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

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

1. INTRODUCTION

This issue describes the reported rabies incidences in Europe for the second quarter 1981. The situation is described in general under 2. and in individual countries under 2.1 to 2.25. The rabies case data are tabulated under 4.

Rabies in the European part of the USSR during the 1st quarter 1981 is included under 2.24; the data for the 2nd quarter have not yet arrived. Rabies in Italy during the first half of 1981 is described under 2.13.

Two cases of rabies in man, one in the German Democratic Republic and one from Ruanda in Central Africa, are described in section 3. Duck Embryo Rabies vaccine production in the United States of America is to be discontinued; this is reported. Section 3 also includes, a brief description of rabies in the Americas during the 1970s, and the second part of the report on the WHO Consultation on Natural Barriers of Wildlife Rabies in Europe held in Vienna in April 1981.

The geographical distribution of rabies incidence in Europe during the 2nd quarter 1981 is shown on the maps in the Annex.

A report about the meeting on animal rabies in Nancy, France in early June 1981, will be included in the next Bulletin.

2. RABIES IN EUROPE, 2ND QUARTER 1981

Table 1 on page 13 summarises the rabies case data reported to the Centre for the period April to June 1981.

A total of 4602 cases were recorded during the 2nd quarter, a decrease of 13.5% compared with the total of the preceding quarter (5321 cases). Of the total, 3485 cases (75.7%) were wild animals and 1117 cases domestic animals. There were 3103 (67.4% of total) fox rabies incidences, 195 (4.3%) mustelids, 89 (1.9%) deer and 98 incidences in other species. Of the domestic animals, 536 were dogs (426 cases from Turkey), 188 cats and 393 in other farm or domestic animals.

The countries Austria, Italy, Yugoslavia, Turkey and Luxembourg reported an increased incidence for the 2nd quarter. The Yugoslavian increase is due to the continued southwards spread of rabies in Slovenia. In Italy, infections from Yugoslavia, Austria and Switzerland have resulted in a number of separate outbreaks.

Finland, Portugal, Sweden and the United Kingdom continued to remain rabies-free and no cases were reported from Bulgaria, Greece, the Netherlands and Spain.

Comparison with the 2nd quarter of 1980 when 4098 rabies cases were reported indicates an overall increase of 12.3%. The most significant change is in northern Yugoslavia and northern Italy; 978 cases were reported during the 2nd quarter 1981 compared with only 204 during the 2nd quarter 1980.

There were no cases of rabies in man.

Individual country reports are as follows:

2.1 Rabies in Austria (AUT)
by W. Krocza and E. Scharfen

209 cases were diagnosed during the 2nd quarter 1981. Although this is a small increase on the previous quarter (197 cases registered), 64% more animals were examined for rabies. There were 204 cases in wild animals, of which 172 were foxes and 22 badgers, and 5 cases in domestic animals.

105 cases were recorded in Styria; the highest densities of positive cases were found in the districts Voitsberg, Graz-Umgebung, Mürzzuschlag, Bruck an der Mur and Liezen. In lower Austria, the districts of Scheibbs and Amstetten adjacent to Styria, reported a total of 13 cases. In the Burgenland, sporadic cases occurred near the eastern frontier.

In west Austria, the infection spread from the western part of Carinthia into the district of Lienz in east Tirol and in west Tirol, 39 cases were found in the district of Landeck. The situation in Carinthia, Tirol and Vorarlberg was otherwise little different to the previous quarter.

The counties Wien, Upper Austria and Salzburg remained free of rabies.

2.2 Rabies in Belgium (BEL)
by R. Depierreux

During the 2nd quarter 1981, rabies was diagnosed in 23 animals - 19 foxes, 2 cattle, 1 sheep and 1 goat. The situation in general was similar to that observed during the 1st quarter 1981. The majority of cases (21) were recorded in the south east of the province of Liège with a slight tendency to extend to the north of this area.

An erratic case was detected in a community situated approximately 50 km to the west of the limit of the infected zone. It has not been possible to discover the origin of the infection and no other cases have been observed in the intermediate zone. A similar erratic case was observed in the same community in February 1976. In that instance, rabies was diagnosed in a cat and again there was no explanation. Until now, no further cases have been detected in the area.

2.3 Bulgaria (BUL)

The country remained rabies-free.

2.4 Rabies in Czechoslovakia (CZE)
by Dr. Neumann

254 rabies cases were recorded during the 2nd quarter 1981, 92.5% of which were reported from the Czech Socialist Republic and 7.5% from the Slovak Socialist Republic. 18 cases fewer were reported than in the preceding quarter, a fall of 6.6%. In comparison with the 2nd quarter 1981, with 301 cases, the reduction is 16.6%.

Wildlife species accounted for 239 cases (94.1%). Of these, there were 225 (88.6% of total) foxes, 2 badgers, 6 martens, 2 polecats, 1 roe deer, 1 boar, 1 wild cat and 1 blue fox. Out of 15 cases in domestic animals, rabies was diagnosed in 7 dogs, 5 cats, 2 sheep and 1 goat.

The districts of Mělník, Trutnov, Ústí n. Orlicí, Ostrava, Lučenec, Martin and Rožňava, where the disease has been present in previous years, reported rabies for the first time during 1981. After longer absences the disease reappeared in the districts of Kladno and Jindřichův Hradec where the last occurrences were in 1976 and 1973 respectively. A rabid fox was also found in the district of Pelhřimov which has been free of rabies since as early as 1968.

No case of rabies was recorded in man.

2.5 Rabies in Denmark (DEN) by S. Møllgaard

One case of rabies was reported during the reporting period - a case of fox rabies registered in April very close to the border with the Federal Republic of Germany.

Gassing of fox dens was carried out in February, March, April and May in the southern part of the combat zone. Poisoning by strychnine was confined to plantations in areas surrounding the last two recorded cases of rabies - near Haderslev and Tønder. This poisoning will possibly be continued into the summer months.

2.6 Rabies in Germany, Democratic Republic (DDR)

A total of 405 incidences were reported during the 2nd quarter 1981. This is 69 fewer (-14.6%) than in the 1st quarter 1981 and 56 fewer (-12.1%) than the 2nd quarter of 1980. There were 315 cases (77.8%) in wild animals and 90 in domestic animals; the percentage involvement of each species was similar to the previous quarter. Foxes accounted for 281 (69.4%) of reported cases, mustelids for 16 (4%), dogs and cats for 68 cases (16.8%) and sheep for 17 cases (4.2%).

The Bezirke Rostock, Schwerin and Neubrandenburg in the north all reported small increases. In the centre of the country, Magdeburg, Frankfurt, Leipzig and Dresden reported small decreases whereas Potsdam, Halle and Cottbus reported rather larger reductions of 58-70%; 31, 17 and 23 cases respectively. In the south, Suhl and Gera reported decreases of 16 and 13 cases (-28% and -59%) while Karl-Marx-Stadt reported an increase of 22 cases (+51%).

2.7 Rabies in Germany, Federal Republic (DEU)

During the 2nd quarter 1980, 1102 rabies cases were identified. There were 952 cases in wild life of which 810 (73.5% of total cases) were foxes, 84 (7.6%) mustelids and 54 deer. Of the domestic animals, 28 (2.5% of total cases) were dogs, 44 (4.0%) cats and 78 (7.1%) farm animals.

Comparison with the 1st quarter indicates that the number of reported cases has dropped by 521 (32.1%) from 1623 cases. This is similar to the percentage fall at the same time of 1980 (from 2014 cases to 1329, a reduction of 34.0%).

All Regierungsbezirke except Schleswig-Holstein and Köln reported fewer cases than in the previous quarter. In general terms, small reductions were recorded in most areas infected with rabies. Notable reductions were seen in Kreis Höxter (from 54 to 17), in the Bezirk Trier (from 137 to 79) where a rabies wave is moving northwestwards, and in Bezirk Freiburg (from 229 to 173).

2.8 Finland (FIN)

The country remained rabies-free.

2.9 Rabies in France (FRA)

by J. Blancou

A total of 412 cases, comprising 96 (23.3%) domestic animals and 316 wild animals, was registered during the 2nd quarter 1981. There were 305 (74.0% of total) cases in foxes. In comparison with the 1st quarter 1981, there has been a reduction of 25.2%. During the 2nd quarter 1980, 381 cases were reported. The apparent increase since then is due entirely to a concentration of cattle rabies in the department of the Meuse.

The rabies front does not appear to have progressed since the previous quarter or indeed since 1979.

2.10 Rabies in Greece (GRE)

No cases were reported during the 2nd quarter 1981.

2.11 United Kingdom (GBR)

The country remained rabies-free.

2.12 Rabies in Hungary (HUN)

122 rabies incidences were reported from Hungary for the 2nd quarter. 105 cases (86.1% of total) were in foxes and the remaining 17 cases in domestic animals - 9 dogs, 7 cats and 1 cattle.

Compared with the previous quarter there has been a reduction, from 314 cases, of 61.1%. Such a marked reduction in incidence between the 1st and 2nd quarters of the year is the usual pattern in Hungary; in 1980 the reduction was 62.7% (from 381 cases in the 1st quarter to 142 cases in the 2nd).

All Komitates except Somogy in the south west, reported fewer cases than in the 1st quarter 1981. Rabies was almost completely absent from a broad east-west corridor of land in the centre of the country.

2.13 Rabies in Italy (ITA) January - June 1981
by A. Mantovani

During the 1st and 2nd quarters of 1981, respectively 55 and 120 rabies cases were recorded. The favourable results of 1979 and 1980 from the eastern parts of Bolzano and Belluno provinces were confirmed. New and large infections were however found in other areas of Italy.

In the Udine province bordering both Yugoslavia and Austria, the infection crossed the borders and spread south. 5 foxes were diagnosed rabid during the 1st quarter and 9 foxes, 1 badger and 1 cat during the second.

The western part of the province of Bolzano reported rabies during the 4th quarter 1980. During the 1st quarter 1981, 17 cases were recorded (15 foxes, 2 pine martens) and during the 2nd quarter, 56 cases were reported (43 foxes, 12 mustelids, 1 roe deer). This infection is also spreading south.

The regions of Lombardy and Piedmont, previously free of rabies, are now infected. In Lombardy, the province of Sondrio reported rabies in 31 foxes and 1 stone marten in the 1st quarter and in 51 foxes during the second. The province of Brescia reported 1 rabid fox during the 2nd quarter 1981. Cases of rabies were recorded from the Stelvio National Park (part of the region of Lombardy and the province of Bolzano).

In Piedmont, province Cuneo, there have been 3 cases of fox rabies in 3 municipalities. These are all a long distance from any source of infection.

The present wildlife rabies situation is the severest so far experienced by Italy. The infection has crossed the borders from Switzerland, Austria and Yugoslavia and has spread southwards creating a broad frontline in affected areas. Only the infection in Cuneo is at present unexplained.

2.14 Rabies in Luxembourg (LUX)
by A. Schiltges

During the 2nd quarter 1981, 18 cases of rabies were reported of which 14 were fox rabies. In comparison with the 2nd quarter 1980, with 1 reported case, rabies incidence has sharply increased. Even in comparison with the 1st quarter 1981 rabies has increased from 16 to 18 cases.

Rabies occurrence was once again primarily in the centre of the country.

2.15 Netherlands (NET)

The country remained rabies-free.

2.16 Rabies in Norway (NOR)

No cases of rabies were reported from the Island of Svalbard during the 2nd quarter 1981.

2.17 Rabies in Poland (POL)

67 rabies cases were reported during the 2nd quarter 1981. Of the total there were 39 cases (58%) in foxes and 10 (14.9%) in dogs. There has been a reduction of 66% in comparison with the 1st quarter 1981 (198 cases) and of 63% in comparison with the 2nd quarter 1980. The proportion of cases in dogs has more than doubled since the 1st quarter 1981. The previous highest percentage involvement of dogs (since reporting to the Centre began in 1977) was 7.9% in the 2nd quarter of 1979.

Only 22 departments reported rabies incidences in comparison with 33 in the previous quarter; very few cases came from the south and east of the country. The departments, Nowy Sacz and Konin, free of rabies in the 1st quarter, reported 1 and 3 cases respectively. Szezecin also reported an increase, from 5 to 12 cases, but all other departments reported fewer cases.

2.18 Portugal (POR)

The country remained rabies-free.

2.19 Rabies in Rumania (RUM)

A total of 20 cases of rabies were recorded during the 1st quarter 1981, 6 fewer than during the 1st quarter and 3 fewer than in the 2nd quarter 1980.

The majority of cases were recorded in domestic animals; 1 dog, 1 cat, 5 cattle, 1 horse, 3 sheep and 3 unspecified animals. In wild animals there were 5 cases of fox and 1 of badger rabies.

2.20 Rabies in Spain (SPA)

Spain remained rabies-free during the 2nd quarter 1981.

2.21 Sweden (SWE)

The country remained rabies-free.

2.22 Rabies in Switzerland (SWI)

by F. Steck and A. Wandeler

Of 1170 animals received by the Swiss rabies diagnostic centre during the 2nd quarter of 1981, 275 (23.5%), were positive for rabies. There were 229 cases in wild animals (184 or 66.9% of total in foxes) and 46 in domestic animals.

The outbreak in the Engadin has made further progress. It is linked through Val Müstair and Poschiavo with outbreaks in the neighbouring valleys of Italy. The high density of cases is persisting in the cantons Geneva, Vaud, Basel-Stadt, Schwyz and Glarus, and the Prättigau (canton Graubünden). Smaller foci are building up in north western and north eastern parts of Switzerland.

As in the previous quarter a large number of rabid foxes were histologically diagnosed in the canton Vaud. These 78 additional cases bring the total cases to 353.

2.23 Rabies in Turkey (TUR)

638 rabies cases were reported in Turkey during the 2nd quarter 1981. This is the largest quarterly total yet reported to the centre and is an increase of 28% since the previous quarter; cases in dogs increased by 17%, from 363 to 426, whereas cases in other domestic animals increased by 76%, from 100 to 176. In comparison with the 2nd quarter 1980, the increase is 31%.

99.1% of cases were in domestic animals. There were 426 cases in dogs, 30 in cats, 139 in cattle and 37 in other domestic animals.

More than half the cases were reported by 8 provinces; Ankara, Aydin, Bursa, Istanbul, Izmir, Ordu, Sakarya and Samsun. As in previous quarters, the area north of a line from the north east to the south west of the country, reported many more cases than the area south of that line. In the south and east reported rabies cases are sporadic.

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

- 1st quarter 1981 -
by V. Pokrovskiy and B. Cherkasskiy

During the 1st quarter 1981, 142 cases of rabies were registered in the European part of USSR territory. This is less than during the 4th quarter 1980 (185 cases) and considerably fewer than in the 1st quarter 1980 (286 cases). The largest number of cases were registered on the territory of the Ukrainian Soviet Socialist Republic (37.3%) and the regions of the Povolijye and the Urals (23.9%).

During 1980, cattle were the prevailing animal species with rabies. Wild animals predominated among the rabid carnivores with foxes and racoon dogs providing most cases.

2.25 Rabies in Yugoslavia (YUG)

A total of 858 rabies cases were reported during the 2nd quarter 1981. 832 (97.0%) of these were in wild animals and only 26 in domestic animals. Rabies incidence in Yugoslavia continues to increase; in comparison with the previous quarter an increase of 172 cases (25%) but in comparison with the 2nd quarter 1980 the increase is 656 cases or 324%.

The infection is concentrated in the northern part of Slovenia in north west Yugoslavia where a total of 505 cases were reported. Assuming an infection covering two-thirds of Slovenia the density of rabies incidence was 1 case per 27 km². The districts Kranj, Kamnik, Zalec, Maribor, and Slovenia Bistrica with between 49 and 93 cases each were particularly affected.

30 rabies cases were reported from Croatia. Most of these were in west Croatia near the infection in Slovenia. In Wojwodina (Serbia) 22 sporadic cases were reported.

3. MISCELLAENOUS3.1 Rabies in Mana) Human rabies case in German Democratic Republic

by K. H. Lebentrau

A case of rabies in man was registered in the district of Zossen in Bezirk Potsdam during the 1st quarter 1981.

The case occurred in a 38 year old male hunter; a member of a collective hunters group. On the 14th December or perhaps earlier, he was superficially bitten on his right thumb and forefinger by his young hound (Dachshund). The dog was still being trained and had not then been vaccinated against rabies. The hound died on the 15th December.

Despite intensive educational instruction, including regular information about rabies within the hunting system of the DDR, the exposure was not reported to the health service. Post-exposure treatment was thus not given.

After 31 days incubation and subsequent to heavy physical exertion, the illness began at the excitation stage (14th January), passing to the paralytic stage on the third day of illness. He was admitted to the Bezirkskrankenhaus (county hospital) in Potsdam on 15th January 1981. Initial treatment followed the general measures recommended by the WHO:

- isolation in a room with quiet surroundings
- sedation and muscular relaxation therapy
- psychic guidance
- preservation of the respiratory functions up to tracheotomy
- surveillance of water and mineral conservation
- continuous surveillance of heart action.

He was given 3200 IU Rabiabulin (immunoglobulin) intramuscularly on the 15th January and 400 IU Rabiabulin intrathecally on the 16th. On the 17th and on 18th January, 4 million IU human leucocyte interferon was applied intramuscularly.

On 18th January increasing adynamia (lack of strength) was followed by a rapid progress of ascending paralysis. The patient died on 18th January 1981.

The autopsy was performed on the 19th January. Virus was identified in material from the autopsy; brain, salivary glands, peripheral nerves, by means of the Fluorescent Antibody Test and by virus isolation in animal experiments. The virus titre was in the range 10^{-1} to 10^{-5} .

b) Human rabies case from Ruanda

Whilst in Ruanda, a 30 year old American was bitten on the left hand and the right foot by a stray dog.

He was bitten on the 7th May 1981 and the first signs of paralysis occurred on the 27th May. On arriving in Brussels, Belgium on the 2nd June, a course of Merieux Vaccine was begun. This followed the conventional scheme (days 0, 3, 7, 14, 30, 90).

At the time of the report (1.7.81), the patient was in a coma and his condition stationary. Very high levels of antibody have been demonstrated in his cerebro-spinal fluid and serum.

(Information from the Belgian Weekly Epidemiologic Survey, June 21-27, 1981).

3.2 US Production of Duck Embryo Rabies Vaccine discontinued.

The Greenfield Laboratories of Eli Lilly and Company, Indiana, USA, have announced this month that they plan to discontinue the marketing of their Duck Embryo Dried Killed Virus Rabies Vaccine as of November 30, 1981 for the US territory and during the second quarter of 1982 on the international market. No additional lots of vaccine can be prepared since both the seed and challenge cultures have already been destroyed.

The announcement of this type of information is no surprize but reflects the present trend in antirabies vaccines towards virus vaccines grown entirely in human or animal cell cultures.

Avian embryo vaccines were developed during the mid-fifties and were able to reduce the rate of severe neuro-complications such as caused by nerve tissue vaccines. The antigenicity of both types of vaccines however was low, requiring large inocula during post-exposure treatment. These disadvantages were eliminated by the recent introduction of cell culture origin vaccines, esp. those from Human Diploid Cells. This type of vaccine proved to be highly antigenic which justified a reduced regimen of inoculations. The rate of side reactions is low and severe complications are almost non-existent.

The production of the vaccine is still not free from certain difficulties and the price of the final product is high. Both disadvantages will probably be overcome by the future replacement of human with animal origin cell cultures.

3.3 Rabies in Man and Animals in the Americas, 1970-1979

Rabies cases in the Americas, reported during the 1970's, can be divided into two forms depending on the geographic region:

- 1) rabies primarily in wild animals in the United States and Canada. The most frequently affected wild animal species are skunks, foxes, bats, racoons, wolves, coyotes and bobcats. Rabies in dogs is now rare (though not insignificant) and there are very few cases in man.
- 2) rabies primarily in domestic animals, especially dogs, in the rest of the countries of the Americas.

The problem of rabies in man, estimated as a rate per million inhabitants, is most serious in Ecuador, El Salvador and Honduras (between 1.2 and 2.5 cases per million inhabitants). In absolute terms, Mexico and Brasil reported two thirds of all cases in man in the 10 year period; respectively 612 and 1001 cases.

The table lists rabies cases in animals and man in the two regions of the Americas. Since 1976, the U.S.A. has not specified animal species. The figures in brackets are estimates of a more realistic figure calculated by using averages of the data from 1970 to 1975; the unspecified total would be correspondingly lower. The problem of rabies in wild animals is apparently more serious in north than in south America. The difference could be due to a higher real incidence or simply to a greater concern with which the problem is viewed.

Species	Canada and U.S.A.		The rest of the countries of the Americas	
	Cases	% of total	Cases	% of total
Dogs	2152 (2912)	4.1 (5.5)	174488	76.4
Cats	1758 (2362)	3.3 (4.5)	9474	4.2
Bovines	5996	11.3	33235	14.5
Other dom. species	1445	2.7	3505	1.5
Wild animals	27910 (38634)	52.6 (72.8)	3448	1.5
Unspecified	13800	26.0	4303	1.9
T o t a l	53071	100	228453	100
M A N	19		2476	

Table: Cases of rabies in animals and man in the Americas, 1970-1979. Species not specified by U.S.A. after 1975. Figures in brackets are the estimated totals and percentages by using the average of the first 6 years.

(based on 'Statistical Report of Rabies in the Americas 1970-1979' Panamerican Zoonoses Center. Special Supplement Vol. XII, December 1980).

3.4 WHO Consultation on Natural Barriers of Wildlife Rabies in Europe.
(Vienna 28 April - 1 May 1981) - Part II

See Bulletin 1/81 pages 9-13 for part I of this article

f) Review of wildlife rabies and control measures in Italy

by A. Ruatti and A. Irsara

On a number of occasions since 1977 rabies has spread from North-Tyrol (Austria) to South-Tyrol (Italy) via the passes that cross the mountains (altitude over 2000 m) between the two countries.

As a rule rabies spread only in areas where the Hunting Indicator of Population Density (HIPD) was more than 0.2 foxes per km² per year. In areas where much of the land is unsuitable for foxes (glaciers and rocky ground over 2600 m) the HIPD is underestimated.

In Bolzano province, the first wave of rabies (1977-1979) moved southwards at a rate of 3-4 km per month. There was intensive hunting in areas threatened by rabies and the HIPD fell from 0.2 in 1978 to 0.08 in 1979 and 0.11 in 1980. The reduction in the fox population density is considered the key to the elimination of the disease in this particular outbreak.

g) Short report on research on landscape and rabies epidemiology
in Switzerland
by A. Wandeler

Rivers and high mountains function as natural barriers in a rabies epizootic. Rivers are crossed where bridges are available and in the mountains, rabies advances over passes that in the main are 2000 m or less above sea level.

Apart from these obvious obstacles it is thought that the course of the epizootic depends on fox density which itself is determined by the carrying capacity of the habitat, fox productivity and fox mortality. Major mortality factors are sarcoptic mange, predation by man and in recent years rabies.

After examination of the distribution of wild carnivores sent for diagnosis at the Swiss Rabies Centre it was found that different progress rates of the disease occurred in different physiographic provinces of Switzerland. However, there were also strong indications that the observed patterns were not only due to different carnivore densities but also to differences in the frequency of submitting material. The motivation of a sender to submit animals for examination depends on the local epidemiological situation, on cantonal hunting laws and on the veterinary public health administration.

h) Rabies west of the Rhine in Nordrhein-Westfalen
by M. Gessler

Rabies cases were once more identified in the Eifel of Nordrhein-Westfalen during the 2nd quarter 1981; one case of fox rabies in each of Kreis Aachen, Kreis Euskirchen and Stadt Bonn.

In two earlier outbreaks in this area, 1965-69 and 1975-77, rabies did not spread north of a line Aachen, Düren, Köln (Cologne). It is considered that intensive fox hunting, especially of young foxes prevented the spread of rabies. In the Eifel itself i.e. the higher lying land, intensive hunting and fox den gassing are thought to have resulted in the elimination of rabies.

In the present outbreak, infections came from both Belgium and Rheinland-Pfalz.

Summary of main conclusions and recommendations of the Consultation.

1. Although many factors determine directly and indirectly the density and social structure of fox populations, there are three main factors which can explain these prevailing conditions: food and cover availability and hunting pressure.
2. Besides physical barriers, three types of natural barriers for rabies have so far been identified from the available data:
 - (a) areas of extremely high fox hunting pressure where foxes are considered to be a pest to small game;

- (b) areas largely unsuitable as habitat for foxes, e.g. marshland;
- (c) urban conglomerations extended over long distances combined with lines of roads, river and railways.

3. None of the barriers so far identified within central Europe prove to be absolute. Mountains above 2000 m form formidable barriers for rabies, as do large rivers. However, passes and bridges, and possibly tunnels, form loop-holes in these barriers. Biological barriers are more effective and permanent, but depend on conditions which are not always fully understood and under control.
4. Surface waters and high mountains can be utilized in rabies control strategies. Buffer zones or protective belts should be considered at critical points for rabies transmission.
5. In marshland rigorous methods for reduction of fox population may not be required. Intensified hunting along the Marsh-Geest border may suffice to protect the marshland, complemented by epidemiologically specified gassing campaigns in the Geest.
6. Where hunting habits can be used to strengthen or establish barriers, all financial and organizational means should be aimed particularly to intensify hunting in spring and early summer. Since control measures exerted on limited areas and in particular on areas of excellent fox habitat may increase mobility within the fox population, it is strongly recommended that the general rule be observed for natural barriers to apply control measures continuously and uniformly in sufficiently large areas, or not at all.
7. If control areas are too small, removal of animals may cause immigration of foxes from adjacent areas in significant numbers. An epidemiological unit for rabies control should not be less than 900 km² in area, and a belt for rabies control not less than 30 km wide. Therefore, any analysis of results and control should not be made for areas smaller than the above, but if they are, the results must be extrapolatable to much larger areas.
8. At present the HIPD is the only method applied in Europe for estimating changes in fox population over large areas as required in rabies control. This method has proved its usefulness in many types of terrain. However, simple standardized alternative methods should be developed to enable comparison and for interpretation of results obtained in different habitats.
9. Research is required on factors which may affect the speed of the spread of rabies in wildlife. It must however be stated that there is at present no evidence that control measures enhance the speed of spread. The channelling of the disease in alpine areas deserves special investigation.
10. Methods of landscape and habitat classification should be standardized. National authorities are advised to assess the risk of infection and success of control operations taking into account on the one hand landscape (e.g. altitude, degree of forestation, groundwater level) and on the other hand hunting habits and intensity; also to adopt a reporting procedure which pin-points the location of each case.

(Based on papers presented in Vienna, an up to date report from Dr. Gessler, and on 'Report on Consultation on Natural Barriers of Wildlife Rabies in Europe' World Health Organisation/ Rabies Research/81.12.).

TABLE 1

EUR		EUROPE		2/81		RABIES CASES							1. 4.81 - 30. 6.81			
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	AUSTRIA	4	1	-	-	-	-	5	172	22	5	5	-	204	209	
02	BELGIUM	-	-	2	-	2	-	4	19	-	-	-	-	19	23	
03	BULGARIA *	-	-	-	-	-	-	0	-	-	-	-	-	0	0	
04	CZECHOSLOVAKIA	7	5	-	-	3	-	15	225	2	8	1	3	239	254	
05	DENMARK	-	-	-	-	-	-	0	1	-	-	-	-	1	1	
06	GERMAN DEM. REPUBLIC	29	39	5	-	17	-	90	281	2	14	16	2	315	405	
07	FED. REP. OF GERMANY	28	44	44	8	26	-	150	810	29	55	54	4	952	1102	
08	FINLAND *	-	-	-	-	-	-	0	-	-	-	-	-	0	0	
09	FRANCE	10	21	49	2	14	-	96	305	3	-	1	7	316	412	
10	GREECE *	-	-	-	-	-	-	0	-	-	-	-	-	0	0	
11	HUNGARY	9	7	1	-	-	-	17	105	-	-	-	-	105	122	
12	ITALY	-	1	-	-	-	-	1	105	8	5	1	-	119	120	
13	LUXEMBOURG	-	-	2	1	-	-	3	14	-	1	-	-	15	18	
14	NETHERLANDS *	-	-	-	-	-	-	0	-	-	-	-	-	0	0	
15	POLAND	10	2	6	-	-	-	18	39	2	1	4	3	49	67	
16	RUMANIA	1	1	5	1	3	3	14	5	1	-	-	-	6	20	
17	SPAIN *	-	-	-	-	-	-	0	-	-	-	-	-	0	0	
18	SWITZERLAND + LIECHT.	3	21	9	1	12	-	46	263	27	10	7	-	307	353	
19	TURKEY	426	30	139	4	22	11	632	2	-	-	-	4	6	638	
20	YUGOSLAVIA	9	16	-	-	1	-	26	757	-	-	-	75	832	858	
22	NORWAY *	-	-	-	-	-	-	0	-	-	-	-	-	0	0	
TOTAL		536	188	262	17	100	14	1117	3103	96	99	89	98	3485	0	4602
PER CENT		11.6	4.1	5.7	0.4	2.2	0.3	24.3	67.4	2.1	2.2	1.9	2.1	75.7	0.0	100.0

* NO CASES.

TABLE 2: ACCUMULATED TOTALS OF RABIES CASES FOR THE PERIOD 1. JANUARY - 30. JUNE 1981.

EUR		EUROPE		1-2/81		RABIES CASES							1. 1.81 - 30. 6.81			
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	AUSTRIA	4	2	1	-	-	-	7	351	30	7	11	-	399		406
02	BELGIUM	2	-	2	-	2	-	6	41	-	-	-	-	41		47
03	BULGARIA *							0						0		0
04	CZECHOSLOVAKIA	15	15	1	-	3	-	34	470	4	11	4	3	492		526
05	DENMARK	-	-	1	-	-	-	1	2	-	-	-	-	2		3
06	GERMAN DEM. REPUBLIC	61	81	16	1	23	1	183	619	5	28	41	2	695	1	879
07	FED.REP. OF GERMANY	44	90	81	14	68	-	297	2069	62	118	167	12	2428		2725
08	FINLAND *							0						0		0
09	FRANCE	19	37	67	7	38	-	168	778	5	-	1	12	796		964
10	GREECE *							0						0		0
11	HUNGARY	13	21	3	-	-	-	37	397	1	-	-	1	399		436
12	ITALY	-	1	-	-	-	-	1	157	8	8	1	-	174		175
13	LUXEMBOURG	-	-	4	1	1	-	6	27	-	1	-	-	28		34
14	NETHERLANDS *							0						0		0
15	POLAND	23	17	13	-	-	1	54	179	2	5	14	11	211		265
16	RUMANIA	7	3	7	1	11	3	32	12	1	-	-	1	14		46
17	SPAIN 1)	1	-	-	-	-	-	1						0		1
18	SWITZERLAND + LIECHT.	6	39	16	1	19	-	81	580	35	18	22	-	655		736
19	TURKEY	789	58	217	4	39	16	1123	2	1	-	-	9	12		1135
20	YUGOSLAVIA	14	25	1	-	1	-	41	1400	6	-	-	97	1503		1544
22	NORWAY 2)							0	-	-	-	-	1	1		1
TOTAL		998	389	430	29	205	21	2072	7084	160	196	261	149	7850	1	9923
PER CENT		10.1	3.9	4.3	0.3	2.1	0.2	20.9	71.4	1.6	2.0	2.6	1.5	79.1	0.0	100.0

* NO CASES, 1) IN NORTH AFRICA, 2) ON ISLAND OF SVALBARD.

TABLE 3

EUR		EUROPE			RABIES CASES 'OTHER ANIMAL SPECIES'											2/81		1. 4.81 - 30. 6.81	
LOCATION		OTH.DOM. ANIMALS			OTHER WILD ANIMALS											UNSPEC	TOTAL		
CODE	NAME	DONKEY	MULE	OTHERS	ARCTIC FOX	WOLF	RACCOON DOG	WILD CAT	WILD BOAR	IBEX	SQUIRREL	HOUSE MOUSE	MUSKRAT	HARE	OTHERS				
04	CZECHOSLOVAKIA	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-	3		
06	GERMAN DEM. REPUBLIC	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	2		
07	FED.REP. OF GERMANY	-	-	-	-	-	-	-	-	1	-	-	-	-	-	3	4		
09	FRANCE	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	7		
15	POLAND	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	3		
16	RUMANIA	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	3		
19	TURKEY	10	1	-	-	2	-	-	-	-	-	2	-	-	-	-	15		
20	YUGOSLAVIA	-	-	-	-	-	-	-	-	-	-	-	-	-	75	-	75		
TOTAL		10	1	3	1	2	2	1	1	1	1	2	1	1	82	3	112		
PER CENT		8.9	0.9	2.7	0.9	1.8	1.8	0.9	0.9	0.9	0.9	1.8	0.9	0.9	73.2	2.7	100.0		

AUT

A U S T R I A

R A B I E S C A S E S

1. 4.81 - 30. 6.81

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		
B2	GUESSING						0	1	-	-	-	-	1		1
B6	OBERPULLENDORF						0	1	-	-	-	-	1		1
B7	OBERWART						0	1	-	-	-	-	1		1
K1	HERMAGOR						0	2	-	1	-	-	3		3
K2	KLAGENFURT-LAND						0	2	-	-	-	-	2		2
K3	ST. VEIT						0	1	-	-	-	-	1		1
K4	SPITTAL/DRAU						0	3	-	-	-	-	3		3
K5	VILLACH-LAND						0	8	-	-	-	-	8		8
K6	VOELKERMARKT	1	-	-	-	-	1	1	-	-	-	-	1		2
K9	VILLACH-STADT						0	-	1	-	-	-	1		1
N1	AMSTETTEN						0	4	-	-	-	-	4		4
N16	SCHEIBBS						0	6	3	-	-	-	9		9
ST1	BRUCK/MUR						0	28	2	-	1	-	31		31
ST2	DEUTSCHLANDSBERG						0	3	-	-	-	-	3		3
ST5	GRAZ-LAND	1	-	-	-	-	1	25	2	-	-	-	27		28
ST10	LEOBEN						0	-	1	-	-	-	1		1
ST11	LIEZEN						0	8	3	-	1	-	12		12
ST12	MUERZZUSCHLAG						0	11	4	1	-	-	16		16
ST13	MURAU						0	1	-	-	-	-	1		1
ST15	VOITSBERG	1	-	-	-	-	1	7	2	-	-	-	9		10
ST16	WEIZ						0	3	-	-	-	-	3		3
T1	IMST	-	1	-	-	-	1	5	-	-	-	-	5		6
T2	INNSBRUCK-LAND	1	-	-	-	-	1	2	-	-	-	-	2		3
T4	KUFSTEIN						0	6	1	-	-	-	7		7
T5	LANDECK						0	31	3	3	2	-	39		39
T6	LIENZ						0	7	-	-	-	-	7		7
V2	BREGENZ						0	2	-	-	1	-	3		3
V3	FELDKIRCH						0	1	-	-	-	-	1		1
V4	DORNBIRN						0	2	-	-	-	-	2		2
TOTAL		4	1	0	0	0	5	172	22	5	5	0	204	0	209
PER CENT		1.9	0.5	0.0	0.0	0.0	2.4	82.3	10.5	2.4	2.4	0.0	97.6	0.0	100.0

RABIES CASES

1. 4.81 - 30. 6.81

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	-	-	2	-	2	-	4	18	-	-	-	-	18		22
LX	LUXEMBOURG							0	1	-	-	-	-	1		1
TOTAL		0	0	2	0	2	0	4	19	0	0	0	0	19	0	23
PER CENT		0.0	0.0	8.7	0.0	8.7	0.0	17.4	82.6	0.0	0.0	0.0	0.0	82.6	0.0	100.0
DEN DENMARK																
050541	TONDER							0	1	-	-	-	-	1		1
RUM RUMANIA																
01	ALBA	-	1	2	-	-	-	3	1	-	-	-	-	1		4
04	BACAU	-	-	-	-	-	2	2						0		2
05	BIHOR	-	-	-	-	3	-	3						0		3
09	BRAILA	-	-	1	-	-	-	1	1	-	-	-	-	1		2
11	CARAS-SEVERIN	1	-	1	-	-	1	3	1	-	-	-	-	1		4
12	CALARASI							0	1	-	-	-	-	1		1
22	HUNEDOARA	-	-	1	-	-	-	1						0		1
24	IASI							0	-	1	-	-	-	1		1
27	MURES							0	1	-	-	-	-	1		1
30	PRAHOVA	-	-	-	1	-	-	1						0		1
TOTAL		1	1	5	1	3	3	14	5	1	0	0	0	6	0	20
PER CENT		5.0	5.0	25.0	5.0	15.0	15.0	70.0	25.0	5.0	0.0	0.0	0.0	30.0	0.0	100.0

CZE

CZECHOSLOVAK SOCIALIST REPUBLIC

R A B I E S C A S E S

1. 4.81 - 30. 6.81

LOCATION CODE NAME		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
00	DISTRICT OF PRAGUE							0						0		0
01	CENTRAL BOHEMIA							0	8	-	-	-	-	8		8
02	SOUTH BOHEMIA							0	9	-	-	-	-	9		9
03	WEST BOHEMIA	1	2	-	-	2	-	5	70	-	1	-	1	72		77
04	NORTH BOHEMIA	2	2	-	-	-	-	4	70	-	4	1	1	76		80
05	EAST BOHEMIA							0	6	-	-	-	-	6		6
06	SOUTH MORAVIA							0	9	-	-	-	-	9		9
07	NORTH MORAVIA	1	-	-	-	-	-	1	41	1	3	-	-	45		46
0	CSR	4	4	-	-	2	-	10	213	1	8	1	2	225		235
10	DISTRICT OF BRATISLAV							0						0		0
11	WEST SLOVAKIA	-	1	-	-	-	-	1						0		1
12	CENTRAL SLOVAKIA	3	-	-	-	1	-	4	11	1	-	-	1	13		17
13	EAST SLOVAKIA							0	1	-	-	-	-	1		1
1	SSR	3	1	-	-	1	-	5	12	1	-	-	1	14		19
TOTAL		7	5	0	0	3	0	15	225	2	8	1	3	239	0	254
PER CENT		2.8	2.0	0.0	0.0	1.2	0.0	5.9	88.6	0.8	3.1	0.4	1.2	94.1	0.0	100.0

DDR

GERMAN DEMOCRATIC REPUBLIC

RABIES CASES

1. 4.81 - 30. 6.81

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
I	ROSTOCK	5	4	1	-	2	-	12	25	-	1	-	-	26	38	
II	SCHWERIN	-	2	-	-	1	-	3	25	-	2	3	-	30	33	
III	NEUBRANDENBURG	5	2	-	-	-	-	7	24	1	3	1	-	29	36	
IV	POTSDAM	1	1	-	-	1	-	3	15	-	-	3	1	19	22	
V	FRANKFURT/ODER	3	4	-	-	1	-	8	23	-	2	1	-	26	34	
VI	COTTBUS	1	2	-	-	-	-	3	5	1	-	1	-	7	10	
VII	MAGDEBURG	1	3	2	-	1	-	7	27	-	2	1	-	30	37	
VIII	HALLE	3	1	-	-	-	-	4	7	-	-	-	-	7	11	
IX	ERFURT	2	4	-	-	-	-	6	27	-	1	-	-	28	34	
X	GERA	-	-	-	-	-	-	0	9	-	-	-	-	9	9	
XI	SUHL	1	-	1	-	-	-	2	38	-	-	1	-	39	41	
XII	DRESDEN	1	4	-	-	-	-	5	20	-	1	-	-	21	26	
XIII	LEIPZIG	1	1	-	-	-	-	2	4	-	1	-	-	5	7	
XIV	KARL-MARX-STADT	5	11	1	-	11	-	28	31	-	1	5	-	37	65	
XV	HAUPTSTADT BERLIN	-	-	-	-	-	-	0	1	-	-	-	1	2	2	
TOTAL		29	39	5	0	17	0	90	281	2	14	16	2	315	0	405
PER CENT		7.2	9.6	1.2	0.0	4.2	0.0	22.2	69.4	0.5	3.5	4.0	0.5	77.8	0.0	100.0

DEU

FEDERAL REPUBLIC OF GERMANY

R A B I E S C A S E S

1. 4.81 - 30. 6.81

LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
010	SCHLESWIG-HOLSTEIN	1	2	1	-	-	-	4	10	-	2	2	-	14		18
020	HAMBURG							0						0		0
031	BRAUNSCHWEIG	-	1	1	-	-	-	2	11	-	-	1	-	12		14
032	HANNOVER							0	5	-	-	1	-	6		6
033	LUENEBURG							0	8	1	-	-	2	11		11
034	WESER-EMS	-	-	1	-	-	-	1	3	-	-	-	-	3		4
040	BREMEN							0						0		0
051	DUESSELDORF							0						0		0
053	KOELN	-	-	-	3	-	-	3	9	-	-	1	-	10		13
055	MUENSTER							0						0		0
057	DETMOLD	2	-	-	-	4	-	6	12	-	1	3	-	16		22
059	ARNSBERG	-	-	2	1	2	-	5	10	-	2	1	-	13		18
061	DARMSTADT	-	3	4	-	1	-	8	62	-	3	2	-	67		75
062	KASSEL	1	8	5	-	6	-	20	27	2	4	12	-	45		65
071	KOBLENZ	3	2	6	-	2	-	13	40	-	5	2	-	47		60
072	TRIER	3	5	9	2	6	-	25	47	2	5	-	-	54		79
073	RHEINHESSEN-PFALZ	-	2	-	-	1	-	3	9	-	1	2	-	12		15
081	STUTTGART	1	1	-	-	-	-	2	22	-	1	-	-	23		25
082	KARLSRUHE	2	5	-	-	-	-	7	53	7	4	6	-	70		77
083	FREIBURG	2	2	4	1	-	-	9	145	10	2	7	-	164		173
084	TUEBINGEN	4	3	5	1	-	-	13	144	1	5	2	1	153		166
091	OBERBAYERN	1	2	2	-	3	-	8	51	1	3	3	1	59		67
092	NIEDERBAYERN							0	2	-	-	-	-	2		2
093	OBERPFALZ	2	-	1	-	-	-	3	34	-	6	-	-	40		43
094	OBERFRANKEN	1	1	-	-	-	-	2	25	-	5	1	-	31		33
095	MITTELFRANKEN	-	1	-	-	-	-	1	-	-	1	-	-	1		2
096	UNTERFRANKEN	3	-	-	-	-	-	3	27	1	1	3	-	32		35
097	SCHWABEN	2	4	3	-	-	-	9	47	4	4	4	-	59		68
100	SAARLAND	-	2	-	-	1	-	3	7	-	-	1	-	8		11
110	BERLIN (WEST)							0						0		0
TOTAL		28	44	44	8	26	0	150	810	29	55	54	4	952	0	1102
PER CENT		2.5	4.0	4.0	0.7	2.4	0.0	13.6	73.5	2.6	5.0	4.9	0.4	86.4	0.0	100.0

FRA FRANCE

RABIES CASES

1. 4.81 - 30. 6.81

LOCATION CODE NAME		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
01	AIN	-	1	-	-	-	-	0	3	-	-	-	-	3		3
02	AISNE	-	1	-	-	-	-	1	12	-	-	-	-	12		13
08	ARDENNES	1	3	2	-	-	-	6	1	-	-	-	-	1		7
10	AUBE	-	1	-	-	-	-	1	20	-	-	-	-	20		21
21	COTE D'OR	-	1	5	-	1	-	7	35	1	-	-	3	39		46
25	DOUBS	-	1	-	-	2	-	3	34	1	-	-	1	36		39
51	MARNE	-	-	-	-	1	-	1	7	-	-	-	-	7		8
52	MARNE (HAUTE)	1	-	-	-	1	-	2	6	-	-	-	-	6		8
54	MEURTHE-ET-MOSELLE	-	1	3	-	-	-	4	40	-	-	-	2	42		46
55	MEUSE	2	7	32	-	2	-	43	32	-	-	1	-	33		76
57	MOSELLE	1	1	5	-	-	-	7	12	-	-	-	-	12		19
60	OISE	1	-	1	-	-	-	2	10	-	-	-	-	10		12
67	RHIN (BAS)	-	-	-	-	-	-	0	3	-	-	-	-	3		3
68	RHIN (HAUT)	-	-	-	-	-	-	0	3	-	-	-	-	3		3
70	SAONE (HAUTE)	-	3	1	2	2	-	8	36	-	-	-	-	36		44
74	SAVOIE (HAUTE)	2	1	-	-	-	-	3	15	1	-	-	1	17		20
76	SEINE MARITIME	-	-	-	-	-	-	0	2	-	-	-	-	2		2
88	VOSGES	1	-	-	-	4	-	5	25	-	-	-	-	25		30
89	YONNE	1	1	-	-	-	-	2	4	-	-	-	-	4		6
90	TERR. DE BELFORT	-	-	-	-	1	-	1	5	-	-	-	-	5		6
TOTAL		10	21	49	2	14	0	96	305	3	0	1	7	316	0	412
PER CENT		2.4	5.1	11.9	0.5	3.4	0.0	23.3	74.0	0.7	0.0	0.2	1.7	76.7	0.0	100.0

HUN HUNGARY

RABIES CASES

1. 4.81 - 30. 6.81

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	3	-	-	-	-	3		3
02	BARANYA	-	1	-	-	-	-	1	3	-	-	-	-	3		4
03	BACS-KISKUN	1	-	1	-	-	-	2	10	-	-	-	-	10		12
04	BEKES							0	6	-	-	-	-	6		6
05	BORSOD-ABAU-ZEMPLEN							0	8	-	-	-	-	8		8
06	CSONGRAD	-	1	-	-	-	-	1	5	-	-	-	-	5		6
07	FEJER	-	1	-	-	-	-	1	4	-	-	-	-	4		5
08	GYOER-SOPRON							0	3	-	-	-	-	3		3
09	HAJDU-BIHAR	1	2	-	-	-	-	3						0		3
10	HEVES	1	-	-	-	-	-	1	1	-	-	-	-	1		2
11	KOMAROM							0	3	-	-	-	-	3		3
12	NOGRAD	1	-	-	-	-	-	1	2	-	-	-	-	2		3
13	PEST	1	-	-	-	-	-	1	11	-	-	-	-	11		12
14	SOMOGY							0	11	-	-	-	-	11		11
15	SZABOLCS-SZATMAR	2	1	-	-	-	-	3	1	-	-	-	-	1		4
16	SZOLNOK	1	1	-	-	-	-	2	4	-	-	-	-	4		6
17	TOLNA	1	-	-	-	-	-	1	2	-	-	-	-	2		3
18	VAS							0	11	-	-	-	-	11		11
19	VESZPREM							0	7	-	-	-	-	7		7
20	ZALA							0	10	-	-	-	-	10		10
TOTAL		9	7	1	0	0	0	17	105	0	0	0	0	105	0	122
PER CENT		7.4	5.7	0.8	0.0	0.0	0.0	13.9	86.1	0.0	0.0	0.0	0.0	86.1	0.0	100.0

LUX

L U X E M B O U R G

R A B I E S C A S E S

1. 4.81 - 30. 6.81

LOCATION		D O M E S T I C A N I M A L S						W I L D A N I M A L S						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
0404	NIEDERANVEN							0	1	-	-	-	-	1		1
0405	SANDWEILER							0	1	-	-	-	-	1		1
0407	STEINSEL							0	1	-	-	-	-	1		1
0409	WALFERDANGE							0	1	-	-	-	-	1		1
0504	FISCHBACH							0	1	-	-	-	-	1		1
0506	LAROCLETTE							0	1	-	-	-	-	1		1
0508	LORENTZWEILER	-	-	1	-	-	-	1	1	-	-	-	-	1		2
0509	MERSCH							0	1	-	-	-	-	1		1
0602	BOEVANGE (CLERVAUX)							0	1	-	-	-	-	1		1
0710	MEDERNACH							0	1	-	-	-	-	1		1
0713	SCHIEREN	-	-	1	-	-	-	1						0		1
0911	WILTZ							0	1	-	-	-	-	1		1
1105	ECHTERNACH							0	2	-	-	-	-	2		2
1203	FLAXWEILER							0	-	-	1	-	-	1		1
1205	JUNGLINSTER							0	1	-	-	-	-	1		1
1207	MERTERT	-	-	-	1	-	-	1						0		1
TOTAL		0	0	2	1	0	0	3	14	0	1	0	0	15	0	18
PER CENT		0.0	0.0	11.1	5.6	0.0	0.0	16.7	77.8	0.0	5.6	0.0	0.0	83.3	0.0	100.0

ITA

ITALY

RABIES CASES

1. 1.81 - 31. 3.81

LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
12060	CASTELLINO TANARO							0	1	-	-	-	-	1		1
23010	VAL MASINO							0	1	-	-	-	-	1		1
23030	MAZZO DI VALTELLIN							0	1	-	-	-	-	1		1
23030	RAVOLEDO							0	1	-	-	-	-	1		1
23030	TOVO DI SANT'AGATA							0	1	-	1	-	-	2		2
23030	VALDISOTTO							0	1	-	-	-	-	1		1
23030	VALFURVA							0	1	-	-	-	-	1		1
23032	BORMIO							0	1	-	-	-	-	1		1
23033	GROSIO							0	14	-	-	-	-	14		14
23034	GROSOTTO							0	2	-	-	-	-	2		2
23035	SONDALO							0	7	-	-	-	-	7		7
23100	SONDRIO							0	1	-	-	-	-	1		1
33010	REANA DEL ROJALE							0	1	-	-	-	-	1		1
33015	MOGGIO UDINESE							0	1	-	-	-	-	1		1
33020	PRATO CARNICO							0	1	-	-	-	-	1		1
33020	RIGOLATO							0	1	-	-	-	-	1		1
33023	COMEGLIANS							0	1	-	-	-	-	1		1
39020	CURON VENOSTA							0	2	-	-	-	-	2		2
39020	GLORENZA							0	1	-	-	-	-	1		1
39020	SLUDERNO							0	3	-	-	-	-	3		3
39024	MALLES VENOSTA							0	9	-	2	-	-	11		11
TOTAL		0	0	0	0	0	0	0	52	0	3	0	0	55	0	55
PER CENT		0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.5	0.0	5.5	0.0	0.0	100.0	0.0	100.0

ITA ITALY

RABIES CASES

1. 4.81 - 30. 6.81

LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL
CODE	NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS		
12016	PEVERAGNO							0	1	-	-	-	-	1	1
12055	DIANO D'ALBA							0	1	-	-	-	-	1	1
23030	BIANZONE							0	1	-	-	-	-	1	1
23030	CEPINA VALDISOTTO							0	1	-	-	-	-	1	1
23030	LIVIGNO							0	7	-	-	-	-	7	7
23030	MAZZO DI VALTELLIN							0	4	-	-	-	-	4	4
23030	MONDADIZZA							0	1	-	-	-	-	1	1
23030	SERNIO							0	1	-	-	-	-	1	1
23030	VALDISOTTO							0	4	-	-	-	-	4	4
23030	VALFURVA							0	1	-	-	-	-	1	1
23033	GROSIO							0	3	-	-	-	-	3	3
23034	GROSOTTO							0	6	-	-	-	-	6	6
23035	SONDALO							0	13	-	-	-	-	13	13
23037	TIRANO							0	4	-	-	-	-	4	4
23038	VALDIDENTRO							0	4	-	-	-	-	4	4
25059	VEZZA D'OGLIO							0	1	-	-	-	-	1	1
33020	PRATO CARNICO	-	1	-	-	-	-	1	1	-	-	-	-	1	2
33024	FORNI DI SOPRA							0	-	1	-	-	-	1	1
33026	PALUZZA							0	1	-	-	-	-	1	1
33040	DRENCHIA							0	4	-	-	-	-	4	4
33040	GRIMACCO							0	1	-	-	-	-	1	1
33040	PREPOTTO							0	1	-	-	-	-	1	1
33040	SAN LEONARDO DEL F							0	1	-	-	-	-	1	1
39020	CURON VENOSTA							0	7	2	-	-	-	9	9
39020	SAN VALENTINO MUTT							0	1	-	-	-	-	1	1
39020	SLUDERNO							0	6	2	2	-	-	10	10
39020	STELVIO							0	1	-	-	-	-	1	1
39020	TUBRE							0	3	-	-	-	-	3	3
39023	LASA							0	3	-	1	-	-	4	4
39024	MALLES VENOSTA							0	18	2	2	1	-	23	23
39026	PRATO ALLO STELVIO							0	4	1	-	-	-	5	5
TOTAL		0	1	0	0	0	0	1	105	8	5	1	0	119	120
PER CENT		0.0	0.8	0.0	0.0	0.0	0.0	0.8	87.5	6.7	4.2	0.8	0.0	99.2	100.0

POL

POLAND

RABIES CASES

1. 4.81 - 30. 6.81

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
17 ELBLAG							0	-	-	-	-	1	1		1
19 GDANSK	1	-	1	-	-	-	2	1	-	-	1	-	2		4
23 JELENIA GORA	1	-	-	-	-	-	1	3	-	-	-	-	3		4
25 KALISZ							0	2	-	-	-	-	2		2
31 KONIN	1	-	-	-	-	-	1	-	-	-	2	-	2		3
33 KOSZALIN	1	-	2	-	-	-	3	1	-	-	-	-	1		4
39 LEGNICA							0	3	1	-	-	-	4		4
41 LESZNO							0	1	-	-	-	-	1		1
43 LUBLIN	-	1	-	-	-	-	1	1	-	-	-	-	1		2
49 NOWY SACZ							0	1	-	-	-	-	1		1
51 OLSZTYN	-	1	1	-	-	-	2	1	1	-	-	-	2		4
57 PILA							0	2	-	-	-	-	2		2
63 POZNAN	1	-	-	-	-	-	1	1	-	1	-	-	2		3
71 SIEDLCE							0	1	-	-	-	-	1		1
77 SLUPSK	1	-	-	-	-	-	1	2	-	-	-	-	2		3
79 SUWALKI	1	-	1	-	-	-	2	-	-	-	1	2	3		5
81 SZCZECIN	1	-	-	-	-	-	1	11	-	-	-	-	11		12
87 TORUN	1	-	1	-	-	-	2	-	-	-	-	-	0		2
89 WALBRZYCH							0	2	-	-	-	-	2		2
93 WROCLAW							0	1	-	-	-	-	1		1
95 ZAMOSC	1	-	-	-	-	-	1	2	-	-	-	-	2		3
97 ZIELONA GORA							0	3	-	-	-	-	3		3
TOTAL	10	2	6	0	0	0	18	39	2	1	4	3	49	0	67
PER CENT	14.9	3.0	9.0	0.0	0.0	0.0	26.9	58.2	3.0	1.5	6.0	4.5	73.1	0.0	100.0

SWI

SWITZERLAND

RABIES CASES

1. 4.81 - 30. 6.81

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	AARGAU	-	-	1	-	-	-	1	-	1	-	-	-	1	-	2
04	BASEL-STADT	-	-	-	-	-	-	0	2	1	-	1	-	4	-	4
05	BASEL-LAND	-	1	-	-	2	-	3	3	-	1	-	-	4	-	7
06	BERN	-	-	1	-	1	-	2	14	4	1	1	-	20	-	22
07	FREIBURG	1	1	1	-	-	-	3	13	2	-	1	-	16	-	19
08	GENEVE	-	1	-	-	-	-	1	8	2	-	-	-	10	-	11
09	GLARUS	-	1	2	-	-	-	3	16	2	-	-	-	18	-	21
10	GRAUBUENDEN	-	1	-	1	-	-	2	76	5	1	2	-	84	-	86
11	LUZERN	-	-	-	-	-	-	0	2	-	-	-	-	2	-	2
12	NEUCHÂTEL	-	1	-	-	-	-	1	3	2	2	-	-	7	-	8
15	SCHAFFHAUSEN	-	-	-	-	-	-	0	4	-	1	-	-	5	-	5
16	SCHWYZ	-	1	-	-	-	-	1	10	3	-	1	-	14	-	15
17	SOLOTHURN	-	2	-	-	-	-	2	1	1	1	-	-	3	-	5
18	ST. GALLEN	-	-	-	-	1	-	1	9	1	-	-	-	10	-	11
20	THURGAU	-	1	1	-	-	-	2	5	1	-	-	-	6	-	8
22	VAUD	2	9	2	-	5	-	18	79	-	2	1	-	82	-	100
25	ZÜRICH	-	1	-	-	-	-	1	17	1	1	-	-	19	-	20
26	JURA	-	1	1	-	3	-	5	1	1	-	-	-	2	-	7
TOTAL		3	21	9	1	12	0	46	263	27	10	7	0	307	0	353
PER CENT		0.8	5.9	2.5	0.3	3.4	0.0	13.0	74.5	7.6	2.8	2.0	0.0	87.0	0.0	100.0

TUR

TURKEY

RABIES CASES

1. 4.81 - 30. 6.81

LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS		
001	ADANA	7	-	1	-	-	-	8						0	8
003	AFYON	3	-	4	-	-	-	7						0	7
004	AGRI	1	-	3	-	-	-	4						0	4
005	AMASYA	10	-	5	-	1	-	16						0	16
006	ANKARA	27	-	8	-	-	1	36						0	36
007	ANTALYA	2	-	6	-	-	-	8						0	8
009	AYDIN	19	-	7	-	1	-	27						0	27
010	BALIKESIR	5	1	4	-	2	-	12	1	-	-	-	-	1	13
011	BILECIK	1	-	-	-	-	-	1						0	1
012	BINGOEL	1	-	-	-	-	-	1						0	1
014	BOLU	10	-	3	-	-	-	13						0	13
016	BURSA	33	2	3	-	8	-	46						0	46
017	CANAKKALE	5	-	2	-	1	-	8						0	8
018	CANKIRI	5	-	2	-	-	-	7	-	-	-	-	1	1	8
019	CORUM	8	-	2	-	2	-	12						0	12
020	DENIZLI	9	2	2	-	2	1	16						0	16
021	DIYARBAKIR	3	-	1	-	-	-	4						0	4
022	EDIRNE	5	-	2	-	-	-	7						0	7
023	ELAZIG	3	-	1	-	-	-	4						0	4
025	ERZURUM	3	3	-	-	-	-	6						0	6
026	ESKISEHIR	2	-	-	-	-	-	2						0	2
027	GAZIANTEP	2	-	-	-	-	-	2						0	2
028	GIRESUN	9	5	4	-	1	-	19						0	19
029	GUEMUESHANE							0	1	-	-	-	-	1	1
033	ICEL	1	-	-	-	-	-	1						0	1
034	ISTANBUL	51	2	2	-	-	-	55						0	55
035	IZMIR	47	6	4	1	-	1	59	-	-	-	-	1	1	60
036	KARS	5	-	1	-	-	-	6						0	6

TUR CONTINUED

LOCATION CODE NAME		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
037	KASTAMONU	3	1	2	-	-	-	6						0		6
038	KAYSERI	1	1	1	-	-	1	4						0		4
039	KIRKLARELI	4	-	-	-	1	-	5						0		5
040	KIRSEHIR	1	-	-	1	-	-	2						0		2
041	KOCAELI	12	-	3	-	1	-	16	-	-	-	-	1	1		17
042	KONYA	14	2	1	-	-	-	17						0		17
043	KUETAHYA	1	-	3	-	1	-	5						0		5
044	MALATYA	1	-	-	-	-	-	1	-	-	-	-	1	1		2
045	MANISA	14	-	3	-	-	1	18						0		18
047	MARDIN	1	-	4	-	-	1	6						0		6
048	MUGLA	2	-	-	-	-	-	2						0		2
050	NEVSEHIR	1	-	-	-	-	-	1						0		1
052	ORDU	18	1	6	-	-	-	25						0		25
054	SAKARYA	19	-	10	-	-	-	29						0		29
055	SAMSUN	29	3	16	1	1	2	52						0		52
057	SINOP	6	-	5	-	-	-	11						0		11
058	SIVAS	1	-	1	-	-	-	2						0		2
059	TEKIRDAG	5	1	-	-	-	-	6						0		6
060	TOKAT	3	-	2	1	-	1	7						0		7
061	TRABZON	1	-	-	-	-	-	1						0		1
062	TUNCELI	1	-	3	-	-	-	4						0		4
064	USAK	1	-	1	-	-	-	2						0		2
066	YOZGAT	7	-	4	-	-	2	13						0		13
067	ZONGULDAK	3	-	7	-	-	-	10						0		10
TOTAL		426	30	139	4	22	11	632	2	0	0	0	4	6	0	638
PER CENT		66.8	4.7	21.8	0.6	3.4	1.7	99.1	0.3	0.0	0.0	0.0	0.6	0.9	0.0	100.0

YUG

YUGOSLAVIA

RABIES CASES

1. 4.81 - 30. 6.81

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
III/ 16	IVANICGRAD							0	3	-	-	-	-	3		3
III/ 18	VRBOVEC							0	1	-	-	-	-	1		1
III/ 19	ZELINA							0	1	-	-	-	-	1		1
III/ 23	PREGRADA							0	5	-	-	-	-	5		5
III/ 24	ZLATAR BISTRICA							0	3	-	-	-	-	3		3
III/ 25	IVANEC							0	5	-	-	-	-	5		5
III/ 26	VARAZDIN							0	2	-	-	-	-	2		2
III/ 27	CAKOVEC							0	1	-	-	-	-	1		1
III/ 28	NOVI MAROF							0	2	-	-	-	-	2		2
III/ 30	KRIZEYCI							0	1	-	-	-	-	1		1
III/ 32	DURDEVAC							0	1	-	-	-	-	1		1
III/ 40	GRUBISNO POLJE	-	-	-	-	1	-	1						0		1
III/ 41	VIROVITICA							0	2	-	-	-	-	2		2
III/ 44	NOVA GRADISKA							0	1	-	-	-	-	1		1
III/ 52	BELI MANASTIR							0	1	-	-	-	-	1		1
V / 1	LJUBLJANA							0	5	-	-	-	1	6		6
V / 2	VRHNIKA							0	2	-	-	-	1	3		3
V / 4	LOGATEC	-	1	-	-	-	-	1	3	-	-	-	-	3		4
V / 12	NOVA GORICA	-	1	-	-	-	-	1	22	-	-	-	2	24		25
V / 13	IDRIJA	-	1	-	-	-	-	1	19	-	-	-	4	23		24
V / 14	TOLMIN	1	4	-	-	-	-	5	33	-	-	-	3	36		41
V / 15	RADOVLJICA							0	23	-	-	-	3	26		26
V / 16	JESENICE							0	2	-	-	-	-	2		2
V / 17	SKOFJA LOKA							0	21	-	-	-	1	22		22
V / 18	TRZIC	1	-	-	-	-	-	1	12	-	-	-	2	14		15
V / 19	KRANJ	3	4	-	-	-	-	7	70	-	-	-	16	86		93
V / 20	KAMNIK	1	-	-	-	-	-	1	39	-	-	-	9	48		49
V / 21	DOMZALE							0	35	-	-	-	2	37		37
V / 32	LITIJA							0	6	-	-	-	-	6		6
V / 33	ZAGORJE OB SAVI							0	19	-	-	-	1	20		20
V / 34	MOZIRJE	-	1	-	-	-	-	1	31	-	-	-	1	32		33
V / 35	ZALEC	1	-	-	-	-	-	1	82	-	-	-	4	86		87
V / 36	TRBOVLJE							0	5	-	-	-	-	5		5
V / 37	VELENJE							0	1	-	-	-	-	1		1

YUG

CONTINUED

LOCATION		DOMESTIC ANIMALS						WILD ANIMALS						HUMAN CASES	TOTAL	
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS			TOTAL
V / 38	SLOVENJGRADEEC							0	15	-	-	-	3	18		18
V / 39	RAVNE NA KOROSKE							0	7	-	-	-	4	11		11
V / 40	DRAVOGRAD							0	2	-	-	-	2	4		4
V / 41	RADLJE OB DRAVI							0	33	-	-	-	1	34		34
V / 42	MARIBOR	-	1	-	-	-	-	1	54	-	-	-	6	60		61
V / 43	SLOV.KONJICE							0	10	-	-	-	2	12		12
V / 44	CELJE	-	1	-	-	-	-	1	23	-	-	-	3	26		27
V / 45	HRASTNIK							0	3	-	-	-	-	3		3
V / 46	LASKO							0	5	-	-	-	-	5		5
V / 47	SENTJUR PRI CELJ	1	-	-	-	-	-	1	11	-	-	-	-	11		12
V / 48	SMARJE PRI JELSA							0	28	-	-	-	1	29		29
V / 49	SLOV.BISTRICA	1	-	-	-	-	-	1	74	-	-	-	3	77		78
V / 50	PTUJ							0	11	-	-	-	-	11		11
V / 55	MURSKA SOBOTA							0	1	-	-	-	-	1		1
VI / 1	BEOGRAD							0	1	-	-	-	-	1		1
VI1/ 1	NOVI SAD							0	2	-	-	-	-	2		2
VI1/ 3	TITEL	-	1	-	-	-	-	1					0			1
VI1/ 4	ZABALJ							0	1	-	-	-	-	1		1
VI1/ 16	ZRENJANIN							0	1	-	-	-	-	1		1
VI1/ 19	PANCEVO							0	1	-	-	-	-	1		1
VI1/ 22	VRSAK							0	1	-	-	-	-	1		1
VI1/ 26	ZITISTE							0	2	-	-	-	-	2		2
VI1/ 28	KIKINDA							0	1	-	-	-	-	1		1
VI1/ 30	BECEJ							0	2	-	-	-	-	2		2
VI1/ 32	ADA							0	1	-	-	-	-	1		1
VI1/ 33	COKA							0	2	-	-	-	-	2		2
VI1/ 38	NOVI KNEZEVAC							0	2	-	-	-	-	2		2
VI1/ 40	SOMBOR	-	1	-	-	-	-	1	2	-	-	-	-	2		3
VI1/ 41	KULA							0	1	-	-	-	-	1		1
VI1/ 43	BAC							0	1	-	-	-	-	1		1
TOTAL		9	16	0	0	1	0	26	757	0	0	0	75	832	0	858
PER CENT		1.0	1.9	0.0	0.0	0.1	0.0	3.0	88.2	0.0	0.0	0.0	8.7	97.0	0.0	100.0

USRUNION OF SOVIET SOCIALIST REPUBLICS
(EUROPEAN PART)R A B I E S C A S E S
IN ANIMALS

1. 1.81 - 31. 3.81

LOCATION CODE NAME	D A T E S			T O T A L
	1. 1. - 31. 1.	1. 2. - 28. 2.	1. 3. - 31. 3.	
01 RSFSR				
011 REGIONS OF THE NORTH AND THE NORTH-WEST	-	-	-	-
012 REGIONS OF THE CENTRE	3	5	5	13
013 REGIONS OF THE NORTH CAUCASUS	1	2	2	5
014 REGIONS OF THE POVOLJE AND THE URALS	9	11	14	34
02 THE MOLDAVIAN SSR	2	4	1	7
03 THE UKRAINIAN SSR	14	27	12	53
04 THE BYELORUSSIAN SSR	3	6	7	16
05 THE LITHUANIAN SSR	1	-	1	2
06 THE LATVIAN SSR	3	2	3	8
07 THE ESTONIAN SSR	2	1	1	4
TOTAL	38	58	46	142

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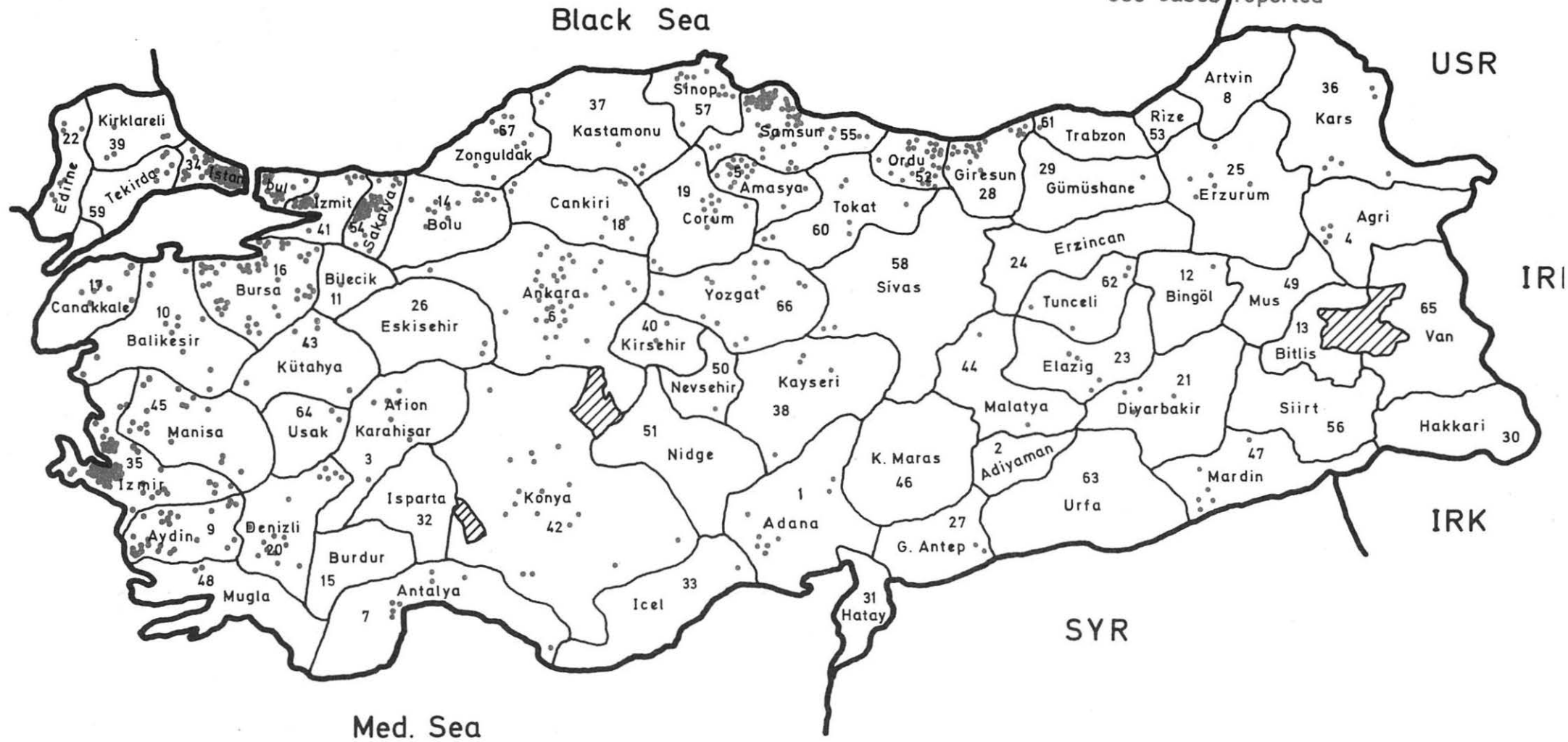
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Rabies Cases Europe
2nd Quarter 1981
4602 cases reported