

RABIES BULLETIN EUROPE

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The Rabies Bulletin Europe has been compiled and edited by the

WHO Collaborating Centre for Rabies Surveillance & Research

at the
Federal Research Centre for Virus Diseases of Animals
Postfach (P.O.Box) 1149
D-7400 Tübingen
Federal Republic of Germany

Dr. L.G. Schneider, Director
Dr. W.W. Müller, Ass. Director
K.-P. Hohnsbeen, Data Processing

Phone (0)-7071-603-332
Fax (0)-7071-603-201
Telex 17-7071-31

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1. Introduction

This BULLETIN describes the reported rabies cases in Europe for the **Fourth Quarter 1991**, 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 human rabies case despite appropriate post-exposure therapy is reported. In an article under 4.2 an expanding outbreak developed more recently in Oman and the United Arab Emirates is described.

The rabies case data are tabulated for the fourth quarter

1991, in SECTION 5.

SECTION 6 lists the official contributors to the BULLETIN.

The geographical distribution of rabies cases in Europe for the fourth quarter 1991 is shown on maps of Europe and Turkey in the ANNEX.

2. Summary of Rabies in Europe

The following summarizes rabies in Europe, fourth quarter 1991, and comments on rabies developments and trends in 1991.

Fourth Quarter 1991

During "*This Quarter*", 3536 rabies cases were reported in Europe. Of these were 2581 in wild animals (73% of total) and 955 in domestic animals.

Of the cases in wild animals 2240 were foxes, 64 raccoon dogs, 42 badgers, 59 stone martens, 14 pine martens, 10 polecats, 2 ferrets, 1 raccoon, 1 other fox species, 89 roe deer, 1 red deer, 3 fallow

deer, 3 wild boars, 1 ibex, 1 bat, 4 house mice, 46 other wild animals. Of the 955 cases in domestic animals 182 were dogs (of which 58 were reported from Turkey, a country with dog-mediated rabies), 218 cats, 437 cattle, 15 horses, 1 pig, 94 sheep, 6 goats, 1 cat living wild, 1 other domesticated animal.

These data are presented in TABLE 1/SECTION 5. TABLE 4/SECTION 5 lists other animal species less frequently involved in rabies and not mentioned by name in TABLE 1.

There was no human case reported in "*This Quarter*".

Only one bat rabies case was registered in Germany.

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

There were no cases reported during "*This Quarter*" from Svalbard of Norway and the Netherlands, but the last indigenously acquired case was recorded less than two years ago.

Developments and Trends in 1991

Summary:

Rabies case data summarizing the year 1991 can be found in TABLES 2, 3 and 5 of SECTION 5.

The number of rabies cases in 1991 totals 16479. The four quarters compare as follows:

1st quarter	- 5711 cases
2nd quarter	- 3665 cases
3rd quarter	- 3567 cases
4th quarter	- 3536 cases

Fox-mediated rabies:

The wildlife rabies epizootic of central Europe has the red fox as reservoir and this is also the animal that passes the infection frequently on to other animals (wild and domestic). TABLE 2 with annual figures shows that the fox participates with 64.5% of all rabies cases in Europe as animal No. 1, in spite of a large unknown figure. 10% of other

rabid wild animals share the same habitat with the fox. Cattle participate with 8.2% of the total as animal No. 2. And here more rabid cattle are registered during 3rd and 4th quarters of the year when most of these animals are kept outside.

After the year 1989 with a high rabies incidence in Europe (24373 rabies cases), a reduction of cases was noticed in 1990 (21044 cases) and 1991 (16479 cases). Reasons are the effect of a diminished fox population by the fatal disease itself and on the other hand the efforts of many countries to eradicate rabies by oral vaccination.

One country, Italy, with no rabies in 1990 was reinfected at the Slovenian border late in 1991. Otherwise, only three countries had an increase of cases compared to the previous year: Poland (from 2045 to 2287), Switzerland (from 25 to 105) and Romania (from 49 to 54).

Dog-mediated rabies:

Unjustifiably, Turkey is often counted among the other European countries. However, it is of a different rabies pattern altogether. In 1991 it accounted only for 2.6% of the total rabies cases in Europe. Of all annual cases, 98.1% were in domestic animals, 1.9% in wild animals.

Turkey has continually diminishing annual rabies figures from 1981 with 2260 reported cases to 1991 with 427 cases.

Bat rabies:

There were 15 cases of bat rabies reported in 1991, 12 cases in the Netherlands and 3 cases in Germany. Since 1987 (142 cases) diminishing annual figures are registered in Europe.

Human rabies:

Only one imported human rabies case was reported in 1991. Exposure happened in Mexico and the death occurred in France.

3. Rabies in Individual Countries

3.1 Austria AUT

by Helmut Schnabl

During "*This Quarter*", 533 animal rabies cases were registered of 6056 samples examined. There has been an increase of 25 cases (4.9%) in comparison with the previous quarter (508).

Of 486 wild animals affected (91.2% of total) 427 were foxes, 20 badgers, 19 martens, 1 pole cat, 18 deer and 1 ibex. Of 47 domestic animals 2 were dogs, 6 cats, 27 cattle, 11 sheep and 1 horse.

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

Burgenland: 9 cases (1.7% of total) in the Bezirke Eisenstadt-Umgebung, Neusiedl/See, Güssing, Mattersburg and Oberpullendorf.

Salzburg: 27 cases (5.1%) in the Bezirke Salzburg-Umgebung, Hallein and Tamsweg.

Tirol: 11 cases (2.1%) in the Bezirke Landeck and Reutte.

Oberösterreich: 19 cases (3.6%) in the Bezirke Steyr Land, Perg, Freistadt, Gmunden and Kirchdorf/Krems.

Niederösterreich: 402 cases (75.4%) in the Bezirke Amstetten, Baden, Bruck/Leitha,

Gänsersdorf,, Hollabrunn, Horn, Korneuburg, Lilienfeld, Melk, Mistelbach, Neunkirchen, St.Pölten, Scheibbs, Waidhofen/Thaya and Wiener Neustadt.

Steiermark: 62 cases (11.6%) in the Bezirke Feldbach, Graz-Umgebung, Liezen and Murau.

Vorarlberg: 2 cases in the Bezirk Bregenz

Wien: 1 case

Kärnten: no rabies case

Summary 1991

In 1991 2460 rabies cases were registered, 54 cases less than during the previous year.

3.2 Belgium BEL

by J. Tambeur

4th Quarter 1991

9 rabies cases were confirmed during "*This Quarter*", 5 foxes and 4 cattle in 9 localities of the provinces of Luxembourg and Namur. There was a decrease of cases by 40% compared to the same quarter 1990. All cases occurred at less than 10 km distance to the French border.

Summary 1991

A total of 29 rabies

cases were confirmed in 1991 against 144 cases in 1990 amounting to an 80% reduction. Oral vaccination of foxes was continued during the year in all infected areas of the country. Only rabies recombinant vaccine was used. Twice 150 000 vaccine baits were distributed by plane at a rate of 15 vaccine baits per km² during campaigns in spring and autumn.

Vaccination of foxes is going to be organized again in 1992, and will be continued for as long as the disease remains at a distant of less than 50 km from the state border.

3.3 Bulgaria BUL

The country remained rabies-free.

3.4 Czechoslovakia CZE

by Oldrich Matouch

4th Quarter 1991

During "*This Quarter*", there were 248 rabies cases diagnosed in the Czechoslovak territory. Of these, 215 cases were reported in wild animals (86.7%) and 33 in domestic animals (13.3%). Of the wild animals 201 were foxes, 2 badgers, 6 martens, 1 polecat, 4 roe deer and 1 rac-

coon dog. Of the domestic animals 7 were dogs, 17 cats and 9 cattle. There was a decrease of 106 cases compared to the same period of 1990. The regions most affected during "*This Quarter*" were East Bohemia (45 cases) followed by Central Bohemia and South Moravia (39 each) and North Bohemia (34). All other regions reported less than 21 cases.

There was no case of human rabies.

Oral Immunization

In autumn 1991 the programme of oral immunization of foxes against rabies was continued. 13 districts of West and South Bohemia were treated. Furthermore, the vaccination was extended into districts with a border adjacent to eastern Germany and into two districts of Central Bohemia. The new area covers 8810 km². Altogether 350.000 Tübingen vaccine baits were distributed in an area of 23.330 km².

The epidemiological rabies situation in areas of vaccination has improved markedly since the beginning of the programme in 1989.

Summary 1991

The total number of cases for 1991 amounted to 1359, 26 cases less than in 1990. The disease was diagnosed in 1207 foxes, 10 badgers, 34 martens, 2 polecats, 11 roe deer, 1 red deer, 1 moufflon and 1 raccoon dog. In domestic animals rabies was diagnosed in 23 dogs, 48 cats, 11 cattle, 5

sheep, 3 domestic pigs and 2 rabbits.

3.5 Denmark DEN

by Eric Stougaard

The country remained rabies-free.

3.6 Germany, DEU Federal Republic

by Winfried W. Müller
and Thomas Müller

A total of 706 rabies cases was reported during "*This Quarter*", 73 cases less than during the previous one. In comparison with the 4th quarter 1991 (1445 cases) there was a reduction of cases by 51%.

Of the total number of cases 76.8% were in wild animals (470 foxes, 9 badgers, 22 stone martens, 1 polecat, 2 ferrets, 1 raccoon, 1 other fox species, 30 roe deer, 1 red deer, 3 fallow deer, 1 wild boar, 1 bat) and 23.2% in domestic animals (20 dogs, 50 cats, 5 horses, 68 cattle, 21 sheep).

The one bat case, *Noc-tulus noctula*, occurred near Frankfurt/Oder. The last case of a bat of this species in Europe was reported in 1954 in Yugoslavia.

There was a concentration of cases especially in four states: Niedersachsen (department Lüneburg), Bayern (department Schwaben), Meck-

lenburg-Vorpommern (eastern part) and Brandenburg (eastern part).

Summary 1991

The annual total amounted to 3599 rabies cases. Considering the present area of the united Germany there was a reduction of cases from 5572 in 1990 to 3599 in 1991 (35.4% decrease). The decrease can partly be accounted for a rabies peak in the five new eastern federal states in 1989 (3596 cases) and in 1990 (3433 cases) followed by a population reduction of foxes due to the fatal disease, and generally for the efforts in Germany to eradicate rabies by oral vaccination of foxes against rabies.

Oral vaccination was practiced in spring, autumn and partly in summer campaigns according to financial resources and specific plans of the old federal states. Two thirds of the area of the five new eastern federal states were vaccinated in spring and the total area was covered in autumn (2.050.000 vaccine baits in an area of 108.000 km²).

Only three bat rabies cases were diagnosed in 1991 compared to 17 in 1990. The three cases occurred in Berlin, Frankfurt/Oder and Jänschwalde. There were no reports in the coastal areas of Niedersachsen and Schleswig-Holstein where most of the bat cases were diagnosed previously.

* * *

3.7 Finland FIN

by Bengt Westerling

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

Surveillance of 3rd and 4th Quarters of 1991

During the 3rd and 4th quarters of 1991 a total of 127 animals were examined for rabies with immunofluorescence on brain tissue, involving 6 dogs, 3 cats, 42 foxes, 63 raccoon dogs, 2 badgers, 1 wolf, 1 lynx and 10 specimens of other species.

Oral Vaccination 1991

In an attempt to prevent the reintroduction of rabies from Russia, 80,000 Tübingen baits were distributed by air in August-September on a 20-25 km deep and 250 km long zone, constituting a land area of 4000 km² along the south-eastern national border.

Summary 1991

Since the last case of rabies was recorded on February 16, 1989, the country was declared rabies free at the end of February 1991. Regardless of this, the vaccination against rabies of hunting dogs and dogs put on show will be kept compulsory.

During 1991 a total of 505 animals, among them 20 dogs, 20 cats, 129 foxes, 277 raccoon dogs, 11 badgers and 5 bats were examined for rabies with negative results.

3.8 France FRA

482 rabies cases were registered during "This Quarter", 34 cases less than during the previous quarter. 348 cases were diagnosed in foxes (72.2% of total), 23 in other wild animals, and 111 cases in domestic animals (7 dogs, 27 cats, 38 cattle, 5 horses, 30 sheep, 3 goats and 1 cat living wild).

The departments (départements) registering the greatest number of cases were Meurthe et Moselle, Rhin-Haut and Vosges with 93, 55 and 51 cases respectively.

Summary 1991

The total of rabies cases in 1991 amounted to 2165 animal cases and 1 human case imported from Mexico. The rabies incidence diminished by 27.4% compared to 1990. But not only the case incidence decreased in 1991, the area infected decreased as well.

It was observed that in areas where oral vaccination of foxes against rabies was practiced rabies cases decreased substantially, but in areas without oral vaccination rabies cases increased slightly.

3.9 Greece GRE

by A. Zambounis

The country remained rabies-free.

3.10 Hungary HUN

by Balint Kerekes

There were 232 rabies cases registered during "This Quarter", 30% less than during the same time span last year (4/90 = 333 cases). Comparing these two quarters in regard to important animals species involved in rabies, there were 79.4% of the total cases foxes (79.6% in 4/90) and 13.4% cats (10.5% in 4/90).

The provinces (Komitate) mostly affected by the disease were Fejer (28 cases), Pest (19), Baranya (18) and Vas (18).

Summary 1991

The total number of rabies cases amounted to 880 in 1991, 212 cases less (a 19.4% decrease) than in 1990.

1,651,556 dogs were vaccinated against rabies in 1991, 5.2% more compared to the previous year.

3.11 Iceland ICE

The country remained rabies-free.

3.12 Ireland IRE

The country remained rabies-free.

3.13 Italy ITA

by Santino Proserpi

4th Quarter 1991

During "*This Quarter*", 3 cases of fox rabies were diagnosed (1 in October, 2 in November); all in the province of Trieste, bordering with Slovenia.

Surveillance and Legislation in 1991

In 1991, surveillance was carried out in all Alpine Regions with the following results:

1. 349 wild animals (320 foxes) and 156 domestic animals were examined in Piemonte, Valle d'Aosta and Liguria; all of them were negative.
2. 845 wild animals (786 foxes) and 217 domestic animals were examined in Lombardia; all of them were negative.
3. 2848 wild animals (2494 foxes) and 283 domestic animals were examined in Trentino Alto Adige, Veneto and Friuli Venezia Giulia; 4 foxes were positive, all in the province of Trieste.

On 10th May 1991, an Ordinance of the Ministry of Health made the vaccination of dogs, cattle, sheep, goats and equines of the Friuli Venezia Giulia Region compulsory. ERA vaccine is to be used. The

Health Authorities of Piemonte, Valle d'Aosta, Liguria, Lombardia, Veneto and Trentino Alto Adige will consider compulsory vaccination as soon as their borders are threatened.

3.14 Luxembourg LUX

by Joseph Kremer

4th Quarter 1991

During "*This Quarter*", the rabies situation in the Grand Duchy of Luxembourg deteriorated. A total of 8 cases was registered, exactly half of the total cases of in 1991. Thus, intensified control efforts need to be continued.

The Veterinary Department of Luxembourg plans two oral vaccination campaigns for 1992, in the middle of April and at the end of September. The distribution of vaccine baits is to be carried out by helicopter.

During "*This Quarter*", 6 foxes and 1 stone marten were examined for rabies, in all cases with negative results.

Summary 1991

The 16 cases in 1991 occurred in the following animals: 8 foxes, 7 cattle, 1 horse.

There was a total of 64 cases in 1990.

3.15 Netherlands NET

by J.H.M. Nieuwenhuijs

During "*This Quar-*

ter", 160 animals were investigated for rabies; none of those was diagnosed positive.

Summary 1991

In 1991, a total of 857 animals was investigated (535 adult foxes, 40 young foxes, 12 dogs, 9 cats, 3 cows, 1 sheep, 48 badgers, 2 martens, 2 polecats, 1 mouseweasel, 2 rats, 1 muskrat, 3 squirrels and 198 bats).

Of the investigated bats, 194 were wild animals, four originated from the Blijdorp Zoo in Rotterdam, where approximately 250 bats of the species *Rousettus aegyptiacus* are held in an artificial cave.

All rabies positive animals (12) were bats that belonged to the species *Eptesicus serotinus*.

The prevalence rate of rabid bats has not changed significantly in comparison with those rates in the years before. Of all investigated bat samples 6.4% were found rabies positive.

As in 1990 and the years before, all rabid bats were located in the northern provinces of The Netherlands.

3.16 Norway NOR

by Gudbrand Bakken

No case of rabies has been reported in Svalbard during "*This Quarter*".

The mainland of Norway remained rabies-free.

3.17 Poland POL

by Jan Kolacz

4th Quarter 1991

A total of 759 rabies cases in animals was reported in Poland during "*This Quarter*". Of these were 603 (79.4% of total) in wild animals (483 foxes, 63 raccoon dogs, 6 badgers, 13 pine martens, 6 polecats, 30 roe deer, 2 wild boars) and 156 in domestic animals (34 dogs, 51 cats, 66 cattle, 3 sheep, 1 goat, 1 pig).

The most affected provinces of the country were Poznan and Gdansk with 59 and 49 cases respectively. All other provinces recorded less than 38 cases.

Summary 1991

In 1991 a total of 2287 rabies cases was diagnosed in animals. This is an increase by 11.8% in comparison to 1990 (2045 cases) and by 20.9% to 1989 (1891 cases)

The disease has still been predominant in wild life (81.5% of total cases). Among 1864 rabid wild animals 1513 were foxes (66.2% of total cases), 170 raccoon dogs (7.4%), 94 deer (4.1%), 44 martens (1.9%), 17 badgers (0.7%), 15 polecats (0.7%) 6 wild boars, 2 squirrels, 1 ferret, 1 hedgehog and 1 rat.

Among 423 rabid domestic animals (18.5% of total cases) 142 were dogs (6.2% of total cases), 138 cats (6%), 137 cattle (6%), 3 sheep, a horse, a goat and a pig.

Only one province from a total of 49, Lublin, was rabies free in 1991. Provinces with a high incidence rate of the disease in 1991 were: Gdansk (7% of total cases recorded in the country), Poznan (6.2%), Koszalin (6%), Slupsk (5%), Gorzów (4.3%), Opole (4.3%), Szczecin (4.3%), Bydgoszcz (4.2%) and Walbrzych (3.9%).

Rabid foxes were reported from 46 provinces with the highest incidence rate in Gdansk (7.7% of rabies cases recorded among foxes in the country), Poznan (6%) and Opole (5.3%); and rabid raccoon dogs respectively from 23 provinces, namely: Suwalki (12.9% of cases recorded among raccoon dogs in the country), Olsztyn (9.4%), Gdansk (9.4%), Slupsk (9.4%) and Bialystok (8.8%).

Comparing the development of single animal species involved in the rabies epizootic in 1990 and 1991, it can be noticed there was an increase of incidence rate among dogs (by 52.6%), raccoon dogs (by 18%) and foxes (by 10.1%); and a decrease among cats (by 6.5%).

The animals mostly involved in the epizootic were the red fox (66.2% of all cases in 1991) and the raccoon dog (7.4%).

3.18 Portugal POR

The country remained rabies-free.

3.19 Romania ROM

by Horatiu Olaru

During "*This Quarter*", 20 rabies cases were diagnosed. 19 cases were in domestic animals (4 dogs, 4 cats, 4 cattle and 7 sheep) and one was in a fox.

Summary 1991

The annual total amounted to 54 cases, 5 cases more than in the previous year. Out of 41 provinces in the country, 18 were infected. Three adjacent provinces (Maramures, Satu-Mare and Salaj) in the north-west of the country recorded 31 cases (57.4% of total), all other infected provinces reported between one and three.

3.20 Spain SPA

by T. Maté Maté

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

There were four canine rabies cases in the Spanish territories of North Africa (Ceuta and Melilla).

3.21 European Part of the Union of the Soviet Socialist Republics* SSR

by G.F. Koromyslov

During "*This Quarter*", 317 rabies cases were

reported from the European part of Russia. Of these were 35 dogs, 16 cats, 197 cattle, 2 horses, 20 small ruminants, 1 other domestic animal and 46 wild animals not specified.

In the former European part of the RSFSR and at the end of the year in Russia a total of 1371 animal rabies cases were reported in 1991, 1236 in domestic and 135 in wild animals.

* The caption European Part of the Union of Soviet Socialist Republics was kept for this Quarter as the name changed to Commonwealth of Independent States only in late December 1991.

3.22 Sweden SWE

The country remained rabies-free.

3.23 Switzerland SWI

by Andreas Kappeler

4th Quarter 1991

During "This Quarter", the Swiss Rabies Center received 537 animals for examination. 27 (5.0%) of these were positive for rabies. In the previous quarter 24 cases had been recorded (4.5% of 536), whereas 11 of 1148 (1.0%) were positive in the fourth quarter of 1990.

23 cases were observed in foxes, 1 each in a badger, a stone marten, a cat and a bovine. All cases were recorded within less than 20 km from the French border and inside

the area treated by oral vaccination campaigns. For the first time since June 1990 two rabid foxes appeared in the neighbourhood of Basel. Both were less than 2 km from an area in France, which has been reinvaded by rabies during 1991 and where only a small part along the Swiss border has been vaccinated so far.

5 bats (1 *Myotis daubentonii*, 1 *Myotis myotis*, 1 *Pipistrellus nathusii*, 1 *Pipistrellus pipistrellus*, 1 *Plecotus spec.*) examined with immunofluorescence revealed no rabies virus. The total number of bats examined in 1991 is 31 (see quarterly reports for species lists). Switzerland has not experienced any rabies cases in bats yet.

One person was bitten by a proven rabid cat in the 4th quarter of 1991. The number of people treated for non-bite exposures is not recorded.

Summary 1991

With a total of 105 rabid animals (4.3% of 2434), Switzerland experienced an increase in the number of cases compared to the previous year (25 cases, 0.9% of 2795) for the first time since 1979. The current outbreak is restricted to an area of little more than 1000 km², in the immediate vicinity to the French border. The first cases were already recorded in autumn 1990, when the neighbouring area in France -while still heavily infected- was vaccinated for the first time. The Swiss vaccination campaign in spring 1991 could not

stop the spread of the disease. This is not surprising, as only a small percentage of juvenile foxes can be reached with campaigns in spring. In fact, juvenile foxes accounted for about two thirds of the rabies cases recorded from August to December 1991. This is a significantly higher proportion than was usually observed in non-vaccinated areas. Only during the autumn campaign could the majority of juvenile foxes of the 1991 generation have access to baits. In 1991 Switzerland did no longer use chicken head baits with SAD Berne vaccine, but changed to the French VIRBAC bait, containing live attenuated SAG1 strain. We also increased the average bait density by 25% from 12.4 to 15.5/km². As mentioned above, most juvenile foxes came into contact with the new bait only during the autumn campaign. Therefore it is too early to make any comments on the efficacy of the new baiting system.

3.24 Turkey TUR

During "This Quarter", 89 rabies cases were reported from Turkey. Of these 85 were in domestic animals (58 dogs, 13 cats, 1 horse, 9 cattle, 2 sheep, 2 goats) and 4 in house mice.

Summary 1991

The annual figure for 1991 amounted to 427 cases, 156 less than during the previous year.

Turkey stands for a country with typical urban or dog-mediated rabies: 98.1% of all rabies diagnosed animals in 1991 were domestic animals, 73.8% of the total were dogs.

The four provinces mostly affected by rabies in 1991 were Bursa (44 cases), Istanbul and Sakarya (36 cases each) and Izmir (34 cases). All other infected provinces reported less than 22 cases.

Turkey has continued diminishing annual figures since 1981 with 2260 reported cases to 1991 with 427.

3.25 United Kingdom UNK

by P.J. Thomas

4th Quarter 19891

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

Surveillance 1991

Reports of suspect rabies outside quarantine were investigated on 25 occasions during 1991, involving 10 dogs, 10 cats, and 6 foxes. Biting, scratching or licking of humans was reported in 9 cases. Ministry of Agriculture, Fisheries and Food (MAFF) veterinary staff resolved 8 incidents at the initial clinical investigation and a further one after isolation in a MAFF secure unit. In 17 cases it was necessary to submit material to the laboratory, in every case with negative results.

93 dogs and cats died whilst in quarantine and in every case material was submitted to the Central Veterinary Laboratory, Weybridge for examination, all with negative results.

257 bats were examined for rabies during 1991, all

with negative results.

No cases of human rabies occurred during 1991.

3.26 Yugoslavia YUG

99 cases of rabies were reported from Yugoslavia during "*This Quarter*". Of these were 93 in foxes and two each in dogs, cats and cattle.

41 cases were reported from Croatia, 40 from Slovenia, two from Serbia near Belgrade and 16 from Wojwodina.

Summary 1991

The total of 1991 amounted to 669 cases.

In Slovenia oral vaccination of foxes against rabies, started in 1988, has been continued in a spring and autumn campaign in 1991 with good results.

4. MISCELLANEOUS ARTICLES

4.1 Fatal Rabies Encephalitis Despite Appropriate Post-Exposure Therapy With Human Diploid Cell Rabies Vaccine and Purified Horse Serum

On May 1st, 1991, in Istanbul, a five-year old girl was severely bitten by a rabid dog on the head and the neck. She was immediately taken to a local hospital where she was administered human diploid

cell rabies vaccine (HDCV), 1 ml, in the deltoid muscle, and 3.5 ml purified horse serum in the other deltoid muscle and the vicinity of the wound. Subsequent i.m. doses of HDCV (1 ml) were given on days 3, 7,

and 14.

On May 17th, the patient, who developed fever, lethargy, hallucinations, weariness, and loss of strength in lower extremities, was admitted to the hospital. She ex-

hibited no aerophobia and hydrophobia, but developed progressive paralysis in all extremities, followed by incontinence of urine and feces, and subsequent paralytic ileus. Lumbar punctures yielded an increased pressure: a WBC of 100/cu mm (100% lymphocytes), a protein content of 83 mg/dl with a normal glucose level.

The titer of antirabies antibody (RAB), in the serum was 6240 (EIA) on May 28th and was 6210 in the Cerebrospinal fluid (CSF) on June 8th.

HSV Type 1 antibodies (IgM and IgG) were found to be negative in the serum and CSF.

The patient died on June 14th. The brain tissue samples obtained through a systemic necropsy and stained with Seller's and Malferrari-Massignani methods yielded Negri bodies, the fluorescence antibody test was positive.

All clinical, pathological and laboratory findings suggested a rabies encephalitis. Although high titers of RAB in serum may be due to an active

infection and/or vaccination with HDCV, high RAB titers in CSF is a significant diagnostic feature.

The paralytic course of the disease, and the considerable length of time between the emergence of symptoms and death can be attributed to the post exposure vaccination.

(Communicated by S. Özyürek, A. Akgül, F. Cetinkaya, E. Karagül, V. Dünbar, Ü. Ince, Haydarpaşa Numune Hospital and A. Gürel, Pendik Central Animal Diseases Research Institute, Istanbul, Turkey. - Handed in for publication).

4.2 Wildlife Rabies in Oman and the United Arab Emirates

The following data were presented during the Regional Consultation on Organization and Management of National Veterinary Public Health Programmes, held in Cyprus on 9-11 December 1991.

Oman. With the exception of 2 cases reported among expatriate workers bitten by dogs outside Oman in 1983 and 1984, rabies was confirmed in Oman for the first time early in 1990 when a schoolboy was bitten by a fox and died 3 weeks later. Since then, more than 120 cases have been reported in animals, with no further human deaths. The fox appears to be the main rabies host species (80% of cases). The disease has been reported sporadically in other wildlife species and feral dogs.

The first rabies outbreak was identified at Yangul, north of Ibri, in the northern part of Oman. Within the following 18 months, the disease spread north, east and south westward to most of the country. Reports of foxes biting human beings were extremely rare prior to 1990. During that year, more than 60 persons were exposed to fox bites. During the first 9 months of 1991, about 140 such occurrences were reported to the health services.

Control of rabies in wild animals is based on a reduction of fox populations. Trapping of foxes has been started on an experimental basis. Shooting of feral dogs and cats was carried out before rabies was officially reported and is being continued.

United Arab Emirates. Rabies was diagnosed in the United Arab Emirates for the first time in October 1990. From October 1990 to July 1991, a total of 17 cases was confirmed in the laboratory in 2 of the 7 Emirates, Abu Dhabi and Umm al Qaiwain. Most of these cases were diagnosed in domestic animals (camels - 9, sheep and goats - 5) and the remaining 3 in foxes. The majority of these cases (13 cases including the 3 foxes) were reported in Al Ain District (Abu Dhabi Emirate). This district, which represents 25% of the territory of the United Arab Emirates, is located at the border with Oman. About half the livestock population of the United Arab Emirates totalling slightly more than 1 million heads altogether (sheep and goats, cattle, as well

as camels) is found in this area. The Al Ain District has the largest animal disease reporting network with two-thirds of the veterinary staff of the Emirates working there.

WER - Editorial Note: Rabies was unknown until 1990 in both Oman and the United Arab Emirates, but was reported in other countries of the Arab Peninsula (Saudi Arabia and Yemen). In Saudi Arabia, rabies is reported regularly, with 27% (in 1989) to 57% (in 1987) of the diagnosed cases occurring in foxes. Although little is known on the ecology of foxes in this part of the world, 2 species are known to be present: the red fox (*Vulpes Vulpes*) and the sand fox (*Vulpes ruepelli*).

In Oman, the red fox is reported to be living in the environs of densely populated human settlements, i.e., in the northern part of Oman, the periphery of the capital city (Muscat) and the south-east

coast. The sand fox seems to be more common in the central parts of the country. Although unlikely, sporadic cases of rabies might have occurred in these countries and remained unrecognized because of the lack of diagnosis in humans and animals and also because of a policy promoting systematic immunization of humans bitten by animals.

The most likely hypothesis is that the growth of the human population (the human population of Al Ain District in the United Arab Emirates increased five-fold in 15 years) as well as of livestock in this part of the world favoured a parallel increase of the fox population as more food and water as well as shelter were becoming available. An exogenous rabies virus could then have been introduced and spread in this susceptible population.

It is worth noting that, contrary to what is observed in other countries in the WHO

Region of the Eastern Mediterranean, dogs are not central to rabies transmission in these 2 countries.

Oral vaccination of foxes was considered when the infected zone in Oman was still relatively small (40.000 km² in December 1990). However, although the oral vaccines and baits currently available in Europe may have been appropriate to vaccinate the main host species (the red fox), initiation of oral vaccination trials in new areas require that the safety of the vaccine strain be first tested in the most common non-target wildlife species living in this zone. Basic studies on the population density and ecology of the host species are also needed. These studies will be useful to predict whether the infection may disappear or maintain itself within this area.

(Taken from: Weekly Epidemiological Record (WER), Vol. 67/No.10, 1992, prepared by the World Health Organization, Geneva, Switzerland)

TABLE 1

EUR		EUROPE		4/91		RABIES CASES							1.10.91 - 31.12.91			
LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
AUT	AUSTRIA	2	6	27	1	11	-	47	427	20	20	18	1	486	533	
BEL	BELGIUM	-	-	4	-	-	-	4	5	-	-	-	-	5	9	
BUL	BULGARIA	*						0						0	0	
CZE	CZECHOSLOVAKIA	7	17	9	-	-	-	33	201	2	7	4	1	215	248	
DEN	DENMARK	*						0						0	0	
DEU	FED.REP. OF GERMANY	20	50	68	5	21	-	164	470	9	25	34	4	542	706	
FIN	FINLAND	*						0						0	0	
FRA	FRANCE	7	27	38	5	33	1	111	348	4	13	6	-	371	482	
GRE	GREECE	*						0						0	0	
HUN	HUNGARY	9	31	7	-	-	-	47	184	-	-	1	-	185	232	
ICE	ICELAND	*						0						0	0	
IRE	IRELAND	*						0						0	0	
ITA	ITALY							0	3	-	-	-	-	3	3	
LUX	LUXEMBOURG	-	-	5	1	-	-	6	2	-	-	-	-	2	8	
NET	NETHERLANDS	*						0						0	0	
NOR	NORWAY	*						0						0	0	
POL	POLAND	34	51	66	-	4	1	156	483	6	19	30	65	603	759	
POR	PORTUGAL	*						0						0	0	
ROM	ROMANIA	4	4	4	-	7	-	19	1	-	-	-	-	1	20	
SPA	SPAIN	1)						4						0	4	
SSR	SOVIET SOCIAL.REP.	**	35	16	197	2	20	271	-	-	-	-	46	46	317	
SWE	SWEDEN	*						0						0	0	
SWI	SWITZERLAND + LIECHT		1	1	-	-	-	2	23	1	1	-	-	25	27	
TUR	TURKEY	58	13	9	1	4	-	85	-	-	-	-	4	4	89	
UNK	UNITED KINGDOM	*						0						0	0	
YUG	YUGOSLAVIA	2	2	2	-	-	-	6	93	-	-	-	-	93	99	
TOTAL		182	218	437	15	100	3	955	2240	42	85	93	121	2581	0	3536
PER CENT		5.1	6.2	12.4	0.4	2.8	0.1	27.0	63.3	1.2	2.4	2.6	3.4	73.0	0.0	100.0

* NO CASES ** SEE TEXT UNDER 3.21 1) NORTH AFRICA

TABLE 2

EUR		EUROPE		1-4/91		RABIES CASES								1. 1.91 - 31.12.91			
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	8	27	48	3	38	-	124	1953	141	108	125	9	2336		2460	
BEL	BELGIUM	-	1	6	3	-	-	10	19	-	-	-	-	19		29	
BUL	BULGARIA	*						0						0		0	
CZE	CZECHOSLOVAKIA	23	48	11	-	5	5	92	1207	10	36	12	2	1267		1359	
DEN	DENMARK	*						0						0		0	
DEU	FED.REP. OF GERMANY	153	189	173	22	84	3	624	2665	48	119	130	13	2975		3599	
FIN	FINLAND	*						0						0		0	
FRA	FRANCE	1)	38	83	100	24	143	2	390	1683	23	45	24	-	1775	1	2166
GRE	GREECE	*						0						0		0	
HUN	HUNGARY	52	89	35	2	5	5	188	682	1	2	6	1	692		880	
ICE	ICELAND	*						0						0		0	
IRE	IRELAND	*						0						0		0	
ITA	ITALY							0	4	-	-	-	-	4		4	
LUX	LUXEMBOURG	-	-	7	1	-	-	8	8	-	-	-	-	8		16	
NET	NETHERLANDS							0	-	-	-	-	12	12		12	
NOR	NORWAY	*						0						0		0	
POL	POLAND	142	138	137	1	4	1	423	1513	17	60	94	180	1864		2287	
POR	PORTUGAL	*						0						0		0	
ROM	ROMANIA	7	11	7	3	7	2	37	13	-	2	-	2	17		54	
SPA	SPAIN	2)	8	-	-	-	-	8						0		8	
SSR	SOVIET SOCIAL.REP.	**	339	215	762	21	470	11	1818	180	-	-	406	586		2404	
SWE	SWEDEN	*						0						0		0	
SWI	SWITZERLAND + LIECHT		-	1	1	-	-	2	95	2	6	-	-	103		105	
TUR	TURKEY	315	28	57	3	10	6	419	2	-	-	-	6	8		427	
UNK	UNITED KINGDOM	*						0						0		0	
YUG	YUGOSLAVIA	14	17	4	1	13	2	51	613	1	3	1	-	618		669	
TOTAL		1099	847	1348	84	779	37	4194	10637	243	381	392	631	12284	1	16479	
PER CENT		6.7	5.1	8.2	0.5	4.7	0.2	25.5	64.5	1.5	2.3	2.4	3.8	74.5	0.0	100.0	

* NO CASES ** SEE TEXT UNDER 3.21 1) IMPORTED FROM MEXICO 2) NORTH AFRICA

TABLE 3: RABIES CASE RATES (% TOTAL) FOR INDIVIDUAL ANIMAL SPECIES AND FOR TOTAL CASES OF 10 EUROPEAN COUNTRIES RANKING HIGHEST IN 1991.

EUR		EUROPE												1-4/91		1. 1.91 - 31.12.91	
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		1099	847	1348	84	779	37	4194	10637	243	381	392	631	12284	1	16479	
PER CENT INVOLVEMENT / COUNTRY																	
DEU	FED.REP. OF GERMANY	13.9	22.3	12.8	26.2	10.8	8.1	14.9	25.1	19.8	31.2	33.2	2.1	24.2		21.8	
AUT	AUSTRIA	0.7	3.2	3.6	3.6	4.9	-	3.0	18.4	58.0	28.3	31.9	1.4	18.0		14.9	
SSR	SOVIET SOCIALIST REP	30.8	25.4	56.5	25.0	60.3	29.7	43.3	1.7	-	-	-	64.3	4.8		14.6	
POL	POLAND	12.9	16.3	10.2	1.2	0.5	2.7	10.1	14.2	7.0	15.7	24.0	28.5	15.2		13.9	
FRA	FRANCE	3.5	9.8	7.4	28.6	18.4	5.4	9.3	15.8	9.5	11.8	6.1	-	14.4	100.0	13.1	
CZE	CZECHOSLOVAKIA	2.1	5.7	0.8	-	0.6	13.5	2.2	11.3	4.1	9.4	3.1	0.3	10.3		8.2	
HUN	HUNGARY	4.7	10.5	2.6	2.4	0.6	13.5	4.5	6.4	0.4	0.5	1.5	0.2	5.6		5.3	
YUG	YUGOSLAVIA	1.3	2.0	0.3	1.2	1.7	5.4	1.2	5.8	0.4	0.8	0.3	-	5.0		4.1	
TUR	TURKEY	28.7	3.3	4.2	3.6	1.3	16.2	10.0	0.0	-	-	-	1.0	0.1		2.6	
SWI	SWITZERLAND + LIECHT	-	0.1	0.1	-	-	-	0.0	0.9	0.8	1.6	-	-	0.8		0.6	
TOTAL FROM 10 COUNTRIES		1084	835	1328	77	772	35	4131	10593	243	379	392	617	12224	1	16356	
EQUAL % TOTAL		98.6	98.6	98.5	91.7	99.1	94.6	98.5	99.6	100.0	99.5	100.0	97.8	99.5	100.0	99.3	

TABLE 4

EUR		EUROPE		4/91		RABIES CASES 'OTHER ANIMAL SPECIES'						1.10.91 - 31.12.91	
LOCATION		OTHER DOMESTIC ANIMALS			OTHER WILD ANIMALS							TOTAL	
CODE	NAME	PIG	CAT LIVI. WILD	OTHERS	OTH.FOX SPECIES	RACCOON DOG	RACCOON	WILD BOAR	IBEX	INSECT. BAT	MOUSE MOUSE		OTHERS
AUT	AUSTRIA	-	-	-	-	-	-	-	1	-	-	-	1
CZE	CZECHOSLOVAKIA	-	-	-	-	1	-	-	-	-	-	-	1
DEU	FED.REP. OF GERMANY	-	-	-	1	-	1	1	-	1	-	-	4
FRA	FRANCE	-	1	-	-	-	-	-	-	-	-	-	1
POL	POLAND	1	-	-	-	63	-	2	-	-	-	-	66
SSR	SOVIET SOCIALIST REP	-	-	1	-	-	-	-	-	-	-	46	47
TUR	TURKEY	-	-	-	-	-	-	-	-	-	4	-	4
TOTAL		1	1	1	1	64	1	3	1	1	4	46	124
PER CENT		0.8	0.8	0.8	0.8	51.6	0.8	2.4	0.8	0.8	3.2	37.1	100.0

TABLE 5

EUR EUROPE 1991		RABIES CASES 'OTHER ANIMAL SPECIES'														1. 1.91 - 31.12.91							
LOCATION CODE NAME	OTHER DOMESTIC ANIMALS						OTHER WILD ANIMALS														TOTAL		
	DONKEY	PIG	OTH. DOM. HERBIVOR	DOMESTIC RABBIT	CAT LIV. WILD	OTHERS	RACCOON	DOG	WILD CAT	RACCOON	WILD BOAR	MOUFLO	IBEX	CHAMOIS	HEDGEHOG	INSECTIV BAT	SQUIRREL	BLACK RAT	HOUSE MOUSE	OTH. SMAL RODENTS		OTHERS	
AUT AUSTRIA	1						1	1				3	1	4	1		1	1	1	1	1	1	9
CZE CZECHOSL.		3		2			1	1			1	1											7
DEU F. R. GERM.		1	1	1			3			4						3	1					16	
FRA FRANCE	1				1																		2
HUN HUNGARY	1	4						1															6
NET NETHERL.																12							12
POL POLAND		1					170			6					1		2	1					181
ROM ROMANIA																					2		4
SSR S. S. REP.							52														354		417
TUR TURKEY	3		3																6				12
YUG YUGOSLAV.																							2
TOTAL	5	9	4	3	1	15	226	1	10	1	4	1	1	4	1	15	3	1	6	1	356		668
PER CENT	0.7	1.3	0.6	0.4	0.1	2.2	33.8	0.1	1.5	0.1	0.6	0.1	0.1	0.6	0.1	2.2	0.4	0.1	0.9	0.1	53.3		100.0

AUT AUSTRIA		RABIES CASES											1.10.91 - 31.12.91			
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
103	EISENSTADT - LAND							0	2	-	-	-	-	2		2
104	GUESSING							0	1	-	-	-	-	1		1
106	MATTERSBURG							0	2	-	-	-	-	2		2
107	NEUSIEDL AM SEE							0	2	-	1	-	-	3		3
108	OBERPULLENDORF							0	1	-	-	-	-	1		1
303	WAIDHOFEN AN DER YBB							0	1	-	-	-	-	1		1
304	WIENER NEUSTADT-STAD							0	1	-	-	-	-	1		1
305	AMSTETTEN							0	4	1	-	-	-	5		5
306	BADEN	-	-	2	-	1	-	3	43	-	-	-	-	43		46
307	BRUCK AN DER LEITHA							0	6	-	-	-	-	6		6
308	GAENSERNDORF							0	19	-	1	-	-	20		20
310	HOLLABRUNN							0	34	-	1	-	-	35		35
311	HORN	-	2	-	-	-	-	2	6	-	3	-	-	9		11
312	KORNEUBURG	-	1	-	-	-	-	1	36	-	-	2	-	38		39
314	LILIENFELD	-	1	1	-	-	-	2	18	6	-	5	-	29		31
315	MELK							0	1	-	-	-	-	1		1
316	MISTELBACH	1	-	-	-	-	-	1	65	1	2	2	-	70		71
318	NEUNKIRCHEN	-	-	3	-	-	-	3	11	1	1	3	1	17		20
319	SANKT POELTEN-LAND	-	-	1	-	5	-	6	10	5	2	1	-	18		24
320	SCHIEBBS	-	1	4	-	-	-	5	18	2	-	1	-	21		26
322	WAIDHOFEN AN DER THA							0	3	-	1	1	-	5		5
323	WIENER NEUSTADT-LAND	-	-	7	-	1	-	8	44	1	5	2	-	52		60
406	FREISTADT							0	1	-	-	-	-	1		1
407	GMUNDEN							0	3	-	-	-	-	3		3
409	KIRCHDORF AN DER KRE							0	2	-	-	-	-	2		2
411	PERG							0	1	-	-	-	-	1		1
415	STEYR-LAND	-	-	-	1	2	-	3	8	-	1	-	-	9		12
502	HALLEIN							0	1	-	-	-	-	1		1
503	SALZBURG-LAND							0	1	-	-	-	-	1		1
505	TAMSWEG	-	-	-	-	1	-	1	23	1	-	-	-	24		25
601	GRAZ-STADT							0	1	-	-	-	-	1		1
604	FELDBACH	-	1	-	-	-	-	1	4	-	-	-	-	4		5
606	GRAZ-LAND	1	-	-	-	-	-	1	15	-	-	-	-	15		16
612	LIEZEN	-	-	9	-	1	-	10	22	2	2	1	-	27		37
614	MURAU							0	3	-	-	-	-	3		3
706	LANDECK							0	10	-	-	-	-	10		10
708	REUTTE							0	1	-	-	-	-	1		1
802	BREGENZ							0	2	-	-	-	-	2		2
901	WIEN-STADT							0	1	-	-	-	-	1		1
TOTAL		2	6	27	1	11	0	47	427	20	20	18	1	486	0	533
PER CENT		0.4	1.1	5.1	0.2	2.1	0.0	8.8	80.1	3.8	3.8	3.4	0.2	91.2	0.0	100.0

R A B I E S C A S E S																1.10.91 - 31.12.91	
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																	
LX	LUXEMBOURG	-	-	2	-	-	-	2	4	-	-	-	-	4		6	
NA	NAMUR	-	-	2	-	-	-	2	1	-	-	-	-	1		3	
TOTAL		0	0	4	0	0	0	4	5	0	0	0	0	5	0	9	
LUX L U X E M B O U R G																	
02	CAPELLEN	-	-	3	1	-	-	4						0		4	
12	GREVENMACHER	-	-					0	1	-	-	-	-	1		1	
13	REMICH	-	-	2	-	-	-	2	1	-	-	-	-	1		3	
TOTAL		0	0	5	1	0	0	6	2	0	0	0	0	2	0	8	
PER CENT		0.0	0.0	62.5	12.5	0.0	0.0	75.0	25.0	0.0	0.0	0.0	0.0	25.0	0.0	100.0	
SWI S W I T Z E R L A N D A N D L I E C H T E N S T E I N																	
05	BASEL-LAND							0	1	-	-	-	-	1		1	
06	BERN	-	-	1	-	-	-	1	8	1	-	-	-	9		10	
12	NEUCHATEL	-	1	-	-	-	-	1	9	-	1	-	-	10		11	
17	SOLOTHURN							0	1	-	-	-	-	1		1	
26	JURA							0	4	-	-	-	-	4		4	
TOTAL		0	1	1	0	0	0	2	23	1	1	0	0	25	0	27	
PER CENT		0.0	3.7	3.7	0.0	0.0	0.0	7.4	85.2	3.7	3.7	0.0	0.0	92.6	0.0	100.0	

CZE CZECHOSLOVAKIA		RABIES CASES											1.10.91 - 31.12.91			
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	-	-	-	-	0	-	-	1	-	-	0	-	0
01	CENTRAL BOHEMIA	-	1	-	-	-	-	1	37	-	-	-	-	38	-	39
02	SOUTH BOHEMIA	-	1	-	-	-	-	0	20	-	-	-	-	20	-	20
03	WEST BOHEMIA	-	1	-	-	-	-	1	1	-	-	-	-	1	-	2
04	NORTH BOHEMIA	-	2	-	-	-	-	2	28	1	2	-	1	32	-	34
05	EAST BOHEMIA	-	5	8	-	-	-	13	27	-	3	2	-	32	-	45
06	SOUTH MORAVIA	-	1	-	-	-	-	1	36	-	-	2	-	38	-	39
07	NORTH MORAVIA	-	1	-	-	-	-	1	7	-	1	-	-	8	-	9
0	CZECH REPUBLIC	-	11	8	-	-	-	19	156	1	7	4	1	169	-	188
10	DISTRICT OF BRATISLAV	-	-	-	-	-	-	0	1	-	-	-	-	1	-	1
11	WEST SLOVAKIA	2	1	-	-	-	-	3	11	-	-	-	-	11	-	14
12	CENTRAL SLOVAKIA	1	2	1	-	-	-	4	21	1	-	-	-	22	-	26
13	EAST SLOVAKIA	4	3	-	-	-	-	7	12	-	-	-	-	12	-	19
1	SLOVAK REPUBLIC	7	6	1	-	-	-	14	45	1	-	-	-	46	-	60
TOTAL		7	17	9	0	0	0	33	201	2	7	4	1	215	0	248
PER CENT		2.8	6.9	3.6	0.0	0.0	0.0	13.3	81.0	0.8	2.8	1.6	0.4	86.7	0.0	100.0

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DEU		FEDERAL REPUBLIC OF GERMANY						R A B I E S C A S E S						1.10.91 - 31.12.91	
LOCATION		D O M E S T I C A N I M A L S						W I L D A N I M A L S						HUMAN CASES	TOTAL
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS		
010	SCHLESWIG-HOLSTEIN	-	-	1	-	-	-	1	2	-	-	-	-	2	3
020	HAMBURG	-	-	-	-	-	-	0	1	-	-	-	-	1	1
031	BRAUNSCHWEIG	-	1	1	-	1	-	3	12	-	-	2	-	14	17
032	HANNOVER	-	-	-	-	-	-	0	1	-	-	-	-	1	1
033	LUENEBURG	-	4	3	-	1	-	8	42	-	-	4	1	47	55
034	WESER-EMS	-	-	-	-	-	-	0	-	-	-	-	-	0	0
040	BREMEN	-	-	-	-	-	-	0	-	-	-	-	-	0	0
051	DUESSELDORF	-	-	-	-	-	-	0	-	-	-	-	-	0	0
053	KOELN	-	-	-	-	-	-	0	-	-	-	-	-	0	0
055	MUENSTER	-	-	-	-	-	-	0	-	-	-	-	-	0	0
057	DETMOLD	-	-	-	-	-	-	0	-	-	-	-	-	0	0
059	ARNSBERG	-	-	-	-	-	-	0	-	-	-	-	-	0	0
064	DARMSTADT	-	1	-	-	-	-	1	17	-	-	2	-	19	20
065	GIESSEN	-	-	-	-	-	-	0	-	-	-	-	-	0	0
066	KASSEL	-	-	3	-	-	-	3	2	-	-	1	-	3	6
071	KOBLENZ	-	-	-	-	-	-	0	14	-	-	-	-	14	14
072	TRIER	-	-	4	-	-	-	4	4	-	-	-	-	4	8
073	RHEINHESSEN-PFALZ	-	-	-	-	-	-	0	7	-	-	-	-	7	7
081	STUTT GART	-	-	-	-	-	-	0	8	-	-	1	-	9	9
082	KARLSRUHE	-	-	-	-	-	-	0	15	-	-	-	-	15	15
083	FREIBURG	-	-	-	-	-	-	0	-	-	-	-	-	0	0
084	TUEBINGEN	-	-	1	-	-	-	1	6	-	-	3	-	9	10
091	OBERBAYERN	-	-	-	-	1	-	1	5	1	-	3	-	9	10
092	NIEDERBAYERN	-	-	-	-	-	-	0	-	-	-	-	-	0	0
093	OBERPFALZ	-	-	-	-	-	-	0	2	-	-	-	-	2	2

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	4	-	-	-	-	4		4
095	MITTELFANKEN							0	4	-	-	-	-	4		4
098	UNTERFRANKEN							0	6	-	1	1	1	9		9
097	SCHWABEN	-	1	22	-	4	-	27	35	2	1	2	-	40		67
100	SAARLAND	-	1	1	-	1	-	3	14	1	2	1	-	18		21
110	BERLIN							0	1	-	-	-	-	1		1
121	POTSDAM	-	3	11	-	-	-	14	29	1	1	-	-	31		45
122	FRANKFURT	6	10	2	-	1	-	19	51	1	3	7	2	64		83
123	COTTBUS	2	8	1	-	1	-	12	20	-	2	-	-	22		34
131	ROSTOCK	1	-	2	-	-	-	3	18	-	-	1	-	19		22
132	SCHWERIN	-	-	1	1	-	-	2	9	-	1	-	-	10		12
133	NEUBRANDENBURG	7	7	9	1	-	-	24	58	-	5	3	-	66		90
141	DRESDEN	-	4	4	3	9	-	20	16	1	1	-	-	18		38
142	LEIPZIG							0	6	-	1	-	-	7		7
143	CHEMNITZ	-	1	-	-	2	-	3	3	-	-	-	-	3		6
151	MAGDEBURG	-	4	2	-	-	-	6	16	-	4	1	-	21		27
152	HALLE	4	5	-	-	-	-	9	21	1	1	-	-	23		32
161	ERFURT							0	9	1	-	-	-	10		10
162	GERA							0	12	-	2	2	-	16		16
163	SUHL							0						0		0
TOTAL		20	50	68	5	21	0	164	470	9	25	34	4	542	0	706
PER CENT		2.8	7.1	9.6	0.7	3.0	0.0	23.2	66.6	1.3	3.5	4.8	0.6	76.8	0.0	100.0

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FRA FRANCE		RABIES CASES												1.10.91 - 31.12.91		
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
02	AISNE	-	-	-	-	-	-	0	6	-	1	-	-	7	-	7
08	ARDENNES	-	1	1	-	1	-	3	10	-	-	-	-	10	-	13
10	AUBE	-	-	-	-	-	-	0	13	-	1	-	-	14	-	14
21	COTE D'OR	-	1	-	-	2	-	3	5	-	1	-	-	6	-	9
25	DOUBS	-	2	1	-	-	-	3	16	2	-	-	-	18	-	21
27	EURE	1	-	-	-	-	-	1	8	-	-	-	-	8	-	9
51	MARNE	-	2	-	-	1	-	3	7	-	-	-	-	7	-	10
52	MARNE (HAUTE)	-	-	3	1	6	-	10	8	1	1	-	-	10	-	20
54	MEURTHE ET MOSELLE	2	5	11	-	5	-	23	69	-	1	-	-	70	-	93
55	MEUSE	1	1	11	1	5	-	19	25	-	-	-	-	25	-	44
57	MOSELLE	-	4	2	-	1	-	7	30	1	2	-	-	33	-	40
59	NORD	-	-	-	-	-	-	0	1	-	-	-	-	1	-	1
60	OISE	-	1	-	-	-	-	1	2	-	-	-	-	2	-	3
67	RHIN (BAS)	-	-	1	1	-	-	2	11	-	-	-	-	11	-	13
68	RHIN (HAUT)	1	1	3	-	1	-	6	42	-	4	3	-	49	-	55
70	SAONE (HAUTE)	1	3	2	1	5	1	13	21	-	2	2	-	25	-	38
71	SAONE ET LOIRE	-	-	-	-	-	-	0	1	-	-	-	-	1	-	1
76	SEINE MARITIME	-	-	1	-	-	-	1	11	-	-	1	-	12	-	13
77	SEINE ET MARNE	-	-	-	-	-	-	0	1	-	-	-	-	1	-	1
80	SOMME	-	1	-	1	-	-	2	2	-	-	-	-	2	-	4
88	VOSGES	1	3	2	-	5	-	11	40	-	-	-	-	40	-	51
89	YONNE	-	1	-	-	-	-	1	10	-	-	-	-	10	-	11
90	TERR.DE BELFORT	-	-	-	-	1	-	1	3	-	-	-	-	3	-	4
91	ESSONNE	-	-	-	-	-	-	0	1	-	-	-	-	1	-	1
95	VAL D'OISE	-	1	-	-	-	-	1	5	-	-	-	-	5	-	6
TOTAL		7	27	38	5	33	1	111	348	4	13	6	0	371	0	482
PER CENT		1.5	5.6	7.9	1.0	6.8	0.2	23.0	72.2	0.8	2.7	1.2	0.0	77.0	0.0	100.0

HUN HUNGARY		RABIES CASES											1.10.91 - 31.12.91			
LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
01	BUDAPEST							0	2	-	-	-	-	2		2
02	BARANYA	1	4	-	-	-	-	5	12	-	-	1	-	13		18
03	BACS-KISKUN	1	3	2	-	-	-	6	8	-	-	-	-	8		14
04	BEKES	1	1	-	-	-	-	2	7	-	-	-	-	7		9
05	BORSOD-ABAUJ-ZEMPLEN	-	1	-	-	-	-	1	8	-	-	-	-	8		9
06	CSONGRAD	1	2	-	-	-	-	3	9	-	-	-	-	9		12
07	FEJER	-	-	3	-	-	-	3	25	-	-	-	-	25		28
08	GYOER-SOPRON	-	1	-	-	-	-	1	5	-	-	-	-	5		6
09	HAJDU-BIHAR	1	4	1	-	-	-	6	7	-	-	-	-	7		13
10	HEVES	-	1	-	-	-	-	1	3	-	-	-	-	3		4
11	KOMAROM	1	1	-	-	-	-	2	11	-	-	-	-	11		13
12	NOGRAD	-	1	-	-	-	-	1	1	-	-	-	-	1		2
13	PEST	1	1	1	-	-	-	3	16	-	-	-	-	16		19
14	SOMOgy	-	2	-	-	-	-	2	14	-	-	-	-	14		16
15	SZABOLCS-SZATMAR	-	3	-	-	-	-	3	3	-	-	-	-	3		6
16	SZOLNOK	-	2	-	-	-	-	2	8	-	-	-	-	8		10
17	TOLNA	1	1	-	-	-	-	2	6	-	-	-	-	6		8
18	VAS	-	1	-	-	-	-	1	17	-	-	-	-	17		18
19	VESZPREM	1	1	-	-	-	-	2	12	-	-	-	-	12		14
20	ZALA	-	1	-	-	-	-	1	10	-	-	-	-	10		11
TOTAL		9	31	7	0	0	0	47	184	0	0	1	0	185	0	232
PER CENT		3.9	13.4	3.0	0.0	0.0	0.0	20.3	79.3	0.0	0.0	0.4	0.0	79.7	0.0	100.0

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R A B I E S C A S E S															1.10.91 - 31.12.91	
LOCATION		D O M E S T I C A N I M A L S						W I L D A N I M A L S						HUMAN CASES	TOTAL	
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
ITA I T A L Y																
34	TRIESTE E GORIZIA							0	3	-	-	-	-	3		3
ROM R O M A N I A																
01	ALBA	1	1	-	-	-	-	2						0		2
09	BRAILA	1	-	-	-	-	-	1						0		1
10	BUZAU	1	-	-	-	-	-	1						0		1
13	CLUJ	-	1	-	-	-	-	1						0		1
15	COVASNA							0	1	-	-	-	-	1		1
24	IASI	-	1	-	-	-	-	1						0		1
25	MARAMURES	1	-	2	-	7	-	10						0		10
31	SATU-MARE	-	1	-	-	-	-	1						0		1
32	SALAU	-	-	2	-	-	-	2						0		2
TOTAL		4	4	4	0	7	0	19	1	0	0	0	0	1	0	20
PER CENT		20.0	20.0	20.0	0.0	35.0	0.0	95.0	5.0	0.0	0.0	0.0	0.0	5.0	0.0	100.0
SPA S P A I N																
51	CEUTA (NORTH AFRICA)	3	-	-	-	-	-	3						0		3
52	MELILLA (NORTH AFRICA)	1	-	-	-	-	-	1						0		1
TOTAL		4	0	0	0	0	0	4	0	0	0	0	0	0	0	4

R A B I E S C A S E S															1.10.91 - 31.12.91	
LOCATION		D O M E S T I C A N I M A L S						W I L D A N I M A L S						HUMAN CASES	TOTAL	
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
SSR U N I O N O F S O V I E T S O C I A L I S T R E P .																
01	RSFSR	35	16	197	2	20	1	271	-	-	-	-	46	46		317
TOTAL		35	16	197	2	20	1	271	0	0	0	0	46	46	0	317
PER CENT		11.0	5.0	62.1	0.6	6.3	0.3	85.5	0.0	0.0	0.0	0.0	14.5	14.5	0.0	100.0
YUG Y U G O S L A V I A																
30	SR HRVATSKA	-	1	-	-	-	-	1	40	-	-	-	-	40		41
50	SR SLOVENIJA	-	-	1	-	-	-	1	39	-	-	-	-	39		40
60	SR SRBIJA	1	-	-	-	-	-	1	1	-	-	-	-	1		2
61	SAP VOJVODINA	1	1	1	-	-	-	3	13	-	-	-	-	13		16
TOTAL		2	2	2	0	0	0	6	93	0	0	0	0	93	0	99
PER CENT		2.0	2.0	2.0	0.0	0.0	0.0	6.1	93.9	0.0	0.0	0.0	0.0	93.9	0.0	100.0

POL		POLAND												RABIES CASES		1.10.91 - 31.12.91	
LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL		
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL	
01	WARSZAWA	1	-	-	-	-	-	1	11	-	-	-	-	11		12	
03	BIALA PODLASKA							0	2	-	1	-	1	4		4	
05	BIALYSTOK	1	-	9	-	-	-	10	7	1	-	-	6	14		24	
09	BYDGOSZCZ	-	2	3	-	-	-	5	12	-	-	1	6	19		24	
11	CHELM							0	2	-	-	-	-	2		2	
13	CIECHANOW							0	2	-	-	-	1	3		3	
15	CZESTOCHOWA							0	8	-	-	-	-	8		8	
17	ELBLAG	1	2	10	-	-	-	13	12	-	-	1	4	17		30	
19	GDANSK	2	1	1	-	2	-	6	32	1	2	2	6	43		49	
21	GORZOW	2	2	-	-	-	-	4	22	-	-	1	5	28		32	
23	JELENIA GORA	-	-	2	-	-	-	2	16	-	2	-	-	18		20	
25	KALISZ	1	1	1	-	-	-	3	20	-	-	-	-	20		23	
27	KATOWICE	-	2	-	-	1	-	3	3	-	-	-	-	3		6	
29	KIELCE	-	1	-	-	-	-	1	8	-	-	-	-	8		9	
31	KONIN	5	1	4	-	-	-	10	27	-	-	-	-	27		37	
33	KOSZALIN	3	4	2	-	-	-	9	14	-	-	3	-	17		26	
35	KRAKOW	-	-	-	-	1	-	1	-	-	-	-	1	1		2	
37	KROSNO	1	-	-	-	-	-	1	2	-	-	1	-	3		4	
39	LEGNICA	-	1	-	-	-	-	1	3	-	-	-	-	3		4	
41	LESZNO	1	-	-	-	-	-	1	25	-	1	-	-	26		27	
45	LOMZA							0	-	-	-	-	1	1		1	
47	LODZ							0	2	-	-	-	-	2		2	
49	NOWY SACZ	1	1	-	-	-	-	2	1	-	-	-	-	1		3	
51	OLSZTYN	1	2	12	-	-	-	15	4	2	-	1	4	11		26	
53	OPOLE	1	-	-	-	-	-	1	23	-	-	1	-	24		25	

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
55	OSTROLEKA	-	3	1	-	-	-	0	1	-	-	-	-	1	1	
57	PILA	-	-	1	-	-	-	4	6	-	-	1	3	10	14	
59	PIOTRKOW TRYB	1	-	1	-	-	-	2	8	-	1	-	-	9	11	
61	PLOCK	-	-	-	-	-	-	0	1	-	-	-	-	1	1	
63	POZNAN	2	3	-	-	-	-	5	41	-	2	10	1	54	59	
67	RADOM	-	1	-	-	-	-	1	8	-	1	-	-	9	10	
69	RZESZOW	1	6	2	-	-	1	10	22	-	1	3	1	27	37	
71	SIEDLCE	-	2	3	-	-	-	5	20	1	1	-	1	23	28	
73	SIERADZ	1	-	-	-	-	-	1	4	-	-	-	1	5	6	
75	SKIERNIEWICE	-	-	-	-	-	-	0	3	-	-	-	-	3	3	
77	SLUPSK	1	-	-	-	-	-	1	7	-	1	1	4	13	14	
79	SUWALKI	-	-	6	-	-	-	6	8	-	2	-	10	20	26	
81	SZCZECIN	1	1	-	-	-	-	2	18	1	1	1	5	26	28	
83	TARNOBRZEG	4	4	-	-	-	-	8	8	-	1	-	-	9	17	
85	TARNOW	1	2	1	-	-	-	4	10	-	-	1	-	11	15	
87	TORUN	1	3	3	-	-	-	7	10	-	-	-	2	12	19	
89	WALBRZYCH	-	-	1	-	-	-	1	13	-	1	2	-	16	17	
93	WROCLAW	-	1	2	-	-	-	3	17	-	-	-	1	18	21	
95	ZAMOSC	-	-	-	-	-	-	0	1	-	-	-	-	1	1	
97	ZIELONA GORA	-	5	2	-	-	-	7	19	-	1	-	1	21	28	
TOTAL		34	51	66	0	4	1	156	483	6	19	30	65	603	0	759
PER CENT		4.5	6.7	8.7	0.0	0.5	0.1	20.6	63.6	0.8	2.5	4.0	8.6	79.4	0.0	100.0

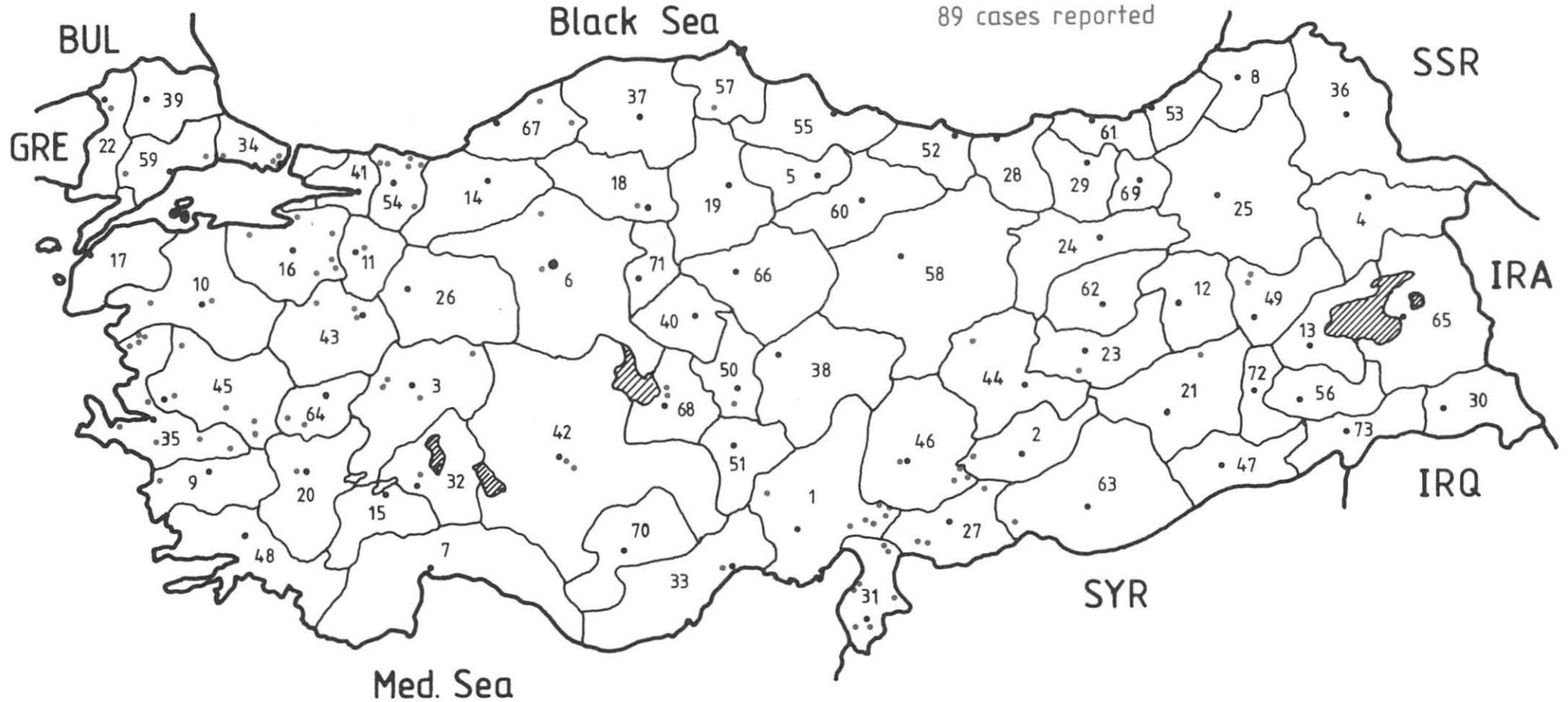
TUR		TURKEY												RABIES CASES				1.10.91 - 31.12.91	
LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL				
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL			
01	ADANA	3	2	-	-	2	-	7						0	7				
02	ADIYAMAN	-	-	1	-	-	-	1						0	1				
03	AFYON	2	2	-	-	-	-	4						0	4				
06	ANKARA	1	1	-	-	-	-	2						0	2				
09	AYDIN	1	-	-	-	-	-	1						0	1				
10	BALIKESIR	2	-	-	-	-	-	2						0	2				
11	BILECIK	1	-	-	-	-	-	1						0	1				
16	BURSA	3	-	-	-	-	-	3	-	-	-	-	3	3	6				
18	CANKIRI	-	1	-	-	-	-	1						0	1				
20	DENIZLI	1	-	-	-	-	-	1						0	1				
21	DIYARBAKIR	-	-	1	-	-	-	1						0	1				
22	EDIRNE	-	-	1	-	-	-	1						0	1				
23	ELAZIG	-	-	-	1	-	-	1						0	1				
27	GAZIANTEP	3	-	-	-	-	-	3						0	3				
31	HATAY	6	-	1	-	-	-	7						0	7				
32	ISPARTA	-	1	-	-	-	-	1						0	1				
33	ICEL	-	-	-	-	-	-	0	-	-	-	-	1	1	1				
34	ISTANBUL	5	-	-	-	-	-	5						0	5				
35	IZMIR	6	2	1	-	-	-	9						0	9				
42	KONYA	-	2	-	-	-	-	2						0	2				
43	KUETAHYA	3	-	-	-	-	-	3						0	3				
44	MALATYA	-	-	1	-	-	-	1						0	1				
45	MANISA	4	-	-	-	1	-	5						0	5				
46	KAHRAMANMARAS	1	-	2	-	1	-	4						0	4				
49	MUS	2	-	-	-	-	-	2						0	2				
50	NEVSEHIR	1	-	-	-	-	-	1						0	1				
54	SAKARYA	5	-	1	-	-	-	6						0	6				
57	SINOP	1	-	-	-	-	-	1						0	1				
59	TEKIRDAG	2	-	-	-	-	-	2						0	2				
63	SANLIURFA	1	-	-	-	-	-	1						0	1				
64	USAK	-	2	-	-	-	-	2						0	2				
67	ZONGULDAK	2	-	-	-	-	-	2						0	2				
68	AKSARAY	2	-	-	-	-	-	2						0	2				
TOTAL		58	13	9	1	4	0	85	0	0	0	0	4	4	0	89			
PER CENT		65.2	14.6	10.1	1.1	4.5	0.0	95.5	0.0	0.0	0.0	0.0	4.5	4.5	0.0	100.0			

6. List of Contributors

Austria	AUT	Greece	GRE	Norway	NOR	Switzerland	SWI
Dr. W. Schuller		Dr. A. Zambounis		Dr. G. Bakken		Dr. R. Zanoni	
Dr. H. Schnabl		Dr. E. Tsaglas		Royal Norwegian Ministry of		A. Kappeler	
Bundesanstalt für		Ministry of Agriculture		Agriculture		Vet.Bacteriological Institute	
Tierseuchenbekämpfung				Department of Veterinary		University of Berne	
				Services			
Belgium	BEL	Hungary	HUN			Turkey	TUR
Dr. J. Tambeur		Dr. Ferenc Simor				Dr. E. Istanbuloglu	
Ministère de l'Agriculture		Dr. Bálint Kerekes		Poland	POL	Ministry of Agriculture,	
		Ministry of Agriculture		Dr. Jan Kolasz		Forestry and Rural Affairs	
Bulgaria	BUL			Ministry of Agriculture			
Dr. N.T. Belev		Iceland	ICL	Dr. Danuta Serokova			
Ministère de l'Agriculture		Dr. Páll A. Pálson		National Institute of Hygiene			
		Chief Veterinary Officer				Union of Soviet	SSR
Czechoslovakia	CZE			Portugal	POR	Socialist Republics	
Dr. O. Matouch				Dr.C.A.M.de Andrade Fontes		(European part only)	
Natioal Rabies Laboratory		Ireland	IRE	Direccao-Geral da Pecuaria			
State Veterinary Institute		Dr. J.A. Costelloe				Prof. G.F. Koromyslov	
		Dr. I. O'Boyle		Romania	ROM	The Kovalenko All-Union	
Denmark	DEN	Department of Agriculture		Dr. Horatiu Olaru		Institute of Experimental	
Dr. E. Stougaard				Ministère de l'Agriculture		Veterinary Medicine, Moscow	
Veterinaerdirektoratet							
		Italy	ITA			Prof. B.L. Cherkasskiy	
Finland	FIN	Dr. S. Prosperi		Spain	SPA	Central Research Institute of	
Dr. R. Berger		Istituto di Malatti Infettive		Dr. O.Gonzalez Gutierrez-		Epidemiology, Ministry of	
Dr. Saara Reinius		Univ. degli Studi di Bologna		Solana		Public Health, Moscow	
Ministry of Agriculture and				Ministerio de Sanidad y			
Forestry				Consumo		United Kingdom	UNK
		Luxembourg	LUX			Dr. K.C. Meldrum	
France	FRA	Dr. J. Kremer		Dr. Q. Perez Bonilla		Dr. P.J. Thomas	
Dr. M. Aubert		Ministère de l'Agriculture		Ministerio de Agricultura,		Ministry of Agriculture,	
WHO Collaborating Centre				Pesca y Alimentacion		Fisheries and Food	
for Research and Manage-							
ment in Zoonoses (CNEVA)		Netherlands	NET				
Nancy		Dr. J.H.M. Nieuwenhuijs		Sweden	SWE	Yugoslavia	YUG
		Ministry of Welfare, Health		Dr. B. Nordblom		Dr. M. Radovanovic	
Germany	DEU	and Cultural Affairs		National Board of Agricul-		Dr. D. Jakovljevic	
Dr.L.G. Schneider		Dr. J.A. Smak		ture		Fed. Committee Agriculture	
Dr. W.W. Müller		Veterinary Service		Veterinary and Animal Pro-			
WHO Collaborating Centre		Ministry of Agriculture and		duction Department		Dr. Milos Petrovic	
for Rabies Surveillance and		Fisheries				Pasteur Institute, Novi Sad	
Research, Tübingen							
T. Müller							
Institut für Epizootiologie							
und Tierseuchenbekämpfung							

WHO Coll. Centre
Tuebingen / DEU

Rabies Cases Turkey
4th Quarter 1991
89 cases reported



WHO Coll. Centre
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ICE
(rabies free)

Rabies Cases Europe 4th Quarter 1991

3536 cases reported
1 bat rabies case included



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