5th Session of the Meeting of Parties

Ljubljana, Slovenia, 4 – 6 September 2006

Resolution 5.2

Bats and Rabies in Europe

The Meeting of the Parties to the Agreement on the Conservation of Populations of European Bats (hereafter "the Agreement"),

Recalling that the Agreement's Conservation and Management Plan recognises that bats depend heavily on artificial structures for roosting and that their conservation depends on favourable human attitudes (Inf.EUROBATS.MoP2.14AnnexA, para 19);

Recalling that the Agreement's Conservation and Management Plan also encourages Parties and Range States to cooperate in the conservation and management of bats and their habitats (Inf.EUROBATS.MoP2.14AnnexA, para 24);

Noting the occurrence of Lyssaviruses (European Bat Lyssaviruses - variants of rabies viruses) in certain European bat species and that these bats may live in close association with humans;

Noting the negative public opinions that these viruses may encourage and their influence on bat conservation, including the association with sylvatic (or classic) rabies virus in the perspective of the medical and veterinary communities, the media and the general public;

Noting that European Bat Lyssaviruses (EBLVs) might be under-reported in bat species across Europe as prevalence is routinely reported only in countries that have a regular surveillance programme;

Noting the extremely rare incidence of these viruses in humans or other non-bat wild and domestic mammals;

Noting the need to understand the dynamics, epidemiology and pathogenesis of these viruses and their distribution, hosts and incidence in European bat species;

Noting the results and recommendations of the European Workshop on Bat Rabies, Vilnius, Lithuania, 16 May 2004 (EUROBATS.BatRabiesWorkshop.Report);

Noting the Conclusions and Recommendations of the First International Conference 'Rabies in Europe', Kiev, Ukraine, 15-18 June 2005;

Noting the recommendations of the EU Med-Vet-Net Workpackage 5: Molecular Epidemiology of European Bat Lyssaviruses (which aims to obtain, sequence and archive EBLV isolates from countries throughout Europe, and to set up a database to register submission details and sequence data for EBLV isolates);

Noting the facility to test for these viruses through surveillance of a) bats involved in high risk (species known to carry the virus or where there is a lack of information) biting or scratching incidents in humans (or their companion animals), b) all or any dead or sick bats, and c) through sampling of blood and/or saliva from wild caught animals;

Noting the recommendations of Med-Vet-Net regarding protocols for surveillance;

Urges Parties and Range States to:

1. *Establish* a national bat rabies surveillance network in close collaboration with bat specialists, which should be based on a surveillance programme through submission of bats that have died or been euthanised for welfare reasons, and/or by sampling of blood and saliva;
2. *Support* education efforts that reflect the best scientific advice available regarding the human health risks associated with bat rabies;
3. *Support* efforts to avoid overreaction to incidental bat bite exposures and to develop policies for determining the fate of bats involved in contact incidents with humans (and domestic animals such as cats);
4. *Ensure* that reasonable advice on precautions to avoid infection is available and implemented, including for the maintenance of colonies in buildings where rabies-positive bats have been recorded;
5. *Ensure* that rabies vaccination is compulsory or at least highly recommended for all people regularly handling bats;
6. *Maintain* collaboration with bat workers in the field, with respect to protocols for sampling and submission of specimens;
7. *Maintain* the use of standard record forms for the submission of bats for testing (Annex 1);

8. *Ensure* that the identification of submitted bats is confirmed by an appropriate authority;

9. *Ensure* that all test results are recorded, both negative as well as positive results;

10. *Attempt* to find a long-term depository for the tested specimens;

11. *Continue* efforts to develop national databases of bats tested, rabies exposures, treatments and outcomes;

12. *Adopt* recommendations of Med-Vet-Net regarding protocols for passive and active surveillance, the maintenance of appropriate databases of submissions and results, diagnostic tests, and of data of bats tested and viruses found (Annex 2);

13. *Ensure* comprehensive results of bats tested are submitted to WHO;

14. *Note* that some laboratories are able to carry out analysis of samples for countries where facilities are not available (especially for detailed virus typing);

15. *Make* results of scientific and epidemiological reports available in terms that are easily understood by the general public.

Annex 1. Standard form for submission of bats for rabies testing.

A standard form for bats submitted for rabies screening should include:

1. lab use only individual reference number
2. name and contact details for person or body submitting specimen
3. name and contact details of finder (if different from 2)
4. species, age, sex of bat if known
5. date and time of finding
6. date and time of death
7. location of finding (including address if appropriate)
8. map reference to finding locality
9. circumstances of finding (e.g. brought in by cat, found on lawn/pavement, seen hanging on wall for some days)
10. symptoms or condition when found (e.g. unable to fly, found dead)
11. cause of death if known (e.g. killed by cat, euthanised, died in captivity)
12. details of any biting or scratching incident involving a human or an animal
13. contact details of any human or animal involved in 12
14. contact details of any vet or medical doctor involved in 12
15. for lab use: date received, date tested, record of tests carried out (e.g. FAT, RTCIT, MIT, RT-PCR)

Annex 2. Passive and active surveillance of bat lyssavirus infections

Protocols based on recommendations of the EU Med-Vet-Net working group (*Rabies Bulletin Europe*, 2005(4): 3.1)

A national bat rabies surveillance network should be established in all European countries in close collaboration with bat specialists including international bat agencies.

Sampling for surveillance for bat lyssavirus infections has to comply with regulations of the Council Directive 92/43/EEC of the European Union on the Conservation of Natural Habitats and of Wild Fauna and Flora, with the Agreement on the Conservation of Populations of Bats in Europe (EUROBATS), or national legislation. Sampling should also take account of the welfare of the bats, following the recommendations for the capture and study of captured wild bats (EUROBATS Resolution 4.6).

The following protocols for passive and active surveillance are based on recommendations of the First International Conference on 'Rabies in Europe', Kiev, Ukraine, 2005 and the EU Med-Vet-Net Work Group, Workpackage 5.

Protocol for passive surveillance

Passive surveillance is based on the testing of sick, rabies suspect (showing clinical signs or abnormal behaviour) or dead bats of all indigenous bat species for lyssavirus infections. Also, bats involved in contact incidents, e.g. biting or scratching, or animals caught by pets should be included. Further sources of frozen or alcohol or formalin preserved bat samples can be from archives of institutional zoological collections. Dead bats (regardless of species) should be submitted as much as possible to a National Rabies Reference Laboratory for lyssavirus testing.

Brain samples collection using a needle through the orbit of the eye socket can be used to cause minimal disruption to the bat skull and allow species identification. The bat can then be archived as a specimen. Identification of sample bats into species should be performed by a bat specialist only or by specialised laboratories using DNA analysis of patagium tissue samples. This method can be important for distinguishing closely related species such as sibling species.

The method of choice for lyssavirus antigen detection on brain smears is the Fluorescent Antibody Test (FAT) in accordance with WHO guidelines. FAT positive brain samples should be stored for further analysis. For virus characterisation of all lyssavirus positive bats standard sequencing techniques as described should be applied. Sequence data should be collated and archived across Europe on a common database. For laboratories that do not have capacity to carry out sequencing, assistance may be provided by other European laboratories. Collection of salivary glands or neck tissue of rabies positive bats can also be useful.

Protocol for active surveillance of bat rabies

Active surveillance is based on the monitoring of free-living indigenous bat populations for lyssavirus infections. The focus of research can either be on the screening of all abundant bat species or on surveillance of high risk bat species in a particular area.

Sampling has to be done without damaging bat populations: killing bats for active surveillance is unacceptable.

Capturing of bats should be conducted in close collaboration with bat conservationists. Bats can best be captured when leaving their shelters using mist-nets, harp traps, hand-nets, etc. according to the particular roosting site. Capturing in the open field may also be useful in particular at flight paths. Sampling should be performed on an annual basis, preferably in the same month in order to get comparable data. Surveyors should be aware that repeated sampling in the same year could cause excessive disturbance to bat colonies.

Blood sampling of bats requires skills, expertise and training to avoid serious injuries. The most efficient and harmless procedure is lancing veins, e.g. interfemoral vein (uropatagium) as well as antebrachial vein (propatagium). Veins in the patagium membranes should not be used because the risk of damages. Strictly avoid cardiac puncturing. Blood should quickly be aspired through a syringe or pipette and transferred to an eppendorf vial and stored appropriately prior to testing. Saliva can be collected using cotton swabs and subsequently be stored in either 1 ml of RNA buffer or viral transport medium for Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) testing and virus isolation, respectively. The latter case is recommended since it offers both diagnostic procedures.

Virus neutralising antibodies can be detected using EBLV-modified versions of the Rapid Fluorescent Focus Inhibition Test (RFFIT) taking into account the small volume and haemolysis of the serum samples. If possible, sera should be tested separately against both EBLV-1 and EBLV-2. Nested RT-PCR or real time PCR as described is recommended for detection of EBLV-specific RNA in saliva swabs. The RNA extraction method may differ depending on the transport buffer. RT-PCR is considered as a highly sensitive screening method whereas virus isolation confirms shedding of viable and infectious virus.

Data collection

For both passive and active surveillance the following data should be collected: 1, ring or transponder identification number if the bat has been marked; 2. species; 3 gender and reproductive state; 4. age (estimated by the degree of ossification in fingers' metacarpals and phalanxes, together with tooth-wear levels); 5. weight (active surveillance); 6. collector (name, address, tel. no., e-mail); 7. accurate location; 8. date; 9 detail of exposure (contact, biting, scratching, part of the body); 10. information on abnormal behaviour, etc.; and 11. diagnostic test results (FAT, PCR, serology, and others if applicable).

It is recommended to use a uniform sample submission form for data collection.