RABIES BULLETIN EUROPE - Vol. 4/Nr. 3/1980

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The RABIES BULLETIN EUROPE is compiled and edited by the

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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

1.1 Contents of the Bulletin

This issue describes the rabies position in Europe for the 3rd quarter 1980. The situation is described in general under 2. and for individual European countries under 2.1 to 2.25. Case data reported to the Centre are tabulated under 4.

Data for the 3rd quarter 1980 were not available from Czechoslovakia and the USSR. Rabies in the European part of the USSR in the 2nd quarter 1980 is described under 2.24 and tabulated under 4.5. Only July and August rabies data were received from Rumania for the 3rd quarter; rabies case data for the 1st and 2nd quarters 1980 is described briefly under 2.19 and tabulated on pages 24 and 25.

In Section 3 an article about rabies prevention in man outlines the preferred vaccines and globulins and their recommended use. An article on the role of racoon dogs in rabies epizootiology describes how the geographic distribution of this species has increased since it was introduced into the European part of the USSR in the 1930's, its natural history and the species' present importance in rabies epizootiology. Also in Section 3 is a summary of rabies in the United States in 1979 and a notice about a meeting on animal rabies that is to take place on the 3rd-5th June 1981 at Nancy in France.

An additional table is included in this Bulletin (Table 2, page 16). It summarises rabies in Europe in the first 9 months 1980 and is an accumulated table of the quarterly data. The table will be given in future in the 2nd and 3rd quarter Bulletins of the year.

The geographic distribution of rabies incidence in Europe during the 3rd quarter 1980 is shown on the maps in the Annex.

2. RABIES IN EUROPE, 3RD QUARTER 1980

Table 1 on page 15 summarizes the rabies case data reported to the Centre for the period July 1 to September 30, 1980.

A total of 3915 incidences were reported for the 3rd quarter. There has been an increase in incidence of 3.9% from 3760 in the 2nd quarter (omitting Rumania and Czechoslovakia) to 3907 in the 3rd quarter (omitting Rumania).

Austria, Belgium, Denmark, France and Yugoslavia reported fewer cases whereas the German Democratic and German Federal Republic, Hungary, Poland and Switzerland reported more. The position in Turkey hardly altered, reporting 486 cases in the 2nd quarter and 483 in the third.

74.4% (2912) of total cases were in wild species and 25.6% (1003) in domestic animals. Of the former, there were 2577 cases (65.8% of total) in foxes, 186 (4.8%) in mustelids and 110 (2.8%) in deer. Of the latter, there were 340 cases (8.7% of total) in dogs, 173 (4.4%) in cats, 381 (9.7%) in cattle and 236 in other animals. 81% of dog rabies (276 incidences) were registered in Turkey, and Turkey and the Federal Republic of Germany accounted for 75% of rabies in cattle.

Finland, the United Kingdom, Portugal and Sweden continued to remain rabies free and no cases were reported from Bulgaria, Greece, the Netherlands, Norway and Spain. No human cases were registered during the reporting period.

In comparison with the 3rd quarter 1979, the total number of reported rabies cases changed by only +5.1%, from 3716 in 1979 (corrected total omitting Czechoslovakia but including the German Democratic Republic; data submitted late) to 3907 in 1980. The proportion of cases in domestic animals in the 3rd quarter 1980; 25.6%, was higher than in the corresponding period of 1979; 20.8%.

Individual country reports are as follows:

2.1 Rabies in Austria (AUT)

by W. Krocza and E. Scharfen

A total of 166 rabies cases were found in Austria during the 3rd quarter 1980. Of these, there were 157 wildlife cases and 9 cases in domestic animals. This total compares favourably with the 288 cases in the 2nd quarter 1980 and is a reduction of 42%. The number of cases examined increased from 4006 in the 2nd quarter to 4541 in the 3rd quarter whereas the fraction of cases found positive fell by 50% from 0.072, to 0.036.

A somewhat broken frontwave involving the districts Liezen, Leoben, Bruck an der Mur, Mürzzuschlag, Voitsberg and Graz-Umgebung can still be observed in Steiermark. Within the neighbouring Bundesländer, Oberösterreich (4 cases), Niederösterreich (2 cases), Kärnten (5 cases) and Burgenland (1 case), rabies cases have become rare.

The districts of Dornbirn, Bregenz, Landeck, Bludenz, Imst, Innsbruck Land and Kufstein in the west of Austria (Tirol and Vorarlberg) are still infected. The Bundesländer Salzburg and Wien are entirely free of rabies.

2.2 Rabies in Belgium (BEL)

by R. Depierreux

Only two cases of rabies were diagnosed during the 3rd quarter 1980, a very marked reduction from the 23 cases reported during the 2nd quarter 1980. Both cases, one fox and one cat, were reported from the province of Luxembourg, bordering the Duchy of Luxembourg.

2.3 Rabies in Bulgaria (BUL)

No cases were registered during the reporting period.

2.4 Rabies in Czechoslovakia (CZE)

No data were available for the reporting period.

2.5 Rabies in Denmark (DEN)

by S. Møllgaard

In the 3rd quarter 1980, 2 rabies cases were registered. There was one incidence of rabies in a fox (July) and one in a stonemarten (September). Both cases occurred close to the Danish-German border.

A bounty (125 Danish Crowns), is paid for foxes killed between July 15th and 1st November. The gassing of fox dens will probably be resumed in November and December. The poisoning of foxes with strychnine (in eggs) has been continued.

2.6 Rabies in Germany, Democratic Republic (DDR)

In the 3rd quarter 1980, 527 rabies incidences were reported. Of the total there were 378 (71.7%) fox rabies cases, 20 (3.8%) dog rabies, 36 (6.8%) cat rabies and 55 (10.4%) cases in cattle and sheep.

There has been an increase of 14.3% since the 2nd quarter when 461 incidences were reported. Distribution of rabies incidence was very similar to that in the 1st and 2nd quarters 1980. Rostock in the north and Suhl, Gera and Karl-Marx-Stadt in the south had high concentrations of reported cases while Leipzig reported very few cases.

2.7 Rabies in Germany, Federal Republic (DEU)

1582 rabies cases were reported in the 3rd quarter 1980. Of these 1367 cases were in wild species and 215 in domestic animals. The fox accounted for 1190 (75.2%) and mustelids for 103 (6.5%) incidences.

Compared with the 2nd quarter 1980 when 1329 cases were registered, rabies incidence rose by 19%. The proportion of rabies cases in most species did not alter significantly, but in cattle, rabies incidence increased from 44 cases (3.4% of total) in the 2nd quarter to 138 cases (8.7%) in the 3rd. Compared with the 3rd quarter 1979 when 1210 cases were registered, rabies incidence has increased by 30.7% but though geographically, rabies occurrence has altered, the percentage involvement of different species was remarkably similar to that in the 3rd quarter 1980.

In the north of the Federal Republic there was no appreciable change in rabies distribution or in the number of cases. In central West Germany, the number of cases in Detmold, Darmstadt and Trier increased and in Arnsberg, Kassel, Koblenz, Rheinhessen and Saarland decreased. The most noticeable changes were increases in the Kreise Trier-Saarburg, Offenbach and Frankfurt am Main and a decrease in Hochsauerlandkreis. In the south, southern Baden-Württemberg and south west Bavaria had the highest density of rabies and all Regierungsbezirke of Bavaria and Baden-Württemberg, except Mittelfranken (Bavaria), reported more rabies than in the 2nd quarter 1980.

2.8 Finland (FIN)

The country remained rabies free.

2.9 Rabies in France (FRA)

by L. Andral

A total of 275 rabies cases were registered in the 3rd quarter 1980, comprising 51 domestic animals and 224 wild animals (of which 212 were foxes). In the two preceding quarters of 1980, there were respectively 589 and 290 reported cases of rabies.

These figures convey the seasonal reduction customary at this time of the year. They also reflect the pause in the advance of the epizootic front both to the west (no rabies cases reported from the departments Seine et Marne, and Somme), and to the south (in the alpine departments).

2.10 Rabies in Greece (GRE)

No cases of rabies were reported during the 3rd quarter 1980.

2.11 United Kingdom (GBR)

The country remained rabies free.

2.12 Rabies in Hungary (HUN)

191 rabies cases were reported in Hungary during the 3rd quarter 1980. Of the total, there were 181 incidences in wildlife (all in foxes) and 10 in domestic animals (7 in cats).

Compared with the 2nd quarter 1980, with 142 reported cases, rabies incidence has increased by 34.5%. Quarterly totals indicate the trend but mask detail; 40 rabies cases in July, 73 in August and 78 in September.

Central, south west and eastern regions of Hungary reported only sporadic rabies cases. In southern areas of Csongrad and Bacs-Kiskun Komitates (southern Hungary) rabies incidence increased from 10 cases in the 2nd quarter 1980 to 32 cases in the 3rd, and in Borosod-Abauj-Zemplen in the north east, from 9 to 19. Though local geographic incidence has changed in some areas, most komitates reported rabies case numbers similar to those in the 2nd quarter 1980.

2.13 Rabies in Italy (ITA)

Two cases of rabies were registered in the 3rd quarter 1980. Both incidents, in foxes, were reported from two provinces bordering Ovaro where 4 of the 5 rabies incidents of the first six months of 1980 were registered.

2.14 Rabies in Luxembourg (LUX)
by A. Schiltges

As in the 2nd quarter, only 1 case of rabies was registered in the 3rd quarter 1980. This was a case of fox rabies reported from the east of the country. In comparison with the preceding two years, rabies incidence during 1980 in the Grand Duchy of Luxembourg has sharply declined.

2.15 Netherlands (NET)

The country continued to remain rabies free.

2.16 Rabies in Norway (NOR)

No cases of rabies were reported on Svalbard Island during the 3rd quarter 1980.

2.17 Rabies in Poland (POL)

224 rabies incidences were registered in the 3rd quarter 1980. Of the total, there were 157 (70.1%) cases in wild species and 67 (29.9%) in domestic species. The incidence in the fox was 126 (56.2%), in dogs 16 (7.1%), in cats 27 (12.1%) and in cattle 16 (7.1%).

Compared with the 2nd quarter 1980 when 183 cases were reported, there has been an increase in incidence of 22.4%. However, though the total number of cases has increased, there has been a fall in the number of fox rabies cases and thus in the percentage involvement of the fox (from 71.6% in the 2nd quarter to 56.2% in the 3rd).

34 departments of Poland reported incidents of rabies during the 3rd quarter, 6 departments fewer than in the 2nd quarter. Wroclaw and Przemysl, with no rabies in the second quarter, reported 8 and 4 cases respectively. 46% of all cases were reported from 5 departments; Gorzow, Olsztyn, Pila, Suwalki and Szczecin.

2.18 Portugal (POR)

The country remained rabies-free.

2.19 Rabies in Rumania (RUM)

In July and August 1980, 8 rabies cases were reported. Data for September has not been received. There were four cases in wild species and 4 cases in domestic animals. Animal species were not specified.

More detailed data has also been received for the 1st and 2nd quarters 1980 (Tables on pages 24 and 25). In the 1st quarter, 35 incidences were registered, 22 in wild species and 13 in domestic animals; in the 2nd quarter 23 cases were registered, 10 in wild species and 13 in domestic animals. Of these 58 cases, 29 were foxes, 9 dogs, 7 cats, 6 cattle, 1 horse, 3 sheep and 3 mustelids. Although the total numbers of cases are not

large it is noteworthy that in the 1st quarter 60% of reported incidents were foxes and 20% dogs, whereas in the 2nd quarter 35% of incidents were foxes, 9% dogs and 22% cats.

2.20 Rabies in Spain (SPA)

No cases were registered during the reporting period.

2.21 Sweden (SWE)

The country remained rabies-free.

2.22 Rabies in Switzerland (SWI)
by A.I. Wandeler

During the third quarter of 1980 the Swiss rabies diagnostic center received 1352 animals for examination. There were 279 positive for rabies, compared with 238 in the second quarter of 1980, or 323 in the third quarter of 1979. 71% of cases were in foxes, 9% in mustelids, and 15% in domestic animals.

The overall geographic distribution has changed very little. The case density however, increased considerably in the Jura Mountains and south of Lake Neuchâtel.

During the period of observation, 3 people were bitten by proven rabid cats. The number of people treated due to non-bite exposure is much greater, but not recorded.

2.23 Rabies in Turkey (TUR)

In the 3rd quarter 1980 a total of 483 rabies cases were reported in Turkey. Of these, 276 cases (57.1%) were in dogs, 34 (7.0%) in cats and 149 (30.8%) in cattle. There were only 3 rabies incidents in wild species - all in house mice.

Although the total number of cases is almost the same as for the 2nd quarter (486 cases), the proportion of involvement of dogs and cattle is different. In the 2nd quarter there were 330 (67.9%) incidents in dogs and 87 (17.9%) in cattle whereas in the 3rd quarter there were 276 (57.1%) incidents in dogs and 149 (30.8%) in cattle.

The geographic distribution of rabies incidence was similar to that in the 2nd quarter 1980. Provinces in the east of the country reported very few cases (only 9 cases in 21 provinces). In the north and west of the country, incidents in Istanbul, Izmir, Samsun, Sakarya, Ankara and Bursa accounted for almost 50% of the total number reported cases.

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

-2nd quarter 1980-
by V. Pokrovskiy

During the 2nd quarter 1980, 178 cases of animal rabies were registered in the European part of USSR territory. This is less (108 fewer cases or a reduction of 38%) than during the previous quarter of the current year and also less than in the 2nd quarter of 1979 (264 cases). The largest number of cases, 70 or 39.3% were registered in the Ukrainian Soviet Socialist Republic.

2.25 Rabies in Yugoslavia (YUG)

During the 3rd quarter 1980, 173 cases of rabies were reported in Yugoslavia. Of the total there were 163 cases (94.2%) in wild species and 10 cases (5.8%) in domestic animals. Foxes accounted for 156 (90.2%) incidences.

Compared with the 2nd quarter 1980 when 200 cases were reported there has been a reduction in incidence of 8.5%. A comparison with the 3rd quarter 1979 however, with 72 reported cases, shows an increase in incidence of 140%. Geographically, incidence has also altered since 1979 and the epizooty is now heavily infecting areas of Slovenia. In the 3rd quarter of 1979, 14 rabies cases were reported in Slovenia, 30 in Wojwodina and 28 from the rest of the country; in contrast during the 3rd quarter 1980, 123 cases were registered in Slovenia, 25 in Wojwodina and 25 in the rest of the country.

As in the 2nd quarter 1980, rabies incidence in Wojwodina and Croatia was sporadic with most of the infected districts reporting 1-3 cases. In Slovenia, where rabies is spreading southwards, rabies incidence was heavier. Two districts of Slovenia were newly infected during the 3rd quarter.

3. MISCELLANEOUS

3.1 Rabies Prevention.

Human diploid cell rabies vaccine (HDCV) was licensed in America in June 1980. This article is based on revised recommendations issued by the Immunisation Practices Advisory Committee (ACIP).

Introduction

Although rabies only rarely affects humans in the developed world, thousands of persons receive rabies prophylaxis every year. The problem of treating persons who have been bitten or scratched by animals suspected of being infective, or have otherwise been potentially exposed to rabies is a perplexing one. All available methods of systematic prophylactic treatment are complicated by instances of adverse reactions. Furthermore, decisions on management must be made immediately because the longer treatment is postponed the less likely it is to be effective.

I. RABIES IMMUNIZING PRODUCTS AND RATIONALE OF CHOICE

There are 2 types of immunizing products: (1) vaccines, that induce an active immune response that requires time to develop (about 7 to 10 days for an antibody response) but persists for as long as a year or more and (2) globulins, that provide rapid immune protection that persists for a short period of time (a half-life of about 21 days). Both types of products should be used concurrently for rabies post-exposure prophylaxis. Vaccines should be given according to the schedule and dose recommended by the producer of the vaccine.

Vaccines

1. Human diploid cell rabies vaccine (HDCV): HDCV is an inactivated virus vaccine prepared from fixed rabies virus grown in WI-38 or MRC-5 human diploid cell tissue culture. The vaccine grown on WI-38 cells and developed in the United States is inactivated with tri-n-butyl phosphate, while that grown in MRC-5 cells and developed in Europe is inactivated with beta-propiolactone.

2. Duck embryo vaccine (DEV): DEV is an inactivated virus vaccine prepared from embryonated duck eggs infected with a fixed virus and inactivated with beta-propiolactone.

Globulins

1. Rabies immune globulin, human (RIG): RIG is antirabies gamma globulin concentrated by cold ethanol fractionation from plasma of hyperimmunized human donors. Neutralizing antibody content is standardized to contain 150 international units (IU) per ml.

2. Antirabies serum, equine (ARS): Antirabies serum is a refined, concentrated serum obtained from hyperimmunized horses. Neutralizing antibody content is standardized to contain 1,000 IU per vial. Volume is adjusted by the manufacturer on the basis of antibody potency in each lot.

HDCV is the preferred rabies vaccine because of its presumed greater efficacy and because fewer adverse reactions are known to be associated with it (clinical trials with HDCV). RIG is preferred over ARS because the latter has a higher risk of adverse reactions.

The experience with HDCV is too limited to permit an estimate of the frequency of treatment failures compared with that of DEV. However, the average peak titer of rabies antibody after vaccination with HDCV is more than 10 times higher than that seen after DEV.

Serious adverse reactions associated with rabies vaccines include systemic, anaphylactic, and neuroparalytic reactions. Studies suggest that HDCV will have lower rates of all serious adverse reactions than are attributed to DEV. Nerve tissue vaccines of the Semple type (NTV) and suckling rodent brain vaccines-used in some foreign countries-have a higher incidence of neuroparalytic reactions than DEV.

RIG and ARS are both effective; however, ARS causes serum sickness in over 40% of adult recipients, while RIG rarely causes adverse reactions. Thus, RIG is the product of choice when available.

II. POST-EXPOSURE PROPHYLAXIS

The essential components of rabies post-exposure prophylaxis are local treatment of wounds and immunization.

a) Local treatment of wounds

Elimination of rabies virus at the site of infection by chemical or physical means is the most effective mechanism of protection. Immediate and thorough washing with soap and water is imperative.

b) Immunization

Post-exposure antirabies immunization should always include both passively administered antibody (preferably RIG) and vaccine (preferably HDCV), with 1 exception: persons who have been previously immunized with rabies vaccine and have a documented adequate rabies antibody titer should receive only vaccine. The combination of globulin and vaccine is recommended for both bite and non-bite exposures and regardless of the interval between exposure and treatment. The sooner treatment is begun after exposure, the better.

HDCV: HDCV is the vaccine of choice whenever available and should be administered in conjunction with RIG (as described below). In 1977 the World Health Organization (WHO) established a recommendation for 6 intramuscular doses of HDCV. Since 1977, studies conducted by CDC in the United States have shown that a regimen of 1 dose of RIG and 5 doses of HDCV was safe and induced an excellent antibody response in all recipients. Of 77 persons bitten by proven rabid animals and so treated, none developed rabies.

Five 1-ml doses of HDCV should be given intramuscularly (for example, in the deltoid regions). Other routes of administration, such as the intradermal route, have not been tested for postexposure prophylaxis and should not be used. The first dose should be given as soon as possible after the exposure; an additional dose should be given on each of days 3, 7, 14, and 28 after the first dose. (WHO currently recommends a sixth dose 90 days after the first dose). A serum specimen for rabies antibody testing should be collected on day 28 (at the time the last dose is given) or 2-3 weeks after the last dose.

If an adequate antibody titer is not detected, a booster dose should be given, and another serum specimen for rabies antibody testing collected 2-3 weeks later.

DEV: When HDCV is not available, 1 dose of RIG and 23 doses of DEV should be administered. DEV may be given as 21 daily 1-ml doses or fourteen 1-ml doses in the first 7 days (2 injections given at separate sites simultaneously) and then seven 1-ml daily doses. These 21 doses should be followed by 2 booster doses, the first, 10 days after the 21st dose, and the second 10 days later. Vaccine should be injected subcutaneously in the abdomen, lower back, or lateral aspect of the thigh; rotation of sites is recommended.

All persons who receive DEV should have serum for rabies antibody testing collected at the time of the second booster. If no antibody is detected, it is imperative that HDCV be obtained and that 3 doses (1 each on days 0, 7, and 14) be given. Serum should be collected 2-3 weeks after the last injection for further antibody testing.

Combinations of vaccines: One rabies vaccine can be used to complete post-exposure prophylaxis begun with another vaccine. For example, if treatment is begun with DEV and HDCV becomes available: after 1-3 doses of DEV, 5 doses of HDCV should be given (1 on each of days 0, 3, 7, 14, and 28); after 4-7 doses of DEV, 4 doses of HDCV (1 on each of days 0, 7, 14, and 28); and after 8 or more doses of DEV, 3 doses of HDCV (1 on each of days 0, 7, and 14). Serum should be collected for antibody testing 2-3 weeks after the last dose has been given.

RIG (or ARS if RIG is not available): RIG is administered only once, at the beginning of antirabies prophylaxis, to provide antibodies until the patient responds to vaccination. If RIG inadvertently was not given when vaccination was begun, it can be given up to the eighth day after the first dose of vaccine was given. The recommended dose of RIG is 20 IU/kg or approximately 9 IU/lb body weight. (When ARS must be used, the recommended dose is 40 IU/kg, approximately 18 IU/lb or 1 vial of 1,000 IU/55-lb body weight.) If possible, up to half the dose of RIG should be thoroughly infiltrated in the area around the wound, and the rest should be administered intramuscularly. Because RIG may partially suppress active production of antibody, no more than the recommended dose of RIG should be given.

ADVERSE REACTIONS

HDCV

Reactions after vaccination with HDCV are less common than with DEV. In a study using 5 doses of HDCV, local reactions, such as pain, erythema, and swelling or itching at the injection site were reported in about 25% of recipients; mild systemic reactions, such as headache, nausea, abdominal pain, muscle aches, and dizziness, were reported in about 20% of recipients. No serious anaphylactic, systemic, or neuroparalytic reactions have been reported, but additional experience with this vaccine is needed to define more clearly the risk of these adverse reactions.

DEV

Local reactions to postexposure treatment with DEV are very common. Most patients experience pain, erythema, and induration at the injection site. Systemic symptoms (fever, malaise, myalgia) occur in 33% of patients, usually after 5-8 doses. Anaphylaxis, which develops in less than 1% of persons receiving DEV, may occur after the first dose, particularly in persons previously sensitized with vaccines containing avian tissue. Neuroparalytic reactions occur only rarely with DEV.

Vaccines in other countries

Many developing countries use inactivated nerve tissue vaccines (NTV) or inactivated suckling rodent brain vaccine (SRBV). NTV is reported to provoke neuroparalytic reactions at a rate of about 1/2,000 vaccines; the rate for SRBV is about 1/8,000.

RIG

Local pain and low-grade fever may follow receipt of RIG. Although not reported specifically for RIG, angioneurotic edema, nephrotic syndrome, and anaphylaxis have been reported after injection of immune serum globulin (ISG). These reactions occur so rarely that the causal relationship between ISG and these reactions is not clear.

ARS

ARS produces serum sickness in at least 40% of adult recipients; reaction rates for children are lower. Anaphylactic reactions may occur. When RIG is not available and ARS must be used, the patient should be tested for sensitivity to equine serum. (In rare instances the sensitivity test has induced anaphylactic reactions.)

Precautions and contraindications

Once initiated, rabies prophylaxis should not be interrupted or discontinued because of local, or mild systemic adverse reactions to rabies vaccine. Usually such reactions can be successfully managed with anti-inflammatory and antipyretic agents (aspirin, for example).

When a person with a history of hypersensitivity must be given rabies vaccines (for example, when an egg-sensitive person must receive DEV), antihistamines may be given; epinephrine should be readily available to counteract anaphylactic reactions, and the person should be carefully observed immediately after immunization. For most allergic persons HDCV is less likely than DEV to cause an adverse reaction because it contains fewere extraneous proteins.

Corticosteroids and immunosuppressive agents can interfere with the development of active immunity and predispose the patient to developing rabies. They should not be administered during postexposure therapy unless essential for the treatment of other conditions.

Because of the potential consequences of inadequately treated rabies exposure and limited data that indicate that fetal abnormalities have not been associated with rabies vaccination, pregnancy is not considered a contraindication to postexposure prophylaxis.

Serious systemic, anaphylactic, or neuroparalytic reactions occurring during the administration of rabies vaccines pose a serious dilemma. A patient's risk of developing rabies must be carefully considered before deciding to discontinue vaccination or to choose an alternate vaccine.

(based on 'Morbidity and Mortality Weekly Report', June 13, 1980, Vol. 29, No. 23).

3.2 The Role of the Racoon Dog in the Epizootiology of Rabies

by V.L. Cerkasskij

In recent decades, the racoon dog has been playing an increasingly important role in the maintenance and spread of epizootic rabies in nature. Its general biological and ecological characteristics are consequently of interest.

The racoon dog, Nyctereutes procyonoides, was originally found in the Democratic People's Republic of Korea, the Republic of Korea, Japan, China and the eastern regions of the USSR i.e. the basins of the Shilka, Argun and Ussuri rivers and on the coast of the Sea of Japan. In the far Eastern Maritime Province and the Amur river region no problem of an independent reservoir of rabies maintained by racoon dogs exists.

In the 1930's and 1940's several thousand racoon dogs were taken away from their original territory in the USSR and released in over 40 oblasts in both the European and Asian part of the country in order to enrich the local fur-bearing fauna. The racoon dog now ranges over a vast area of the European part of the USSR, considerably larger than its natural territory in the east of the country. From the western oblasts of the USSR the racoon dog has, by natural migration, moved into Poland, Czechoslovakia, the German Democratic Republic, eastern parts of the Federal Republic of Germany, Romania, Finland and Sweden.

In the Baltic Republics, the part played by the racoon dog as a new natural reservoir of rabies, is particularly evident. The number of foxes and racoon dogs in the Baltic Republics are at present equal: 15,500 of each species in the Lithuanian SSR (65,000 km^2); 10,500 of each in the Latvian SSR (63,000 km^2) and 4000 of each in the Estonian SSR (45,000 km^2). 193 cases of rabies were found in racoon dogs in the Estonian SSR between 1969 and 1974; 33% of the total number of wild animals with rabies in that region.

The population density of the racoon dog depends on geographic conditions and varies between 1 or 2 and 50 per thousand hectares. The habitats that suit it best are low lying, with mixed and deciduous forests, preferably where forest alternates with small areas of meadows and fields near water. Continuous coniferous forest, large open marshes and fields are avoided.

The area in which a racoon dog lives and hunts does not usually exceed 10-12 km^2. Regular seasonal migration is not a feature of this species and thus, in normal circumstancees, racoon dogs would not carry rabies infection over long distances. When there is an abrupt change in the animals' living conditions, related to either climate or food, or when the landscape is altered by man e.g. land draining in the Bryansk oblast 1965-1975, migration can result.

Racoon dogs are monogamous. Pairs come together in autumn and rutting occurs from the beginning of February to the end of April, depending on the area and weather conditions, and lasts 2-3 weeks. Gestation takes 61-70 days and there are usually 6-7 young (but up to 15) in a litter. Sexual maturity is reached at 8-10 months. In the northern parts of its territory racoon dogs hibernate. Deep, continuous hibernation, accompanied by a sharp drop in metabolism and body temperature does not occur though general metabolism decreases by about 25%. In mild winters and in temperate regions it does not hibernate in winter but remains in its shelter during snow-storms.

The racoon dog is an omnivorous predator and its principal food is mouse-like rodents. Insects, amphibia, birds and plants are also taken; their importance depending on the time of year and conditions. Unlike the fox, the racoon dog is unable to catch rodents under the snow. In the winter of 1947-1948, 46% racoon dogs caught in the Leningrad and Novogorod oblasts had empty stomachs. Starving animals may enter villages during the daytime to catch poultry from farmyards.

The most important of the racoon dogs enemies is the wolf, while foxes and stray dogs attack its young. Its main competitors are badgers and foxes; mouse-like rodents are eaten by foxes and insects and plants by badgers. This competition is particularly keen in early spring.

The existence of strong ecological links between the racoon dog and the red fox (similar habitats, similar hunting routes, burrow links) provides a basis for the circulation of the rabies virus between these species and for the maintenance of a natural focus of the multi-host type. Stable natural rabies foci occur in localities in which the biotopes of the fox and racoon dog adjoin one another or overlap.

Virological research carried out in Bryansk oblast 1973-1974 has determined the epizootiology of rabies infection in populations of wild animals at different times of year and has pointed to the racoon dog as a reservoir of rabies infection during the hibernation period. The peak of rabies infection in racoon dogs and other animals occurs in spring and early summer. Rabid wild animals are seldom found from August to December. The percentage of rabid racoon dogs increases from March onwards and reaches a maximum by the end of May and beginning of June. Among well nourished and externally healthy racoon dogs caught in December 1973 and January 1974, three out of four of those in the experiment were found to be harbouring rabies virus. Thus, with latent retention of rabies virus during the hibernation period, the racoon dog can intensify the epizootic process at the critical stage of development by carrying over the epizootic into the following season.

The increase in the racoon dog population and the extension of its territory have given it a more important role in the structure of rabies morbidity among wild animals. In the Baltic Republics and the Ukranian SSR the racoon dog is the species most frequently infected with rabies after the fox. It accounted for 4% of all detected cases of rabies in wild species in the Ukranian SSR (1968-1972) for 28.7% in the Latvian SSR (1969-1976) for 37.1% in the Estonian SSR (1969-1976) and for 36.5% in the Lithuanian SSR (1966-1973). In individual years racoon dogs have accounted for 9-46% of rabies in predatory wild animals in the European part of the USSR. The number of racoon dogs found rabid is over 1% of the estimated population of this species in individual republics.

Racoon dog and fox populations have substantially increased due to the decline in the population of their natural predators. The high density of foxes and racoon dogs allows frequent contact with one another and transmission of the infection within the species, and, from one species to another.

Intensive reduction of racoon dog population density is called for in its new territories. In order to be effective throughout an area, measures to destroy the racoon dog should be taken primarily in the basic foci of infection.

Editorial note:

The article above is taken from World Health Organisation/Rabies Research/80.9., and is shortened from the original.

Rabies cases are not reported by animal species from the European part of the USSR and the number of racoon dog rabies cases is thus not known by the Centre. Since 1977, rabies in racoon dogs has been reported to the Centre from Poland and the German Democratic Republic: Poland reported 21 cases in 1978, 14 cases in 1979 and 12 cases in the period January to end September 1980; the German Democratic Republic reported two cases in 1978.

3.3 Rabies in the United States, 1979.

A total of 5,150 laboratory-confirmed cases of rabies were reported in the United States and its territories in 1979. This is an increase of 1,852 cases above the 1978 total, and is 67% above the average for the preceding 5 years. Forty-eight states and Puerto Rico reported infected animals in 1979; only the Districts of Columbia, Idaho, Guam, Hawaii, and the Virgin Islands reported no cases. Seven kinds of animals accounted for 98% of the reported cases: skunks, 59%; bats, 15%; raccoons, 10%; cattle, 4%; dogs, 4%; cats, 3%; and foxes, 3%. Wild animal species accounted for 87.5% of the total reported cases, and domestic species accounted for 12.3%. Five human cases were reported in 1979 (Table 4); no human cases have been reported in 1980, to date. The sharpest increase in reported cases (67% over 1978) was for skunks.

Table: Rabies, United States, 1978-1979

	1978	1979
Human rabies	4	5
Animal rabies	3,298	5,150
domestic animals	469	636
wild animals	2,825	4,509
skunks	1,657	3,031

The geographic distribution of rabies in 1979 was similar to that seen in the previous 5 years. Bats continue to be the most widely distributed vector, with confirmed cases occurring in 45 states, followed by skunks, which were reported from 32 states.

(taken from CDC, Morbidity and Mortality Weekly Report 29, No. 37, September 19, 1980).

3.4 Scientific meeting on animal rabies, Nancy-Malzéville, France.

On the occasion of the tenth anniversary of the 'Centre National d'Etudes sur la Rage' there is to be a joint scientific meeting of the "Centre National d'Etudes sur la Rage - World Health Organisation". The meeting is to be held on the 3rd, 4th and 5th June 1981 and will provide an occasion to present scientific papers, showing the up to date knowledge and improvements in the following fields of animal rabies study: epidemiology, virology, immunology, diagnosis and control.

Further information is obtainable from:

Centre National d'Etudes sur la Rage
B.P. No. 9, F54220 Malzeville-France.

TABLE 1

EUR EUROPE **3/80** RABIES CASES 1. 7.80 - 30. 9.80

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	-	6	3	-	-	-	9	132	14	2	8	1	157		166
02	BELGIUM	-	1	-	-	-	-	1	1	-	-	-	-	1		2
03	BULGARIA *							0						0		0
04	CZECHOSLOVAKIA **															-
05	DENMARK							0	1	-	1	-	-	2		2
06	GERMAN DEM. REPUBLIC	20	36	28	2	27	-	113	378	2	17	14	3	414		527
07	FED.REP. OF GERMANY	14	34	138	10	16	3	215	1190	28	75	65	9	1367		1582
08	FINLAND *							0						0		0
09	FRANCE	6	8	26	-	11	-	51	212	4	5	3	-	224		275
10	GREECE *							0						0		0
11	HUNGARY	1	7	2	-	-	-	10	181	-	-	-	-	181		191
12	ITALY							0	2	-	-	-	-	2		2
13	LUXEMBOURG							0	1	-	-	-	-	1		1
14	NETHERLANDS *							0						0		0
15	POLAND	16	27	16	5	2	1	67	126	5	8	8	10	157		224
16	RUMANIA ***	1	-	-	-	-	3	4	-	-	-	-	4	4		8
17	SPAIN *							0						0		0
18	SWITZERLAND + LIECHT.	2	16	17	1	7	-	43	197	17	8	12	2	236		279
19	TURKEY	276	34	149	3	11	7	480	-	-	-	-	3	3		483
20	YUGOSLAVIA	4	4	2	-	-	-	10	156	-	-	-	7	163		173
22	NORWAY *							0						0		0
TOTAL		340	173	381	21	74	14	1003	2577	70	116	110	39	2912	0	3915
PER CENT		8.7	4.4	9.7	0.5	1.9	0.4	25.6	65.8	1.8	3.0	2.8	1.0	74.4	0.0	100.0

* NO CASES, ** NO DATA, *** NO DATA FOR SEPTEMBER.

TABLE 2: ACCUMULATED TOTALS OF RABIES CASES FOR THE PERIOD 1. JANUARY - 30. SEPTEMBER 1980.

EUR EUROPE — RABIES CASES — 1. 1.80 - 30. 9.80

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	3	20	13	-	3	-	39	552	55	17	39	2	665		704
02 BELGIUM	-	2	4	-	-	-	6	29	1	-	-	-	30		36
03 BULGARIA *							0						0		0
04 CZECHOSLOVAKIA 1)	20	17	2	-	2	2	43	656	3	16	14	4	693		736
05 DENMARK	-	-	2	-	4	-	6	28	-	1	-	-	29		35
06 GERMAN DEM. REPUBLIC	64	100	43	4	37	2	250	1160	6	46	55	6	1273		1523
07 FED.REP. OF GERMANY	83	142	233	28	102	5	593	3756	85	222	240	29	4332		4925
08 FINLAND *							0						0		0
09 FRANCE	36	34	60	18	45	-	193	1011	13	5	13	10	1052		1245
10 GREECE *							0						0		0
11 HUNGARY	7	21	5	-	-	-	33	678	-	-	3	-	681		714
12 ITALY							0	5	2	-	-	-	7		7
13 LUXEMBOURG	-	-	1	-	-	-	1	9	-	-	-	-	9		10
14 NETHERLANDS *							0						0		0
15 POLAND	44	66	28	5	2	3	148	476	10	13	16	18	533		681
16 RUMANIA 2)	10	7	6	1	3	3	30	29	2	1	-	4	36		66
17 SPAIN 3)	1	-	-	-	-	-	1						0		1
18 SWITZERLAND + LIECHT.	8	57	22	3	35	1	126	651	60	27	38	5	781		907
19 TURKEY	917	102	314	9	87	30	1459	1	-	2	-	14	17		1476
20 YUGOSLAVIA	13	8	3	-	-	7	31	541	-	-	-	25	566		597
22 NORWAY 4)							0	-	-	-	-	16	16		16
TOTAL	1206	576	736	68	320	53	2959	9582	237	350	418	133	10720	0	13679
PER CENT	8.8	4.2	5.4	0.5	2.3	0.4	21.6	70.0	1.7	2.6	3.1	1.0	78.4	0.0	100.0

* NO CASES, 1) NO DATA FOR 3RD QUARTER, 2) NO DATA FOR SEPTEMBER, 3) IN NORTH AFRICA, 4) ON ISLAND OF SVALBARD.

TABLE 3

EUR EUROPE 3/80 — RABIES CASES 'OTHER ANIMAL SPECIES' — 1. 7.80 - 30. 9.80

LOCATION CODE NAME	OTHER DOMESTIC ANIMALS						OTHER WILD ANIMALS											UNSPECIFIED	TOTAL
	OTH.DOM. CARNIVOR	DONKEY	MULE	PIG	OTH.DOM. HERBIVOR	OTH.DOM. ANIMALS	OTH. FOX SPECIES	RACOON DOG	MOUFLON	CHAMOIS	HEDGEHOG	SQUIRREL	MARMOT	RAT	HOUSE MOUSE	HARE	OTH.WILD ANIMALS		
01 AUT	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
06 DDR	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	3
07 DEU	-	1	-	2	-	-	1	-	1	-	1	1	-	-	-	-	-	5	12
15 POL	1	-	-	-	-	-	-	6	-	-	-	4	-	-	-	-	-	-	11
16 RUM	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	4	-	7
18 SWI	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2
19 TUR	-	3	1	-	3	-	-	-	-	-	-	-	-	-	3	-	-	-	10
20 YUG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	7
TOTAL	1	4	1	2	3	3	1	6	1	2	2	5	1	1	3	1	11	5	53
PER CENT	1.9	7.5	1.9	3.8	5.7	5.7	1.9	11.3	1.9	3.8	3.8	9.4	1.9	1.9	5.7	1.9	20.8	9.4	100.

AUT AUSTRIA — RABIES CASES — 1. 7.80 - 30. 9.80

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		
B5	NEUSIEDL AM SEE							0	1	-	-	-	-	1		1
K1	HERMAGOR							0	2	-	-	-	-	2		2
K5	VILLACH-LAND	-	1	-	-	-	-	1	1	-	-	-	-	1		2
K6	VOELKERMARKT							0	1	-	-	-	-	1		1
N16	SCHEIBBS							0	2	-	-	-	-	2		2
O12	STEYR-LAND							0	3	1	-	-	-	4		4
ST1	BRUCK/MUR	-	1	-	-	-	-	1	19	1	-	1	-	21		22
ST5	GRAZ-LAND							0	11	-	-	1	1	13		13
ST8	KNITTELFELD							0	-	-	-	1	-	1		1
ST10	LEOBEN							0	12	3	-	1	-	16		16
ST11	LIEZEN	-	-	1	-	-	-	1	23	2	-	2	-	27		28
ST12	MUERZZUSCHLAG							0	3	-	-	-	-	3		3
ST15	VOITSBERG							0	5	1	-	-	-	6		6
T1	IMST	-	1	-	-	-	-	1	9	1	-	2	-	12		13
T2	INNSBRUCK-LAND							0	4	2	-	-	-	6		6
T4	KUFSTEIN	-	-	1	-	-	-	1	3	-	-	-	-	3		4
T5	LANDECK	-	1	-	-	-	-	1	25	2	1	-	-	28		29
V1	BLUDENZ	-	1	-	-	-	-	1						0		1
V2	BREGENZ							0	2	1	-	-	-	3		3
V4	DORNBIRN	-	1	1	-	-	-	2	6	-	1	-	-	7		9
TOTAL		0	6	3	0	0	0	9	132	14	2	8	1	157	0	166
PER CENT		0.0	3.6	1.8	0.0	0.0	0.0	5.4	79.5	8.4	1.2	4.8	0.6	94.6	0.0	100.0

RABIES CASES

1. 7.80 - 30. 9.80

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															
LX	LUXEMBOURG	-	1	-	-	-	-	1	1	-	-	-	-	1		2
DEN	DENMARK															
050539	TINGLEV							0	1	-	1	-	-	2		2
ITA	ITALY															
33020	PRATOCARNICO							0	1	-	-	-	-	1		1
33020	RAVASCLETTO							0	1	-	-	-	-	1		1
TOTAL		0	0	0	0	0	0	0	2	0	0	0	0	2	0	2
LUX	LUXEMBOURG															
								0	1	-	-	-	-	1		1

DDR GERMAN DEMOCRATIC REPUBLIC — R A B I E S C A S E S — 1. 7.80 - 30. 9.80

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	1	4	8	1	2	-	16	38	-	3	1	-	42		58
II	SCHWERIN	4	1	1	-	1	-	7	37	-	2	1	-	40		47
III	NEUBRANDENBURG	1	3	-	-	-	-	4	34	-	2	1	-	37		41
IV	POTSDAM	1	4	3	-	-	-	8	38	1	1	2	1	43		51
V	FRANKFURT/ODER	1	1	-	-	-	-	2	30	-	-	1	-	31		33
VI	COTTBUS	1	5	-	-	2	-	8	31	-	1	3	-	35		43
VII	MAGDEBURG	1	3	8	-	-	-	12	40	1	3	-	-	44		56
VIII	HALLE	1	3	-	-	-	-	4	14	-	-	2	-	16		20
IX	ERFURT	2	2	3	-	4	-	11	17	-	-	-	-	17		28
X	GERA	-	3	3	-	3	-	9	13	-	2	1	-	16		25
XI	SUHL	2	1	-	1	-	-	4	34	-	-	1	-	35		39
XII	DRESDEN	1	1	-	-	2	-	4	14	-	-	-	-	14		18
XIII	LEIPZIG	1	-	-	-	-	-	1	3	-	1	-	1	5		6
XIV	KARL-MARX-STADT	3	5	2	-	13	-	23	33	-	2	1	1	37		60
XV	HAUPTSTADT BERLIN							0	2	-	-	-	-	2		2
TOTAL		20	36	28	2	27	0	113	378	2	17	14	3	414	0	527
PER CENT		3.8	6.8	5.3	0.4	5.1	0.0	21.4	71.7	0.4	3.2	2.7	0.6	78.6	0.0	100.0

DEU FEDERAL REPUBLIC OF GERMANY — RABIES CASES — 1. 7.80 - 30. 9.80

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	-	-	2	-	-	-	2	12	-	2	3	-	17		19
020	HAMBURG							0						0		0
031	BRAUNSCHWEIG	-	2	16	4	1	-	23	60	3	3	4	1	71		94
032	HANNOVER	1	2	19	-	1	-	23	12	-	1	1	1	15		38
033	LUENEBURG	-	1	1	-	-	-	2	9	-	-	1	3	13		15
034	WESER-EMS	-	-	1	-	-	-	1	2	-	-	-	1	3		4
040	BREMEN							0						0		0
051	DUESSELDORF							0						0		0
053	KOELN							0						0		0
055	MUENSTER							0						0		0
057	DETMOLD	-	-	5	-	-	-	5	20	1	-	-	1	22		27
059	ARNSBERG	-	1	21	3	1	-	26	33	2	3	3	-	41		67
061	DARMSTADT	2	1	2	1	1	-	7	90	1	2	4	-	97		104
062	KASSEL	-	1	3	-	-	-	4	34	-	2	2	-	38		42
071	KOBLENZ	-	5	4	1	1	-	11	45	2	-	1	-	48		59
072	TRIER	-	-	9	-	2	-	11	32	-	5	1	-	38		49
073	RHEINHESSEN-PFALZ	1	2	-	-	-	1	4	20	1	2	3	-	26		30
081	STUTTGART	-	-	2	-	2	-	4	55	-	2	3	-	60		64
082	KARLSRUHE	1	2	-	-	1	-	4	68	-	2	4	-	74		78
083	FREIBURG	1	2	12	-	1	1	17	95	5	6	10	1	117		134
084	TUEBINGEN	1	5	8	-	1	1	16	180	6	11	8	-	205		221
091	OBERBAYERN	-	5	18	1	1	-	25	113	3	9	2	-	127		152
092	NIEDERBAYERN	1	-	-	-	-	-	1	22	1	-	-	-	23		24
093	OBERPFALZ	2	-	-	-	-	-	2	60	1	7	2	-	70		72
094	OBERFRANKEN	-	1	-	-	-	-	1	39	-	1	2	-	42		43
095	MITTELFRANKEN							0	17	-	1	-	-	18		18
096	UNTERFRANKEN	3	-	-	-	1	-	4	82	1	3	4	-	90		94
097	SCHWABEN	-	1	9	-	-	-	10	54	1	8	4	-	67		77
100	SAARLAND	1	3	6	-	2	-	12	36	-	5	3	1	45		57
110	BERLIN (WEST)							0						0		0
TOTAL		14	34	138	10	16	3	215	1190	28	75	65	9	1367	0	1582
PER CENT		0.9	2.1	8.7	0.6	1.0	0.2	13.6	75.2	1.8	4.7	4.1	0.6	86.4	0.0	100.0

FRA F R A N C E — R A B I E S C A S E S — 1. 7.80 - 30. 9.80

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
02	AISNE	-	-	-	-	4	-	4	33	-	-	-	-	33		37
08	ARDENNES	-	-	-	-	1	-	1						0		1
10	AUBE							0	8	-	-	-	-	8		8
21	COTE D'OR	1	-	5	-	3	-	9	30	1	2	-	-	33		42
25	DOUBS							0	3	-	1	-	-	4		4
39	JURA	-	2	-	-	-	-	2	2	-	-	-	-	2		4
51	MARNE							0	13	-	-	-	-	13		13
52	MARNE (HAUTE)	2	1	-	-	1	-	4	5	-	-	1	-	6		10
54	MEURTHE-ET-MOSELLE	1	1	2	-	1	-	5	17	-	-	1	-	18		23
55	MEUSE	-	-	12	-	1	-	13	15	-	-	-	-	15		28
57	MOSELLE	-	1	3	-	-	-	4	13	-	-	-	-	13		17
60	OISE	1	-	-	-	-	-	1	5	-	-	-	-	5		6
67	RHIN (BAS)	-	-	2	-	-	-	2	10	-	1	1	-	12		14
68	RHIN (HAUT)							0	12	-	-	-	-	12		12
70	SAONE (HAUTE)	-	-	1	-	-	-	1	19	-	1	-	-	20		21
73	SAVOIE							0	1	-	-	-	-	1		1
74	SAVOIE (HAUTE)	-	3	1	-	-	-	4	25	3	-	-	-	28		32
88	VOSGES	1	-	-	-	-	-	1	1	-	-	-	-	1		2
TOTAL		6	8	26	0	11	0	51	212	4	5	3	0	224	0	275
PER CENT		2.2	2.9	9.5	0.0	4.0	0.0	18.5	77.1	1.5	1.8	1.1	0.0	81.5	0.0	100.0

HUN HUNGARY — RABIES CASES — 1. 7.80 - 30. 9.80

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	5	-	-	-	-	5		5
02	BARANYA	-	1	-	-	-	-	1	2	-	-	-	-	2		3
03	BACS-KISKUN							0	18	-	-	-	-	18		18
04	BEKES							0	1	-	-	-	-	1		1
05	BORSOD-ABAU-ZEMPLEN	-	2	-	-	-	-	2	17	-	-	-	-	17		19
06	CSONGRAD							0	19	-	-	-	-	19		19
07	FEJER							0	20	-	-	-	-	20		20
08	GYOER-SOPRON	-	1	-	-	-	-	1	8	-	-	-	-	8		9
09	HAJDU-BIHAR	-	2	-	-	-	-	2	6	-	-	-	-	6		8
10	HEVES							0	3	-	-	-	-	3		3
11	KOMAROM	1	-	-	-	-	-	1	20	-	-	-	-	20		21
12	NOGRAD	-	-	1	-	-	-	1	10	-	-	-	-	10		11
13	PEST	-	1	-	-	-	-	1	11	-	-	-	-	11		12
14	SOMOGY							0	4	-	-	-	-	4		4
15	SZABOLCS-SZATMAR							0	6	-	-	-	-	6		6
17	TOLNA							0	1	-	-	-	-	1		1
18	VAS	-	-	1	-	-	-	1	9	-	-	-	-	9		10
19	VESZPREM							0	14	-	-	-	-	14		14
20	ZALA							0	7	-	-	-	-	7		7
TOTAL		1	7	2	0	0	0	10	181	0	0	0	0	181	0	191
PER CENT		0.5	3.7	1.0	0.0	0.0	0.0	5.2	94.8	0.0	0.0	0.0	0.0	94.8	0.0	100.0

RUM RUMANIA — RABIES CASES — 1. 1.80 - 31. 3.80

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	ALBA							0	1	-	-	-	-	1		1
02	ARAD	2	-	-	-	-	-	2						0		2
06	BISTRITA-NASAUD							0	2	-	1	-	-	3		3
07	BOTOSANI	-	-	-	-	1	-	1						0		1
08	BRASOV	1	-	-	-	1	-	2	1	-	-	-	-	1		3
11	CARAS-SEVERIN							0	1	-	-	-	-	1		1
12	CLUJ	-	1	-	-	-	-	1	1	-	-	-	-	1		2
14	COVASNA							0	1	-	-	-	-	1		1
20	HUNEDOARA	-	-	1	-	-	-	1	3	-	-	-	-	3		4
24	MARAMURES	1	-	-	-	-	-	1	1	-	-	-	-	1		2
25	MEHEDINTI	-	1	-	-	-	-	1						0		1
26	MURES	1	-	-	-	-	-	1	2	-	-	-	-	2		3
29	PRAHOVA	1	-	-	-	-	-	1	2	-	-	-	-	2		3
30	SATU-MARE							0	1	-	-	-	-	1		1
31	SALAJ	1	-	-	-	-	-	1	3	-	-	-	-	3		4
32	SIBIU							0	1	-	-	-	-	1		1
33	SUCEAVA							0	1	-	-	-	-	1		1
35	TIMIS	-	-	1	-	-	-	1						0		1
TOTAL		7	2	2	0	2	0	13	21	0	1	0	0	22	0	35
PER CENT		20.0	5.7	5.7	0.0	5.7	0.0	37.1	60.0	0.0	2.9	0.0	0.0	62.9	0.0	100.0

RUM R U M A N I A — R A B I E S C A S E S — 1. 4.80 - 30. 6.80

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		
04	BACAU							0	1	-	-	-	-	1		1
06	BISTRITA-NASAUD							0	2	-	-	-	-	2		2
08	BRASOV	-	-	2	-	-	-	2						0		2
09	BRAILA	-	-	1	-	-	-	1						0		1
11	CARAS-SEVERIN							0	-	1	-	-	-	1		1
20	HUNEDOARA							0	-	1	-	-	-	1		1
22	IASI	1	-	-	-	-	-	1						0		1
26	MURES	1	1	-	-	-	-	2	3	-	-	-	-	3		5
29	PRAHOVA	-	-	-	-	1	-	1	1	-	-	-	-	1		2
30	SATU-MARE	-	1	-	-	-	-	1						0		1
31	SALAJ	-	3	-	-	-	-	3	1	-	-	-	-	1		4
32	SIBIU	-	-	1	-	-	-	1						0		1
33	SUCEAVA	-	-	-	1	-	-	1						0		1
TOTAL		2	5	4	1	1	0	13	8	2	0	0	0	10	0	23
PER CENT		8.7	21.7	17.4	4.3	4.3	0.0	56.5	34.8	8.7	0.0	0.0	0.0	43.5	0.0	100.0

RUM R U M A N I A — R A B I E S C A S E S — 1. 7.80 - 30. 9.80

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	ALBA							0	-	-	-	-	2	2		2
06	BISTRITA-NASAUD	-	-	-	-	-	1	1						0		1
08	BRASOV	-	-	-	-	-	1	1						0		1
11	CARAS-SEVERIN							0	-	-	-	-	2	2		2
31	SALAJ	1	-	-	-	-	-	1						0		1
32	SIBIU	-	-	-	-	-	1	1						0		1
TOTAL		1	0	0	0	0	3	4	0	0	0	0	4	4	0	8
PER CENT		12.5	0.0	0.0	0.0	0.0	37.5	50.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	100.0

NO DATA FOR SEPTEMBER.

POL POLAND — RABIES CASES — 1. 7.80 - 30. 9.80

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
01	WARSZAWA	-	1	-	-	-	-	1	2	-	-	-	-	2		3
05	BIALYSTOK							0	3	-	-	-	-	3		3
09	BYDGOSZCZ	1	-	-	-	-	-	1	1	-	1	-	-	2		3
13	CIECHANOW							0	3	-	-	-	-	3		3
17	ELBLAG	-	1	-	-	-	-	1	1	-	-	-	1	2		3
19	GDANSK							0	3	-	-	-	-	3		3
21	GORZOW	2	3	1	-	-	-	6	11	1	-	1	-	13		19
23	JELENIA GORA	-	-	3	-	1	-	4	4	-	-	-	-	4		8
25	KALISZ							0	3	-	-	-	-	3		3
27	KATOWICE	-	1	-	-	-	-	1	1	-	-	-	-	1		2
29	KIELCE	1	1	-	-	-	-	2	3	-	-	-	-	3		5
31	KONIN	-	1	-	-	-	-	1						0		1
33	KOSZALIN							0	5	-	-	2	-	7		7
39	LEGNICA	1	-	-	-	-	-	1	3	-	-	-	-	3		4
41	LESZNO							0	9	-	-	-	-	9		9
43	LUBLIN	-	1	-	-	-	-	1						0		1
51	OLSZTYN	1	4	10	3	-	-	18	6	-	-	1	-	7		25
53	OPOLE	-	3	-	-	-	-	3	3	-	2	-	-	5		8
55	OSTROLEKA	-	1	-	-	-	-	1	2	-	-	-	-	2		3
57	PILA	2	2	-	-	-	-	4	8	-	-	-	-	8		12
61	PLOCK							0	2	-	-	-	-	2		2
63	POZNAN	1	-	-	-	-	-	1	8	-	-	-	-	8		9
65	PRZEMYSL	2	-	-	-	-	-	2	2	-	-	-	-	2		4
67	RADOM	1	-	-	-	-	-	1	1	-	-	-	-	1		2
71	SIEDLCE	-	-	-	-	-	1	1	5	1	-	-	-	6		7
77	SLUPSK							0	3	1	-	-	-	4		4
79	SUWALKI	-	3	1	2	-	-	6	5	-	1	2	6	14		20
81	SZCZECIN	2	4	-	-	-	-	6	10	1	4	2	3	20		26
87	TORUN	-	1	1	-	1	-	3	3	-	-	-	-	3		6
89	WALBRZYCH							0	4	-	-	-	-	4		4
91	WLOCLAWEK							0	1	-	-	-	-	1		1
93	WROCLAW							0	8	-	-	-	-	8		8
95	ZAMOSC							0	-	1	-	-	-	1		1
97	ZIELONA GORA	2	-	-	-	-	-	2	3	-	-	-	-	3		5
TOTAL		16	27	16	5	2	1	67	126	5	8	8	10	157	0	224
PER CENT		7.1	12.1	7.1	2.2	0.9	0.4	29.9	56.2	2.2	3.6	3.6	4.5	70.1	0.0	100.0

SWI SWITZERLAND — RABIES CASES — 1. 7.80 - 30. 9.80

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	-	3	1	-	-	-	4	4	-	1	1	-	6		10
05	BASEL-LAND							0	3	1	-	1	-	5		5
06	BERN	1	1	2	-	3	-	7	60	4	3	2	1	70		77
07	FREIBURG	-	-	2	-	-	-	2	4	-	-	-	-	4		6
08	GENF							0	1	-	-	-	-	1		1
09	GLARUS							0	2	-	-	-	-	2		2
10	GRAUBUENDEN	-	2	-	-	-	-	2	13	3	-	4	1	21		23
11	LUZERN	-	2	1	-	-	-	3	16	-	-	2	-	18		21
12	NEUCHATEL	-	-	1	-	-	-	1	8	-	-	-	-	8		9
15	SCHAFFHAUSEN	-	1	-	-	-	-	1	6	1	1	-	-	8		9
16	SCHWYZ							0	13	3	-	-	-	16		16
17	SOLOTHURN	-	2	2	-	-	-	4	15	-	1	-	-	16		20
18	ST.GALLEN	-	-	1	-	-	-	1	3	1	-	-	-	4		5
20	THURGAU	-	-	2	-	-	-	2	2	-	-	-	-	2		4
22	WAADT	-	1	1	-	-	-	2	7	-	1	-	-	8		10
23	WALLIS							0	2	1	-	-	-	3		3
24	ZUG	-	1	-	-	-	-	1	-	-	1	-	-	1		2
25	ZUERICH	1	2	3	1	2	-	9	24	2	-	2	-	28		37
26	JURA	-	1	1	-	2	-	4	14	1	-	-	-	15		19
TOTAL		2	16	17	1	7	0	43	197	17	8	12	2	236	0	279
PER CENT		0.7	5.7	6.1	0.4	2.5	0.0	15.4	70.6	6.1	2.9	4.3	0.7	84.6	0.0	100.0

TUR TURKEY — RABIES CASES — 1. 7.80 - 30. 9.80

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	5	3	-	-	-	1	9						0		9
003	AFYON	1	-	2	-	-	-	3						0		3
005	AMASYA	3	-	3	-	-	-	6						0		6
006	ANKARA	26	-	10	-	1	-	37						0		37
007	ANTALYA	2	-	1	-	-	-	3						0		3
009	AYDIN	10	-	5	-	-	-	15						0		15
010	BALIKESIR	3	1	2	-	-	-	6						0		6
011	BILECIK	2	-	-	-	-	-	2						0		2
014	BOLU	1	-	5	-	-	-	6						0		6
016	BURSA	22	2	5	1	2	-	32						0		32
017	CANAKKALE	-	-	1	-	-	-	1	-	-	-	-	1	1		2
018	CANKIRI	1	-	2	-	1	-	4						0		4
019	CORUM	1	-	11	-	-	1	13						0		13
020	DENIZLI	11	1	1	-	-	-	13						0		13
021	DIYARBAKIR	1	-	1	-	-	-	2						0		2
022	EDIRNE	5	-	-	-	-	-	5						0		5
023	ELAZIG	2	-	1	-	-	-	3						0		3
025	ERZURUM							0	-	-	-	-	1	1		1
026	ESKISEHIR	3	1	3	-	1	-	8						0		8
027	GAZIANTEP	1	1	-	-	-	-	2						0		2
028	GIRESUN	4	-	7	-	1	1	13						0		13
032	ISPARTA	1	-	-	-	-	-	1						0		1
034	ISTANBUL	41	6	3	-	-	-	50						0		50
035	IZMIR	40	6	2	1	-	-	49	-	-	-	-	1	1		50
037	KASTAMONU	1	-	3	-	-	-	4						0		4

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		
038	KAYSERI	1	-	-	-	-	-	1						0		1
039	KIRKLARELI	2	1	3	-	-	-	6						0		6
040	KIRSEHIR	1	-	2	-	-	-	3						0		3
041	KOCAELI	3	-	-	-	-	-	3						0		3
042	KONYA	3	1	1	-	2	-	7						0		7
043	KUETAHYA	5	-	1	-	-	-	6						0		6
045	MANISA	7	-	2	-	-	-	9						0		9
047	MARDIN	1	-	-	-	-	-	1						0		1
048	MUGLA	2	1	-	-	-	-	3						0		3
050	NEVSEHIR	-	-	2	-	-	-	2						0		2
051	NIGDE	-	-	1	-	-	-	1						0		1
052	ORDU	8	-	7	1	1	-	17						0		17
054	SAKARYA	14	-	14	-	-	-	28						0		28
055	SAMSUN	19	7	13	-	2	1	42						0		42
057	SINOP	2	1	3	-	-	1	7						0		7
058	SIVAS	1	-	1	-	-	-	2						0		2
059	TEKIRDAG	1	1	-	-	-	-	2						0		2
060	TOKAT	4	1	13	-	-	-	18						0		18
062	TUNCELI	1	-	1	-	-	-	2						0		2
066	YOZGAT	6	-	3	-	-	2	11						0		11
067	ZONGULDAK	8	-	14	-	-	-	22						0		22
TOTAL		276	34	149	3	11	7	480	0	0	0	0	3	3	0	483
PER CENT		57.1	7.0	30.8	0.6	2.3	1.4	99.4	0.0	0.0	0.0	0.0	0.6	0.6	0.0	100.0

YUG YUGOSLAVIA — RABIES CASES — 1. 7.80 - 30. 9.80

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/ 26	VARAZDIN							0	1	-	-	-	-	1		1
III/ 28	NOVI MAROF							0	5	-	-	-	-	5		5
III/ 29	LUDBREG							0	1	-	-	-	-	1		1
III/ 30	KRIZEVCI							0	3	-	-	-	-	3		3
III/ 31	KOPRIVNICA							0	1	-	-	-	-	1		1
III/ 32	DURDEVAC							0	3	-	-	-	-	3		3
III/ 33	BJELOVAR							0	3	-	-	-	-	3		3
III/ 36	GARESNICA							0	1	-	-	-	-	1		1
III/ 47	NASICE	-	1	-	-	-	-	1						0		1
V / 15	RADOVLJICA							0	5	-	-	-	-	5		5
V / 17	SKOFJA LOKA							0	3	-	-	-	-	3		3
V / 19	KRANJ							0	3	-	-	-	-	3		3
V / 34	MOZIRJE							0	4	-	-	-	-	4		4
V / 35	ZALEC							0	17	-	-	-	1	18		18
V / 37	VELENJE	-	1	1	-	-	-	2	3	-	-	-	1	4		6
V / 38	SLOVENJGRADEC							0	15	-	-	-	1	16		16
V / 39	RAVNE NA KOROSKE							0	9	-	-	-	1	10		10
V / 40	DRAVOGRAD	-	-	1	-	-	-	1	6	-	-	-	1	7		8
V / 41	RADLJE OB DRAVI							0	22	-	-	-	-	22		22
V / 43	SLOV.KONJICE							0	5	-	-	-	-	5		5
V / 44	CELJE	-	1	-	-	-	-	1	18	-	-	-	2	20		21
V / 49	SLOV.BISTRICA							0	1	-	-	-	-	1		1
V / 56	LENDAVA							0	1	-	-	-	-	1		1

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		
VI / 1	BEOGRAD							0	2	-	-	-	-	2		2
VI /101	VRANJE	1	-	-	-	-	-	1						0		1
VI1/ 1	NOVI SAD							0	3	-	-	-	-	3		3
VI1/ 4	ZABALJ							0	2	-	-	-	-	2		2
VI1/ 6	VRBAS							0	2	-	-	-	-	2		2
VI1/ 8	BAC.PALANKA							0	2	-	-	-	-	2		2
VI1/ 15	ST.PAZOVA							0	2	-	-	-	-	2		2
VI1/ 26	ZITISTE							0	1	-	-	-	-	1		1
VI1/ 27	NOVA CRNJA							0	1	-	-	-	-	1		1
VI1/ 29	NOVI BECEJ							0	1	-	-	-	-	1		1
VI1/ 30	BECEJ	-	1	-	-	-	-	1	1	-	-	-	-	1		2
VI1/ 31	SRBOBRAN							0	2	-	-	-	-	2		2
VI1/ 37	KANJIZA							0	1	-	-	-	-	1		1
VI1/ 38	NOVI KNEZEVAC							0	1	-	-	-	-	1		1
VI1/ 39	SUBOTICA							0	3	-	-	-	-	3		3
VI1/ 40	SOMBOR							0	2	-	-	-	-	2		2
VI2/ 2	LIPLJAN	1	-	-	-	-	-	1						0		1
VI2/ 17	PEC	1	-	-	-	-	-	1						0		1
VI2/ 19	VUCITRN	1	-	-	-	-	-	1						0		1
TOTAL		4	4	2	0	0	0	10	156	0	0	0	7	163	0	173
PER CENT		2.3	2.3	1.2	0.0	0.0	0.0	5.8	90.2	0.0	0.0	0.0	4.0	94.2	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. 4.80 - 30. 6.80

LOCATION CODE NAME	DATES			TOTAL
	1. 4. - 30. 4.	1. 5. - 31. 5.	1. 6. - 30. 6.	
01 RSFSR				
011 REGIONS OF THE NORTH AND THE NORTH-WEST	-	1	1	2
012 REGIONS OF THE CENTRE	20	10	7	37
013 REGIONS OF THE NORTH CAUCASUS	2	3	-	5
014 REGIONS OF THE POVOLJE AND THE URALS	8	12	8	28
02 THE MOLDAVIAN SSR	1	3	2	6
03 THE UKRAINIAN SSR	30	17	23	70
04 THE BYELORUSSIAN SSR	8	3	7	18
05 THE LITHUANIAN SSR	1	1	1	3
06 THE LATVIAN SSR	3	2	1	6
07 THE ESTONIAN SSR	2	-	1	3
TOTAL	75	52	51	178

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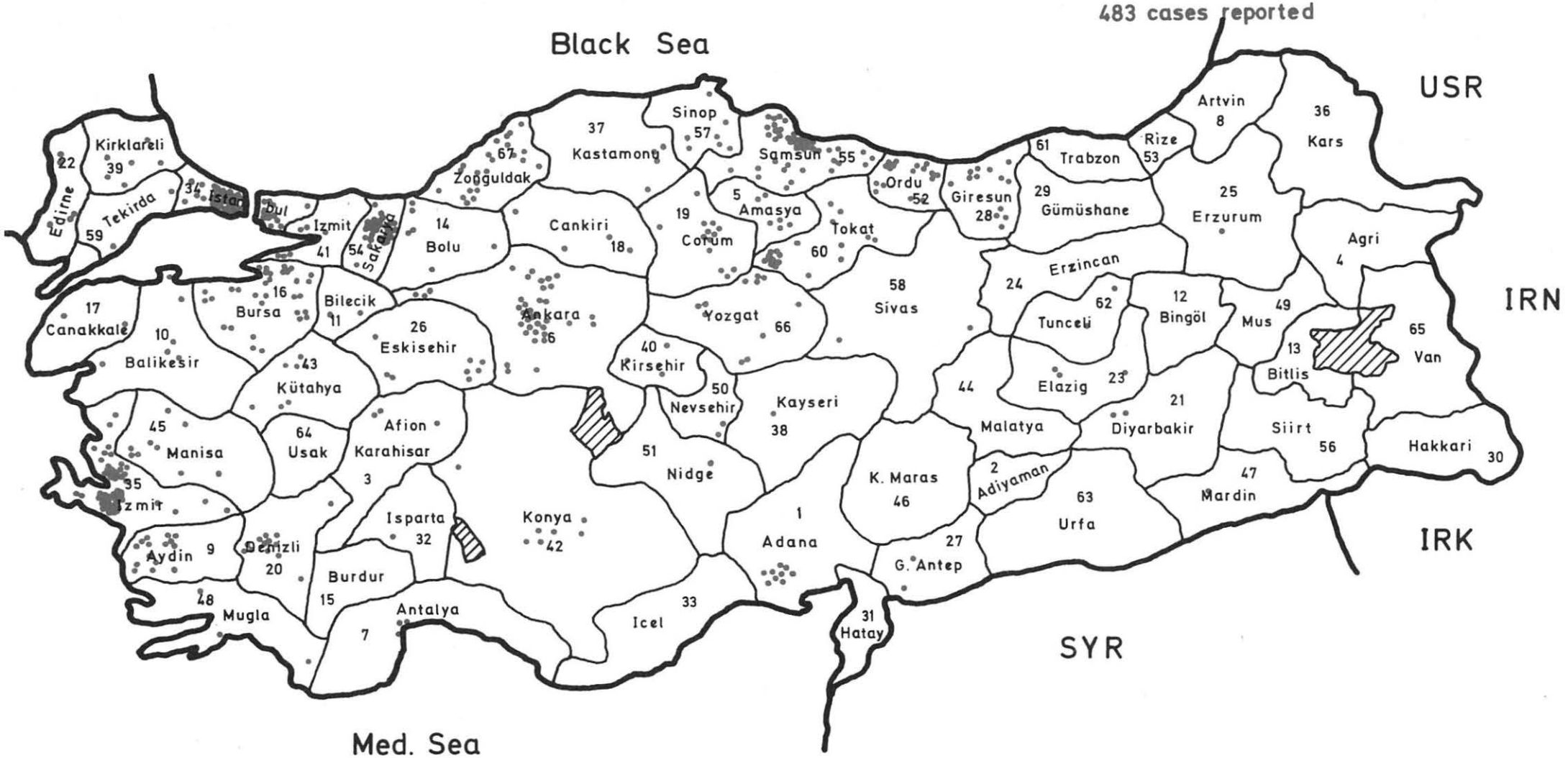
WHO Coll. Centre
Tuebingen / DEU

Rabies Cases Turkey
3rd Quarter 1980
483 cases reported



WHO Coll. Centre
Tuebingen / DEU

Rabies Cases Europe
3rd Quarter 1980

3915 cases reported

NOR
(0)

FIN
(rabies free)

SWE
(rabies free)

DEN
(2)

IRE
(rabies free)

GBR
(rabies free)

NET
(0)

BEL
(2)

(1582)

DEU

DDR
*(527)

POL
(224)

CZE
(no data)

FRA
(275)

AUT
(166)

HUN
(191)

SWI
(279)

RUM
(8)
(no data for September)

ITA
(2)

YUG
(173)

BUL
(0)

POR
(rabies free)

SPA
(0)

ALB
(no data)

TÜR
(483)

GRE
(0)

0 50 100 km