

4th Session of the Meeting of Parties

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Resolution No. 4.6

Guidelines for the Issue of Permits for the Capture and Study of Captured Wild Bats



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

Aware of the fact that bats are particularly vulnerable to disturbance at certain stages of their life cycle;

Recognising the value of the capture and marking, and other studies of captured bats, to develop effective methods and support efforts to conserve bat populations;

Recognising also that such activities can have negative impact on the welfare of individual bats or on their populations;

Recalling that Article III (1) of the Agreement prohibits the deliberate capture, keeping or killing of bats except under permit from its competent authority;

Agrees to the following guidelines for the control of activities involving bats captured from the wild:

1. The capture and possession of wild bats for research and conservation purposes should be licensed;
2. Licences should be issued by designated nature conservation authorities. If the authorities do not have competence in the study of bats and their conservation, they should seek the advice of a body competent for the provision of advice on bat biology, ecology and conservation. Licences should be issued for a fixed (renewable) term;
3. Licence holders should comply with any other legal requirements applicable in their country governing the use of 'invasive' techniques in accordance with any existing legislation relating to experiments on animals or animal welfare;

4. The awarding of a licence should be subject to minimum standards set by the licensing authority. Applicants should demonstrate competence in the activities to be licensed and should provide a written outline of the proposed project with the reasons for the application;
5. Licences should identify permitted techniques and equipment for capture, marking and taking of samples of tissue, according to appropriate experience;
6. There should be a reporting procedure in operation for activities carried out under the licence;
7. There should be a central record of banding and other long-term marking data;
8. There should be quality controls in operation for the equipment used in 5 above, including for sources/suppliers of equipment and materials used for equipment;
9. Range States may restrict the carrying out of any of the activities in 5, such that they are:
 - allowed only under any specified circumstances
 - not allowed in particular specified circumstances (e.g. during hibernation or parturition periods)
 - restricted for use only in approved specified projects;
10. There should be systems in operation to control the taking of bats (dead or alive) from the wild for laboratory or museum research etc., and for their rehabilitation where appropriate;
11. There should be systems in operation to deal with:
 - infringements of licences
 - carrying out of licensable activities without an appropriate licence;
12. Parties should not provide support for projects involving capture or marking in Range States that do not have policies that comply with these guidelines.

Requests the Advisory Committee to continue to develop and, as appropriate, revise the attached 'Notes for the guidance of national authorities' (Annex 9b) and 'Recommended ring sizes for European bat species' (Annex 9c).

Notes for the guidance of national authorities

Ref. para 1.

The research being proposed should not adversely affect the conservation status of the population and should take account of the welfare of individual bats.

Ref. para 3.

An 'invasive' technique for these purposes is one which involves the removal of tissue or the subcutaneous implanting of a foreign body. Some other techniques, such as radio-tagging, are also very intrusive and should only be used for well-organised and authorised projects where essential data cannot be acquired with less intrusive methods.

Ref. para 5.

Capture

Approved methods of capture include (in order of increasing impact to the animals):

- taking by hand
- taking by hand net
- taking by funnel or cone trap
- taking by harp trap
- taking by mist net

Taking by hand. Bats should be lifted off their roost, rather than pulled which can damage toes or claws.

Taking by hand net. Nets should be of a fine or very small mesh material, such as that used in nets for entomologists (e.g. butterfly net). Hand nets should not be made with mist netting or as used for landing nets of fishermen. Hand nets should always be held static (not moved or waved to catch bats in flight).

Taking by funnel or cone trap. Traps must have an appropriate size in relation to the largest number of bats that could be trapped.

Taking by harp trap. Training is required to set the correct tension of the wires and to take the bats from the bag.

Taking by mist net. Considerable training is required in setting of mist-nets correctly and extraction of bats (and any birds that may co-incidentally get caught).

The taking of bats in hibernation can cause severe disturbance and should be avoided. For the capture of bats from building or tree roosts the use of hand, hand net, funnel/cone trap and harp trap are preferred and mist nets should be used with caution. The taking of females directly from inside the maternity roost or the young when the mothers are present may cause major disturbance to the colony.

For most purposes harp traps are easier and safer to use than mist nets (and require less training than mist nets). Mist nets should not be used for trapping at underground sites used by large numbers of bats emerging within a short period. Harp traps should not be set to cover the entire entrance to underground sites and should not be set in flight paths where bats and birds pass with high speed.

The use of mist nets and harp traps should be avoided during the period of late pregnancy, when bats may abort, and the main birth period, when adults may be carrying young that can become dislodged.

Marking and taking of tissues

The following activities should be individually licensed (in order of increasing impact to the animals):

- banding or ringing
- light tagging
- radio-tracking
- use of transponders (Passive Integrated Transponder [PIT] tags)
- other specified marking
- taking of samples of tissues (e.g. blood for parasite or disease investigations, flight membrane for DNA)

Ringing (banding) for long-term population and migration studies, and identification of previously trapped animals. Only rings approved for use on bats and supplied by a recognized national or international organization should be used. The use of special high quality, smoothed metal, lipped (flanged) bat rings which have been designed to minimise the risk of damage to the bats' wing membrane is preferred. Appropriately modified bird rings can also be approved for use. Appropriate ring sizes should be used for each bat species and are listed in Annex 9c. Note that the way ring sizes are measured may vary between manufacturers. Rings should have an inscription with at least an internationally recognizable address and individual identifying code (number).

Light tagging for very short-term observation of bats foraging behaviour, or possibly to locate roost sites. There have been concerns expressed about potential damage to bats from leakage of the medium carrying the fluorescence where this is not sealed in a bite or scratch-proof container.

Radio-tagging for medium-term studies of foraging (time, habitat, behaviour) and for roost finding. Radio-tags must not exceed 5% of the mass of the bat. Tags should only be attached with suitable flexible glues (surgical glue such as Skin Bond[®]) which will eventually peel off from the bat without injury. Tagging of late pregnant and early lactating bats should only be permitted where there is an overriding reason, e.g. where it fits within a detailed sequential study of a bat species through the breeding season. For roost finding, tagging should be carried out outside this period.

Transponders (PIT tags). PIT tags are small integrated circuit chips enclosed in a biologically inert glass capsule. They can be inserted subcutaneously (an invasive technique) or glued externally (a non-invasive marking procedure). They are commonly c.12 mm long and less than 2 mm wide. They can be used for long-term studies. They give individual identification, but only at very close range.

Other specified marking. This may include short-term marking techniques, such as tattoos, safe paints or other colour marking, fur-clipping. Ear or toe clipping must not be approved, and nail-clipping only for special circumstances (e.g. baby bats to identify individuals until they are old enough for more traditional marking, e.g. rings).

Tissue sampling. All techniques require particular training.

Training:

For licensing, there should be:

- guidance on training and levels of experience/competence required
- approved sources of appropriate equipment
- guidance on field use of such equipment.

All techniques require special training, including in matters of human health and safety.

Use of equipment. Information can be found in Kunz (1988) and Mitchell-Jones & McLeish (1999). In the early stages the researcher should be overseen in the field by someone experienced with the technique and aware of constraints or limitations of the technique and how to resolve problems that may arise and which may threaten the bats and/or the equipment.

Ref. para. 6.

It should be a requirement of licensing that the licensee submit regular (e.g. annual) reports of activities carried out under the licence. Licensees should be encouraged to report any practical problems or concerns arising from the techniques employed.

Ref. para. 7.

A national central record of all bats ringed (banded) or otherwise long-term marked should be maintained. It should be a requirement of licensing that annual records of all bats so marked should be submitted to that central register.

Ref. para. 8.

The availability and suitability of equipment will vary. Sources and suppliers will change. New equipment will become available. The national authorities or their advisers should keep aware of the most appropriate equipment available for the intended work.

Ref. para.10.

Bats should not be killed for research purposes unless there are exceptional circumstances and there is no satisfactory alternative.

If bats are taken into captivity for research purposes, then the researcher must have adequate facilities to maintain the bats (including flight space). If there is every expectation that the bats can be rehabilitated to the wild at their site of origin, then the bats should be kept in captivity for a limited length of time (e.g. no more than three months). Pregnant or lactating female bats must not be taken into captivity.

Literature

Kunz, T.H. (ed) 1988. *Ecological and Behavioral Methods for the Study of Bats*. Smithsonian Institution Press, Washington & London. 533pp.

Mitchell-Jones, A.J. & McLeish, A.P. (eds.) 1999. *The Bat Workers' Manual*. Joint Nature Conservation Committee, Peterborough. 138pp. (A revised 3rd edition will be published in 2003.)

Recommended ring sizes for European bat species

The ring sizes quoted represent the approximate internal diameter in mm of the oval at its widest point when the gap is closed to 1 mm. 2.9 mm rings are in the 'narrow' design unless otherwise stated. These suggestions are based on experience from Bulgaria, Germany, The Netherlands, Portugal, Ukraine and UK, with estimates (in brackets) for other species. In *Rousettus aegyptiacus* ringing is not appropriate and another marking technique will be identified.

<i>Taphozous nudiventris</i>	[5.5]
<i>Rhinolophus blasii</i>	2.9/4.2
<i>Rhinolophus euryale</i>	2.9/4.2
<i>Rhinolophus ferrumequinum</i>	4.2
<i>Rhinolophus hipposideros</i>	2.9
<i>Rhinolophus mehelyi</i>	2.9/4.2
<i>Barbastella barbastellus</i>	2.9
<i>Barbastella leucomelas</i>	[2.9]
<i>Eptesicus bottae</i>	[2.9/4.2]
<i>Eptesicus nilssonii</i>	[2.9]
<i>Eptesicus serotinus</i>	4.2/5.5
<i>Hypsugo savii</i>	[2.9]
<i>Myotis alcathoe</i>	2.9
<i>Myotis aurascens</i>	2.9
<i>Myotis bechsteinii</i>	2.9
<i>Myotis blythii</i>	4.2/5.5
<i>Myotis brandtii</i>	2.9
<i>Myotis capaccinii</i>	2.9
<i>Myotis dasycneme</i>	4.2 [3.5]
<i>Myotis daubentonii</i>	2.9
<i>Myotis emarginatus</i>	[2.9]
<i>Myotis hajastanicus</i>	2.9
<i>Myotis myotis</i>	4.2/5.5
<i>Myotis mystacinus</i>	2.9
<i>Myotis nattereri</i>	2.9
<i>Myotis nipalensis</i>	2.9
<i>Myotis schaubi</i>	[2.9/3.5]
<i>Nyctalus lasiopterus</i>	[5.5]
<i>Nyctalus leisleri</i>	4.2/3.5
<i>Nyctalus noctula</i>	4.2/3.5
<i>Otonycteris hemprichii</i>	[4.2]
<i>Pipistrellus kuhlii</i>	2.9
<i>Pipistrellus nathusii</i>	2.9
<i>Pipistrellus pipistrellus</i>	2.9/2.4
<i>Pipistrellus pygmaeus</i>	2.9/2.4
<i>Plecotus alpinus</i>	2.9
<i>Plecotus auritus</i>	2.9
<i>Plecotus austriacus</i>	2.9
<i>Plecotus kolombatovici</i>	2.9
<i>Plecotus sardus</i>	2.9
<i>Vespertilio murinus</i>	[4.2]
<i>Miniopterus schreibersii</i>	2.9/4.2
<i>Tadarida teniotis</i>	4.2