



EUROPEAN COMMISSION  
HEALTH & CONSUMERS DIRECTORATE-GENERAL  
Unit 04 - Veterinary Control Programmes

**SANCO/3917/2008**

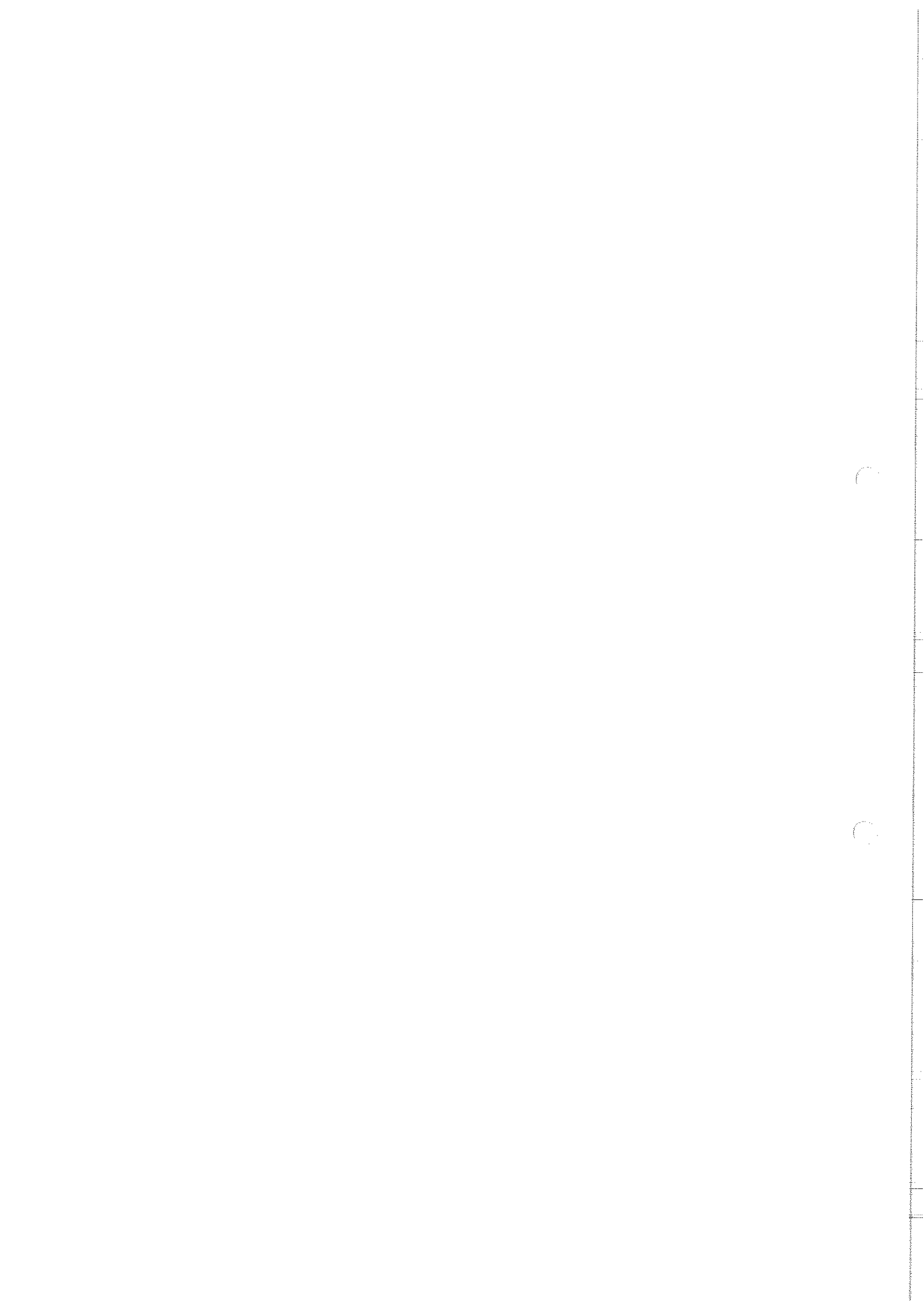
*Programmes for the eradication, control and monitoring of certain  
animal diseases and zoonoses*

## **Eradication programme of Rabies**

**Approved\* for 2009 by Commission Decision 2008/897/EC**

**Bulgaria**

\* in accordance with Commission Decision 90/424/EEC



**Programme for Control and Eradication of Rabies in Bulgaria**  
(according provisions of art. 24(3) of Council Decision 90/424/EEC and Commission Decision 2004/450 )

**1. Identification of the programme**

Member State: Republic of Bulgaria

Disease(s) (1): Rabies

Year of implementation: 01.01.2009 – 31.12.2009

Reference of this document: The National Veterinary Service (NVS) of Republic of Bulgaria

The Law on Veterinary Activities (in Republic of Bulgaria) and the Ordinance on health requirements to cattle and pigs in case of their movement or transportation between Republic of Bulgaria and EU Member States and on determining the health status of areas and holdings of their origin and on additional guarantees, to which those must comply with (transposed version of Directive 64/432/EEC and Directive 97/12 of European Union.

Contact (name, phone, fax, e-mail): Assoc. Prof. Dr. Zheko BAICHEV, DVM, Director General of the National Veterinary Service (NVS) of Bulgaria;  
Tel: +359 2 915 98 20; Fax: + 359 2 954 95 93; e-mail: [J.Baichev@nvms.government.bg](mailto:J.Baichev@nvms.government.bg)

Date sent to the Commission:

**2. Historical data on the epidemiological evolution of the disease(s) (2):**

In our country rabies disease has been spreading mainly in North Bulgaria. The total number of cases confirmed in Bulgaria since the beginning of 1988 up to the end of 2006 is 516, of which 493 cases (95.5%) are in North Bulgaria (to the north of Stara Planina mountain chain that divides the country into two) and only 23 (4.5%) are the cases identified in South Bulgaria, not a single case of rabies being identified in South Bulgaria during all the previous 8 years (see Table 1).

Wild predatory animals are the reservoir of rabies virus in our country, and these are mainly foxes and of less rates jackals. Of all the 578 animals found sick of rabies within the time-period 1988 – 2007, 290 are wild animals (50,17%), 255 (87,93%) of which being foxes (see Table 2).

Highest is the number of rabies cases registered in spring and less are the cases registered in autumn-winter seasons, those identified in summer being the lowest (see Table 3). This is due to ecological and biological specifics of the fox populations in our country. The spring pick of the disease is related to the reproduction period of foxes, while the autumn-winter rising trend is due to seeking and demand of living area manifested by young foxes.

The reason for the definitely predominant spread of rabies in North Bulgaria should be linked with geographic specifics of the country. North Bulgaria is separated

from the Southern parts of the country through a natural geographic barrier, i.e. the Balkans Chain (Stara Planina mountain chain) and it acts as a natural barrier for the spread of rabies from north to south. Alongside the whole southern border line of Bulgaria with Turkey and Greece there is still an existing border-fencing facility (netted fence), which plays the role of a barrier preventing the passage of animals. The eastern areas of the country are also bordered by a natural geographic barrier, the Black Sea. To the north Bulgaria borders with Rumania through another natural water frontier, the river Danube, but there is also a land border of 130 km length that could enable passage of animals. To the west, Bulgaria's land borders with Yugoslavia and Macedonia are predominantly of mountainous relief, but there are some areas of plane relief (Northwest Bulgaria).

As till now, there is not any individual administrative district (county) in North Bulgaria, where there has not been any rabies case confirmed. Observations show that each year there are rabies cases identified in an average of 6 to 7 of the total of 14 administrative districts of North Bulgaria.

Of the total of 578 animals found sick within the aforementioned time-period (1988-2007), 206 (35.64%) are livestock animals (cows, sheep, goats and horses). This high sickness rate among these type of animals is due to specifics of their keeping, since they spend substantial time grazing on pastures where the likelihood of contacts with wild animals is much higher (see Table 2).

The species and numbers of wild predatory animals in North Bulgaria are given in Table 4 (in the Annex attached).

During 2007, the first cases of rabies in South Bulgaria have been found ever since 1997. As by 20 August 2007 there have been 5 cases of Rabies found in the region of Sofia town and 11 cases in the region of Sofia-district. That is the reason why the four administrative districts /Sofia-town, Sofia-district, administrative district (veterinary region) of Pernik and the municipality of Treklyano (of administrative district of Kyustendil) must be included in the Programme for oral vaccination of foxes to be effected during the spring of 2008.

After the technical meeting that took place in Brussels on 21 of August, because of the remarks made and saying that the distance between the outbreaks in the districts of Sofia-town and Sofia-district is rather small and near to the borders of vaccination zone (it turned out that this distance was between 5 and 35 km), the vaccination area has been reassessed. It was decided that the administrative district of Pernik and the municipality of Treklyano (of administrative district of Kyustendil) will be included into the area subject to vaccination. Thus, the nearest distance between a rabies outbreak, i.e. that in the village of Dragotintsi (Sofia-district), and a border of vaccination area will be 47 km, while the other outbreaks of Sofia-district are 75-80 km away, the distance between the outbreak located in the Sofia-town district and the border of vaccination area being 65 km.

During 2008 the epidemiological situation in the Republic of Bulgaria concerning rabies is not favorable. As by 31.March 2008 there are 3 confirmed positive rabies cases in Kyustendil region. During 2007 and 2008 the confirmed rabies cases in Sofia-district, Sofia-town and Kyustendil gave the prerequisite for spread of the disease in the territory of the all country,

#### **Description of the submitted programme (?):**

The objective of this programme is to ensure eradication of rabies on the territory of Republic of Bulgaria. It is foreseen this to be achieved by oral vaccination of foxes on the territory of North Bulgaria and on part of the territory of South Bulgaria (regions of Sofia town, Sofia district, administrative district of Pernik and administrative district of Kyustendil. This vaccination is to be performed that territory for a period of at least 5 years, twice per year in spring and autumn (May-June and September-October).

The total size of the afore mentioned territory where vaccination will be provided is 61 882 km<sup>2</sup> and it comprises territories located within 18 administrative districts (AD), as follows: ADs of Vidin (code No. 05, area of 3 033 km<sup>2</sup>, number of settlements – 141), Montana (code No. 12, area of 3 635 km<sup>2</sup>, number of settlements – 130), Vratsa (code No. 06, area of - 3620 km<sup>2</sup>, number of settlements - 123), Pleven (code No. 15, area of - 4330 km<sup>2</sup>, number of settlements - 133), Lovech (code No. 11, area of - 4129 km<sup>2</sup>, number of settlements - 114), Gabrovo (code No. 07, area of - 2023 km<sup>2</sup>, number of settlements - 309), Veliko Tarnovo (code No. 04, area of - 4662 km<sup>2</sup>, number of settlements - 336), Ruse (code No. 18, area of - 2803 km<sup>2</sup>, number of settlements - 83), Targovishte (code No. 25, area of - 2716 km<sup>2</sup>, number of settlements - 197), Razgrad (code No. 17, area of - 2637 km<sup>2</sup>, number of settlements - 102), Shumen (code No. 27, area of - 3390 km<sup>2</sup>, number of settlements - 151), Silistra (code No. 19, area

of - 2846 km<sup>2</sup>, number of settlements - 118), Dobrich (code No. 08, area of - 4720 km<sup>2</sup>, number of settlements - 217), Varna (code No. 03, area of - 3820 km<sup>2</sup>, number of settlements - 158), Sofia town (code №22, area of - 1345 km<sup>2</sup>, number of settlements - 38), Sogia district (code №23, area of - 7062 km<sup>2</sup>, number of settlements - 277), Pernik (code 14, area of - 2027 km<sup>2</sup>, number of settlements - 172) and Kyustendil (code No. 10, area of 3084 km<sup>2</sup> and number of settlements - 182).

**The first vaccination** is to be performed in the spring of 2009 and will cover the whole territory of North Bulgaria (14 administrative districts), the administrative district of Sofia-town, Sofia-district, Pernik and Kyustendil, the total area being 61 882 km<sup>2</sup>. On the territory of these 18 ADs there are 2 981 settlements (villages and towns) located on an area of 6 845 km<sup>2</sup>. Thus, the area left to be covered by oral vaccination is 55 037 km<sup>2</sup>.

**The second vaccination** is to be performed in the autumn of 2009 on the whole of the afore mentioned territory, on which the first vaccination will be performed.

Annex - Map No.1 attached.

#### Numbers of vaccination baits needed

##### Year 2009

**First vaccination campaign:** - the dose should again be 20 pieces of vaccination baits per 1 km<sup>2</sup>. The territory for vaccination shall be the whole North Bulgaria of the following regions of: Vidin (No. 05); Montana (No. 12); Vratsa (No. 06); Pleven (No. 15); Lovetch (No. 11); Gabrovo (No. 07); Veliko Tarnovo (No. 04); Ruse (No. 18); Targovishte (No. 25); Razgrad (No. 17); Shumen (No. 27); Silistra (No. 08), Varna (No. 03) and on the territory of 4 districts of South Bulgaria - Sofia town, Sofia district, Pernik (no. 14) and Kyustendil (No. 10). The total area is 61 882 km<sup>2</sup>. The number of settlements is 2 981 of total area of 6 845 km<sup>2</sup>, which leaves area for vaccination of 55 037 km<sup>2</sup>. The number of baits needed - 1 100 740 pieces.

##### Year 2009

**Second vaccination campaign:** - the dose should be again 20 pieces of vaccination baits per 1 km<sup>2</sup>. The number of baits needed will again be 1 100 740 pieces.

The total number of unit baits needed for the whole year 2009 will be 2 201 480 pieces of vaccination baits.

This oral vaccination must be performed by a applying strain vaccine that is derivative of the SAD strain and that is stable to high ambient temperatures, since the vaccination periods (May-June and September-October) the temperatures in Bilgaria are relatively high.

The phylogenetic analysis provides evidence for the movement of rabies-infected hosts across the borders with the countries of the former Yugoslavia. The clustering of three Bulgarian sequences, two foxes and one wolf, with a wolf and a fox from Bosnia and Herzegovina (U42704 & U42706) and two foxes from the Federal Republic of Yugoslavia (U22839 & U42703), is clearly suggestive of movement of rabies across national boundaries by wildlife vectors. By contrast there is no evidence for movement of infected animals between Bulgaria and Turkey. One possible reason for this could be the influence of topography within Bulgaria. Rivers and mountain ranges can slow-down or prevent the movement of infected hosts between regions. A contour map of Bulgaria suggests that the Stara Planina (Balkan) mountain range which bisects the country from east to west could block the movement of rabies southwards. Rivers within this mountain range could also contribute to preventing the movement of vectors southwards. All the provinces from which rabies samples were obtained are north of this range of mountains. No virus sequences are available from Romania although the country reports numerous cases of rabies (Rabies Bulletin Europe, WHO) some within provinces adjoining the Bulgarian border. However, the land border with Bulgaria is defined by the Danube river and this could act as a natural barrier to the movement of rabid animals in a manner similar to the Vistula river in Poland (Bourby *et al.*, 1999). Further epidemiological studies on samples from both sides of the Bulgarian-Romanian border are needed to answer his question. If such constraints on the movement of

rabies north can be demonstrated it would have major implications for the development of elimination strategies. The Danube to the north and the mountain range across the centre of the country would provide natural boundaries for focusing oral vaccination programmes. Such strategies were successfully developed for the elimination of rabies from Switzerland (Wandeler *et al.*, 1988). However, rabies appears to be endemic within a diverse range of reservoir species present within the whole Balkan region, and this will present further challenges to the development of control strategies in countries such as Bulgaria.

Figure 1.

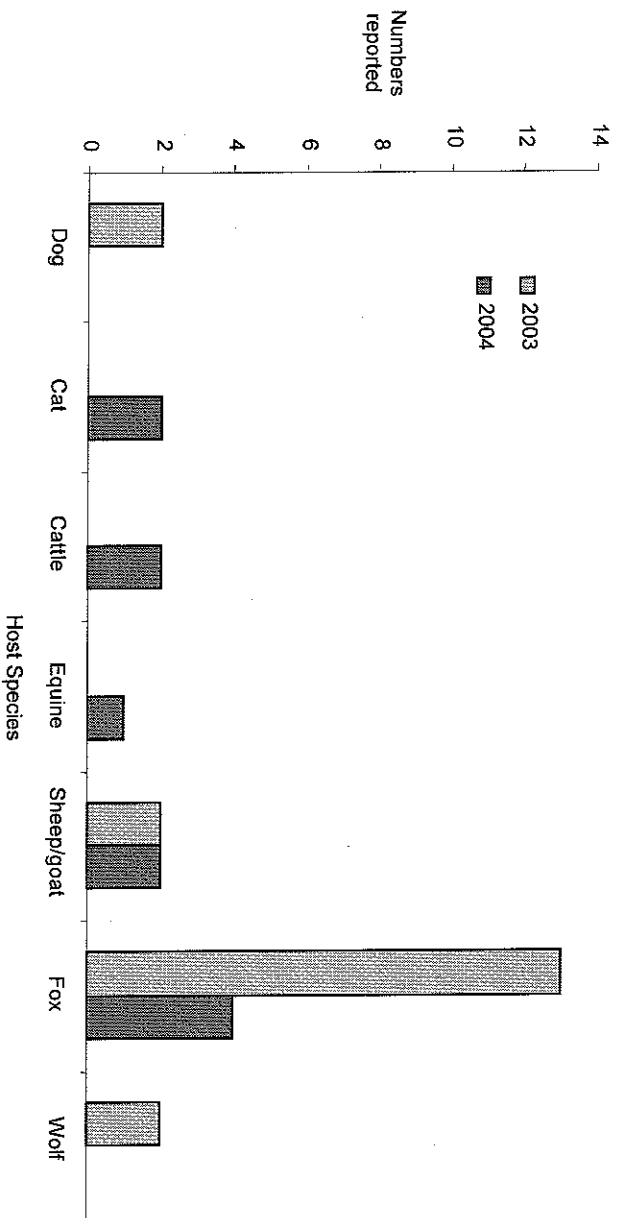


Figure 2a.

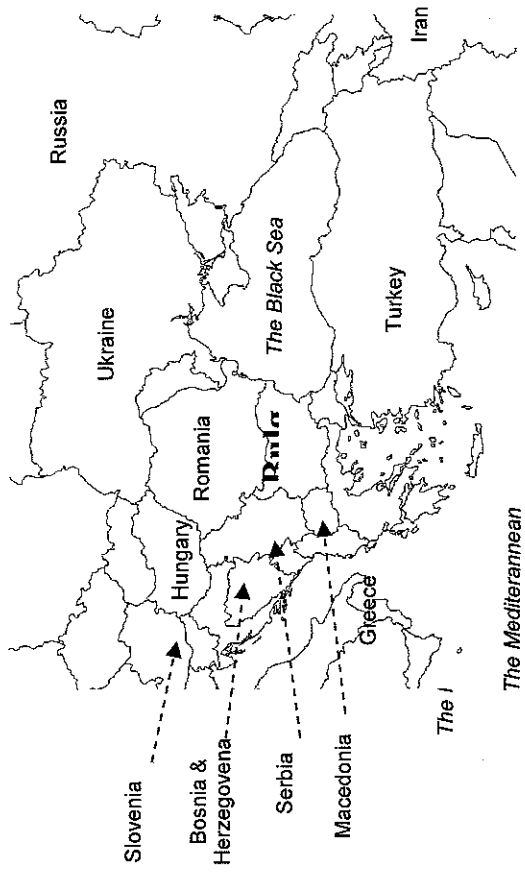


Figure 2b.

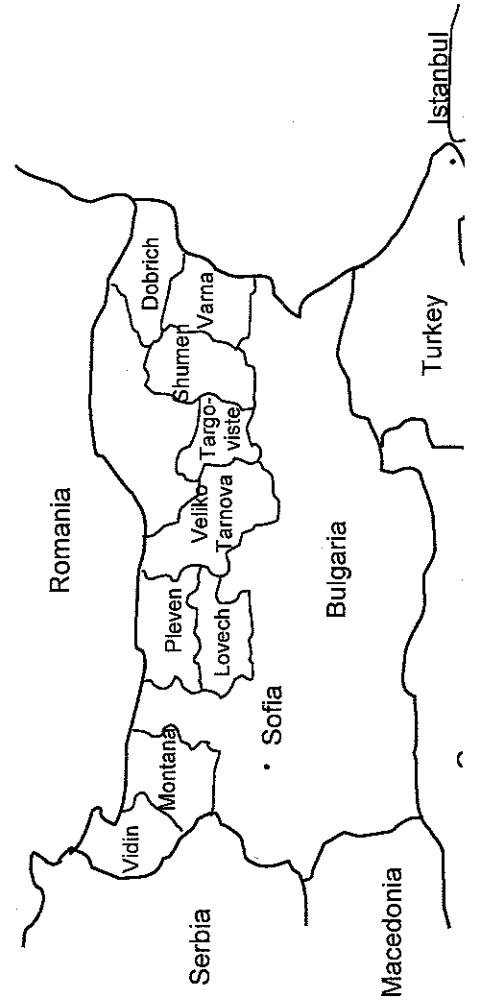
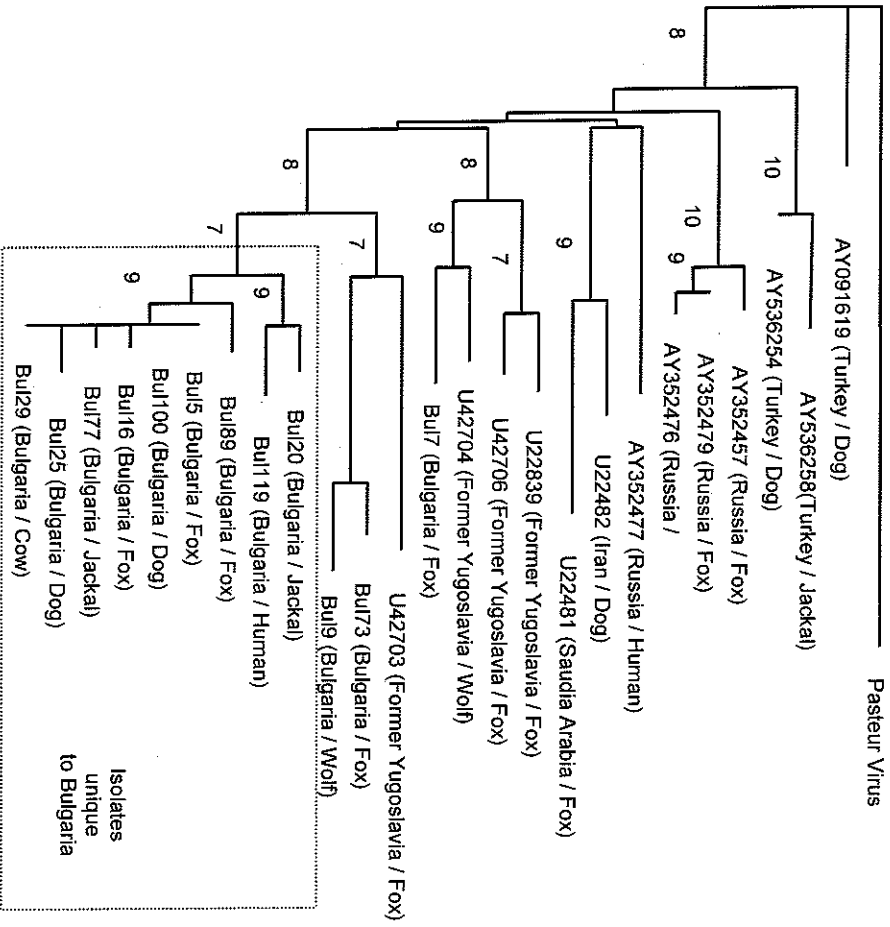


Figure 3.



0.01 substitutions / site



Procedure implemented for administering the oral vaccine

*Vaccination baits are to be distributed by helicopter or airplanes, while the control baits only (3 per 1 square kilometer) are to be placed by hunters. For the hunters there are to be geographic maps of 1:5,000 and 1:25,000 scale prepared, in which the areas concerned are to be divided into smaller ones. Hunters are to be allocated in two-persons teams and each such team is to be provided with a map of the region it would be accountable for.*

*The vaccine should be supplied 20-30 days before being placed. For this period it will be stored in chillers at temperature of -20°C. The day (24 hours) before being placed, the vaccine will be delivered to the places where it will be loaded on the helicopters or from where hunters are to be supplied with it for its spreading /placing/. During these 24 hours the vaccine is to be stored at temperature of -4°C.*

Control on predatory animals' intake of baits

It is envisaged that for each individual zone of 1 km<sup>2</sup> there would be three (3) control baits. These control baits will be marked on the maps and also on the spots where these have been placed in an appropriate way. Checks are to be done on the 7-th and 14-th day after the date of placing the baits. Hunters will also have to check and monitor, whether and how much of the baits have been received by other animal species different from foxes, such as dogs, wild boars, jackals etc. Regional Veterinary Services (RVSS) are to be responsible for and carry out the summarizing of information and data collected and received on regional basis. Then this information will be sent to the NVS Chief Directorate, in order to be summarized on national level.

Laboratory control after vaccination

Laboratory control of the oral vaccination will be effected in the National Diagnostic and Research Veterinary Medical Institute (NDRVMI) in Sofia. The following are the methods to be used for exercising this control:

1. RFFIT-test for detection of presence of antibodies against the rabies virus;
2. IFT-test - direct immune-fluorescent test for detecting the presence of the rabies virus;
3. ELISA - immune-enzyme test for proving the presence of antibodies after vaccination and for typing virus isolates;
4. Test for identifying the tetracycline marker;
5. IMAGE ANALYSIS - a test for typing the viruses isolated of samples taken in various regions of the country.

After completion of this 5-years Program

There should be a new vaccination program developed on the basis of the analysis of the results achieved through this 5-years program. The options for such further development are three, as follows:

- a) continuing the vaccination in the whole North Bulgaria and on the territory of 4 districts of South Bulgaria - Sofia town, Sofia district, Pernik and Kyustendil.
- b) continuing the vaccination in certain individual administrative districts or regions;
- c) continuing the vaccination only within the zone (strip) alongside the land border between Bulgaria and Rumania (the North-east part of the country) of total area of 3,900 km<sup>2</sup>, and in the strip alongside the border between Bulgaria and Yugoslavia (the North-west part of the country) of total area of 5,250 km<sup>2</sup>. In such case the total area to be subjected to further vaccination would be 9,150 km<sup>2</sup>.

) A concise description is given with data on the target population (species, number of herds and animals present and under the programme), the main measures (testing, testing and slaughter testing and killing, qualification of herds and animals, vaccination ...) and the main results (incidence, prevalence, qualification of herds and animals). The information is given according distinct periods if the measures were substantially modified. The information is documented by relevant summary epidemiological tables, graphs or maps.

o A concise description of the programme is given with the main objective(s) (monitoring, control, eradication, qualification of herds and/or regions, reducing prevalence and incidence ...), the main measures (testing,

4. Measures of the submitted programme

4.1. Summary of measures under the programme

Duration of the programme: Five (5) years

First year: 2009

Last year: 2013

- |  |  |
|--|--|
| <input type="checkbox"/> Control - Yes                       | <input type="checkbox"/> Eradication - Yes                 |
| <input type="checkbox"/> Testing - Yes                       | <input type="checkbox"/> Testing - Yes                     |
| <input type="checkbox"/> Slaughter of positive animals       | <input type="checkbox"/> Slaughter of positive animals     |
| <input type="checkbox"/> D Killing of positive animals – Yes | <input type="checkbox"/> Killing of positive animals - Yes |
| <input type="checkbox"/> D Vaccination - Yes                 | <input type="checkbox"/> Extended slaughter or killing     |
| <input type="checkbox"/> Treatment                           | <input type="checkbox"/> Disposal of products              |
| <input type="checkbox"/> Disposal of products                |  |
| <input type="checkbox"/> Monitoring or surveillance - Yes    |  |

C Other measures (specify):

4.2. Designation of the central authority charged with supervising and coordinating the departments responsible for implementing the programme (1):

The implementation of the whole vaccination Programme on national level is to be steered by the National Veterinary Service of Bulgaria at the Ministry of Agriculture and Forestry and in particular by its 'Animal Health' Directorate at the NVS Directorate General. All the campaigns are to be organised and performed in close cooperation with:

- Ministry of Health and its district units;
- Ministry of Interior and its district units;
- Ministry of Environment and Waters and its district units;
- National Forestry Administration at the Ministry of Agriculture and Forestry;
- Union of Hunters and Anglers in Bulgaria and its district and local units;
- Local bodies of the executive authorities – district governors and mayors of municipalities and settlements;
- Private practicing veterinary practitioners.

On administrative districts' level vaccination campaigns are to be organised and steered by the Regional Veterinary Services (RVSSs) in their quality of district units within the organisation structure of the NVS in cooperation with the local units of all the other aforementioned central and local governments' institutions.

Establishing public awareness of the Programme objectives and specifics:

- making all central institutions and organisations involved in its implementation well informed about the Programme for oral vaccination of foxes in Bulgaria;
- making all the regional (administrative district) units of the National Veterinary Service well informed and trained in the specifics of the Programme for oral vaccination of foxes in Bulgaria, in order to ensure that these will properly and effectively organise and steer it on the spot;
- making all district and local units of the aforementioned central institutions and organisations involved in its implementation well informed about the Programme for oral vaccination of foxes in Bulgaria;
- creating public awareness in the population through the local media for mass information, the local cable TV networks, radio broadcasting stations and direct meetings with the public;
- preparing awareness brochures, posters and others alike that are to be placed on public places and alongside roads.

4.3. Description and delimitation of the geographical and administrative areas in which the programme is to be implemented (2):

As per the description in Point 3 above and the attached Map No. 1.

4.4. *Measures implemented under the programme* <sup>(3)</sup>

4.4.1. **Measures and terms of legislation as regards the registration of holdings:**

4.4.2. **Measures and terms of legislation as regards the identification of animals <sup>(4)</sup>:**

4.4.3. **Measures and terms of legislation as regards the notification of the disease:**

Ordinance No. 23 of 17.05.2002 on prophylaxis and control of rabies in animals:

Art. 5(1): Owners of dogs and cats, mayors of municipalities and town-councils, veterinary authorities and private veterinary practitioners shall have the following obligations:

1. owners of dogs and cats shall:
    - h) isolate the rabies suspect animals in closed premise and to immediately inform thereof the veterinary service of the settlement concerned;
    - j) in case of death of a dog or cat, for which there has been suspicion that this death could be result of rabies, the owner concerned shall keep the carcass and immediately inform thereof the veterinary service of the settlement.
  3. official veterinary authorities and private practitioners shall:
    - a) carry out vaccination against rabies by inactivated vaccine;
    - c) issue veterinary health-books to the dogs presented by their owners, in which all prophylactic and diagnostic activities must be recorded;
    - d) place identification marks;
    - e) carry out monitoring on dogs and cats considered as being rabies suspect animals;
    - h) carry out, together with municipal authorities, veterinary, informational and explanatory activities to ensure compliance with veterinary-sanitary requirements to keeping dogs and cats.
- Art. 7(1): Persons that have observed changes in the behaviour of wild animals, such as loss of orientation in environment, loss of sense of fear from human beings, entering in settlements or unusual aggressiveness shall kill the animal concerned, if possible and without entering in direct contact with it.
- (2) Persons referred to in Paragraph 1 shall immediately notify the nearest veterinary service regardless of whether they have managed to kill the animal or not.
- Art. 8(1): Persons that have found carcass of dead wild animals shall immediately inform thereof the nearest veterinary service.
- (2) The carcasses referred to in Paragraph 1 shall be buried together with their hides and skins after being sampled for laboratory testing.

4.4.4. **Measures and terms of legislation as regards the measures in case of a positive result <sup>(5)</sup>:**

Ordinance No. 23 of 17.05.2002 on prophylaxis and control of rabies in animals:

Art. 17(1): In case of laboratory confirmation of rabies the NVS authorities shall undertake the following measures;

1. notify the disease;
2. together with the local bodies of Ministry of Health (Regional Inspectorate for Control and Protection of Public Health = RICPPH) perform epizootological and epidemiological inquiry;
3. order for killing of the sick animal(s) concerned;
4. take sample material for laboratory testing;
5. order for destruction /disposal/ together with their hides and skins of all carcasses of the animals killed or dead due to rabies, which must be done in rendering plant or by burial;
6. ....
7. order for carrying out mandatory /compulsory/ vaccination against rabies of all dogs, cats and domestic animals going to pasture in the settlement affected or in part of it;
8. impose a ban on movement of animals referred to in Item 7 to other settlements;
9. together with the RICPPH inform through the mass media the public about the case(s) of rabies that have occurred.

Art. 18: The local body of the National Forestry Administration together with the local units of the Union of Hunters and Anglers in Bulgaria shall organise shooting of stray dogs and wild carnivorous animals found in areas around the settlement affected.

4.4.5. Measures and terms of legislation as regards the different qualifications of animals and herds:

4.4.6. **Control procedures and in particular rules on the movement of animals liable to be affected or contaminated by a given disease and the regular inspection of the holdings or areas concerned <sup>(6)</sup>:**

Ordinance No. 23 of 17.05.2002 on prophylaxis and control of rabies in animals:

Art. 17(1): In case of laboratory testing of rabies in animals, the NVS authorities shall undertake the following measures:

8) impose a ban on movements of rabies susceptible animals from the settlement affected to any other settlement;  
Art. 17(2): These restrictive measures may be ceased at least 30 days after the last rabies case confirmed.

**4.4.7. Measures and terms of legislation as regards the control (testing, vaccination, ...) of the disease:**

Among the others, the Law on Veterinary Activities reads as follows:

Art. 22: Science-and-research and laboratory veterinary activity may be effected only in institutes, accredited high schools and laboratories.

Art. 23(2): Laboratory activity related to the official veterinary control shall be carried out in NVS laboratories in accordance with internationally recognised methods.

(3) In case of necessity, the NVS Director General may sign contract with accredited laboratory, which is not involved within the NVS organisation structure, in order to ensure that activities referred to in Paragraph 1 would be properly effected.

Art. 24(1) The Minister of Agriculture and Forestry shall be responsible for the approval of the list of national reference laboratories included in the NVS organisation structure in accordance with proposal entered by the NVS Director General

The strategy of monitoring (surveillance) involves:

1. the reception of vaccination baits by foxes by testing the presence of tetracycline in their bone marrow;
2. the presence of rabies virus antibodies in blood samples taken from vaccinated foxes.

Laboratory control of the oral vaccinations performed under this Programme is to be carried out by the National Reference Laboratory of rabies, which is located in the National Diagnostic and Research Veterinary Institute in Sofia.

4.4.8. Measures and terms of legislation as regards the compensation for owners of slaughtered and killed animals:

**5. General description of the costs and benefits (?):**

The funds that will be needed for the implementation of this Programme could be presented as follows (2009):

1. Procurement of vaccine

2 201 480 *pieces* of vaccination baits – 1 100 740 Euro

2. Storage of vaccine at -20°C: - 3,000 EUR per year

3. Transportation of vaccine from the central warehouse to the places of loading it on helicopters or of supplying it to hunters: - 5,000 EUR per year

4. Spreading the vaccination baits by helicopters or airplanes: - 450,000 EUR per year

5. Testing – 4,500 Euro

6. Bullets needed for shooting the foxes that are to be laboratory tested: - 5,000 EUR per year;

7. Geographic maps (5,000) for hunters to spread baits manually: - 15,000 EUR;

8. Printed materials and other means to ensure public awareness: - 5,000 EUR per year;

6. **Data on the epidemiological evolution during the last five years** (?)

Please see the attached Table 1 and Table 2.



### **7.3. Targets on vaccination or treatment**

7.3.1. Targets on vaccination or treatment (?): The first vaccination round (in the Spring of 2009) is intended to put the start of the implementation of the Programme and to gain the necessary experience by the veterinary services on the spot and by the other institutions and organizations, which are to take part in its implementation. The Programme is to be performed on the whole territory of the whole North Bulgaria (to the north of the Stara Planina Mountain and on the territory of 4 districts of South Bulgaria – Sofia town, Sofia district, AD of Pernik and AD of Kyustendil with overall duration of no less than 5 years, in order to ensure eradication of rabies from the whole territory of the whole country.

Vaccine(s) and vaccination scheme or treatment and treatment scheme (?):



8. Detailed analysis of the cost of the programme (\*)

Costs related to	Specification	Number of units	Unitary cost in euro	Total amount in euro	Community funding requested (yes/no)
<b>1. Testing</b>					
1.1. Cost of the analysis	Test: Immuno-fluorescent test	1500	15	22,500	Yes
	Test: Virus neutralisation test	100	30	3,000	Yes
	Test: Immune-enzyme (ELISA) test	4700	70	329,000	Yes
	Hystological test for identification of tetracycline	1000	20	20,000	Yes
1.2. Cost of sampling		2,000	15	30,000	Yes
1.3. Other costs					
<b>2. Vaccination or treatment</b>					
2.1. Purchase of vaccine/treatment		2 201 480	0.5	1 100 740	Yes
2.2. Distribution costs		25	200	5,000	No
Distribution of baits by helicopter				450,000	Yes
2.3. Administering costs				5,000	No
2.4. Control costs		500	15	7,500	Yes
Referring to the control of intake by foxes					

Fixed costs should not be included. All amounts are VAT excluded.



<b>3. Slaughter and destruction</b>							
3.1. Compensation of animals							
3.2. Transport costs							
3.3. Destruction costs							
3.4. Loss in case of slaughtering							
3.5. Costs from treatment of products (milk, eggs, hatching eggs, etc)							
4. Cleaning and disinfection		100	50	5,000	No		
5. Salaries (staff contracted for the programme only)		3,000	10	30,000	Yes		
6. Consumables and specific equipment							
7. Other costs							
Storage of vaccine at -20°C		2	1,500	3,000	No		
Geographic maps for hunters		5,000	3	15,000	No		
Printed materials for publ. awareness		20,000	0,25	5,000	No		
Bullets for hunters				5,000	No		
			Total	2 035 740			

TABLE 1

CASES OF RABIES IDENTIFIED IN REPUBLIC OF BULGARIA IN THE YEARS BETWEEN 1988 AND 2006

Administrative District /Country/ of:	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Blagoevgrad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burgas	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Varna	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	2
Vidin	-	17	7	-	1	2	1	-	2	1	1	-	-	8	1	8	2	1	-	2
Vratsa	14	8	4	14	5	7	2	-	1	1	4	5	1	1	2	1	1	-	-	3
Veliko Tarnovo	7	3	-	-	-	1	1	-	2	-	1	1	-	3	-	4	2	2	-	1
Gabrovo	3	3	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dobrich	-	-	-	-	-	1	1	1	4	6	-	-	1	4	-	-	4	3	-	4
Kyustendil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kardzhali	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lovech	10	18	9	-	-	7	2	2	1	-	-	1	-	1	2	2	2	-	-	-
Montana	34	13	11	-	9	11	1	-	2	-	1	2	1	4	-	-	-	3	1	1
Pazardzhik	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pernik	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Pleven	6	6	-	3	5	-	2	3	4	1	1	2	16	17	3	-	1	-	-	-
Plovdiv	5	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Razgrad	1	-	2	-	-	3	-	2	3	-	-	-	-	1	-	-	-	-	1	3
Ruse	-	3	1	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-
Silistra	1	1	-	-	-	-	1	1	1	2	-	-	1	-	-	-	-	2	-	10
Silven	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smolyan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sofia-town	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sofia-district	1	-	1	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Stara Zagora	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	11
Targovishte	1	3	-	-	-	7	-	1	2	4	1	-	-	12	4	2	-	-	-	1
Haskovo	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Shumen	-	-	-	-	-	-	-	-	-	-	-	3	3	7	3	-	-	-	1	-
Yambol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL:</b>	<b>84</b>	<b>78</b>	<b>35</b>	<b>20</b>	<b>23</b>	<b>42</b>	<b>14</b>	<b>12</b>	<b>23</b>	<b>16</b>	<b>9</b>	<b>14</b>	<b>23</b>	<b>61</b>	<b>15</b>	<b>17</b>	<b>10</b>	<b>11</b>	<b>9</b>	<b>40</b>

TYPES AND NUMBERS OF RABIES DISEASED ANIMALS (1988 -- 2007)

TABLE 2

Year	Total	Domestic Animals /livestock/	Dogs	Cats	Foxes	Jackals	Other species
1988	84	39	3	-	42	-	-
1989	78	38	2	-	37	-	1
1990	35	11	6	-	18	-	-
1991	20	9	3	-	7	-	1
1992	23	16	-	-	7	-	-
1993	42	24	4	-	12	-	2
1994	14	10	-	-	4	-	-
1995	12	4	6	-	2	-	-
1996	30	10	3	2	15	-	-
1997	16	1	5	-	8	2	-
1998	9	4	1	1	2	1	-
1999	25	11	3	-	11	-	-
2000	23	11	4	1	4	3	-
2001	62	7	7	4	38	4	2
2002	16	-	-	-	3	1	12
2003	17	3	2	-	10	-	2
2004	11	5	-	1	4	-	1
2005	12	2	1	2	5	1	1
2006	9	1	1	5	2	-	-
2007	40	-	7	7	24	2	-
<b>Total:</b>	<b>578</b>	<b>206</b>	<b>58</b>	<b>23</b>	<b>255</b>	<b>14</b>	<b>22</b>

Seasonal Spread of Rabies (1996-2007)

TABLE 3

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Rabies cases	20	23	27	42	21	19	12	20	13	15	20	16

Species and Numbers of Wild Predatory Animals in Bulgaria (2006)

TABLE 4

Animal Species	Wolves	Jackals	Foxes	Stray Dogs
Numbers	2312	28 523	38 727	22 634

III Regions of vaccination against rabies in the Republic of Bulgaria

