RABIES BULLETIN EUROPE

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Contents

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1. Introduction

This BULLETIN describes the reported rabies cases in Europe for the **Third Quarter 1991**, subsequently referred to as ***"This Quarter"***.

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

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

There are three articles in the miscellaneous section, SECTION 4. Under 4.1 reports on 3 human rabies cases 1991 in the United States of America are given. The annual reporting in this **BULLETIN** on new areas of oral vaccination of foxes against rabies in Europe is to be found under 4.2. Under 4.3 an antigenic variant of fox rabies in Europe is described.

The rabies case data are tabulated for the third quarter 1991 in SECTION 5.

SECTION 6 lists the official contributors to the BULLETIN.

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

There are furthermore two maps in the ANNEX in connection with the article 4.2 on oral vaccination in Europe.

2. Summary of Rabies in Europe

During ***"This Quarter"***, 3568 animal rabies cases were reported in Europe. Of these were 2648 cases in wild animals (74.2% of total) and 920 in domestic animals.

Of the cases in wild animals 2200 were foxes, 44 raccoon dogs, 61 badgers, 80 stone martens, 15 pine martens, 1 polecat, 1 ferret, 2 mouse weasels, 76 roe deer, 4 red deer, 9 fallow deer, 1 mouflon, 3 chamois, 13 bats, 2 squirrels, 1 black rat, 1 house mouse and 134 wild animals not specified. Of the 920 cases in domestic animals 245 were dogs, 200 cats, 20 horses, 1 donkey, 367 cattle, 79 sheep, 5 goats and 3 other domesticated animals. These data are summarized in Tables 1 and 3, SECTION 5.

Table 2 summarizes the quarters 1-3/91 of the rabies data in Europe.

Because of the dispersal of the young foxes (more contacts in search of new territory) during the third quarter, a seasonal increase of rabies cases is expected in countries with fox-mediated rabies. Examples for that are the countries Hungary and Poland. All other countries with fox-mediated rabies recorded about the same number of cases as in the previous quarter or even less, most likely an effect of oral vaccination of foxes against rabies practiced in these countries.

One country, Italy, was reinfected along the Yugoslavian border after not recording rabies for 1 1/2 years.

Not following a clear seasonal pattern is Turkey, the only country in Europe at present with dog-mediated rabies.

Bat rabies has its peak usually in the third quarter of the year, a time span of great activity in the bat populations with raising of young, mating and in few species migration.

There were reports on bat rabies during *"This Quarter"* from the Netherlands (12 cases) and Germany (1 case).

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

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

No human case was reported.

3. Rabies in Individual Countries

3.1 Austria AUT

by Helmut Schnabl

During *"This Quarter"*, 508 animal rabies cases were registered of 6335 samples examined. There has been a decrease of cases in comparison with the previous quarter (580) by 12.4%.

Of 466 rabid wild animals (91.7% of total) 362 were foxes (71.3%), 31 badgers (6.1%), 29 martens (5.7%), 39 roe deer (7.7%), 2 red deer and 3 chamois. Of 42 rabid domestic animals (8.3% of total) were 5 cats, 3 dogs, 19 cattle, 14 sheep and 1 goat.

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

Burgenland: 19 cases (3.7% of total) in the Bezirke Eisenstadt-Umgebung, Neusiedl/See,Güssing,Mattersburg and Oberwart.
Salzburg: 40 cases (7.9%) in the Bezirke Salzburg/Umgebung, Hallein and Tamsweg.
Tirol: 9 cases (1.8%) in the Bezirke Landeck and Reutte.
Oberösterreich: 3 cases (0.6%) in the Bezirke Steyr Land, Perg and Freistadt.
Niederösterreich: 363 cases (71.5%) in the Bezirke Amstetten, Baden, Bruck/Leitha, Gänsersdorf,, Hollabrunn, Horn, Kornenburg, Lilienfeld, Melk, Mistelbach, Neuenkirchen, St.Pölten, Scheibbs, Wiener Neustadt and Zwettl.
Steiermark: 74 cases (14.6%) in the Bezirke Bruck/Mur, Feldbach, Fürstenfeld, Graz-Umgebung, Leoben, Liezen, Mürzzuschlag and Radkersburg.
No cases were reported from the federal provinces Kärnten, Vorarlberg and Wien.

3.2 Belgium BEL

by J. Tambeur

During *"This Quarter"*, 4 cases of rabies were diagnosed in 2 foxes, 1 bovine and 1 equine in four localities of the provinces Luxembourg and Namur.

There were the same number of cases registered compared to the previous quarter, but there was a diminution of cases by 64% compared to the third quarter 1990.

The rabies situation continues to remain favourable. A fifth campaign of oral vaccination of foxes was started on 23 September 1991 in all infected parts of the country (10.000 km^2) with the vaccinia rabies recombinant vaccine. 150.000 vaccine baits were distributed from small airplanes flying at low altitude.

3.3 Bulgaria BUL

The country remained rabies-free.

3.4 Czechoslovakia CZE

by Oldrich Matouch

In the course of *"This Quarter"* the number of diagnosed cases of rabies was 242 (186 in the Czech Republic, 56 in the Slovak Republic). Of the total 221 cases occurred in wild

animals (91.3%) and 21 in domestic animals (8.7%). There was a decrease of cases in comparison with the same period of the last year and with the 2nd quarter of 1991 (20.7% and 28.0% respectively).

In wild animals rabies was diagnosed in 213 foxes, 1 badger, 4 martens, 2 roe deer and 1 mouflon. In domestic animals the disease was proven in 6 dogs, 10 cats, 2 cattle and 3 sheep.

The highest number of cases was found in the region of North Bohemia (56) followed by South Moravia (39) and Central Bohemia (32). Of all districts, the most affected ones were the districts of Ustí nad Labem and Breclav (16 each), Ceské followed by Budejovice (13) and Ceská Lípa (12).

There was no case of rabies reported in man.

3.5 Denmark DEN

by Eric Stougaard

The country remained rabies-free.

3.6 Germany, Federal Republic DEU

by Winfried W. Müller and Klaus Stöhr

A total of 779 rabies cases was reported during ***"This Quarter"***, 105 cases less than during the previous one. The seasonally expected increase did not take place, obviously an effect of the widely used oral vaccination of foxes against rabies in the country. Accordingly, it can be noticed that the federal states (Bundesländer) practicing oral vaccination record a decrease of cases and parts of states where oral vaccination is not yet applied (Mekklenburg/Vorpommern and Brandenburg) show the above mentioned seasonal increase. In the latter areas the rabies prevalence increased partly by 100% compared to the third quarter 1990.

Of the total number of cases were 80.5% in wild animals (558 foxes, 13 badgers, 33 other mustelids, 14 roe deer, 6 fallow deer, 1 raccoon dog, 1 squirrel and 1 bat) and 19.5% in domestic animals (26 dogs, 31 cats, 6 horses, 66 cattle and 23 sheep).

The one bat, an Eptesicus serotinus, occurred near the Polish state border in Jänschwalde, Kreis (district) Guben. An other interesting case is a raccoon dog which was diagnosed positive in Neuendorf im Sande, Kreis Fürstenwalde, to the east of Berlin.

The distribution of cases remained as in the previous quarter. Thus, the policy of oral vaccination is: the federal states in the north west and south ("old federal states") vaccinate all infected parts of their territory and in the eastern states ("new federal states") a vaccinated belt is moved from west to east according to financial resources. The state of Saxony (Sachsen) has been entirely vaccinated to cover the state border with Czechoslovakia where vaccination has also been started and to cover a certain length of the border with Poland where a vaccination can be expected soon.

There are problems at the moment with the control of fox populations in the "new federal states". The annual hunting bag is reduced compared to the previous years. It is hoped that a bounty to be paid shortly in connection with the oral vaccination may improve the situation.

3.7 Finland FIN

by Bengt Westerling

The country remained rabies-free.

3.8 France FRA

by M.F.A. Aubert

516 rabies cases were registered during ***"This Quarter"***, 9 more than during the same period a year ago. In fact, a more detailed analysis shows that rabies increased in the départements (departments) where the oral vaccination was not yet carried out. Elsewhere, the number of cases diminished significantly, even in areas where vaccination was practiced once only.

The density of rabies cases per km² decreased in average by 95% in areas vacci-

nated thrice.

The study of the distribution of cases on a map shows that practically all cases occurred to the right of the river Seine. Not only the advance of rabies toward south has been stopped but as well toward north. One case of rabies occurred in the north along the river Somme (département du Pas-deCalais) where immediately a vaccination campaign was initiated in and around the infected area. No new case has been diagnosed here since, but the same area is going to be revaccinated in autumn.

The fast advance rabies takes in unprotected areas and the significant increase of cases in infected areas not yet vaccinated shows that the disease continues to progress toward south of France if not an efficient cordon vaccination is carried out.

3.9 Greece GRE

by A. Zambounis

The country remained rabies-free.

3.10 Hungary HUN

by Lazlo Koltai

During *"This Quarter"*, 184 rabies cases were registered, 23.4% less than during the same time span in 1990 (240 cases). 132 cases of the total (71.7%) were foxes (3/90 = 87.9%). There were relatively many cases in cats (27) and cattle (13).

The Komitate (provinces) mostly affected by the disease were Szabolcs-Szatmar, Bacs-Kiskun and Pest with 22, 20 and 18 cases respectively. All of these provinces are located to the east of the river Danube. There were relatively few cases in provinces along the western state border: Vas (9), Zala (7), Gyor-Sopron (2).

Lack of finances still prevented the Veterinary Department from starting an oral fox vaccination campaign in autumn 1991.

3.11 Iceland ICE

The country remained rabies-free.

3.12 Ireland IRE

The country remained rabies-free.

3.13 Italy ITA

by Santino Prosperi

During *"This Quarter"*, one case of rabies was reported in the region of Friuli Venezia Giulia.

In August a fox was killed in the town of Trebiciano, province of Trieste, bordering with Slovenia, which was later diagnosed positive for rabies. During the months of September and October an intensive search reveiled all further animals examined in the area rabies negative.

3.14 Luxembourg LUX

by Joseph Kremer

The rabies situation improved further during *"This Quarter"*. Two cases occurred in foxes indicating that in spite of several oral vaccination campaigns some rabies foci remained.

5 foxes, 1 marten and 2 roe deer were examined for rabies but reveiled negative results.

3.15 Netherlands NET

by J.H.M. Nieuwenhuijs

During *"This Quarter"*, 269 animals (113 adult foxes, 11 young foxes, 5 dogs, 3 cats, 20 badgers, 1 polecat, 1 marten, 1 mouse weasel, 1 squirrel and 113 bats) were investigated for rabies. Of these 12 bats were rabies positive.

3.16 Norway NOR

by Gudbrand Bakken

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

The mainland of Norway remained rabies-free.

3.17 Poland POL

A total of 643 rabies cases in animals were reported from Poland during *"This Quarter"*. Of these were 521 (81% of total) in wild animals (442 foxes, 43 raccoon dogs, 6 badgers, 12 pine martens, 1 polecat, 1 ferret, 13 roe deer, 1 red deer, 1 wild boar and 1 hedgehog) and 122 in domestic animals (34 dogs, 39 cats, 49 cattle).

During the previous quarter, 378 cases were reported; during the third quarter 1990, 317 cases were reported.

The distribution of cases remained as in the previous quarter, in the western half of the country cases were more concentrated and in the eastern half more scattered. The most affected voivodeship (province) was Gdansk with 48 cases. The voivodeships Bydgoszcz, Poznan, Szczecin, Torun and Walbrzych reported between 33 and 36 cases, all other voivodeships less than 30.

3.18 Portugal POR

The country remained rabies-free.

3.19 Romania ROM

by Horatiu Olaru

During *"This Quarter"*, 9 rabies cases were reported from Romania. Of these 8 were in domestic animals (1 dog, 4 cats, 2 cattle and 1 horse) and one in a fox.

8 cases occurred in the northern half of the country [provinces Maramures (4), Salaj (1), Iasi (1) and Bacau (2)], one case in the southern half (province of Prahova).

3.20 Spain SPA

by T. Maté Maté

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

There were two dog cases in the Spanish territory of North Africa (Ceuta).

3.21 European Part of the Soviet Socialist RepublicsSSR

by V.A.Vedernikov and V.A.Sedov

During *"This Quarter"*, 457 rabies cases in animals were registered in the European part of the Soviet Socialist Republics. No data were included from Lithuania.

Of the 457 cases 323 were in domestic animals (78 dogs, 55 cats, 174 cattle, 7 sheep, 7 horses and 2 other domesticated animals) and 134 in wild animals (not specified).

Human cases were not reported.

3.22 Sweden SWE

The country remained rabies-free.

3.23 Switzerland SWI

by Hans Matter

During *"This Quarter"*, the Swiss Rabies Center received 536 animals for examination. 24 (4.5%) of these were positive for rabies. In the previous quarter 29 cases had been recorded (6.4% of 457), whereas 4 of 535 (0.7%) were positive in the third quarter of 1990.

20 cases were observed in foxes, 3 in stone-martens and 1 in a badger. All cases were as in previous quarters relatively close to an area in France which is known to be heavily infested. Ten of these cases were observed within a range of 0 to 5 km from the French border, 6 cases within 5.1 to 10 km and another 8 cases at a distance of more than 10 km (maximum distance: 17.1 km). The French area has been vaccinated for the third time in autumn 1991, whereas vaccination campaigns on the Swiss side of the border were performed for the 8th to 16h time (depending on the region).

During vaccination campaigns in the month of September 58.400 VIRBAC baits had been distributed over an area of approximately 3650 km^2 covering the whole border

zone towards France between Yverdon and Basel.

9 bats (1 Myotis daubentoni, 1 Myotis mystacinus, 1 Nyctalus noctula, 1 Pipistrellus nathusii, 3 Pipistrellus pipistrellus, 2 Plecotus auritus) examined with immunofluorescence revealed no rabies virus. Switzerland has not experienced any rabies cases in bats yet.

No bite exposures of humans to proven rabid animals were recorded in the third quarter of 1991. The number of people treated for non-bite exposures is not recorded.

3.24 Turkey TUR

During *"This Quarter"*, 108 rabies cases were reported from Turkey. 107 cases occurred in domestic animals (73 dogs, 7 cats, 23 cattle, 1 horse, 2 sheep, 1 goat) and 1 case in a house mouse. The dog is the reservoir and main carrier of the disease.

There was a decrease of 33 cases compared to the previous quarter.

The provinces (11) mostly affected were Sakarya, Istanbul and Bursa with 14, 13 and 12 cases respectively. All other provinces recorded less than 9 cases.

3.25 United Kingdom UNK

by P.J. Thomas

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

3.26 Yugoslavia YUG

77 cases of rabies were reported from Yugoslavia during *"This Quarter"*, half as many as during the previous quarter. 72 cases were in foxes (93.5-%). Cases were concentrated in the north of the country.

4. MISCELLANEOUS ARTICLES

4.1 Human Rabies - Texas, Arkansas, and Georgia, 1991

From August through October 1991, three persons, one each in Texas, Arkansas, and Georgia, died from rabies. Including these three cases, 16 cases of human rabies have been reported to Centers for Disease Control (CDC), U.S. Department of Health and Human Services, from 1980 through 1991; seven of these are believed to have been acquired in the United States of America. This report summarizes epidemiologic and clinical information regarding the three recent cases.

Patient 1. During August 7-9, a woman from Starr County, Texas, had increasing nervousness, shortness of breath, and difficulty swallowing. On August 9, she was admitted to a local hospital with a diagnosis of panic disorder. During the first 3 hospital days, her temperature fluctuated from 97 F (36° C) to 106 F (41°C). On August 12, rabies was first considered in the differential diagnosis because of aerophobia, hydrophobia, agitation, and incoherence alternating with periods of coherence; a skin biopsy and saliva, serum, and cerebrospinal fluid (CSF) specimens were obtained from the patient. An ascending paresis developed, and on August 16 she was transferred to another hospital for a computerized axial tomographic scan of the head; only an old infarct in the left cerebellum was found. After the scan, she had a respiratory arrest that progressed to cardiac arrest; she was resuscitated but did not regain consciousness and died on August 20.

The serum and CSF

specimens obtained on August 12 were negative for rabies antibody; in addition, the skin biopsy from the nape of the neck, tested at CDC, was negative for rabies by the direct immunofluorescent antibody (DFA) test. However, on August 17, rabies virus was detected in cell culture of the saliva specimen at CDC. Monoclonal antibody typing showed the rabies virus isolate to be identical to the virus strain found in dogs in Mexico and along the border of Mexico and Texas. A second skin biopsy from the nape of the neck, obtained on August 19, was positive by DFA.

The woman had no known exposure to rabies. She was a native of Texas and had resided all her life in Starr County, where rabies is endemic in dogs and coyotes. She occasionally visited relatives in northern Mexico but had last been there more than 1 year before onset of illness. She had a history of a dog bite at 9 years of age but had no other known animal bites.

As a result of possible exposure to this patient, 43 persons received postexposure prophylaxis. At the first hospital, 30 members of the staff who provided care for the patient -before isolation precautions were instituted on August 12- were treated because of concern about possible exposure to saliva. At the second hospital, postexposure treatment was given to seven persons who assisted in the resuscitation that followed the patient's respiratory arrest and who were unaware of the suspected diagnosis. All six members of the patient's household also received rabies prophylaxis.

Patient 2. On August 17, a man from Clark County, Arkansas, had onset of a sore throat and headache. On August 19, he visited his doctor because of difficulty swallowing and sore throat. On examination, his temperature was 99 F (37°C); he appeared agitated and tremulous and had pharyngitis. He was treated parenterally and orally with antibiotics and sent home. That evening, family members found him pacing and spitting frequently; he appeared anxious and fearful, and his facial muscles were twitching. He was taken to the local emergency room and later was transferred to a tertiary-care hospital, where he complained of headache, generalized itching, difficulty swallowing, and a gagging sensation; he was alert and oriented but tremulous, agitated, and photophobic. Differential diagnosis included drug overdose, viral encephalitis, and tetanus; although rabies was considered, he had no history of animal bites.

On August 20, he required intubation because of frequent vomiting and obtundation. He developed rhabdomyolysis, and his temperature was intermittently as high as 106 F (41°C). On August 23, he had a cardiac arrest and was resuscitated but thereafter had no sign of brain stem function. He died on August 25.

Postmortem samples of brain tissue were positive for rabies by DFA testing at the Arkansas Department of Health, and monoclonal antibody typing at CDC suggested a rabies variant commonly found in the silver-haired bat (*Lasionycteris noctivagans*).

The man was a native of Arkansas and had never traveled outside the southwestern region of the state. He had lived in a previously abandoned, rural house. A friend reported that one night in early July a bat had landed on the man's mouth; the patient killed and disposed of it. Although the friend had detected no bites or scratches on the man's face, other friends and co-workers whom the patient had told about the incident recalled bites on his thumb or scratches on his chest.

A total of 99 persons identified as having possible exposures to the patient -from 2 weeks before onset of his symptoms through the time of his death- received postexposure prophylaxis. Of these persons, 32 were community contacts, which included one sex partner, eight family members, 14 health-care personnel who had been near the patient's saliva and vomitus, and nine friends and co-workers who had had recent contact with the patient's saliva through shared utensils. The other contacts included a mortician and 66 (44%) of the 150 hospital staff involved in care of this patient

and concerned about their contact with his saliva or vomitus.

Patient 3. On October 2, a woman from Walker County, Georgia, (on the Tennessee-Georgia border) developed sore throat, headache, and fever. She was treated at a local emergency room with parenteral antibiotics and discharged. On October 4, she developed additional symptoms including difficult and painful swallowing, agitation, and a fever of 104 F (40°C). She was admitted to a local hospital; later that day she was transferred to a referral hospital, where rabies and other viral encephalitides were considered in the differential diagnosis. Her condition continued to deteriorate, with progressive obtundation; on October 8, she died of cardiac arrest. Rabies was diagnosed postmortem by demonstration of Negri bodies in brain tissue and confirmed by DFA at the Tennessee State Department of Health Laboratory and at CDC. Monoclonal antibody typing at CDC suggested the involvement of the same rabies variant as that isolated from patient 2.

The patient had moved to Walker Country, Georgia, from Hamilton County, Tennessee, 8 months before her illness. Extensive interviews with the patient's family and friends in Georgia and Tennessee did not reveal any known animal exposure. She had never traveled outside the United States and had not engaged in outdoor activities.

MMWR - Editorial Note: Although rabies is enzootic among many species of wild animals, human rabies is rarely acquired in the United States. The last reported case in the United States occurred in June 1990 in Texas (see as well BULLETIN 2/91,page 8), in a county adjacent to that in which patient 1 resided. The last reported cases of human rabies in Arkansas and Georgia occurred in 1956 and 1960, respectively.

A definite bite by an animal was not established as a clear exposure for any of the three patients in this report. A bite by proven or presumed rabid animals was identified in all 15 of the cases reported in the 1960s and in 18 (78%) of the 23 reported in the 1970s, but only four (40%) of the 10 reported in the 1980s. Because many patients with rabies have died or are severely ill at the time rabies is diagnosed, it is sometimes not possible to determine an exposure. In some cases, however, failure to establish a clear exposure may reflect the possibility that exposure occurred many years before onset of symptoms. Patient 1 may have been exposed when she was bitten as a child, but it is more likely she incurred a recent unreported or unrecognized exposure associated with the rabies epizootic ongoing since 1987 among dogs and coyotes in her county of residence. Canine rabies is a long-standing problem along the U.S.-Mexican border, although human rabies of canine origin acquired in the United States has not been documented since 1979.

But rabies is endemic in most states, and bats have accounted for five of the seven indigenously acquired human rabies cases reported since 1980. Although patient 2 had close contact with a bat, no bite was identified, and the patient did not seek postexposure treatment. Patient 3 had no known exposure to rabies but was infected with the same strain as patient 2, suggesting possible exposure to a silver-haired bat.

The earliest manifestations of rabies are commonly nonspecific constitutional complaints. The disease then progresses to one of two distinct presentations: the more common furious form (characterized by hydrophobia, aerophobia, or episodic agitation and anxiety) or the less common paralytic form. Rabies should be considered in any patient with a rapidly progressive encephalitis of unknown etiology, particularly in patients who have lived in an area with endemic canine rabies or who have had an exposure or other close contact with a recognized reservoir of the disease. One hallmark of rabies is its rapid progression to death; no survivors have been reported since 1977.

Rabies postexposure prophylaxis is recommended for all persons bitten or scratched by wild or domestic ani-

mals that may be carrying the disease. Exposures other than bites or scratches rarely result in infection. However, post-exposure treatment is recommended for persons who report having an open wound or mucous membrane contaminated with saliva or other potentially infectious material (e.g., brain tissue) from a rabid animal. Since the size of bites by bats may be small in comparison to those inflicted by terrestrial animals, it may be prudent to consider postexposure treatment for physical contact with bats when a bite or mucous membrane exposure cannot be excluded. Treatment should always be initiated as soon as possible after bites or scratches by known or suspected rabid animals occur.

Postexposure prophylaxis also is recommended for persons who report a possibly infectious exposure (e.g., bite, scratch, or open wound or mucous membrane contaminated with saliva or other infectious material) to a human with rabies. However, exposure to a human with rabies has never been implicated as a means of rabies transmission except following cornea transplantation from donors who died of unsuspected rabies encephalitis. Casual contact with an infected patient (e.g., touching the patient) or contact with noninfectious fluids or tissues (e.g., blood, urine, or feces) does not alone constitute an exposure and is not an indication for prophylaxis.

(Taken from: Morbidity and Mortality Weekly Report, Vol.40/No.44, 1991, prepared by the Centers for Disease Control, Atlanta, Georgia 30333, U.S.A. - The report mentions further the persons involved in the reporting of the cases and 10 references).

RBE Editorial Note: The European bat rabies isolates have different reactivity patterns with monoclonal antibodies as compared to the isolates in North America. Knowledge of bat rabies in connection to humans is very scarce in Europe. Nevertheless, exposure of humans to bat rabies in Europe should be handled like any other wildlife exposure as well. Reference is made to the "WHO Guide for Postexposure Treatment" by the WHO Expert Committee on Rabies (Technical Report Series 709, WHO, Geneva, 1984).

4.2 New Areas of Oral Fox Vaccination in Europe, 1991

by Winfried W. Müller
WHO Reference Center, Tübingen

This is the sixth annual reporting on the areas of Oral Vaccination of Foxes against Rabies in Europe in this BULLETIN. Supplementing the report there are two maps in the ANNEX. One map shows the areas vaccinated once or more from 1978 to 1990 [hatched] and the newly areas vaccinated for the first or second time in 1991 [dotted]. It can be seen that areas in Austria, Czechoslovakia, France and Germany have been greatly enlarged in 1991.

A second map shows the total oral vaccination efforts during spring or autumn or both times in 1991. Here more detailed active foci can be guessed, spot vaccination can be noticed or protection belts to infected areas can be seen. For countries with large infected areas a policy has to be developed concerning how much of the total area can be vaccinated in regard to financial resources. Nevertheless, reinfected areas after vaccination may once more change the concept.

A meeting of the initiative European Cooperation-West was held to discuss plans in respect to border sanitation.

Countries participating were Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland.

The two maps do not consider the area once vaccinated in the south of Finland. The country is again rabies-free and only vaccinates a certain protection belt north of the Gulf of Finland in the south-east of the country bordering on Russia.

At present 4 different oral vaccines against rabies are in use: Switzerland has changed from their own produced SAD Bern to the S.A.G. vaccine of France, France uses S.A.G. and vaccinia-rabies recombinant vaccines, Belgium vaccinia-rabies recombinant vaccine only, Germany SAD B19 and SAD Dessau vaccines, and all other countries use SAD B19 vaccine.

Relevant information on oral vaccination can also be read in the individual country reports of this BULLETIN.

4.3 Antigenic Variant of Fox Rabies in Eastern Europe

by J.H. Cox, L.G. Schneider and W.W. Müller
WHO Reference Centre, Tübingen

Monoclonal antibodies (MAB) identify distinctive antigenic differences and can be used as an epidemiologic marker. Some of these markers have been used to identify polar rabies, bat rabies or to distinguish between outbreaks with different main host species, like skunks, raccoons, red foxes in the United States and Canada, for example.

In many laboratories involved with oral vaccination of foxes against rabies in Europe, MAB are used to distinguish wildlife rabies from vaccine strains. To identify the vaccine strain SAD B19 MAB's 1 and 2 in TABLE 1 are used. The veterinary investigation centres are advised to forward strains with negative results of MAB 2 to the WHO Reference Centre for Surveillance and Research Tübingen for further characterization.

In the beginning of 1991 a first rabies virus isolate was diagnosed negative with MAB 2 in a fox in Berlin (see TABLE 1a.). More specimens were tested and of 9 fox isolates from the Regierungsbezirk (department) Potsdam, near Berlin, 5 were negative with MAB 2 and of 19 fox virus isolates in the Regierungsbezirk Chemnitz 12 out of 19 were negative with this monoclon. Meanwhile, many samples have been investigated in eastern Germany and were negative with MAB 2 in other wild and domestic animals as well (Stöhr, Wusterhausen, personal communication). Isolates were also tested before oral vaccination was started and gave similar results as in vaccination areas.

The predominant question was to exclude that the vaccine strain could have been involved in rabies. There are 3 points:

- the field strains did not grow well on tissue culture, contrary to the cell culture adapted vaccine strain
- there have been strains diagnosed negative with MAB 2 meanwhile in areas before vaccination was carried out
- the vaccine strain can be distinguished from the new variant by MAB 4 (see bottom lines of TABLE 1).

It should be mentioned that thousends of samples in the "old federal states" of Germany had never shown the reactivity pattern of the new variant.

MAB 2 is also negative with European bat rabies viruses. Any connection to the new variant can easily be excluded, also from an epidemiological point of view.

By looking at the monoclonal reactivity patterns of certain rabies virus isolates previously tested by the WHO

Reference Centre, Tübingen, it was found that 1 raccoon dog of Poland and 6 out of 12 samples from Estonia (4 dogs, 1 raccoon dog and 1 calf) followed the same pattern as the new variant (see TABLE 1e-f).

Another frequent observation was that many samples of the new variant were negative with the Centocor FITC Anti-Rabies Monoclonal Globulin in the direct fluorescent antibody test. No explanation can be offered for this phenomenon yet.

It is suggested, the MAB 2 negative isolatse discovered during follow-up investigations of oral vaccination campaigns represent an **antigenic variant** of fox rabies which presumably originated from eastern Europe. Its significance needs further elucidation.

(Taken from: "Antigenvariante der Fuchstollwut in Osteuropa" by J.H.Cox, L.G. Schneider and W.W. Müller. Handed in for publication to 'TIERÄRZTLICHE UMSCHAU', Konstanz/FRG).

TABLE 1

	MAB 1 W239.17	MAB 2 W187.5	MAB 3 W187.11.2	MAB 4 MW187.6.1	MAB 5 MSA6.3
FOX RABIES EUROPE	+	+	+	+	-
ANTIGEN VARIANT EASTERN EUROPE					
a) FOX Berlin	+	-	+	+	+
b) 5 FOXES Potsdam	+	-	+	+	-
c) 12 FOXES Chemnitz	+	-	+	+	-
d) RACCOON DOG Poland	+	-	+	+	-
e) 4 DOGS Estonia	+	-	+	+	-
f) RACCOON DOG Estonia	+	-	+	+	-
g) CALF Estonia	+	-	+	+	-
Vaccine Strain SAD B19	+	-	+	-	+
EUROPEAN BAT	+	-	-	-	+

TABLE 1

EUR EUROPE 3/91 RABIES CASES 1. 7.91 - 30. 9.91

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
AUT	AUSTRIA	3	5	19	-	15	-	42	362	31	29	41	3	466		508
BEL	BELGIUM	-	-	1	1	-	-	2	2	-	-	-	-	2		4
BUL	BULGARIA *							0						0		0
CZE	CZECHOSLOVAKIA	6	10	2	-	3	-	21	213	1	4	2	1	221		242
DEN	DENMARK *							0						0		0
DEU	FED.REP. OF GERMANY	26	31	66	6	23	-	152	558	13	33	20	3	627		779
FIN	FINLAND *							0						0		0
FRA	FRANCE	10	23	18	4	32	-	87	395	8	15	11	-	429		516
GRE	GREECE *							0						0		0
HUN	HUNGARY	9	26	13	-	-	1	49	132	1	1	1	-	135		184
ICE	ICELAND *							0						0		0
IRE	IRELAND *							0						0		0
ITA	ITALY							0	1	-	-	-	-	1		1
LUX	LUXEMBOURG							0	2	-	-	-	-	2		2
NET	NETHERLANDS							0	-	-	-	-	12	12		12
NOR	NORWAY *							0						0		0
POL	POLAND	34	39	49	-	-	-	122	442	6	14	14	45	521		643
POR	PORTUGAL *							0						0		0
ROM	ROMANIA	1	4	2	1	-	-	8	1	-	-	-	-	1		9
SPA	SPAIN 1)	2	-	-	-	-	-	2						0		2
SSR	SOVIET SOCIALIST REP	78	55	174	7	7	2	323	-	-	-	-	134	134		457
SWE	SWEDEN *							0						0		0
SWI	SWITZERLAND + LIECHT							0	20	1	3	-	-	24		24
TUR	TURKEY	73	7	23	1	3	-	107	-	-	-	-	1	1		108
UNK	UNITED KINGDOM *							0						0		0
YUG	YUGOSLAVIA	3	-	-	-	1	1	5	72	-	-	-	-	72		77
TOTAL		245	200	367	20	84	4	920	2200	61	99	89	199	2648	0	3568
PER CENT		6.9	5.6	10.3	0.6	2.4	0.1	25.8	61.7	1.7	2.8	2.5	5.6	74.2	0.0	100.0

* NO CASES 1) NORTH AFRICA

TABLE 2

EUR EUROPE 1-3/91 RABIES CASES 1. 1.91 - 30.09.91

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
AUT	AUSTRIA	6	21	21	2	27	-	77	1526	121	88	107	8	1850		1927
BEL	BELGIUM	-	1	2	3	-	-	6	14	-	-	-	-	14		20
BUL	BULGARIA *							0						0		0
CZE	CZECHOSLOVAKIA	16	31	2	-	5	5	59	1006	8	29	8	1	1052		1111
DEN	DENMARK *							0						0		0
DEU	FED.REP. OF GERMANY	133	139	105	17	63	3	460	2195	39	94	96	9	2433		2893
FIN	FINLAND *							0						0		0
FRA	FRANCE 1)	31	56	62	19	110	1	279	1335	19	32	18	-	1404	1	1684
GRE	GREECE *							0						0		0
HUN	HUNGARY	43	58	28	2	5	5	141	498	1	2	5	1	507		648
ICE	ICELAND *							0						0		0
IRE	IRELAND *							0						0		0
ITA	ITALY							0	1	-	-	-	-	1		1
LUX	LUXEMBOURG	-	-	2	-	-	-	2	6	-	-	-	-	6		8
NET	NETHERLANDS							0	-	-	-	-	12	12		12
NOR	NORWAY *							0						0		0
POL	POLAND	108	87	71	1	-	-	267	1031	11	41	64	115	1262		1529
POR	PORTUGAL *							0						0		0
ROM	ROMANIA	3	7	3	3	-	2	18	12	-	2	-	2	16		34
SPA	SPAIN 2)	4	-	-	-	-	-	4						0		4
SSR	SOVIET SOCIALIST REP	304	199	565	19	450	10	1547	180	-	-	-	360	540		2087
SWE	SWEDEN *							0						0		0
SWI	SWITZERLAND + LIECHT							0	72	1	5	-	-	78		78
TUR	TURKEY	257	15	48	2	6	6	334	2	-	-	-	2	4		338
UNK	UNITED KINGDOM *							0						0		0
YUG	YUGOSLAVIA	12	15	2	1	13	2	45	520	1	3	1	-	525		570
TOTAL		917	629	911	69	679	34	3239	8398	201	296	299	510	9704	1	12944
PER CENT		7.1	4.9	7.0	0.5	5.2	0.3	25.0	64.9	1.6	2.3	2.3	3.9	75.0	0.0	100.0

* NO CASES 1) IMPORTED FROM MEXICO 2) NORTH AFRICA

TABLE 3

EUR EUROPE 3/91 RABIES CASES 'OTHER ANIMAL SPECIES' 1. 7.91 - 30. 9.91

LOCATION CODE NAME	OTHER DOMESTIC ANIMALS		OTHER WILD ANIMALS								TOTAL
	DONKEY	OTHERS	RACCOON DOG	MOUFLON	CHAMOIS	INSECT. BAT	SQUIRREL	BLACK RAT	HOUSE MOUSE	OTHERS	
AUT AUSTRIA	-	-	-	-	3	-	-	-	-	-	3
CZE CZECHOSLOVAKIA	-	-	-	1	-	-	-	-	-	-	1
DEU FED.REP. OF GERMANY	-	-	1	-	-	1	1	-	-	-	3
HUN HUNGARY	1	-	-	-	-	-	-	-	-	-	1
NET NETHERLANDS	-	-	-	-	-	12	-	-	-	-	12
POL POLAND	-	-	43	-	-	-	1	1	-	-	45
SSR SOVIET SOCIALIST REP	-	2	-	-	-	-	-	-	-	134	136
TUR TURKEY	-	-	-	-	-	-	-	-	1	-	1
YUG YUGOSLAVIA	-	1	-	-	-	-	-	-	-	-	1
TOTAL	1	3	44	1	3	13	2	1	1	134	203
PER CENT	0.5	1.5	21.7	0.5	1.5	6.4	1.0	0.5	0.5	66.0	100.0

AUT AUSTRIA — RABIES CASES — 1. 7.91 - 30. 9.91

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
103	EISENSTADT - LAND							0	7	-	-	-	-	7		7
104	GUESSING							0	-	-	1	-	-	1		1
106	MATTERSBURG							0	1	-	-	-	-	1		1
107	NEUSIEDL AM SEE	1	-	-	-	-	-	1	5	-	3	-	-	8		9
109	OBERWART							0	1	-	-	-	-	1		1
304	WIENER NEUSTADT-STAD							0	1	-	-	-	-	1		1
305	AMSTETTEN							0	3	-	-	-	-	3		3
306	BADEN							0	2	-	-	-	-	2		2
307	BRUCK AN DER LEITHA							0	9	-	1	-	-	10		10
308	GAENSERNDORF							0	13	-	1	-	-	14		14
310	HOLLABRUNN	1	-	-	-	-	-	1	10	-	1	-	-	11		12
311	HORN							0	4	-	-	-	-	4		4
312	KORNEUBURG							0	4	-	-	-	-	4		4
314	LILIENFELD							0	37	8	1	10	-	56		56
315	MELK							0	4	-	-	-	-	4		4
316	MISTELBACH	-	1	-	-	-	-	1	28	1	-	-	-	29		30
318	NEUNKIRCHEN	-	2	4	-	7	-	13	31	5	10	10	3	59		72
319	SANKT POELTEN-LAND	1	-	3	-	3	-	7	23	7	1	9	-	40		47
320	SCHEIBBS	-	-	4	-	1	-	5	15	3	-	1	-	19		24
322	WAIDHOFEN AN DER THA							0	1	-	-	-	-	1		1
323	WIENER NEUSTADT-LAND	-	1	2	-	3	-	6	58	1	8	5	-	72		78
325	ZWETTL							0	1	-	-	-	-	1		1
406	FREISTADT							0	-	1	-	-	-	1		1
411	PERG	-	1	-	-	-	-	1						0		1
415	STEYR-LAND	-	-	1	-	-	-	1						0		1
502	HALLEIN							0	3	-	-	-	-	3		3
503	SALZBURG-LAND							0	1	-	-	1	-	2		2
505	TAMSWEG	-	-	1	-	1	-	2	32	-	1	-	-	33		35
602	BRUCK AN DER MUR							0	-	-	-	1	-	1		1
604	FELDBACH							0	1	-	-	-	-	1		1
605	FUERSTENFELD							0	1	-	-	-	-	1		1
606	GRAZ-LAND							0	7	-	-	-	-	7		7
611	LEOBEN							0	1	-	-	-	-	1		1
612	LIEZEN	-	-	4	-	-	-	4	48	4	-	3	-	55		59
613	MUERZZUSCHLAG							0	1	1	-	-	-	2		2
615	RADKERSBURG							0	1	-	-	1	-	2		2
706	LANDECK							0	5	-	-	-	-	5		5
708	REUTTE							0	3	-	1	-	-	4		4
TOTAL		3	5	19	0	15	0	42	362	31	29	41	3	466	0	508
PER CENT		0.6	1.0	3.7	0.0	3.0	0.0	8.3	71.3	6.1	5.7	8.1	0.6	91.7	0.0	100.0

RABIES CASES 1. 7.91 - 30. 9.91

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							0	1	-	-	-	-	1		1
NA	NAMUR	-	-	1	1	-	-	2	1	-	-	-	-	1		3
TOTAL		0	0	1	1	0	0	2	2	0	0	0	0	2	0	4
LUX	LUXEMBOURG															
04	LUXEMBOURG-CAMPAGNE							0	1	-	-	-	-	1		1
05	MERSCH							0	1	-	-	-	-	1		1
TOTAL		0	0	0	0	0	0	0	2	0	0	0	0	2	0	2
NET	NETHERLANDS															
01	DRENTHE							0	-	-	-	-	5	5		5
03	GELDERLAND							0	-	-	-	-	1	1		1
04	GRONINGEN							0	-	-	-	-	2	2		2
07	NOORD-HOLLAND							0	-	-	-	-	1	1		1
08	OVERIJSSEL							0	-	-	-	-	1	1		1
09	UTRECHT							0	-	-	-	-	2	2		2
TOTAL		0	0	0	0	0	0	0	0	0	0	0	12	12	0	12
SWI	SWITZERLAND AND LIECHTENSTEIN															
06	BERN							0	10	-	2	-	-	12		12
12	NEUCHATEL							0	8	1	1	-	-	10		10
26	JURA							0	2	-	-	-	-	2		2
TOTAL		0	0	0	0	0	0	0	20	1	3	0	0	24	0	24
PER CENT		0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.3	4.2	12.5	0.0	0.0	100.0	0.0	100.0

CZE CZECHOSLOVAKIA RABIES CASES 1. 7.91 - 30. 9.91

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	-	-	2	-	3	27	1	-	-	1	29		32
02	SOUTH BOHEMIA	-	-	2	-	-	-	2	28	-	1	-	-	29		31
03	WEST BOHEMIA							0	2	-	-	-	-	2		2
04	NORTH BOHEMIA							0	54	-	1	1	-	56		56
05	EAST BOHEMIA	1	1	-	-	-	-	2	11	-	1	-	-	12		14
06	SOUTH MORAVIA							0	39	-	-	-	-	39		39
07	NORTH MORAVIA							0	11	-	1	-	-	12		12
0	CZECH REPUBLIC	1	2	2	-	2	-	7	172	1	4	1	1	179		186
10	DISTRICT OF BRATISLAV	-	1	-	-	-	-	1						0		1
11	WEST SLOVAKIA	2	1	-	-	1	-	4	12	-	-	1	-	13		17
12	CENTRAL SLOVAKIA	1	2	-	-	-	-	3	14	-	-	-	-	14		17
13	EAST SLOVAKIA	2	4	-	-	-	-	6	15	-	-	-	-	15		21
1	SLOVAK REPUBLIC	5	8	-	-	1	-	14	41	-	-	1	-	42		56
TOTAL		6	10	2	0	3	0	21	213	1	4	2	1	221	0	242
PER CENT		2.5	4.1	0.8	0.0	1.2	0.0	8.7	88.0	0.4	1.7	0.8	0.4	91.3	0.0	100.0

DEU FEDERAL REPUBLIC OF GERMANY — RABIES CASES — 1. 7.91 - 30. 9.91

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	-	-	4	-	-	-	4	1	-	-	-	-	1		5
020	HAMBURG							0						0		0
031	BRAUNSCHWEIG	-	-	-	1	-	-	1	11	-	2	3	-	16		17
032	HANNOVER	-	1	4	-	-	-	5	4	-	-	-	-	4		9
033	LUENEBURG	-	1	1	-	-	-	2	21	-	2	-	-	23		25
034	WESER-EMS							0						0		0
040	BREMEN	-	1	-	-	-	-	1	1	-	-	-	-	1		2
051	DUESSELDORF							0						0		0
053	KOELN							0						0		0
055	MUENSTER							0						0		0
057	DETMOLD							0						0		0
059	ARNSBERG							0						0		0
064	DARMSTADT	-	-	1	-	-	-	1	16	-	-	4	-	20		21
065	GIESSEN							0	1	1	-	-	-	2		2
066	KASSEL	-	-	1	-	-	-	1	1	1	-	-	-	2		3
071	KOBLENZ							0	3	-	-	-	-	3		3
072	TRIER							0	4	-	-	-	-	4		4
073	RHEINHESSEN-PFALZ	1	2	-	-	-	-	3	9	-	1	1	-	11		14
081	STUTTGART	-	1	2	-	1	-	4	8	1	1	1	-	11		15
082	KARLSRUHE							0	3	-	-	2	-	5		5
083	FREIBURG							0						0		0
084	TUEBINGEN							0	8	-	-	-	-	8		8
091	OBERBAYERN							0	6	-	-	6	-	12		12
092	NIEDERBAYERN							0						0		0
093	OBERPFALZ	1	-	-	-	-	-	1	1	-	-	-	-	1		2

DEU CONTINUED -

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
094	OBERFRANKEN							0	3	-	-	-	-	3		3
095	MITTELFRANKEN							0						0		0
096	UNTERFRANKEN							0	4	-	-	-	-	4		4
097	SCHWABEN	-	-	3	-	-	-	3	25	3	4	-	-	32		35
100	SAARLAND	-	-	-	-	1	-	1	23	-	2	-	-	25		26
110	BERLIN	-	1	-	-	-	-	1	4	-	-	-	-	4		5
121	POTSDAM	5	1	6	-	-	-	12	34	-	-	-	-	34		46
122	FRANKFURT	3	4	7	-	1	-	15	64	1	-	-	2	67		82
123	COTTBUS	1	6	6	-	-	-	13	30	-	1	-	1	32		45
131	ROSTOCK	2	2	1	-	-	-	5	32	-	-	-	-	32		37
132	SCHWERIN	2	1	5	-	-	-	8	13	1	1	1	-	16		24
133	NEUBRANDENBURG	6	2	13	2	-	-	23	85	-	7	-	-	92		115
141	DRESDEN	-	-	3	-	7	-	10	25	-	2	-	-	27		37
142	LEIPZIG	-	1	1	-	1	-	3	3	-	-	-	-	3		6
143	CHEMNITZ	-	-	-	-	8	-	8	10	-	-	-	-	10		18
151	MAGDEBURG	2	-	1	2	-	-	5	29	1	1	-	-	31		36
152	HALLE	2	4	6	1	1	-	14	43	3	6	1	-	53		67
161	ERFURT	1	1	1	-	1	-	4	12	-	-	-	-	12		16
162	GERA	-	2	-	-	2	-	4	21	1	3	1	-	26		30
163	SUHL							0						0		0
TOTAL		26	31	66	6	23	0	152	558	13	33	20	3	627	0	779
PER CENT		3.3	4.0	8.5	0.8	3.0	0.0	19.5	71.6	1.7	4.2	2.6	0.4	80.5	0.0	100.0

FRA FRANCE — RABIES CASES — 1. 7.91 - 30. 9.91

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
02	AISNE	1	-	-	-	3	-	4	12	-	-	-	-	12		16
08	ARDENNES	1	2	1	-	-	-	4	11	-	-	-	-	11		15
10	AUBE	-	2	-	-	3	-	5	23	-	-	-	-	23		28
21	COTE D'OR	-	1	-	-	1	-	2	10	-	-	-	-	10		12
25	DOUBS	-	-	-	-	2	-	2	27	2	-	-	-	29		31
27	EURE	1	-	1	-	-	-	2	11	-	1	-	-	12		14
39	JURA							0	-	-	1	-	-	1		1
51	MARNE							0	15	-	-	-	-	15		15
52	MARNE (HAUTE)	2	1	2	-	2	-	7	12	-	-	-	-	12		19
54	MEURTHE ET MOSELLE	-	1	4	-	5	-	10	36	3	3	1	-	43		53
55	MEUSE	-	5	3	1	5	-	14	26	-	1	-	-	27		41
57	MOSELLE	2	3	-	1	-	-	6	42	-	-	1	-	43		49
59	NORD							0	1	-	-	-	-	1		1
60	OISE							0	4	-	-	-	-	4		4
62	PAS DE CALAIS							0	1	-	-	-	-	1		1
67	RHIN (BAS)	-	1	-	-	-	-	1	5	-	-	-	-	5		6
68	RHIN (HAUT)	1	-	1	-	2	-	4	38	2	-	5	-	45		49
70	SAONE (HAUTE)	-	3	2	1	5	-	11	30	-	3	2	-	35		46
76	SEINE MARITIME	-	-	2	-	-	-	2	28	1	-	1	-	28		30
77	SEINE ET MARNE	-	1	-	-	-	-	1						0		1
80	SOMME	1	-	1	-	-	-	2	5	-	1	-	-	6		8
88	VOSGES	1	3	1	-	2	-	7	26	-	3	-	-	29		36
89	YONNE	-	-	-	1	1	-	2	13	-	-	-	-	13		15
90	TERR.DE BELFORT							0	5	-	-	-	-	5		5
91	ESSONNE							0	1	-	-	-	-	1		1
95	VAL D'OISE	-	-	-	-	1	-	1	15	-	2	1	-	18		19
TOTAL		10	23	18	4	32	0	87	395	8	15	11	0	429	0	516
PER CENT		1.9	4.5	3.5	0.8	6.2	0.0	16.9	76.6	1.6	2.9	2.1	0.0	83.1	0.0	100.0

HUN HUNGARY — RABIES CASES — 1. 7.91 - 30. 9.91

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
01	BUDAPEST							0	2	-	-	-	-	2		2
02	BARANYA	2	1	-	-	-	-	3	12	-	-	-	-	12		15
03	BACS-KISKUN	1	3	5	-	-	1	10	10	-	-	-	-	10		20
04	BEKES	-	-	2	-	-	-	2	1	-	-	-	-	1		3
05	BORSOD-ABAUJ-ZEMPLEN	2	3	-	-	-	-	5	9	-	-	-	-	9		14
06	CSONGRAD	1	2	2	-	-	-	5	3	-	-	-	-	3		8
07	FEJER	-	1	1	-	-	-	2	13	-	-	-	-	13		15
08	GYOER-SOPRON							0	2	-	-	-	-	2		2
09	HAJDU-BIHAR	-	2	1	-	-	-	3	3	1	-	-	-	4		7
10	HEVES	1	2	-	-	-	-	3	2	-	-	-	-	2		5
11	KOMAROM							0	5	-	-	-	-	5		5
12	NOGRAD							0	2	-	-	-	-	2		2
13	PEST	-	3	-	-	-	-	3	15	-	-	-	-	15		18
14	SOMOGY	-	2	-	-	-	-	2	5	-	-	-	-	5		7
15	SZABOLCS-SZATMAR	2	2	1	-	-	-	5	16	-	1	-	-	17		22
16	SZOLNOK	-	1	1	-	-	-	2	1	-	-	-	-	1		3
17	TOLNA	-	2	-	-	-	-	2	5	-	-	-	-	5		7
18	VAS	-	1	-	-	-	-	1	8	-	-	-	-	8		9
19	VESZPREM	-	1	-	-	-	-	1	12	-	-	-	-	12		13
20	ZALA							0	6	-	-	1	-	7		7
TOTAL		9	26	13	0	0	1	49	132	1	1	1	0	135	0	184
PER CENT		4.9	14.1	7.1	0.0	0.0	0.5	26.6	71.7	0.5	0.5	0.5	0.0	73.4	0.0	100.0

POL POLAND — RABIES CASES — 1. 7.91 - 30. 9.91

LOCATION	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
CODE NAME	DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
01 WARSZAWA							0	3	-	-	-	-	3		3
03 BIALA PODLASKA							0	-	-	-	-	1	1		1
05 BIALYSTOK							0	8	-	-	-	8	16		16
07 BIELSKO-BIALA	-	2	-	-	-	-	2	1	-	-	-	-	1		3
09 BYDGOSZCZ	3	1	9	-	-	-	13	14	-	3	2	3	22		35
11 CHELM	-	2	-	-	-	-	2	1	-	-	-	-	1		3
13 CIECHANOW							0	1	-	-	-	-	1		1
15 CZESTOCHOWA							0	5	-	-	1	-	6		6
17 ELBLAG							0	3	-	-	-	1	4		4
19 GDANSK	3	1	3	-	-	-	7	34	2	-	1	4	41		48
21 GORZOW	3	-	-	-	-	-	3	23	-	-	3	-	26		29
23 JELENIA GORA	-	1	2	-	-	-	3	24	-	-	-	-	24		27
25 KALISZ	1	2	2	-	-	-	5	9	1	-	-	-	10		15
27 KATOWICE							0	5	-	1	-	-	6		6
29 KIELCE	-	1	-	-	-	-	1	4	-	-	-	-	4		5
31 KONIN	2	-	-	-	-	-	2	10	1	2	-	-	13		15
33 KOSZALIN	3	-	1	-	-	-	4	14	-	-	-	2	16		20
35 KRAKOW	-	2	-	-	-	-	2						0		2
39 LEGNICA	-	1	-	-	-	-	1	20	-	1	-	-	21		22
41 LESZNO	-	3	-	-	-	-	3	9	-	-	-	-	9		12
45 LOMZA							0	-	-	-	-	2	2		2
49 NOWY SACZ							0	2	-	-	-	-	2		2
51 OLSZTYN	-	-	5	-	-	-	5	8	-	-	-	2	10		15
53 OPOLE	3	2	1	-	-	-	6	18	-	-	-	-	18		24
55 OSTROLEKA							0	2	-	-	-	-	2		2

POL CONTINUED

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
57	PILA	2	-	-	-	-	-	2	9	1	-	-	4	14		16
59	PIOTRKOW TRYB	-	1	2	-	-	-	3	15	1	-	-	-	16		19
61	PLOCK	1	-	-	-	-	-	1	1	-	-	-	-	1		2
63	POZNAN	2	4	1	-	-	-	7	25	-	3	1	-	29		36
67	RADOM	1	1	2	-	-	-	4	9	-	-	-	-	9		13
69	RZESZOW							0	18	-	-	-	-	18		18
71	SIEDLCE	1	-	-	-	-	-	1	8	-	-	-	1	9		10
73	SIERADZ							0	1	-	-	-	-	1		1
75	SKIERNIEWICE	-	-	1	-	-	-	1	2	-	-	-	-	2		3
77	SLUPSK	2	6	1	-	-	-	9	16	-	-	1	3	20		29
79	SUWALKI	1	2	2	-	-	-	5	5	-	-	-	8	13		18
81	SZCZECIN	3	-	1	-	-	-	4	23	-	1	1	4	29		33
83	TARNOBRZEG	-	1	-	-	-	-	1	5	-	-	2	-	7		8
85	TARNOW	-	1	-	-	-	-	1	8	-	-	-	-	8		9
87	TORUN	2	2	14	-	-	-	18	12	-	1	1	2	16		34
89	WALBRZYCH	1	3	2	-	-	-	6	28	-	-	1	-	29		35
91	WLOCLAWEK							0	3	-	-	-	-	3		3
93	WROCLAW							0	17	-	-	-	-	17		17
95	ZAMOSC							0	1	-	1	-	-	2		2
97	ZIELONA GORA							0	18	-	1	-	-	19		19
TOTAL		34	39	49	0	0	0	122	442	6	14	14	45	521	0	643
PER CENT		5.3	6.1	7.6	0.0	0.0	0.0	19.0	68.7	0.9	2.2	2.2	7.0	81.0	0.0	100.0

RABIES CASES 1. 7.91 - 30. 9.91

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		
ITA ITALY															
34 TRIESTE E GORIZIA							0	1	-	-	-	-	1		1
ROM ROMANIA															
04 BACAU	-	-	-	1	-	-	1	1	-	-	-	-	1		2
24 IASI	-	1	-	-	-	-	1						0		1
25 MARAMURES	1	1	2	-	-	-	4						0		4
30 PRAHOVA	-	1	-	-	-	-	1						0		1
32 SALAJ	-	1	-	-	-	-	1						0		1
TOTAL	1	4	2	1	0	0	8	1	0	0	0	0	1	0	9
PER CENT	11.1	44.4	22.2	11.1	0.0	0.0	88.9	11.1	0.0	0.0	0.0	0.0	11.1	0.0	100.0
SPA SPAIN															
51 CEUTA (NORTH AFRICA)	2	-	-	-	-	-	2						0		2
YUG YUGOSLAVIA															
10 SR BOSNA I HERCEGOVIN							0	1	-	-	-	-	1		1
30 SR HRVATSKA	3	-	-	-	-	1	4	36	-	-	-	-	36		40
50 SR SLOVENIJA							0	30	-	-	-	-	30		30
61 SAP VOJVODINA	-	-	-	-	1	-	1	5	-	-	-	-	5		6
TOTAL	3	0	0	0	1	1	5	72	0	0	0	0	72	0	77
PER CENT	3.9	0.0	0.0	0.0	1.3	1.3	6.5	93.5	0.0	0.0	0.0	0.0	93.5	0.0	100.0

SSR UNION OF SOVIET SOCIALIST REP. RABIES CASES 1. 7.91 - 30. 9.91

LOCATION CODE	NAME	DOMESTIC ANIMALS							WILD ANIMALS						HUMAN CASES	TOTAL
		DOG	CAT	CATTLE	HORSE	SHEEP GOAT	OTHERS	TOTAL	FOX	BADGER	OTHER MUSTEL	DEER	OTHERS	TOTAL		
01	RSFSR	10	12	108	1	-	1	132	-	-	-	-	17	17		149
02	MOLDAVIAN SSR	1	1	4	-	1	-	7						0		7
03	UKRAINIAN SSR	51	18	40	3	-	-	112	-	-	-	-	26	26		138
04	BYELORUSSIAN SSR	7	6	10	3	1	-	27	-	-	-	-	17	17		44
06	LATVIAN SSR	5	11	6	-	1	1	24	-	-	-	-	40	40		64
07	ESTONIAN SSR	4	7	6	-	4	-	21	-	-	-	-	34	34		55
TOTAL		78	55	174	7	7	2	323	0	0	0	0	134	134	0	457
PER CENT		17.1	12.0	38.1	1.5	1.5	0.4	70.7	0.0	0.0	0.0	0.0	29.3	29.3	0.0	100.0

TUR TURKEY — RABIES CASES — 1. 7.91 - 30. 9.91

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	ADANA	2	-	-	-	-	-	2						0		2
06	ANKARA	4	-	-	-	-	-	4	-	-	-	-	1	1		5
09	AYDIN	1	-	-	-	-	-	1						0		1
10	BALIKESIR	1	1	1	-	-	-	3						0		3
12	BINGOEL	-	1	-	-	-	-	1						0		1
14	BOLU	-	-	1	-	-	-	1						0		1
15	BURDUR	2	-	-	-	-	-	2						0		2
16	BURSA	9	-	1	-	1	-	11						0		11
17	CANAKKALE	3	-	-	-	-	-	3						0		3
20	DENIZLI	2	1	-	-	-	-	3						0		3
23	ELAZIG	3	-	2	-	-	-	5						0		5
27	GAZIANTEP	2	-	-	1	-	-	3						0		3
31	HATAY	6	1	1	-	-	-	8						0		8
33	ICEL	-	1	-	-	-	-	1						0		1
34	ISTANBUL	12	-	1	-	-	-	13						0		13
35	IZMIR	2	1	4	-	1	-	8						0		8
37	KASTAMONU	2	-	-	-	-	-	2						0		2
41	KOCAELI	-	-	-	-	1	-	1						0		1
43	KUETAHYA	1	1	1	-	-	-	3						0		3
45	MANISA	1	-	-	-	-	-	1						0		1
46	KAHRAMANMARAS	-	-	3	-	-	-	3						0		3
47	MARDIN	1	-	1	-	-	-	2						0		2
51	NIGDE	1	-	-	-	-	-	1						0		1
54	SAKARYA	10	-	4	-	-	-	14						0		14
55	SAMSUN	1	-	-	-	-	-	1						0		1
57	SINOP	3	-	2	-	-	-	5						0		5
60	TOKAT	1	-	-	-	-	-	1						0		1
63	SANLIURFA	1	-	1	-	-	-	2						0		2
66	YOZGAT	1	-	-	-	-	-	1						0		1
73	SIRNAK	1	-	-	-	-	-	1						0		1
TOTAL		73	7	23	1	3	0	107	0	0	0	0	1	1	0	108
PER CENT		67.6	6.5	21.3	0.9	2.8	0.0	99.1	0.0	0.0	0.0	0.0	0.9	0.9	0.0	100.0

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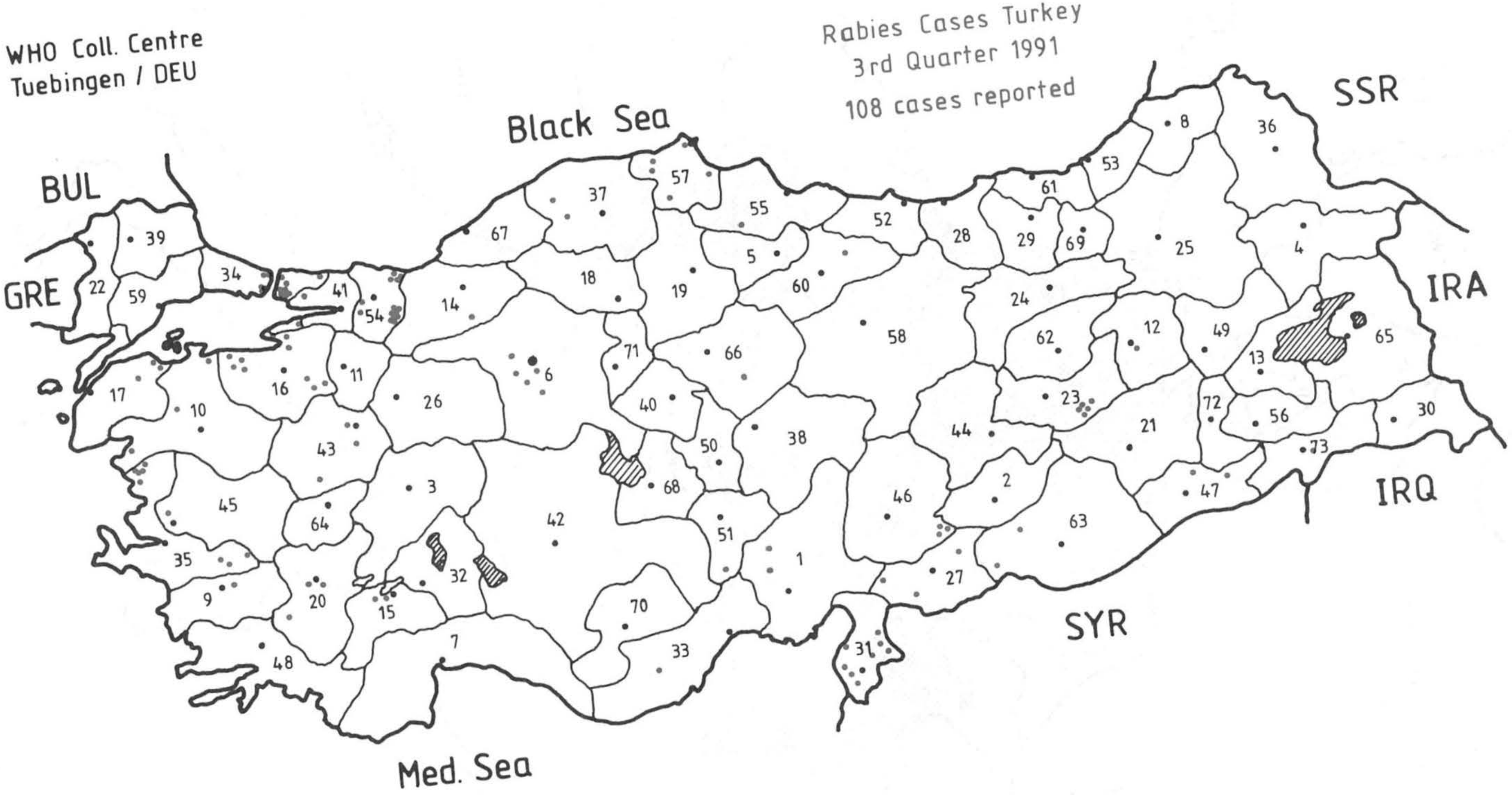
WHO Coll. Centre
Tuebingen / DEU
Rabies Cases Turkey
3rd Quarter 1991
108 cases reported
Black Sea
Med. Sea
BUL
GRE
SSR
IRA
IRQ
SYR
1
2
3
4
5
6
7
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9
10
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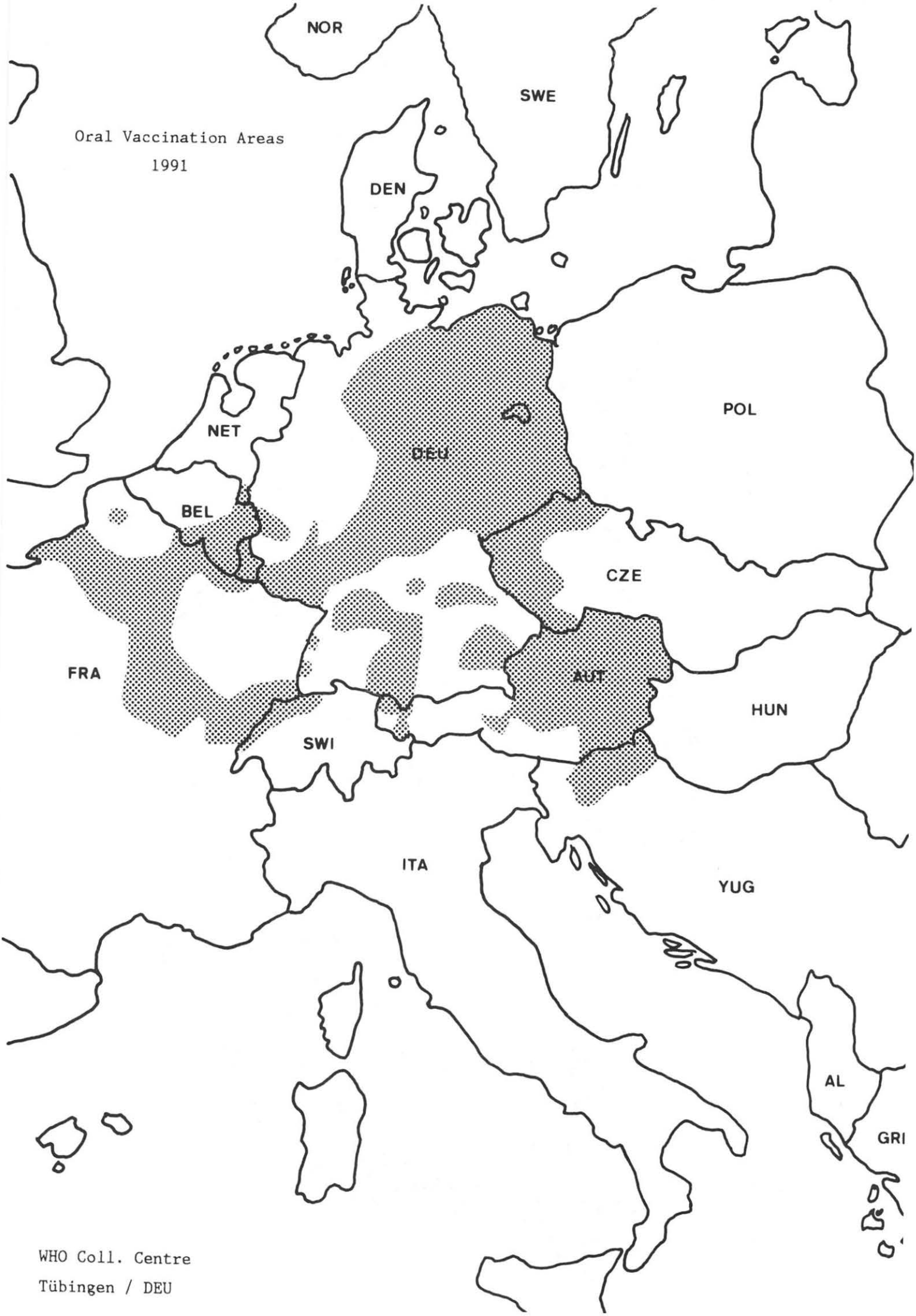
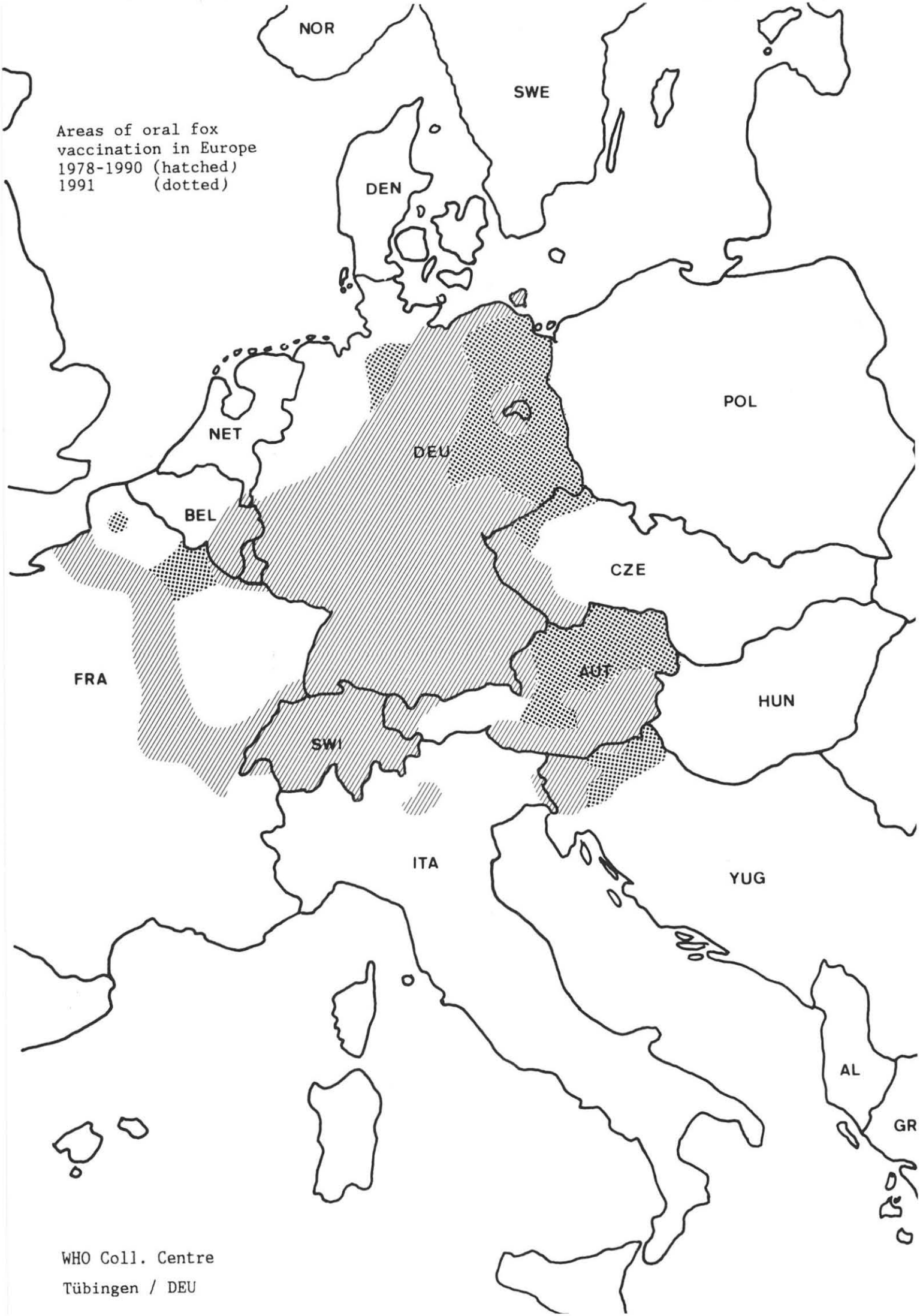

Oral Vaccination Areas
1991
NOR
SWE
DEN
NET
DEU
POL
BEL
CZE
FRA
AUT
HUN
SWI
ITA
YUG
AL
GRI
WHO Coll. Centre
Tübingen / DEU


Areas of oral fox
vaccination in Europe
1978-1990 (hatched)
1991 (dotted)
NOR
SWE
DEN
POL
NET
DEU
BEL
CZE
FRA
AUT
HUN
SWI
ITA
YUG
AL
GR
WHO Coll. Centre
Tübingen / DEU

WHO Coll. Centre
Tuebingen / DEU

Rabies Cases Europe

3rd Quarter 1991

3568 cases reported

13 bat rabies cases included

ICE
(rabies free)

NOR
(mainland rabies free)

FIN
(rabies free)

SWE
(rabies free)

DEN
(rabies free)

IRE
(rabies free)

UNK
(rabies free)

NET
(12)

(1)
DEU
(778)

BEL
(4)

(2)

FRA
(516)

(24)
SWI

(508) AUT

HUN
(184)

POL
(643)

CZE (242)

SSR
(457)

ROM
(9)

ITA
(1)

YUG
(77)

BUL
(rabies free)

POR
(rabies free)

SPA
(2)
(in North Africa)

ALB
(no data)

GRE
(rabies free)

TUR
(108)

0 50 100 km

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