	-	-	-	33		33
07	NORTH MORAVIA	-	2	-	-	3	-	5	14	-	-	-	-	14		19
0	CZECH SOCIALIST REPUBL	2	7	-	-	4	-	13	243	2	5	1	-	251		264
10	DISTRICT OF BRATISLAV							0	1	-	-	-	-	1		1
11	WEST SLOVAKIA	2	-	1	-	-	-	3	31	-	-	-	1	32		35
12	CENTRAL SLOVAKIA	-	3	-	-	-	-	3	21	-	1	-	-	22		25
13	EAST SLOVAKIA	1	1	-	-	-	-	2	24	1	1	-	-	26	1	29
1	SLOVAC SOCIALIST REPUB	3	4	1	-	-	-	8	77	1	2	-	1	81	1	90
TOTAL		5	11	1	0	4	0	21	320	3	7	1	1	332	1	354
PER CENT		1.4	3.1	0.3	0.0	1.1	0.0	5.9	90.4	0.8	2.0	0.3	0.3	93.8	0.3	100.0

DEU FEDERAL REPUBLIC OF GERMANY — RABIES CASES — 1.10.90 - 31.12.90

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	-	-	-	-	1	-	1						0		1
020	HAMBURG							0						0		0
031	BRAUNSCHWEIG	-	3	5	-	1	-	9	13	-	1	-	-	14		23
032	HANNOVER	-	-	2	-	-	-	2	7	-	-	1	-	8		10
033	LUENEBURG	-	-	2	-	-	-	2	14	2	1	-	-	17		19
034	WESER-EMS	1	-	-	-	-	-	1						0		1
040	BREMEN							0						0		0
051	DUESSELDORF							0						0		0
053	KOELN							0	-	-	-	1	-	1		1
055	MUENSTER							0						0		0
057	DETMOLD							0	3	-	-	-	-	3		3
059	ARNSBERG							0	1	-	-	-	-	1		1
064	DARMSTADT	-	3	-	-	-	-	3	44	-	1	6	-	51		54
065	GIESSEN	-	1	4	2	-	-	7	14	-	1	2	-	17		24
066	KASSEL	-	3	7	-	3	-	13	27	1	-	2	-	30		43
071	KOBLENZ	-	-	1	-	-	-	1	6	-	1	1	-	8		9
072	TRIER							0	3	-	-	-	-	3		3
073	RHEINHESSEN-PFALZ	2	6	5	-	1	-	14	72	1	1	2	-	76		90
081	STUTTGART	-	2	6	-	-	-	8	48	2	1	6	-	57		65
082	KARLSRUHE							0	16	-	2	1	-	19		19
083	FREIBURG	-	-	1	-	-	-	1						0		1
084	TUEBINGEN	-	-	-	1	3	-	4	15	-	1	1	-	17		21
091	OBERBAYERN	1	2	10	1	1	-	15	39	1	2	4	-	46		61
092	NIEDERBAYERN							0	1	-	-	-	-	1		1
093	OBERPFALZ							0	5	-	-	-	-	5		5

DEU 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		
094	OBERFRANKEN							0	7	-	-	-	-	7		7
095	MITTELFRANKEN	-	1	-	-	-	-	1	4	-	-	-	-	4		5
096	UNTERFRANKEN	-	1	-	-	-	-	1	6	-	1	-	-	7		8
097	SCHWABEN	-	-	3	1	1	-	5	31	1	1	2	-	35		40
100	SAARLAND	-	-	1	-	3	-	4	11	-	2	1	-	14		18
110	BERLIN (WEST)	-	4	-	-	2	1	7	32	-	2	1	-	35		42
111	BERLIN (OST)	2	4	-	-	2	-	8	13	-	1	2	1	17		25
121	ROSTOCK	1	2	4	-	1	-	8	23	1	1	1	-	26		34
122	SCHWERIN	3	7	7	1	-	-	18	28	-	4	1	1	34		52
123	NEUBRANDENBURG	3	4	3	-	-	-	10	32	-	3	1	-	36		46
131	POTSDAM	2	6	5	-	-	-	13	64	1	1	1	-	67		80
132	FRANKFURT	1	1	1	-	-	-	3	24	-	1	1	1	27		30
133	COTTBUS	2	5	4	-	1	-	12	20	-	2	1	-	23		35
141	MAGDEBURG	6	4	15	3	1	-	29	70	-	3	1	1	75		104
142	HALLE	5	4	4	-	-	-	13	30	1	3	5	1	40		53
151	ERFURT	3	2	5	-	2	-	12	72	-	2	5	1	80		92
152	GERA	-	-	-	-	11	-	11	25	-	2	6	-	33		44
153	SUHL	-	1	-	-	-	-	1	9	-	-	-	-	9		10
161	DRESDEN	6	2	10	-	26	-	44	41	-	1	4	-	46		90
162	LEIPZIG	3	7	7	2	10	-	29	34	1	3	-	-	38		67
163	CHEMNITZ	2	7	10	-	33	-	52	49	2	3	2	-	56		108
TOTAL		43	82	122	11	103	1	362	953	14	48	62	6	1083	0	1445
PER CENT		3.0	5.7	8.4	0.8	7.1	0.1	25.1	66.0	1.0	3.3	4.3	0.4	74.9	0.0	100.0

FRA FRANCE — RABIES CASES — 1.10.90 - 31.12.90

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	1	-	2	-	5	13	1	-	-	-	14		19
08	ARDENNES	3	-	1	-	4	-	8	30	2	-	-	-	32		40
10	AUBE	-	2	-	-	-	-	2	23	-	-	-	-	23		25
18	CHER							0	1	-	-	-	-	1		1
21	COTE D'OR	-	1	2	-	-	-	3	9	-	1	-	-	10		13
25	DOUBS	1	2	5	-	1	-	9	57	5	6	-	-	68		77
27	EURE	-	1	-	-	3	-	4	21	-	-	-	-	21		25
39	JURA	-	-	1	1	-	-	2	11	2	3	-	-	16		18
51	MARNE	-	-	2	-	-	-	2	29	-	1	-	-	30		32
52	MARNE (HAUTE)	-	1	1	1	5	-	8	9	-	-	-	-	9		17
54	MEURTHE ET MOSELLE	-	-	1	1	-	-	2	30	1	1	-	-	32		34
55	MEUSE	1	-	9	-	3	-	13	15	-	-	-	-	15		28
57	MOSELLE	-	1	3	-	-	-	4	27	-	-	1	-	28		32
58	NIEVRE	-	-	-	1	-	-	1	1	-	-	-	-	1		2
60	OISE	1	2	-	-	-	-	3	18	-	-	-	-	18		21
67	RHIN (BAS)	-	-	2	-	-	-	2	5	-	-	-	-	5		7
68	RHIN (HAUT)	-	2	-	-	1	-	3	12	2	-	1	-	15		18
69	RHONE							0	1	-	-	-	-	1		1
70	SAONE (HAUTE)	-	1	2	-	-	-	3	36	-	-	-	-	36		39
71	SAONE ET LOIRE							0	7	-	-	-	-	7		7
76	SEINE MARITIME	1	1	6	-	2	-	10	36	1	3	1	-	41		51
77	SEINE ET MARNE	1	1	-	-	-	-	2	22	-	-	-	-	22		24
78	YVELINES							0	2	-	-	-	-	2		2
80	SOMME	-	-	4	-	-	-	4	15	-	1	-	-	16		20
88	VOSGES	4	1	2	-	2	-	9	32	1	2	-	-	35		44
89	YONNE							0	14	1	-	-	-	15		15
95	VAL D'OISE	-	1	-	-	-	-	1	17	-	-	-	-	17		18
TOTAL		13	18	42	4	23	0	100	493	16	18	3	0	530	0	630
PER CENT		2.1	2.9	6.7	0.6	3.7	0.0	15.9	78.3	2.5	2.9	0.5	0.0	84.1	0.0	100.0

HUN HUNGARY — RABIES CASES — 1.10.90 - 31.12.90

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	2	-	-	-	-	2		2
02	BARANYA	5	3	1	-	-	-	9	17	-	-	-	-	17		26
03	BACS-KISKUN	1	5	5	-	-	-	11	16	-	-	1	-	17		28
04	BEKES	-	3	-	-	-	-	3	15	-	-	-	-	15		18
05	BORSOD-ABAUJ-ZEMPLEN	-	-	1	-	-	-	1	16	-	-	-	-	16		17
06	CSONGRAD	-	1	-	-	-	-	1	6	-	-	-	-	6		7
07	FEJER	2	1	2	-	1	-	6	25	-	-	-	-	25		31
08	GYOER-SOPRON	-	1	1	-	-	-	2	12	-	-	-	-	12		14
09	HAJDU-BIHAR	1	1	-	-	-	-	2	7	-	-	-	-	7		9
10	HEVES	-	1	-	-	-	-	1	9	-	-	-	-	9		10
11	KOMAROM	1	2	-	-	-	-	3	11	-	-	-	-	11		14
12	NOGRAD	-	3	-	-	-	-	3	4	-	-	-	-	4		7
13	PEST	-	4	-	1	-	-	5	29	-	-	-	-	29		34
14	SOMOGY	2	2	1	-	-	-	5	9	-	-	-	-	9		14
15	SZABOLCS-SZATMAR	-	2	-	-	-	-	2	8	-	-	-	-	8		10
16	SZOLNOK	1	-	1	-	-	-	2	8	-	-	-	-	8		10
17	TOLNA	3	3	1	-	-	-	7	15	-	-	-	-	15		22
18	VAS	1	1	1	-	-	-	3	26	-	-	-	-	26		29
19	VESZPREM							0	17	-	-	-	-	17		17
20	ZALA	-	2	-	-	-	-	2	12	-	-	-	-	12		14
TOTAL		17	35	14	1	1	0	68	264	0	0	1	0	265	0	333
PER CENT		5.1	10.5	4.2	0.3	0.3	0.0	20.4	79.3	0.0	0.0	0.3	0.0	79.6	0.0	100.0

POL POLAND — RABIES CASES — 1.10.90 - 31.12.90

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
01	WARSZAWA	-	1	-	-	-	-	1	4	-	2	-	-	6		7
05	BIALYSTOK	-	-	1	-	-	-	1	4	-	-	-	-	4		5
07	BIELSKO-BIALA	-	2	-	-	-	-	2	2	-	1	1	-	4		6
09	BYDGOSZCZ	-	1	3	-	-	-	4	10	-	1	-	9	20		24
11	CHELM	-	1	1	-	-	-	2	1	-	-	-	-	1		3
13	CIECHANOW							0	5	-	-	-	-	5		5
15	CZESTOCHOWA							0	2	-	-	-	-	2		2
17	ELBLAG	-	2	2	-	-	-	4	1	-	1	-	-	2		6
19	GDANSK	-	1	3	1	-	-	5	11	-	-	-	3	14		19
21	GORZOW	2	5	-	-	1	-	8	10	-	2	1	1	14		22
23	JELENIA GORA	-	2	-	-	-	-	2	15	-	-	-	-	15		17
25	KALISZ	2	1	-	-	-	-	3	12	-	1	1	-	14		17
27	KATOWICE							0	8	-	2	-	-	10		10
29	KIELCE	-	1	-	-	-	-	1	11	-	-	-	-	11		12
31	KONIN							0	2	-	-	-	-	2		2
33	KOSZALIN	7	-	2	2	-	-	11	23	-	2	4	4	33		44
35	KRAKOW	-	1	-	-	-	-	1	7	1	-	-	-	8		9
39	LEGNICA	-	1	-	-	-	-	1	13	-	-	1	-	14		15
41	LESZNO	-	2	-	-	-	-	2	7	-	2	4	-	13		15
45	LOMZA							0	1	-	-	-	-	1		1
47	LODZ	-	1	-	-	-	-	1						0		1
49	NOWY SACZ							0	2	-	-	-	-	2		2
51	OLSZTYN	1	3	6	-	-	-	10	1	1	-	-	11	13		23
53	OPOLE	-	-	1	-	-	-	1	27	-	-	-	-	27		28
55	OSTROLEKA	1	-	-	-	-	-	1	2	-	-	-	-	2		3

POL 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		
57 PILA	-	1	3	-	-	-	4	9	-	1	-	1	11		15
59 PIOTRKOW TRYB	-	1	-	-	-	-	1	11	-	-	-	-	11		12
61 PLOCK	-	1	-	-	-	-	1	2	-	-	-	-	2		3
63 POZNAN	1	5	-	-	-	-	6	30	-	1	4	1	36		42
67 RADOM							0	5	-	-	-	-	5		5
69 RZESZOW	1	-	-	-	-	-	1	8	-	-	-	1	9		10
71 SIEDLCE							0	23	-	-	-	-	23		23
73 SIERADZ	-	-	1	-	-	-	1	3	-	-	-	-	3		4
75 SKIERNIEWICE	1	1	-	-	-	-	2	5	-	-	-	-	5		7
77 SLUPSK	1	1	2	1	-	-	5	17	-	4	-	19	40		45
79 SUWALKI	-	1	1	-	-	-	2						0		2
81 SZCZECIN	2	1	2	-	-	-	5	15	-	-	1	3	19		24
83 TARNOBRZEG	1	-	-	-	-	-	1	5	-	-	-	-	5		6
85 TARNOW	-	1	-	-	-	-	1	10	-	1	-	-	11		12
87 TORUN	1	3	11	-	-	-	15	11	1	-	-	1	13		28
89 WALBRZYCH	-	4	1	-	1	-	6	18	-	-	1	-	19		25
91 WLOCLAWEK	1	-	-	-	-	-	1	1	-	-	-	-	1		2
93 WROCLAW	1	-	-	-	-	-	1	12	-	1	-	-	13		14
95 ZAMOSC	-	-	1	-	-	-	1	1	-	-	-	-	1		2
97 ZIELONA GORA	1	6	-	-	-	-	7	15	-	1	-	1	17		24
TOTAL	24	51	41	4	2	0	122	382	3	23	18	55	481	0	603
PER CENT	4.0	8.5	6.8	0.7	0.3	0.0	20.2	63.3	0.5	3.8	3.0	9.1	79.8	0.0	100.0

SSR UNION OF SOVIET SOCIALIST REPUBLICS RABIES CASES 1.10.90 - 31.12.90

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	RSFSR	43	24	204	2	3	-	276	-	-	-	-	58	58		334
02	MOLDAVIAN SSR	-	-	3	-	-	-	3	-	-	-	-	2	2		5
03	UKRAINIAN SSR	38	92	252	1	2	-	385	-	-	-	-	156	156		541
04	BYELORUSSIAN SSR	2	3	6	2	-	-	13	-	-	-	-	34	34		47
05	LITHUANIAN SSR	5	5	30	-	-	-	40	-	-	-	-	11	11		51
06	LATVIAN SSR	5	12	4	-	-	-	21	-	-	-	-	57	57		78
07	ESTONIAN SSR	5	1	6	-	2	-	14	-	-	-	-	84	84		98
TOTAL		98	137	505	5	7	0	752	0	0	0	0	402	402	0	1154
PER CENT		8.5	11.9	43.8	0.4	0.6	0.0	65.2	0.0	0.0	0.0	0.0	34.8	34.8	0.0	100.0

RABIES CASES 1.10.90 - 31.12.90

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		
ROM	ROMANIA															
02	ARAD	1	1	-	-	-	-	2						0		2
13	CLUJ	-	2	-	1	-	-	3	2	-	-	-	-	2		5
21	HARGHITA	1	-	-	-	-	-	1	1	-	-	-	-	1		2
24	IASI							0	-	-	-	-	2	2		2
25	MARAMURES	-	1	-	-	-	-	1						0		1
28	NEAMT	-	1	-	-	-	-	1						0		1
30	PRAHOVA							0	1	-	-	-	-	1		1
31	SATU-MARE							0	1	-	-	-	-	1		1
38	VASLUI	-	-	8	-	-	-	8						0		8
TOTAL		2	5	8	1	0	0	16	5	0	0	0	2	7	0	23
PER CENT		8.7	21.7	34.8	4.3	0.0	0.0	69.6	21.7	0.0	0.0	0.0	8.7	30.4	0.0	100.0
SWI	SWITZERLAND AND LIECHTENSTEIN															
06	BERN							0	1	-	-	-	-	1		1
12	NEUCHATEL							0	2	-	-	-	-	2		2
26	JURA	-	-	1	-	-	-	1	7	-	-	-	-	7		8
TOTAL		0	0	1	0	0	0	1	10	0	0	0	0	10	0	11
PER CENT		0.0	0.0	9.1	0.0	0.0	0.0	9.1	90.9	0.0	0.0	0.0	0.0	90.9	0.0	100.0
YUG	YUGOSLAVIA															
10	SR BOSNA I HERCEGOVIN	-	-	3	-	2	-	5	28	-	-	-	1	29		34
30	SR HRVATSKA	6	3	2	-	1	-	12	147	-	-	-	-	147		159
50	SR SLOVENIJA	2	2	-	-	-	-	4	50	-	1	-	-	51		55
61	SAP VOJVODINA	1	1	-	-	-	-	2	9	-	-	-	-	9		11
TOTAL		9	6	5	0	3	0	23	234	0	1	0	1	236	0	259
PER CENT		3.5	2.3	1.9	0.0	1.2	0.0	8.9	90.3	0.0	0.4	0.0	0.4	91.1	0.0	100.0

TUR TURKEY — RABIES CASES — 1.10.90 - 31.12.90

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		
001	ADANA	1	-	-	-	-	-	1						0		1
002	ADIYAMAN	-	-	1	-	-	-	1						0		1
005	AMASYA	-	-	1	-	-	-	1						0		1
006	ANKARA	1	2	1	-	-	-	4						0		4
010	BALIKESIR	3	-	-	-	-	-	3						0		3
014	BOLU	-	-	2	-	-	-	2						0		2
016	BURSA	15	-	1	-	-	-	16						0		16
017	CANAKKALE	2	-	1	-	-	-	3						0		3
021	DIYARBAKIR	2	-	2	-	-	-	4						0		4
023	ELAZIG	1	-	1	-	-	-	2						0		2
025	ERZURUM							0	-	-	-	-	1	1		1
026	ESKISEHIR	1	-	-	-	-	-	1						0		1
027	GAZIANTEP	4	1	-	-	-	-	5						0		5
031	HATAY	3	-	-	-	-	-	3						0		3
032	ISPARTA	-	1	-	-	-	-	1						0		1
034	ISTANBUL	13	1	-	-	-	-	14						0		14
035	IZMIR	2	-	2	-	1	-	5						0		5
037	KASTAMONU	3	-	-	-	-	-	3						0		3
038	KAYSERI	-	1	-	-	-	-	1						0		1
041	KOCAELI	3	-	-	-	-	-	3						0		3
042	KONYA	4	1	-	-	-	-	5						0		5
043	KUETAHYA	1	1	-	-	-	-	2						0		2
045	MANISA	8	-	-	-	-	-	8						0		8
046	KAHRAMAN MARAS	2	-	2	-	-	-	4						0		4
047	MARDIN	2	-	-	-	-	-	2						0		2
051	NIGDE	1	-	-	-	-	-	1						0		1
052	ORDU	3	-	1	-	-	-	4						0		4
054	SAKARYA	11	-	2	-	-	-	13						0		13
055	SAMSUN	1	-	-	-	-	-	1						0		1
060	TOKAT	-	-	-	1	-	-	1						0		1
063	URFA	4	-	-	-	-	-	4						0		4
066	YOZGAT	-	1	-	-	-	-	1						0		1
067	ZONGULDAK	2	-	5	-	-	-	7						0		7
TOTAL		93	9	22	1	1	0	126	0	0	0	0	1	1	0	127
PER CENT		73.2	7.1	17.3	0.8	0.8	0.0	99.2	0.0	0.0	0.0	0.0	0.8	0.8	0.0	100.0

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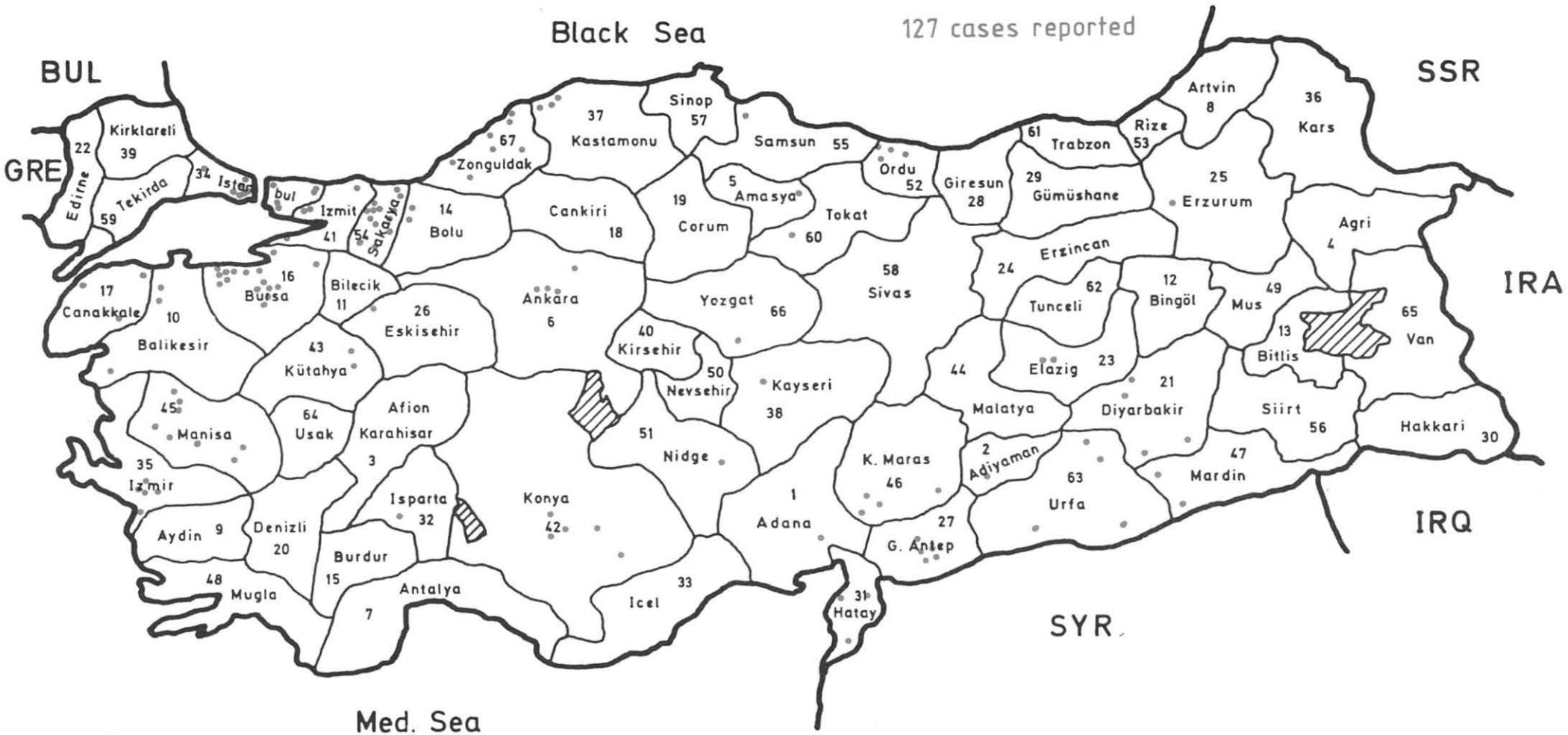
Tuebingen / DEU

Rabies Cases Turkey
4th Quarter 1990
127 cases reported



WHO Coll. Centre
Tuebingen / DEU

Rabies Cases Europe
4th Quarter 1990

5591 cases reported

3 bat rabies cases included

ICE
(rabies free)

NOR
(mainland rabies free)

SWE
(rabies free)

FIN
(0)

DEN
(0)

IRE
(rabies free)

UNK
(rabies free)

NET
(3)

BEL
(15)

(6)

(1445)
DEU

POL
(603)

SSR
(1154)

CZE
(354)

(628)
AUT

HUN
(333)

FRA
(630)

(11)
SWI

ITA
(0)

YUG
(259)

ROM
(23)

BUL
(rabies free)

POR
(rabies free)

SPA
(0)

ALB
(no data)

GRE
(rabies free)

TUR
(127)

0 50 100 km

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