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WHO Collaborating Centre for Rabies Surveillance and Research

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C O N T E N T S

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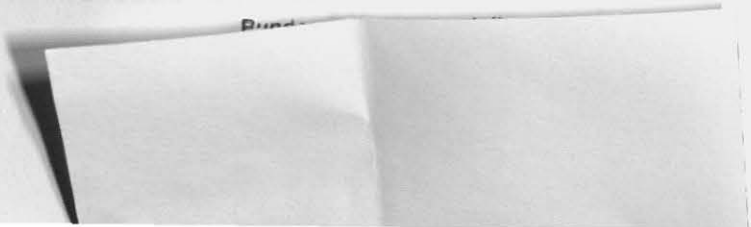

1. INTRODUCTION

1.1 Contents of the Bulletin

This issue describes the reported rabies position in Europe for the first quarter 1981. The situation is described in general under 2. and for individiual European countries under 2.1 to 2.25. Case data reported to the Centre are tabulated under 4.

No data were received from the European part of the USSR for the 1st quarter 1981; rabies in the 4th quarter 1980 is described under 2.24. Four months data (January to April) were received from Italy.

A WHO Consultation on Natural Barriers of Wildlife Rabies in Europe took place in Vienna from April 28 - May 1, 1981. The background, together with summaries of some of the papers read is given in section 3 of the Bulletin. The next issue will contain further summaries together with the main conclusions and recommendations of the Consultation.

Section 3 also contains a note on rabies in the United States during 1980.

The geographic distribution of rabies incidence in Europe during the 1st quarter 1981 is shown on the maps in the Annex.

2. RABIES IN EUROPE, 1ST QUARTER 1981

Table 1 on page 15 summarises the rabies case data reported to the Centre for the period January to March 1981. This table includes the data from Italy (January to April), as do the figures below.

A total of 5369 cases were reported for the 1st quarter - an increase in incidence of 680 cases or 14.5%. The proportion of cases in wild animals rose from 70.9% in the previous quarter to 82.2% in the 1st quarter 1981; the percentage involvement of the fox rose from 63.1% to 75% and thus although the increase in incidence in all animals was 14.5% the increase in foxes was 36%.

Rabies incidence in Austria, Belgium, Hungary, Luxembourg, Switzerland and Yugoslavia was higher during the 1st quarter 1981 than the 4th quarter 1980. In the German Democratic Republic, German Federal Republic, France, Poland and Turkey, the incidence decreased.

4413 of total rabies cases were in wild animals. There were 4026 cases in foxes (75% of total), 164 (3.1%) in mustelids and 172 (3.2%) in deer. Of the domestic animal cases there were 462 (8.6% of total cases) in dogs, 201 (3.7%) in cats and 168 (3.1%) in cattle. 78% of all dog rabies cases were reported from Turkey. The number of cases in cattle fell from 510 in the previous quarter to 168 in the 1st quarter 1981.

Hungary, the German Federal Republic, France and Switzerland reported between 43% and 46% of rabies in March. In contrast, Poland reported about 1/3 of cases in each month.

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

One case of rabies in man was reported in the German Democratic Republic.

In comparison with the 1st quarter 1980, there has been an overall reduction of 5.6%. The table below gives the figures for the 1st quarter of 1979, 1980 and 1981 and shows the changes in individual countries.

Country	1st quarter 1979	1st quarter 1980	1st quarter 1981
AUT	788	250	197
BEL	8	11	24
CZE	143	435	272
DEN	36	22	2
DDR	396	535	474
DEU	1244	2014	1611
FRA	533	589	552
HUN	546	381	314
ITA	30	3	103 (4 months)
LUX	3	3	16
POL	215	274	198
RUM	-	35	26
SWI+LIE	369	390	383
TUR	517	507	479
YUG	124	224	686

Individual country reports are as follows:

2.1 Rabies in Austria (AUT)

by W. Krocza and E. Scharfen

During the 1st quarter 1981, 197 rabies cases were registered in Austria; an increase of 85 cases since the 4th quarter 1980. Of the total, there were 195 cases in wild animals and 2 in domestic animals.

Although 14% fewer animals were sent in for examination during this reporting period than in the 4th quarter 1980, the percentage rabies positive rose from 4.6% to 9.4%. Since this was the expected peak period for rabies cases, the rise in the proportion positive is less disturbing than the continued decline in the number of animals sent for examination.

At present, the frontwave appears in the shape of a broad curving band covering the districts Scheibbs and Amstetten in Lower Austria, and the districts Liezen (eastern part) Bruck an der Mur, Mürzzuschlag, Graz-Umgebung and finally Voitsberg in Styria. The infection of the southern border districts Deutschlandsberg and Leibnitz has to be considered as separate to the frontwave.

In Carinthia, the observed increase (from 12 to 27) in the number of positive cases indicates the possibility of a relapse. Only isolated cases occurred in Völkermarkt, Wolfsberg and St. Veit with rather more in the districts Hermagor, Spital an der Drau and Villach Land.

In the west, isolated cases were found in Dornbirn and Bregenz in the Bundesland Vorarlberg. The districts Landeck, Imst and Kufstein in Tirol still had many rabies cases.

The Bundeslaender Vienna, Burgenland and Salzburg were free of rabies.

2.2 Rabies in Belgium (BEL)

by R. Depierreux

24 cases of rabies were diagnosed in Belgium during the 1st quarter of 1981. There were 22 cases in foxes and, despite the legal obligation to vaccinate, 2 cases in dogs.

All cases came from either the south east of the province of Liège (18 cases) or a limited zone in the north east of the province of Luxembourg (6 cases) adjacent to Liège province.

When the communities infected with rabies in 1980 are compared with those infected in the 1st quarter 1981, it is observed that all newly infected communities are situated to the north of those reached in 1980. The zone of rabies infection is therefore still restricted to the Belgium-Luxembourg border area. This tends to confirm ideas formed during previous episodes of the epizootic; that rabies is restricted to the south eastern corner of Belgium because of habitat factors.

2.3 Rabies in Bulgaria (BUL)

No cases were reported during the 1st quarter 1981.

2.4 Rabies in Czechoslovakia (CZE)

by Dr. Neumann

The number of rabies positive animals reported during the 1st quarter 1981 was 272. In comparison with the same period of 1980 when 435 cases were registered, there has been a reduction of 37.4%. 91.2% of cases were found in the Czech Socialist Republic (west Czechoslovakia) and 8.8% in the Slovak Socialist Republic.

Wildlife species accounted for 93.0% of all cases and the fox for 90.1%. Rabies in domestic animals (7.0%) was diagnosed in dogs (8 cases, 2.9%), cats (10 cases, 3.7%) and cattle (1 case, 0.4%).

Rabies was reported most frequently from the districts in the north west of Czechoslovakia (North and West Bohemia). From West Bohemia rabies has spread eastwards into Rakovník (13 rabid foxes) in Central Bohemia and further spread towards the interior can be anticipated.

No cases of human rabies were reported during the period.

2.5 Rabies in Denmark (DEN)

by S. Møllgaard

During the 1st quarter 1981, two incidences of rabies were reported - a case of cattle rabies in January and a case of fox rabies in February.

The cow had been sold in June 1980 from a herd in the combat zone and was moved to another herd outside the zone. The fox was found near Haderslev in an area free from rabies in wild animals for about 5 months. The gassing of fox dens and poisoning of foxes with strychnine has been immediately put into effect.

2.6 Rabies in Germany, Democratic Republic (DDR)

474 rabies incidences were reported in the German Democratic Republic during the 1st quarter 1981. This is 61 fewer (-11.4%) than the 1st quarter 1980 and 59 fewer (-11.1%) than the 4th quarter 1980. Of the total there were 380 cases in wild animals and 93 in domestic animals. Dogs and cats (74 cases) accounted for 15.7% and foxes (338 cases) 71.3% of reported rabies.

Most Bezirke reported either a decrease in rabies incidence or very little change. The exceptions were Potsdam and Frankfurt an der Oder in the centre of the Republic where incidence increased from 44 to 53 and 31 to 36 respectively. These Bezirke reported more than 1/4 of all cases in cats and dogs and the increase of rabies in these animals accounts for the increase of reported rabies. The Bezirk Suhl in the south of the country also reported an increase; this region had the highest density of reported rabies (1 case per 68 km^2).

One case of rabies in man was reported from the Bezirk Potsdam. No details are known.

2.7 Rabies in Germany, Federal Republic (DEU)

1623 rabies cases were registered in the Federal Republic of Germany during the 1st quarter 1981. 43% of cases were recorded in March. There were 1476 incidences (90.9%) in wild animals; 1259 (77.6%) in foxes, 96 (5.9%) in mustelids, 113 (7.0%) in deer and 8 in other species. Of the domestic animal cases, there were 16 (1.0%) in dogs and 46 (2.8%) in cats.

In comparison with the previous quarter (1678 cases) there is little change in the total number of rabies cases (a reduction of 3.3%) but the relative involvement of the species differs. In the 4th quarter 1980, 80.4% of cases were in wild animals with 67.9% in foxes whereas in the 1st quarter 1981 there were 90.9% in wild animals and 77.6% in foxes. Thus despite the overall reduction of 3.3%, fox rabies incidence increased by 10.5% (from 1139 to 1259). Rabies in mustelids increased from 80 in the 4th quarter to 96 in the 1st quarter and the number of cases in deer remained the same at 113. In domestic animals, the incidence in dogs, cats, cattle and horses decreased in comparison with the 4th quarter. This was most notable in cattle where incidence fell from 190 to 37. The number of cases in sheep increased.

Geographically, no clear trend was apparent for the whole of the country. In Hessen and Baden-Wuerttemberg there was little change in the total number of cases; -1.5% in the former and -3.5% in Baden-Wuerttemberg. In Bayern, all regierungsbezirke except Oberpfalz reported fewer cases and there was an overall reduction of 14.6%. In contrast, Rheinland-Pfalz reported an increase of 63.9%, from 158 in the previous quarter to 259 in the present quarter. This increase was most noticeable in Trier where rabies continues to spread northwards.

2.8 Finland (FIN)

The country remained rabies-free.

2.9 Rabies in France (FRA)
by J. Blancou

A total of 552 cases of animal rabies were registered during the first three months of 1981, comprising 72 cases in domestic animals and 480 in wild animals (473 in foxes).

Compared with the 4th quarter 1980 (374 cases) there has been an increase in incidence of 32.2%. In the 1st quarter 1980, 589 cases were reported; a reduction in incidence since then of 6.3%.

Despite the first quarter of a year being the customary peak period in the rabies epizootic, there does not appear to have been any advance of the rabies front since the previous quarter.

2.10 Rabies in Greece (GRE)

No cases were reported during the 1st quarter 1981.

2.11 United Kingdom (GBR)

The country remained rabies-free.

2.12 Rabies in Hungary (HUN)

During the 1st quarter 1981, 314 rabies cases were reported from Hungary. There were 292 cases of fox rabies (93%), 2 other wild species cases (badger and wild cat) and 20 cases in domestic animals. 43% of cases were reported in March.

Compared with the preceding quarter the number of incidences increased from 204 to 314. Despite this large increase, the trend since 1978 has been of gradual reduction:

		Total cases
January-March	1977	221
	1978	628
	1979	546
	1980	381
	1981	314

16 of the 20 Hungarian komitates reported an increased incidence of rabies but although the north and west of Hungary reported rather more cases than the south and east, no clear geographic focus or movement can be identified.

2.13 Rabies in Italy (ITA)

The data received covers the months January to April inclusive. This data is nevertheless included in Table 1 - Europe 1st Quarter 1981.

A total of 103 cases of rabies were reported for the four months January to April. This is a very sharp increase from the 4th quarter 1980 when 5 rabies cases were reported. All incidences were wild animals; 97 foxes and 5 mustelids.

The large number of cases is due to a rapid spread of infection from the north west of province Bolzano in north Italy, southwards and westwards into province Sondrio. 34 rabies cases were recorded in Bolzano and 60 in Sondrio. In Udine province in north east Italy, 7 rabies incidences were registered in an area previously infected.

In the west of Italy in province Cuneo two rabies incidences in foxes were registered. This is remarkable since they are apparently at least 150 km from a source of infection.

2.14 Rabies in Luxembourg (LUX)

by A. Schiltges

In the Grand Duchy of Luxembourg a sharp increase of rabies occurred in the 1st quarter 1981. A total of 16 rabies incidences were ascertained; 13 foxes, 2 cattle and 1 sheep. In the previous quarter 13 rabies incidences were reported of which only 8 were in foxes and 5 in cattle.

Cantons in the centre of Luxembourg reported 9 of the 16 cases.

2.15 Netherlands (NET)

The country remained rabies-free.

2.16 Rabies in Norway (NOR)

One case of rabies was identified during the 1st quarter 1981. The incident occurred in March in a polar fox on the Island of Svalbard. Since the outbreak was first recognised in 1980 there have been 18 cases, 14 of which were polar foxes.

2.17 Rabies in Poland (POL)

198 rabies cases were reported from Poland for the 1st quarter 1981. Of the total there were 140 cases (70.7%) in foxes, 13 in dogs and 15 in cats. Compared with the 4th quarter 1980 when 263 cases were reported, there has been a reduction of 25%.

18 of the 33 departments with rabies reported an increase in the number of cases, 12 a decrease and 3 no change. The most noticeable reductions since the previous quarter occurred in Leszno in the south west (15 cases falling to 4) and Olszty and Suwalki in the north east (from 21 to 7 cases and 13 to 4 cases respectively).

There were five cases of rabies in racoon dogs. 4 of these were reported from departments in the north of the country - Gdansk, Elblag, Bydgosa and Olsztyn - with one case from Lublin in the east.

2.18 Portugal (POR)

The country remained rabies-free.

2.19 Rabies in Rumania (RUM)

A total of 26 cases of rabies were registered for the 1st quarter 1981. There were 7 cases of rabies in foxes, 1 case in an unspecified wild animal and 18 in domestic animals - 6 dogs, 2 cats, 2 cattle, 8 sheep or goats. In the 4th quarter 1980, there were 14 reported rabies cases. Notable is the increase in dog rabies from 1 in the previous quarter to 6 in the present.

3 cases of fox rabies were reported from three regions in the north west and another 4 cases from two regions in the east. Incidences in dogs and cats were sporadically reported. 5 of the sheep rabies cases were reported in the region Ilfov in the south of Rumania from where 1 case of fox rabies was reported in the 4th quarter 1980.

2.20 Rabies in Spain (SPA)

One case of rabies was recorded in the 1st quarter of 1981. This was a case of dog rabies in Melilla; the province of Malaga but situated in North Africa.

2.21 Sweden (SWE)

The country remained rabies-free.

2.22 Rabies in Switzerland (SWI)

by A.I. Wandeler

Of 1237 animals received by the Swiss rabies diagnostic centre during the 1st quarter 1981, 252 were positive for rabies. There were 222 cases in wild animals (196 or 77.8% of total in foxes) and 30 in domestic animals. In comparison with the previous quarter the percentage involvement of domestic animals fell from 23% to 12%.

The only marked advance of a frontwave of rabies was observed in the east of the country in the Engadin valley of canton Graubünden. High case densities were seen in the Prättigau of canton Graubünden and in the cantons Geneva, Vaud, Basel-Stadt, Schwyz and Glarus.

During the period of observation, 6 persons were bitten by proven rabid animals, one by a fox and 5 by rabid domestic cats.

Editoral note:
In addition to the 252 positive cases of rabies diagnosed at the Veterinary-Bacteriology Institute in Bern, a further 131 cases were reported from canton Vaud (diagnosed histologically) and there is no doubt that there is a very heavy rabies infection in Vaud in the west of Switzerland. These cases bring the total to 383, 317 in foxes (82.8%) and 35 in domestic animals.

2.23 Rabies in Turkey (TUR)

497 rabies incidences were reported in Turkey during the 1st quarter 1981. Of the total, 491 were cases of domestic animal rabies; 363 (73.0%) dogs, 28 (5.6%) cats and 78 (15.7%) cattle. There were 6 cases in wild animals.

In comparison with the previous quarter a reduction of 115 cases was recorded. The proportion of cases in dogs however increased from 60.8% to 73.0% - a higher percentage than any quarter of 1979 and 1980.

In the provinces Istanbul and Izmir the total number of cases fell from 97 in the previous quarter to 62 in the present quarter - a reduction due mainly to fewer cases in dogs. In many other provinces e.g. Corum, Ordu and Yozgat, in addition to fewer cases of dog rabies there were also fewer cases of cattle rabies.

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

- 4th quarter 1980 -

by V. Pokrovskiy and B. Cherkasskiy

185 cases of rabies in animals were registered in the European part of USSR territory during the 4th quarter 1980. This total is more than during the previous quarter of the year (167 cases) but less than the 4th quarter of 1979 (243 cases). The largest number of rabies cases (42.2%) was registered on the territory of the Ukrainian Soviet Socialist Republic.

2.25 Rabies in Yugoslavia (YUG)

Yugoslavia reported a total of 686 rabies incidences during the 1st quarter 1981. There were 671 cases in wild animals and 15 in domestic animals. Foxes accounted for 643 cases or 93.7% of the total.

Compared with the 4th quarter 1980, rabies incidence more than doubled (336 cases in 4th quarter 1980) and in comparison with the 1st quarter 1980 (224 cases) the increase is 206%.

The rabies infection in Slovenia continued to spread southwards during the reporting period. The number of cases increased from 246 cases in 24 districts in the previous quarter, to 521 cases in 30 districts during the present quarter.

In Wojwodina the number of rabies cases increased from 33 to 78 cases. In contrast to Slovenia however where a distinct wave of rabies infection can be identified, rabies has a more endemic character and the cases are sporadic. The number of cases in Croatia increased from 57 to 87 cases and rabies was largely confined to the north west.

3. MISCELLANEOUS

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

The current rabies epizootic in Europe is characterised by the high incidence in the red fox, Vulpes vulpes. This species is the main reservoir and vector of the disease and therefore knowledge of its behaviour and ecology are very important in reaching an understanding of the way rabies spreads and, the dynamics of the disease in different areas.

Animal borne diseases tend to be associated with specific habitats since the animal species involved is usually found more frequently in some habitats than in others. It has been recognised for some time that features of the landscape influence the way in which a rabies epizootic spreads.

Habitat suitability or preference is revealed by the density of animals found in an area. The fox is ubiquitous in Europe but despite it being a very common species, good estimates of population density in different habitats are not available nor has there yet been a lot of work on behaviour and population ecology in different habitats.

Compounding this basic lack of knowledge is the problem of fox hunting. The fox is hunted throughout Europe but not always with equal effort. Thus fox hunting figures, which have frequently been used as indicators of fox population densities have a questionable validity (different hunting effort in similar habitats may give different fox population estimates and vice versa); differences in hunting indicators of population density may be more a reflection of hunting effort than of real differences in the quality of the habitat for the fox. Further, the methods of reporting the hunting figures differ and different areas and countries are not comparable.

Likewise, work on rabies frequency in wild species relies on the evidence of animals sent for examination which in turn depends on the interest taken in the epidemic i.e. it is usually thought that more animals are sent for examination when rabies is first found in an area. It has been estimated that as few as 2% of rabid animals could be sent for examination and enter the statistics.

The first WHO consultation on Natural Barriers of wildlife rabies in Europe was held in Berne 1979 (see WHO Rabies Bulletin Europe No. 4, 1979). Here the emphasis for research was placed on: a) physical barriers (high mountains, urban agglomerations and large rivers); b) hunting habits in relation to topography and c) unfavourable fox habitat. Barriers to rabies are not absolute but are, nevertheless of enough significance that

they can be considered as adjuncts to wildlife rabies control and in some areas perhaps their function strengthened.

At present the only widely applied control measures are the various methods of fox population reduction; to reduce the population to below that where perpetuation of the disease becomes impossible. Because of the rapid population turnover of foxes this and other forseeable methods - vaccination and/or the use of anti-fertility agents -have or would have to applied every year when rabies threatens an area.

Summarised versions of 5 papers given at the Vienna Consultation are given below. In addition to the summarized versions of more papers, the next Bulletin will include a summary of the main conclusions and recommendations of the meeting.

a) Population dynamics of fox rabies

by R.M. Anderson

The majority of past studies of rabies epidemiology have focussed to a large extent on the empirical description of observed trends. It is argued that a much more dynamic view must be taken of disease persistence and spread in which the quantitative study of population dynamics of both host (the fox) and pathogen (the virus) play a central role. In a recent article[1] a general theoretical model has been developed and its behaviour analysed using quantitative estimates of the parameters which control the interaction between host and pathogen. The model helps explain the observed cyclic behaviour of fluctuations in fox abundance and reported cases of rabies, threshold densities for disease persistence and the low standing prevalence of rabid foxes in enzootic areas. A quantitative discussion is given of the possibilities of controlling rabies by culling and/or vaccination. The major conclusions are threefold:

1. Culling is unlikely to be a practical method of control due to the intrinsic population dynamics of fox populations and the enormous effort required to maintain fox density below the critical density for disease persistence.

2. Control by immunization will also be difficult to achieve since very high levels of vaccination are required to reduce the number of susceptible animals below the critical density for disease persistence. For example, immunization levels of roughly 70-80% will be required in habitats where fox density is in the region of 3-5 foxes/km^2.

3. It is argued that much greater attention should be devoted to estimating, in the field, the critical density of foxes necessary for disease persistence. A knowledge of this quantity will facilitate the design of precise quantitative guidelines for rabies control in fox populations.

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1) Anderson et al. (1981), Nature 289: 765-771

b) The Landscape Epidemiology of rabies in the USSR

by B.L. Cherkasskiy

The USSR has very many widely differing landscapes and an investigation of a number of areas demonstrated that it is the structural elements of the landscape rather than the landscapes as a whole that are important in wildlife rabies. The fox occupies only definate elements of the landscape and the distribution of the fox is very intrazonal in character. Despite the ecological plasticity of the fox, it avoids open areas and prefers crossed relief conditions typical of the junction of landscapes.

An elementary focus of rabies is composed of the nucleus and the zone of the spread of infection. The nucleus is found in areas with high density of different carnivore species; where biotopes of fox, racoon dog, badger and others come into close contact with each other.
Thus;

1. The nucleus of wildlife rabies natural foci are situated at the junctions of landscapes
2. In any landscape natural barriers to the spread of wildlife rabies are ecological gaps between animal populations.
3. The most effective measure to control wildlife rabies will be the reduction of the population density of certain species, rather than their extermination.

c) Natural barriers of wildlife rabies in Schleswig-Holstein

by H. Fischer, K. Boegel and K. Hoppe

Studies of different topographical zones in Schleswig-Holstein carried out between the "Marsch", a zone with high ground water level a high percentage of green land and not covered with forests, and the "Geest", a higher situated, sandy area with a lower percentage of green land and a small percentage of forests, gave the following results:

1. Rabies occurrence is very low in the "Marsch" and appears to stop there. In the "Geest" the index of rabies frequency is four times higher.

2. The HIPD[1)] shows a correlation with the epidemiological pattern; in the "Marsch" it is under the critical level of 0.3 assumed to be required for the maintenance of chains of infection. The probable reasons are the high ground water level and the lack of denning places and protection in general.

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1) HIPD - Hunting Indicator of Population Density.

This is an expression for the number of animals shot/km^2/yr.
Reference: Boegel, K. et al. (1976): Characteristics of the spread of a wildlife rabies epidemic in Europe. Bull. Wld. Hlth. Org. 54: 433-447.

This study showed that rabies disappears from an area or fails to become established when the fox density (estimated from hunting records) is below 0.2 - 0.3 foxes shot annually per km^2.

3. Under these conditions it may not be necessary to gas fox dens in the "Marsch". Intensified hunting along the "Marsch-Geest" border may suffice, complemented by epidemiologically specified gassing campaigns in the "Geest".

d) Landscape and wildlife rabies

by W. Krocza, E. Scharfen and G. Mandl

The districts of Austria were classified according to the average annual density of rabies cases (14 years data); zero, sporadic, low and high. The incidence of certain 'landscape' features (e.g. vegetation) prevalent in the districts of each of the above classes were counted and the relative frequencies were calculated. Comparing class zero with the class of high rabies frequency, the following emerged;

1. Regions that appear to be unfavourable to rabies
   - areas with an average height below 500 m SL (sea level) and hilltops not exceeding 1000 m SL.
   - large area of arable land (grain, beets, potatoes, vegetables)
   - population density of 50-100 people per km^2
   - small game hunting.

2. Regions with high rabies frequency
   - valleys between 500-1000 m SL and above
   - mountain tops ranging on average between 1000 and 3000 m SL
   - a landscape with relatively narrow valleys
   - pasture and meadow more common than arable land
   - forestry
   - low human population density

When these areas are infected there is likely to be a high rabies case frequency. The disease spreads with remarkable speed along the valleys.

e) Small game hunting and frequency of rabies in south west Federal Republic of Germany

by H. Moegle

A region of 2898 km^2 in the south west of the Federal Republic of Germany was investigated in respect of the quite different rabies frequency observed in two topographically distinct areas:

1. Rhine Valley - low rabies frequency
2. Black Forest - high rabies frequency.

On the Rhine River plain foxes and other small game are intensively hunted and 20 - 30 times more small game are shot per km^2 than in the adjacent Black Forest where roe deer hunting predominates and foxes are shot occasionally. The HIPD of foxes however does not differ very much between the two areas (Table 1); 1.15 in the Rhine valley and 1.04 in the Black Forest.

This confirms the findings reported in 1979, that areas in which small game hunting predominates or is exclusively practised show few or no cases of rabies. This can be explained by the fact that the fox is hunted intensively over the whole year in these areas whereas intensity of fox hunting in the Black Forest is thought to be relatively unimportant.

Editorial Note: Although the hunting effort for foxes is apparently quite different in the two areas, the HIPD is similar. If the area near the Rhine is not particularly good for foxes but, it is in that area intensively hunted, the fox population density may be maintained at such a low level that rabies does not become established.

Table 1: Hunting Records and Rabies Cases 1974 - 1979

	Hunting Records						Rabies cases	
	Hares and rabbits		Pheasants		Foxes			
	total	km^2/yr	total	km^2/yr	total	km^2/yr	total	km^2/yr
Rhine valley 1294 km^2	135,716	17.48	223,201	28.74	8,934	1.15	39	0.005
Black Forest 1602 km^2	10,831	1.13	9,917	1.03	10,049	1.04	375	0.039

3.2 Rabies in the United States, 1980.

In 1980, there were 6,405 laboratory-confirmed cases of animal rabies reported in the United States and its territories (Guam, Puerto Rico, and the Virgin Islands of the United States). This is the largest total since 1954, when 7,282 cases were reported.

The 1980 figure represents an increase of approximately 1,250 cases above the 1979 total (Table) and is 83.5% above the average for the preceding 5 years. Forty-eight states and Puerto Rico reported rabid animals in 1980; only the District of Columbia, Guam, Hawaii, Vermont, and the Virgin Islands of the United States reported no cases.

Seven kinds of animals accounted for 97% of the total reported cases: skunks, 4,040 (63%); bats, 723 (11.2%); cattle, 398 (6.2%); raccoons, 393 (6.1%); dogs, 247 (4%); cats, 212 (3.3%); and foxes, 207 (3.2%). Wild animals accounted for 85% of the reported cases, and domestic animals accounted for 15%. There were no human cases of rabies reported in 1980.

Table: Rabies, United States, 1978-1980

	1978	1979	1980
Human Rabies	4	5	-
Animal Rabies	3,298	5,150	6,405
- domestic animals	469	636	961
- wild animals	2,825	4,509	5,444
- skunks	1,657	3,031	4,040

The geographic distribution of animal rabies in 1980 was similar to the pattern seen in the previous 5 years. Bats continued to be the most widely distributed vector, with confirmed cases occurring in 46 states; skunks, which were reported from 28 states, were second. Reported rabies cases in cattle showed the most dramatic increase - up 75% over the 1979 total and up 112% over the average for the previous 5 years. The increased number of rabies cases in cattle and other domestic animals appears to be both temporally and geographically related to the increase of rabies in skunks.

(Based on 'Morbidity and Mortality Weekly Report', April 3, 1981, Vol. 30, No. 12).

TABLE 1

EUR EUROPE **1/81** RABIES CASES 1. 1.81 - 31. 3.81

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 AUSTRIA	-	1	1	-	-	-	2	179	8	2	6	-	195		197
02 BELGIUM	2	-	-	-	-	-	2	22	-	-	-	-	22		24
03 BULGARIA *							0						0		0
04 CZECHOSLOVAKIA	8	10	1	-	-	-	19	245	2	3	3	-	253		272
05 DENMARK	-	-	1	-	-	-	1	1	-	-	-	-	1		2
06 GERMAN DEM. REPUBLIC	32	42	11	1	6	1	93	338	3	14	25	-	380	1	474
07 FED.REP. OF GERMANY	16	46	37	6	42	-	147	1259	33	63	113	8	1476		1623
08 FINLAND *							0						0		0
09 FRANCE	9	16	18	5	24	-	72	473	2	-	-	5	480		552
10 GREECE *							0						0		0
11 HUNGARY	4	14	2	-	-	-	20	292	1	-	-	1	294		314
12 ITALY 1)							0	97	2	4	-	-	103		103
13 LUXEMBOURG	-	-	2	-	1	-	3	13	-	-	-	-	13		16
14 NETHERLANDS *							0						0		0
15 POLAND	13	15	7	-	-	1	36	140	-	4	10	8	162		198
16 RUMANIA	6	2	2	-	8	-	18	7	-	-	-	1	8		26
17 SPAIN 2)	1	-	-	-	-	-	1						0		1
18 SWITZERLAND + LIECHT.	3	18	7	-	7	-	35	317	8	8	15	-	348		383
19 TURKEY	363	28	78	-	17	5	491	-	1	-	-	5	6		497
20 YUGOSLAVIA	5	9	1	-	-	-	15	643	6	-	-	22	671		686
22 NORWAY 3)							0	-	-	-	-	1	1		1
TOTAL	462	201	168	12	105	7	955	4026	66	98	172	51	4413	1	5369
PER CENT	8.6	3.7	3.1	0.2	2.0	0.1	17.8	75.0	1.2	1.8	3.2	0.9	82.2	0.0	100.0

* NO CASES, 1) DATA FOR 1.1.-30.4.1981, 2) IN NORTH AFRICA, 3) ON ISLAND OF SVALBARD.

TABLE 2

EUR EUROPE **1/81** RABIES CASES 'OTHER ANIMAL SPECIES' 1. 1.81 - 31. 3.81

LOCATION	OTH.DOM.ANIMALS		OTHER WILD ANIMALS											UNSPEC	TOTAL
	OTH.DOM. CARNIVOR	DONKEY	ARCTIC FOX	WOLF	RACOON DOG	WILD CAT	WILD BOAR	MOUFLON	OTHER UNGULAT	HOUSE MOUSE	MUSKRAT	HARE	OTHERS		
06 GERMAN DEM. REPUBLIC	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
07 FED.REP. OF GERMANY	-	-	-	-	-	-	1	1	2	-	-	-	-	4	8
09 FRANCE	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5
11 HUNGARY	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
15 POLAND	1	-	-	1	5	-	-	-	-	-	1	1	-	-	9
16 RUMANIA	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
19 TURKEY	-	5	-	1	-	-	-	-	-	4	-	-	-	-	10
20 YUGOSLAVIA	-	-	-	-	-	-	-	-	-	-	-	-	22	-	22
22 NORWAY	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
TOTAL	2	5	1	2	5	1	1	1	2	4	1	1	28	4	58
PER CENT	3.4	8.6	1.7	3.4	8.6	1.7	1.7	1.7	3.4	6.9	1.7	1.7	48.3	6.9	100.0

AUT AUSTRIA — RABIES CASES — 1. 1.81 - 31. 3.81

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		
K1	HERMAGOR							0	10	-	1	-	-	11		11
K3	ST. VEIT	-	-	1	-	-	-	1	1	-	-	-	-	1		2
K4	SPITTAL/DRAU							0	2	1	1	-	-	4		4
K5	VILLACH-LAND							0	6	-	-	-	-	6		6
K6	VOELKERMARKT							0	1	-	-	-	-	1		1
K7	WOLFSBERG							0	1	-	-	-	-	1		1
K9	VILLACH-STADT							0	1	-	-	1	-	2		2
N1	AMSTETTEN							0	2	-	-	-	-	2		2
N16	SCHEIBBS	-	1	-	-	-	-	1	15	-	-	-	-	15		16
O12	STEYR-LAND							0	3	2	-	-	-	5		5
ST1	BRUCK/MUR							0	17	1	-	-	-	18		18
ST2	DEUTSCHLANDSBERG							0	7	-	-	-	-	7		7
ST5	GRAZ-LAND							0	36	2	-	-	-	38		38
ST9	LEIBNITZ							0	1	-	-	-	-	1		1
ST11	LIEZEN							0	9	-	-	-	-	9		9
ST12	MUERZZUSCHLAG							0	17	-	-	3	-	20		20
ST13	MURAU							0	-	1	-	-	-	1		1
ST15	VOITSBERG							0	18	-	-	-	-	18		18
T1	IMST							0	10	-	-	-	-	10		10
T2	INNSBRUCK-LAND							0	2	-	-	-	-	2		2
T4	KUFSTEIN							0	7	-	-	-	-	7		7
T5	LANDECK							0	12	-	-	1	-	13		13
V2	BREGENZ							0	1	-	-	1	-	2		2
V4	DORNBIRN							0	-	1	-	-	-	1		1
TOTAL		0	1	1	0	0	0	2	179	8	2	6	0	195	0	197
PER CENT		0.0	0.5	0.5	0.0	0.0	0.0	1.0	90.9	4.1	1.0	3.0	0.0	99.0	0.0	100.0

RABIES CASES 1. 1.81 - 31. 3.81

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	16	–	–	–	–	16		18
LX LUXEMBOURG							0	6	–	–	–	–	6		6
TOTAL	2	0	0	0	0	0	2	22	0	0	0	0	22	0	24
PER CENT	8.3	0.0	0.0	0.0	0.0	0.0	8.3	91.7	0.0	0.0	0.0	0.0	91.7	0.0	100.0
DEN DENMARK															
050543 VOJENS							0	1	–	–	–	–	1		1
060623 LUNDERSKOV	–	–	1	–	–	–	1						0		1
TOTAL	0	0	1	0	0	0	1	1	0	0	0	0	1	0	2
LUX LUXEMBOURG															
0402 CONTERN							0	1	–	–	–	–	1		1
0403 HESPERANGE							0	2	–	–	–	–	2		2
0404 NIEDERANVEN							0	1	–	–	–	–	1		1
0405 SANDWEILER							0	1	–	–	–	–	1		1
0406 SCHUTTRANGE							0	1	–	–	–	–	1		1
0504 FISCHBACH	–	–	1	–	–	–	1	1	–	–	–	–	1		2
0509 MERSCH							0	1	–	–	–	–	1		1
0609 TROISVIERGES							0	1	–	–	–	–	1		1
1105 ECHTERNACH							0	1	–	–	–	–	1		1
1204 GREVENMACHER	–	–	–	–	1	–	1						0		1
1205 JUNGLINSTER							0	2	–	–	–	–	2		2
1206 MANTERNACH							0	1	–	–	–	–	1		1
1302 DALHEIM	–	–	1	–	–	–	1						0		1
TOTAL	0	0	2	0	1	0	3	13	0	0	0	0	13	0	16
PER CENT	0.0	0.0	12.5	0.0	6.2	0.0	18.7	81.2	0.0	0.0	0.0	0.0	81.2	0.0	100.0

CZE CZECHOSLOVAK SOCIALIST REPUBLIC — R A B I E S C A S E S — 1. 1.81 - 31. 3.81

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	-	1	-	-	-	-	1	21	-	1	-	-	22		23
02	SOUTH BOHEMIA	1	2	-	-	-	-	3	13	1	-	-	-	14		17
03	WEST BOHEMIA	2	-	-	-	-	-	2	61	-	-	-	-	61		63
04	NORTH BOHEMIA	-	2	-	-	-	-	2	91	-	-	2	-	93		95
05	EAST BOHEMIA	1	-	-	-	-	-	1	5	-	-	-	-	5		6
06	SOUTH MORAVIA							0	7	1	-	-	-	8		8
07	NORTH MORAVIA	1	1	1	-	-	-	3	31	-	1	1	-	33		36
0	CSR	5	6	1	-	-	-	12	229	2	2	3	-	236		248
10	DISTRICT OF BRATISLAV							0						0		0
11	WEST SLOVAKIA							0	1	-	-	-	-	1		1
12	CENTRAL SLOVAKIA	2	3	-	-	-	-	5	14	-	1	-	-	15		20
13	EAST SLOVAKIA	1	1	-	-	-	-	2	1	-	-	-	-	1		3
1	SSR	3	4	-	-	-	-	7	16	-	1	-	-	17		24
TOTAL		8	10	1	0	0	0	19	245	2	3	3	0	253	0	272
PER CENT		2.9	3.7	0.4	0.0	0.0	0.0	7.0	90.1	0.7	1.1	1.1	0.0	93.0	0.0	100.0

DDR GERMAN DEMOCRATIC REPUBLIC — RABIES CASES — 1. 1.81 - 31. 3.81

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		
I	ROSTOCK	3	2	2	-	-	1	8	27	-	-	1	-	28		36
II	SCHWERIN	3	1	1	-	-	-	5	20	1	2	-	-	23		28
III	NEUBRANDENBURG	2	4	1	-	-	-	7	23	-	-	1	-	24		31
IV	POTSDAM	7	5	1	-	-	-	13	30	-	2	7	-	39	1	53
V	FRANKFURT/ODER	5	4	-	-	-	-	9	24	-	1	2	-	27		36
VI	COTTBUS	2	3	2	-	-	-	7	22	-	2	2	-	26		33
VII	MAGDEBURG	-	2	1	1	-	-	4	33	1	3	1	-	38		42
VIII	HALLE	2	2	1	-	-	-	5	20	-	1	2	-	23		28
IX	ERFURT	1	3	1	-	-	-	5	15	-	1	-	-	16		21
X	GERA	2	2	-	-	-	-	4	16	-	-	2	-	18		22
XI	SUHL	3	4	-	-	-	-	7	45	1	2	2	-	50		57
XII	DRESDEN	1	3	1	-	3	-	8	22	-	-	2	-	24		32
XIII	LEIPZIG	-	1	-	-	-	-	1	7	-	-	1	-	8		9
XIV	KARL-MARX-STADT	1	6	-	-	3	-	10	31	-	-	2	-	33		43
XV	HAUPTSTADT BERLIN							0	3	-	-	-	-	3		3
TOTAL		32	42	11	1	6	1	93	338	3	14	25	0	380	1	474
PER CENT		6.8	8.9	2.3	0.2	1.3	0.2	19.6	71.3	0.6	3.0	5.3	0.0	80.2	0.2	100.0

DEU FEDERAL REPUBLIC OF GERMANY — RABIES CASES — 1. 1.81 - 31. 3.81

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		
010	SCHLESWIG-HOLSTEIN	1	1	-	-	-	-	2	13	-	-	2	-	15		17
020	HAMBURG							0						0		0
031	BRAUNSCHWEIG	1	2	-	-	-	-	3	22	-	2	4	-	28		31
032	HANNOVER	-	1	2	-	2	-	5	9	-	-	2	1	12		17
033	LUENEBURG	-	1	1	-	-	-	2	17	-	1	-	-	18		20
034	WESER-EMS							0	8	-	-	-	2	10		10
040	BREMEN							0						0		0
051	DUESSELDORF							0						0		0
053	KOELN	-	1	-	-	-	-	1	6	1	-	-	-	7		8
055	MUENSTER							0						0		0
057	DETMOLD	-	1	7	-	4	-	12	47	1	3	12	1	64		76
059	ARNSBERG	-	1	2	1	7	-	11	21	-	-	1	-	22		33
061	DARMSTADT	1	3	2	-	-	-	6	101	-	4	7	-	112		118
062	KASSEL	1	2	3	-	2	-	8	50	-	2	11	1	64		72
071	KOBLENZ	-	4	1	2	5	-	12	78	-	2	7	-	87		99
072	TRIER	2	4	7	-	16	-	29	101	1	1	4	1	108		137
073	RHEINHESSEN-PFALZ	-	5	-	-	-	-	5	14	1	2	1	-	18		23
081	STUTTGART	1	1	-	-	-	-	2	33	1	2	3	-	39		41
082	KARLSRUHE	-	1	-	-	2	-	3	73	5	7	6	-	91		94
083	FREIBURG	1	5	-	-	1	-	7	200	3	8	11	-	222		229
084	TUEBINGEN	-	5	4	2	-	-	11	127	10	11	17	2	167		178
091	OBERBAYERN	1	1	4	-	1	-	7	80	1	6	5	-	92		99
092	NIEDERBAYERN							0	3	1	-	1	-	5		5
093	OBERPFALZ	-	1	-	-	-	-	1	57	1	3	-	-	61		62
094	OBERFRANKEN							0	37	-	1	3	-	41		41
095	MITTELFRANKEN	2	1	-	-	-	-	3	10	-	-	2	-	12		15
096	UNTERFRANKEN	2	1	-	-	-	-	3	61	3	-	4	-	68		71
097	SCHWABEN	1	1	2	-	-	-	4	66	2	6	8	-	82		86
100	SAARLAND	2	3	2	1	2	-	10	25	2	2	2	-	31		41
110	BERLIN (WEST)							0						0		0
TOTAL		16	46	37	6	42	0	147	1259	33	63	113	8	1476	0	1623
PER CENT		1.0	2.8	2.3	0.4	2.6	0.0	9.1	77.6	2.0	3.9	7.0	0.5	90.9	0.0	100.0

FRA F R A N C E — R A B I E S C A S E S — 1. 1.81 - 31. 3.81

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							0	4	-	-	-	-	4		4
02	AISNE	1	-	1	-	-	-	2	24	-	-	-	-	24		26
08	ARDENNES	1	-	-	-	-	-	1	5	-	-	-	-	5		6
10	AUBE	-	1	-	1	-	-	2	36	-	-	-	-	36		38
21	COTE D'OR	-	-	1	-	4	-	5	28	-	-	-	2	30		35
25	DOUBS	-	-	-	-	2	-	2	35	-	-	-	1	36		38
39	JURA							0	1	-	-	-	-	1		1
51	MARNE							0	16	-	-	-	-	16		16
52	MARNE (HAUTE)	-	1	-	-	1	-	2	8	-	-	-	1	9		11
54	MEURTHE-ET-MOSELLE	-	2	3	1	2	-	8	31	-	-	-	-	31		39
55	MEUSE	1	-	8	-	8	-	17	55	-	-	-	-	55		72
57	MOSELLE	-	-	3	-	2	-	5	14	-	-	-	-	14		19
60	OISE	1	2	-	-	-	-	3	39	1	-	-	-	40		43
67	RHIN (BAS)	-	1	-	-	-	-	1	6	-	-	-	-	6		7
68	RHIN (HAUT)	1	2	-	-	-	-	3	12	1	-	-	-	13		16
70	SAONE (HAUTE)	2	2	-	1	3	-	8	64	-	-	-	-	64		72
74	SAVOIE (HAUTE)	-	3	-	1	-	-	4	41	-	-	-	-	41		45
76	SEINE MARITIME	-	-	1	-	-	-	1	6	-	-	-	-	6		7
77	SEINE-ET-MARNE							0	9	-	-	-	-	9		9
88	VOSGES	1	1	-	1	2	-	5	22	-	-	-	1	23		28
89	YONNE	1	1	-	-	-	-	2	14	-	-	-	-	14		16
90	TERR.DE BELFORT							0	3	-	-	-	-	3		3
99	NO LOCATION	-	-	1	-	-	-	1						0		1
TOTAL		9	16	18	5	24	0	72	473	2	0	0	5	480	0	552
PER CENT		1.6	2.9	3.3	0.9	4.3	0.0	13.0	85.7	0.4	0.0	0.0	0.9	87.0	0.0	100.0

HUN HUNGARY — RABIES CASES — 1. 1.81 - 31. 3.81

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	7	-	-	-	-	7		7
02	BARANYA	-	2	-	-	-	-	2	6	-	-	-	-	6		8
03	BACS-KISKUN	-	-	1	-	-	-	1	28	-	-	-	-	28		29
04	BEKES							0	8	-	-	-	-	8		8
05	BORSOD-ABAU-ZEMPLEN	-	5	-	-	-	-	5	11	-	-	-	-	11		16
06	CSONGRAD	-	1	-	-	-	-	1	17	-	-	-	-	17		18
07	FEJER							0	17	-	-	-	-	17		17
08	GYOER-SOPRON	2	-	-	-	-	-	2	21	1	-	-	-	22		24
09	HAJDU-BIHAR	-	2	-	-	-	-	2	10	-	-	-	-	10		12
10	HEVES							0	5	-	-	-	-	5		5
11	KOMAROM							0	9	-	-	-	-	9		9
12	NOGRAD	-	1	-	-	-	-	1	14	-	-	-	1	15		16
13	PEST	1	1	-	-	-	-	2	25	-	-	-	-	25		27
14	SOMOGY							0	10	-	-	-	-	10		10
15	SZABOLCS-SZATMAR	1	-	-	-	-	-	1	15	-	-	-	-	15		16
16	SZOLNOK	-	2	1	-	-	-	3	13	-	-	-	-	13		16
17	TOLNA							0	8	-	-	-	-	8		8
18	VAS							0	24	-	-	-	-	24		24
19	VESZPREM							0	16	-	-	-	-	16		16
20	ZALA							0	28	-	-	-	-	28		28
TOTAL		4	14	2	0	0	0	20	292	1	0	0	1	294	0	314
PER CENT		1.3	4.5	0.6	0.0	0.0	0.0	6.4	93.0	0.3	0.0	0.0	0.3	93.6	0.0	100.0

ITA I T A L Y — R A B I E S C A S E S — 1. 1.81 - 30. 4.81

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		
12055	DIANO D'ALBA							0	1	-	-	-	-	1		1
12060	CASTELLINO TANARO							0	1	-	-	-	-	1		1
23010	VAL MASINO							0	1	-	-	-	-	1		1
23030	LIVIGNO							0	1	-	-	-	-	1		1
23030	MAZZO DI VALTELLIN							0	4	-	-	-	-	4		4
23030	RAVOLEDO							0	1	-	-	-	-	1		1
23030	SERNIO							0	1	-	-	-	-	1		1
23030	VALDISOTTO							0	4	-	-	-	-	4		4
23030	VALFURVA							0	1	-	-	-	-	1		1
23032	BORMIO							0	1	-	-	-	-	1		1
23033	GROSIO							0	16	-	-	-	-	16		16
23034	GROSOTTO							0	6	-	-	-	-	6		6
23035	SONDALO							0	18	-	-	-	-	18		18
23037	TIRANO							0	1	-	-	-	-	1		1
23038	VALDIDENTRO							0	2	-	-	-	-	2		2
23100	BOSCOMONDALIZZA							0	1	-	-	-	-	1		1
23100	SONDRIO							0	1	-	-	-	-	1		1
23100	TOGO SANTAGATA							0	-	-	1	-	-	1		1
33010	REANA DEL ROJALE							0	1	-	-	-	-	1		1
33015	MOGGIO UDINESE							0	1	-	-	-	-	1		1
33020	PRATO CARNICO							0	2	-	-	-	-	2		2
33020	RIGOLATO							0	1	-	-	-	-	1		1
33023	COMEGLIANS							0	1	-	-	-	-	1		1
33040	GRIMACCO							0	1	-	-	-	-	1		1
39020	CURON VENOSTA							0	6	1	-	-	-	7		7
39020	GLORENZA							0	1	-	-	-	-	1		1
39020	SLUDERNO							0	6	-	-	-	-	6		6
39024	MALLES VENOSTA							0	16	1	3	-	-	20		20
TOTAL		0	0	0	0	0	0	0	97	2	4	0	0	103	0	103
PER CENT		0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.2	1.9	3.9	0.0	0.0	100.0	0.0	100.0

RABIES CASES 1. 1.81 - 31. 3.81

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		
NOR	NORWAY															
	ISLAND OF SVALBARD							0	-	-	-	-	1	1		1
SPA	SPAIN															
	MELILLA *	1	-	-	-	-	-	1						0		1
RUM	RUMANIA															
01	ALBA	1	-	1	-	-	-	2						0		2
02	ARAD	-	1	-	-	-	-	1						0		1
04	BACAU							0	1	-	-	-	-	1		1
06	BISTRITA-NASAUD	1	1	-	-	-	-	2						0		2
12	CLUJ							0	1	-	-	-	-	1		1
14	COVASNA							0	3	-	-	-	-	3		3
19	HARGHITA	-	-	-	-	2	-	2						0		2
20	HUNEDOARA	1	-	-	-	-	-	1						0		1
22	IASI	1	-	-	-	-	-	1						0		1
23	ILFOV	-	-	-	-	5	-	5						0		5
24	MARAMURES							0	1	-	-	-	-	1		1
26	MURES	1	-	-	-	1	-	2						0		2
31	SALAJ	1	-	-	-	-	-	1	1	-	-	-	1	2		3
33	SUCEAVA	-	-	1	-	-	-	1						0		1
TOTAL		6	2	2	0	8	0	18	7	0	0	0	1	8	0	26
PER CENT		23.1	7.7	7.7	0.0	30.8	0.0	69.2	26.9	0.0	0.0	0.0	3.8	30.8	0.0	100.0

* IN NORTH AFRICA.

POL POLAND — RABIES CASES — 1. 1.81 - 31. 3.81

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 WARSZAWA	1	-	-	-	-	-	1	15	-	-	-	-	15		16
05 BIALYSTOK							0	1	-	-	-	-	1		1
07 BIELSKO-BIALA							0	2	-	-	-	-	2		2
09 BYDGOSZCZ	-	-	1	-	-	-	1	-	-	-	-	1	1		2
11 CHELM							0	1	-	-	-	-	1		1
13 CIECHANOW							0	1	-	-	-	-	1		1
15 CZESTOCHOWA	1	-	-	-	-	-	1	3	-	-	-	-	3		4
17 ELBLAG	-	-	1	-	-	-	1	6	-	-	-	1	7		8
19 GDANSK	1	-	-	-	-	-	1	3	-	-	-	1	4		5
21 GORZOW							0	6	-	-	-	-	6		6
23 JELENIA GORA							0	8	-	-	-	-	8		8
25 KALISZ	2	-	-	-	-	1	3	9	-	-	1	-	10		13
29 KIELCE	1	1	-	-	-	-	2	2	-	-	-	-	2		4
33 KOSZALIN							0	10	-	1	5	-	16		16
39 LEGNICA							0	5	-	-	-	-	5		5
41 LESZNO							0	4	-	-	-	-	4		4
43 LUBLIN	-	1	1	-	-	-	2	4	-	-	-	1	5		7
51 OLSZTYN	1	2	-	-	-	-	3	3	-	-	-	1	4		7
53 OPOLE							0	6	-	-	-	-	6		6
57 PILA	2	1	-	-	-	-	3	4	-	-	-	-	4		7
61 PLOCK	-	1	-	-	-	-	1	1	-	-	-	-	1		2
63 POZNAN	1	2	-	-	-	-	3	8	-	1	1	-	10		13
67 RADOM	1	-	-	-	-	-	1	5	-	1	-	-	6		7
71 SIEDLCE	-	2	-	-	-	-	2	2	-	-	-	-	2		4
77 SLUPSK	1	2	-	-	-	-	3	3	-	-	2	1	6		9
79 SUWALKI	-	-	1	-	-	-	1	2	-	-	-	1	3		4
81 SZCZECIN							0	5	-	-	-	-	5		5
83 TARNOBRZEG	1	-	-	-	-	-	1	2	-	-	-	-	2		3
87 TORUN	-	2	2	-	-	-	4	-	-	1	-	-	1		5
89 WALBRZYCH							0	8	-	-	1	-	9		9
93 WROCLAW							0	5	-	-	-	-	5		5
95 ZAMOSC	-	1	1	-	-	-	2	-	-	-	-	1	1		3
97 ZIELONA GORA							0	6	-	-	-	-	6		6
TOTAL	13	15	7	0	0	1	36	140	0	4	10	8	162	0	198
PER CENT	6.6	7.6	3.5	0.0	0.0	0.5	18.2	70.7	0.0	2.0	5.1	4.0	81.8	0.0	100.0

SWI SWITZERLAND — RABIES CASES — 1. 1.81 - 31. 3.81

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	4	-	-	-	-	4		5
04	BASEL-STADT							0	8	-	-	-	-	8		8
05	BASEL-LAND	-	-	1	-	-	-	1	5	-	-	-	-	5		6
06	BERN	1	2	-	-	4	-	7	26	2	-	-	-	28		35
07	FREIBURG	-	2	-	-	-	-	2	10	-	-	-	-	10		12
08	GENF	-	1	-	-	-	-	1	19	-	-	-	-	19		20
09	GLARUS	-	1	-	-	-	-	1	16	-	2	2	-	20		21
10	GRAUBUENDEN							0	39	2	1	2	-	44		44
11	LUZERN	-	1	1	-	-	-	2	7	-	-	-	-	7		9
12	NEUCHATEL	-	1	2	-	-	-	3	8	-	-	2	-	10		13
15	SCHAFFHAUSEN							0	3	-	-	-	-	3		3
16	SCHWYZ	-	2	-	-	-	-	2	20	-	-	2	-	22		24
17	SOLOTHURN							0	7	-	1	-	-	8		8
18	ST.GALLEN							0	5	1	-	1	-	7		7
20	THURGAU							0	3	-	-	-	-	3		3
22	WAADT	2	6	2	-	-	-	10	123	-	2	4	-	129		139
25	ZUERICH							0	8	2	1	1	-	12		12
26	JURA	-	1	1	-	3	-	5	6	1	1	1	-	9		14
TOTAL		3	18	7	0	7	0	35	317	8	8	15	0	348	0	383
PER CENT		0.8	4.7	1.8	0.0	1.8	0.0	9.1	82.8	2.1	2.1	3.9	0.0	90.9	0.0	100.0

TUR TURKEY — RABIES CASES — 1. 1.81 - 31. 3.81

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		
001	ADANA	1	-	1	-	-	-	2						0		2
003	AFYON	6	-	1	-	-	-	7						0		7
005	AMASYA	8	-	2	-	-	-	10						0		10
006	ANKARA	25	-	4	-	1	-	30						0		30
007	ANTALYA	-	-	1	-	-	-	1						0		1
008	ARTVIN	2	-	-	-	-	-	2						0		2
009	AYDIN	15	1	5	-	-	-	21						0		21
010	BALIKESIR	8	1	3	-	-	-	12	-	-	-	-	1	1		13
011	BILECIK	2	-	-	-	-	-	2						0		2
012	BINGOEL	2	-	-	-	-	-	2						0		2
013	BITLIS	1	-	-	-	-	-	1						0		1
014	BOLU	8	-	1	-	-	-	9						0		9
016	BURSA	23	3	5	-	3	-	34	-	-	-	-	1	1		35
017	CANAKKALE	4	-	1	-	-	-	5						0		5
018	CANKIRI	4	-	1	-	-	-	5						0		5
019	CORUM	11	-	2	-	-	-	13						0		13
020	DENIZLI	13	1	-	-	-	-	14						0		14
021	DIYARBAKIR	2	-	4	-	-	-	6						0		6
022	EDIRNE	8	-	-	-	-	-	8						0		8
024	ERZINCAN	-	1	-	-	-	-	1						0		1
025	ERZURUM	3	3	-	-	-	-	6						0		6
026	ESKISEHIR	1	-	-	-	-	-	1						0		1
027	GAZIANTEP	3	-	-	-	-	-	3						0		3
028	GIRESUN	13	-	2	-	-	-	15	-	-	-	-	1	1		16
029	GUEMUESHANE							0	-	1	-	-	-	1		1
031	HATAY	1	-	-	-	-	-	1						0		1
033	ICEL	3	1	-	-	-	-	4						0		4
034	ISTANBUL	27	7	1	-	1	-	36						0		36
035	IZMIR	21	3	2	-	-	-	26						0		26

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		
036	KARS	3	-	2	-	-	-	5						0		5
037	KASTAMONU	6	-	-	-	-	-	6						0		6
038	KAYSERI	1	1	-	-	-	-	2						0		2
039	KIRKLARELI	5	1	-	-	-	-	6						0		6
040	KIRSEHIR	2	-	-	-	-	1	3						0		3
041	KOCAELI	6	-	-	-	1	-	7						0		7
042	KONYA	8	1	3	-	2	-	14						0		14
043	KUETAHYA	4	-	1	-	1	-	6						0		6
045	MANISA	8	-	-	-	-	-	8	-	-	-	-	1	1		9
047	MARDIN	2	-	-	-	-	-	2						0		2
048	MUGLA	3	-	3	-	-	-	6						0		6
049	MUS	1	-	-	-	-	-	1						0		1
050	NEVSEHIR	3	-	-	-	-	-	3						0		3
051	NIGDE	2	1	1	-	-	-	4						0		4
052	ORDU	9	-	3	-	-	-	12						0		12
054	SAKARYA	20	-	2	-	4	1	27						0		27
055	SAMSUN	26	1	13	-	2	3	45						0		45
057	SINOP	7	-	2	-	-	-	9	-	-	-	-	1	1		10
058	SIVAS	5	-	-	-	-	-	5						0		5
059	TEKIRDAG	5	2	-	-	2	-	9						0		9
060	TOKAT	9	-	2	-	-	-	11						0		11
061	TRABZON	3	-	-	-	-	-	3						0		3
062	TUNCELI	1	-	-	-	-	-	1						0		1
066	YOZGAT	6	-	4	-	-	-	10						0		10
067	ZONGULDAK	3	-	6	-	-	-	9						0		9
TOTAL		363	28	78	0	17	5	491	0	1	0	0	5	6	0	497
PER CENT		73.0	5.6	15.7	0.0	3.4	1.0	98.8	0.0	0.2	0.0	0.0	1.0	1.2	0.0	100.0

YUG YUGOSLAVIA — RABIES CASES — 1. 1.81 - 31. 3.81

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		
III/ 18	VRBOVEC							0	3	-	-	-	-	3		3
III/ 19	ZELINA							0	2	-	-	-	-	2		2
III/ 24	ZLATAR BISTRICA							0	13	-	-	-	-	13		13
III/ 25	IVANEC							0	12	-	-	-	-	12		12
III/ 26	VARAZDIN							0	5	-	-	-	-	5		5
III/ 27	CAKOVEC							0	5	-	-	-	-	5		5
III/ 28	NOVI MAROF							0	8	-	-	-	-	8		8
III/ 30	KRIZEVCI							0	2	-	-	-	-	2		2
III/ 31	KOPRIVNICA							0	2	-	-	-	-	2		2
III/ 32	DURDEVAC							0	6	-	-	-	-	6		6
III/ 33	BJELOVAR							0	3	-	-	-	-	3		3
III/ 34	CAZMA							0	1	-	-	-	-	1		1
III/ 37	NOVSKA							0	1	-	-	-	-	1		1
III/ 39	DARUVAR							0	1	-	-	-	-	1		1
III/ 40	GRUBISNO POLJE							0	3	-	-	-	-	3		3
III/ 41	VIROVITICA							0	17	-	-	-	-	17		17
III/ 54	VINKOVCI							0	2	-	-	-	-	2		2
III/ 55	ZUPANJA							0	1	-	-	-	-	1		1
V / 1	LJUBLJANA							0	15	-	-	-	1	16		16
V / 2	VRHNIKA							0	2	-	-	-	-	2		2
V / 4	LOGATEC							0	1	-	-	-	-	1		1
V / 12	NOVA GORICA							0	1	-	-	-	-	1		1
V / 13	IDRIJA							0	25	-	-	-	1	26		26
V / 14	TOLMIN							0	22	-	-	-	1	23		23
V / 15	RADOVLJICA	-	4	-	-	-	-	4	2	-	-	-	-	2		6
V / 17	SKOFJA LOKA							0	3	1	-	-	-	4		4
V / 18	TRZIC	-	1	-	-	-	-	1	10	-	-	-	-	10		11
V / 19	KRANJ							0	10	-	-	-	1	11		11
V / 20	KAMNIK							0	77	-	-	-	5	82		82
V / 21	DOMZALE							0	35	2	-	-	1	38		38
V / 32	LITIJA							0	9	-	-	-	-	9		9
V / 33	ZAGORJE OB SAVI							0	10	-	-	-	-	10		10
V / 34	MOZIRJE							0	30	-	-	-	2	32		32
V / 35	ZALEC							0	21	-	-	-	1	22		22
V / 37	VELENJE							0	7	-	-	-	1	8		8
V / 38	SLOVENJGRADEC							0	15	-	-	-	2	17		17
V / 39	RAVNE NA KOROSKE							0	6	-	-	-	-	6		6
V / 40	DRAVOGRAD							0	4	-	-	-	-	4		4
V / 41	RADLJE OB DRAVI							0	20	-	-	-	1	21		21

YUG 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		
V / 42	MARIBOR							0	21	-	-	-	1	22		22
V / 43	SLOV.KONJICE	1	-	-	-	-	-	1	45	1	-	-	4	50		51
V / 44	CELJE							0	18	1	-	-	-	19		19
V / 45	HRASTNIK							0	9	1	-	-	-	10		10
V / 46	LASKO							0	9	-	-	-	-	9		9
V / 47	SENTJUR PRI CELJ	2	-	-	-	-	-	2	14	-	-	-	-	14		16
V / 48	SMARJE PRI JELSA							0	5	-	-	-	-	5		5
V / 49	SLOV.BISTRICA							0	31	-	-	-	-	31		31
V / 50	PTUJ							0	8	-	-	-	-	8		8
VI / 1	BEOGRAD	-	1	-	-	-	-	1						0		1
VI / 77	RAZANJ							0	1	-	-	-	-	1		1
VI1/ 1	NOVI SAD							0	3	-	-	-	-	3		3
VI1/ 3	TITEL	-	1	-	-	-	-	1	8	-	-	-	-	8		9
VI1/ 4	ZABALJ							0	5	-	-	-	-	5		5
VI1/ 5	TEMERIN							0	8	-	-	-	-	8		8
VI1/ 6	VRBAS							0	2	-	-	-	-	2		2
VI1/ 8	BAC.PALANKA	-	-	1	-	-	-	1						0		1
VI1/ 12	RUMA							0	1	-	-	-	-	1		1
VI1/ 13	INDIJA							0	1	-	-	-	-	1		1
VI1/ 16	ZRENJANIN	1	-	-	-	-	-	1	3	-	-	-	-	3		4
VI1/ 19	PANCEVO							0	1	-	-	-	-	1		1
VI1/ 22	VRSAC							0	2	-	-	-	-	2		2
VI1/ 23	ALIBUNAR							0	1	-	-	-	-	1		1
VI1/ 26	ZITISTE							0	6	-	-	-	-	6		6
VI1/ 27	NOVA CRNJA							0	1	-	-	-	-	1		1
VI1/ 28	KIKINDA	-	1	-	-	-	-	1	1	-	-	-	-	1		2
VI1/ 29	NOVI BECEJ							0	3	-	-	-	-	3		3
VI1/ 30	BECEJ							0	1	-	-	-	-	1		1
VI1/ 31	SRBOBRAN							0	1	-	-	-	-	1		1
VI1/ 32	ADA							0	3	-	-	-	-	3		3
VI1/ 33	COKA							0	2	-	-	-	-	2		2
VI1/ 37	KANJIZA							0	1	-	-	-	-	1		1
VI1/ 38	NOVI KNEZEVAC	-	1	-	-	-	-	1	1	-	-	-	-	1		2
VI1/ 39	SUBOTICA							0	6	-	-	-	-	6		6
VI1/ 40	SOMBOR	1	-	-	-	-	-	1	9	-	-	-	-	9		10
TOTAL		5	9	1	0	0	0	15	643	6	0	0	22	671	0	686
PER CENT		0.7	1.3	0.1	0.0	0.0	0.0	2.2	93.7	0.9	0.0	0.0	3.2	97.8	0.0	100.0

USR UNION OF SOVIET SOCIALIST REPUBLICS (EUROPEAN PART)

R A B I E S C A S E S IN ANIMALS

1.10.80 - 31.12.80

LOCATION CODE NAME	DATES 1.10. - 31.10.	1.11. - 30.11.	1.12. - 31.12.	TOTAL
01 RSFSR				
011 REGIONS OF THE NORTH AND THE NORTH-WEST	-	-	-	0
012 REGIONS OF THE CENTRE	19	7	2	28
013 REGIONS OF THE NORTH CAUCASUS	8	2	1	11
014 REGIONS OF THE POVOLJE AND THE URALS	9	12	10	31
02 THE MOLDAVIAN SSR	1	1	1	3
03 THE UKRAINIAN SSR	23	21	34	78
04 THE BYELORUSSIAN SSR	7	2	5	14
05 THE LITHUANIAN SSR	2	3	1	6
06 THE LATVIAN SSR	3	2	4	9
07 THE ESTONIAN SSR	1	1	3	5
TOTAL	73	51	61	185

LIST OF CONTRIBUTORS

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WHO Coll. Centre
Tuebingen / DEU
Rabies Cases Turkey
1st Quarter 1981
497 cases reported
Black Sea
USR
IRN
IRK
SYR
Med. Sea
Kirklareli
Edirne
Tekirda
Istanbul
Bul
Izmit
Sakarya
Zonguldak
Kastamonu
Sinop
Samsun
Artvin
Rize
Trabzon
Kars
Ordu
Giresun
Gümüshane
Erzurum
Agri
Bolu
Cankiri
Corum
Amasya
Tokat
Erzincan
Sivas
Tunceli
Bingöl
Mus
Van
Bilecik
Bursa
Canakkale
Balikesir
Kütahya
Eskisehir
Ankara
Yozgat
Kirsehir
Nevsehir
Kayseri
Bitlis
Elazig
Malatya
Diyarbakir
Siirt
Hakkari
Manisa
Usak
Afion
Karahisar
Nidge
K. Maras
Adiyaman
Mardin
Izmir
Aydin
Denizli
Isparta
Konya
Adana
G. Antep
Urfa
Burdur
Antalya
Icel
Hatay
Mugla

WHO Coll. Centre
Tuebingen / DEU

Rabies Cases Europe
1st Quarter 1981

5369 cases reported

NOR
(1)
(no Island of Svalbard)

FIN
(rabies free)

E
(rabies free)

DEN
(2)

IRE
(rabies free)

GBR
(rabies free)

NET
(0)

BEL
(24)

DEU
(1623)

DDR
(474)

POL
(198)

CZE
(272)

FRA
(552)

SWI (383)

AUT
(197)

HUN
(314)

RUM
(26)

ITA
(103)

YUG
(686)

BUL
(0)

POR
(rabies free)

SPA
(1)
(in North Africa)

ALB
(no data)

GRE
(0)

TUR
(97)

0 50 100 km