# *Harmonisation of the Care and Use of Wild and Domestic Mammals and Birds in Field Research*

**Gardermoen, 26 – 27 October 2017**

*A consensus statement from the participants*

## A. Introduction

An international consensus meeting was held in October 2017 to discuss the care and use of animals in field research. This was a follow-up of a meeting held in May 2008[1]. There were 32 participants, mostly from Norway (24), but also from three EU Member States: Sweden (4), Great Britain (3) and the Netherlands (1).

This document summarises the participants' views on topical aspects of field research. It is a consensus statement that has been circulated to all participants for approval.

The need for knowledge and policy decisions about wildlife management and research continues to increase due to many factors, including:

- conflicts with large carnivores
- public debate about management policies for wildlife
- the effects of climate change on many species
- the emergence of diseases in wildlife such as Chronic Wasting Disease in Cervids
- the development of transport and energy production infrastructures which fragment habitats

Management decisions have often to be made relatively rapidly, in contrast to the process associated with peer review and publication of scientific papers. Management decisions often lead to interventions at the individual level, normally to the detriment of the animal's welfare but arguably for the benefit of the species (although this is often strongly debated). Wildlife research, on the other hand, is more indirect and contributes to a body of knowledge which can be used by those making management decisions.

[1] https://norecopa.no/meetings/wildlife-2008

*The specific aims of the meeting were:*

- to provide a forum for dialogue between stakeholders (regulators, researchers and animal welfarists)
- to review developments since the last consensus meeting
- to address administrative, conceptual and societal changes in field research, and the interpretation of EU Directive 2010/63
- to identify tasks for Norecopa and others to further the implementation of the 3Rs (Replacement, Reduction, Refinement)[2] in field research

The meeting was organised by a committee consisting of representatives of:

- Norecopa[3]
- The Norwegian Veterinary Institute[4]
- The Norwegian Institute for Nature Research (NINA)[5]

The presentations held at the meeting are available on Norecopa's website[6].

**B. Developments since 2008**

Since Norecopa's previous consensus meeting[7] (where a consensus document[8] was also produced), there have been a number of important events related to field research:

1. New European legislation has been passed, in the form of EU Directive 2010/63[9]
2. The EU Directive's definition of regulated procedures has created a debate on the borderline between interventions purely for management purposes and those for scientific research – and how the former should be viewed in relation to the Directive
3. Norway has transposed the Directive by introducing a new regulatory system for all animal research[10]

**C. Legislative aspects of capture, marking, sampling and tracking animals**

Both the European Convention ETS 123 and the EU Directive 2010/63 have definitions of procedures on animals. These contain exclusion clauses. This is relevant to the ongoing

[2] https://norecopa.no/alternatives/the-three-rs
[3] https://norecopa.no
[4] http://www.vetinst.no
[5] http://www.nina.no
[6] https://norecopa.no/meetings/field-research-2017
[7] https://norecopa.no/meetings/wildlife-2008
[8] https://norecopa.no/media/6132/24consensus.pdf
[9] https://norecopa.no/legislation/eu-directive-201063
[10] https://norecopa.no/legislation

discussions on whether methods of tracking wild animals need to be approved by the authorities that regulate animal research:

- Directive 2010/63/EU states in Article 9(1) that *Animals taken from the wild shall not be used in procedures*, in Article 9(2) that exemptions may be granted *on the basis of scientific justification to the effect that the purpose of the procedure cannot be achieved by the use of an animal that has been bred for use in procedures* and in 9(3) that *the capture of animals in the wild shall be carried out only by competent persons using methods which do not cause the animals avoidable pain, suffering, distress or lasting harm*.

- Article 3 in Directive 2010/63 states that "procedure" means any use, invasive or non-invasive, of an animal for experimental or other scientific purposes, with known or unknown outcome, or educational purposes, which may cause the animal a level of pain, suffering, distress or lasting harm equivalent to, or higher than, that caused by the introduction of a needle in accordance with good veterinary practice.

- Article 1.5(e) in Directive 2010/63 states that the Directive shall not apply to '*practices undertaken for the* ***primary purpose of identification of an animal***', nor to '*practices not likely to cause pain, suffering, distress or lasting harm equivalent to, or* ***higher than, that caused by the introduction of a needle*** *in accordance with good veterinary practice'*[11].

Capture *per se* is not a regulated procedure when performed by competent persons using methods which do not cause the animals avoidable pain, suffering, distress or lasting harm. However it remains the case that capture is likely to be stressful. Project evaluators should consider how the capture methods to be used are as refined as possible (i.e. causing no avoidable pain, suffering, distress or lasting harm).

Many identification methods will cause more pain than a needle stick. Some identification devices can be also used as tracking devices. A crucial point in this connection is how the 'marking' or 'identification' of an animal is evaluated. Modern 3Rs principles should be used to consider whether the method (e.g. attachment of GPS collar) is the most refined and least invasive method of marking / identifying the animal, including whether anaesthesia should be used in that circumstance, regardless of whether it is performed for management or research

[11] https://norecopa.no/legislation/eu-directive-201063

purposes. The use of anaesthesia is not without harm and is likely itself to be a regulated procedure when used for scientific purposes (Article 2 (1)).

In wild animals, there are situations where, in addition, animals need to be *tracked*. Non-invasive identification methods such as DNA analysis of faecal pellets or visual observations do not always provide enough information, or are impracticable for tracking purposes.

Even if tracking devices are not used, many scientists will wish to collect additional data while they are handling animals taken from the wild – or they may do this anyway as part of the procedure (e.g. to monitor clinical parameters and blood values). These data can be analysed and published later, and therefore should be considered as scientific data.

If samples are taken for a scientific purpose by a method which reaches the threshold for regulation, the project falls within the scope of the EU Directive.

Marking or tracking of wild animals therefore involves two decisions:

1. Does the procedure need to be regulated (i.e. is it within the scope of the legislation)?
2. Who conducts a harm-benefit assessment and approves the procedure if it does need to be regulated?

The process of location, immobilisation and equipping of free-living animals with tracking devices, may involve for example, net or trap capture and/or physical or chemical restraint or the stress of a helicopter chase. Whether performed for management or research purposes, these interventions utilise the same procedures and thereby cause the same amount of harm to an animal, although performed under different legislative frameworks. Therefore, it is important to advance best practice in both areas. This is easiest to ensure if one authority has the responsibility for overseeing all these activities. This may, however, not be practicable or desirable in some countries if there is other legislation (in addition to the Directive) with which the use of wild animals needs to comply. This requires effective communication between the various competent authorities in such countries. These authorities can then also address the question of the purpose and/or justification of the procedure.

A complicating factor may be that some of the animals relevant to management issues and scientific research may be listed as specially protected or endangered species. For scientific research proposals, specific purposes are listed in Article 5 and special constraints for justification if the use of endangered animals are listed in Article 7 of Directive 2010/63.

Decisions as to whether a procedure falls within the scope of EU Directive 2010/63 are to be made on the basis of the purpose of the intervention: whether it is for management, conservation, husbandry, health monitoring or research. If, in the process of this work, data is collected from the animal using methods above the threshold for a procedure and analysed for primarily scientific purposes, the procedure falls within the scientific regulatory framework of Directive EU 2010/63, requiring approval from the animal research authorities. This has been confirmed in informal conversations with staff at the European Commission. The current debate in Norway on the tracking of wolves and reindeer for management purposes hinges therefore upon whether data *beyond that which is necessary to make management decisions* is collected using methods above the threshold. If it is, then such work falls within the scope of the Directive. Samples taken purely to provide information on an individual animal and/or its immediate peer group are likely be considered as part of the provision of veterinary care and not scientific research - assuming the information is in fact used for the benefit of these individuals. Such assessment should be carried out on a case-by-case basis. All procedures should be carried out using the best available techniques and following approved protocols, irrespective of the purpose, to optimise animal welfare.

We are aware that opinions on the scope of the Directive may differ from those held by scientists and the authorities regulating animal research, and that these may be influenced by local political considerations. As mentioned above, a procedure may fall outside the scope of the Directive if no scientific data are collected or if the collection methods are sub-threshold.

For example, conventional ringing of birds is performed routinely by trained and competent amateurs, under locally relevant legislation in a number of countries (e.g. under permits issued by the Norwegian Environment Agency, or the British Trust for Ornithology). This procedure is usually considered to have minimal impact on the animals and thus to fall below the threshold for regulation by EU 2010/63, although this was debated among the participants. The purpose of ringing is usually to gain knowledge about migration directions and wintering areas. Most participants agreed that this type of activity should usually be allowed to continue without being subject to *approval* from the authority regulating animal research.

However, it is an advantage both for animal welfare, the advancement of science and implementation of the 3Rs that all these procedures are regulated/overseen by the animal

research authorities, or discussed within networks with other national competent authorities licensing such procedures. The fostering of such national networks, and good communication between the National Committees for the Protection of Animals Used for Scientific Purposes (required under Directive 2010/63) can then play an important role in sharing best practice, both within the individual country and internationally.

***Action points:***

1. *We believe that decisions regarding capture, marking and tracking of wild animals should be made with input from the central animal research authorities irrespective as to whether this is for scientific purposes or for population management. Such procedures should comply with all relevant legislation. Interaction with other national competent authorities, where locally relevant, should be encouraged to ensure the most refined methods are used.*
2. *The National Committees for the Protection of Animals used for Scientific Purposes should share best practice, both within the country and internationally.*
3. *The capture and restraint of wild animals, whether it be to take samples, mark them, or equip them with tracking devices, should be well refined and justified. These procedures should be reduced to an absolute minimum and strenuous efforts made to replace them by using, for example, camera traps and other non-invasive sampling methods.*

**D. The role of veterinarians in field research**

The Norwegian Regulation on the use of animals in research (*Forskrift om bruk av dyr i forsøk*, 2015[12]) differs from the Directive in that the former requires that veterinarians chemically immobilise wildlife (§6), while the Directive states that handling of animals should be carried out by 'competent persons', not specifically those with veterinary training (e.g. Article 9-3 and Article 23). The regulations in other Scandinavian countries are similar to the Directive in this sense. Norwegian regulations accept that non-veterinarians may chemically immobilise animals provided that they have received sufficient training and have demonstrated their competence. However, this normally occurs in facilities where there is a veterinarian present who can intervene quickly if needed.

[12] https://lovdata.no/dokument/SF/forskrift/2015-06-18-761

This led to a debate at the meeting concerning the rationale behind these differences. The debate was to a large extent based upon the fact that some non-veterinarians have the technical expertise and equipment to conduct chemical immobilisation of wildlife. In some cases, the new Norwegian regulation may present severe obstacles to the conduct of research in remote areas or in field studies of extended duration, for which it may be difficult to recruit veterinarians with sufficient competence. The question remains as to whether non-veterinarians have sufficient competence to handle complications quickly, if these occur.

The meeting agreed that sufficient competence and equipment (e.g. for monitoring and surgery of anaesthetised animals, for providing emergency drugs and oxygen, and for suitable methods of euthanasia) is of prime importance when performing chemical immobilisation in the field. Although such competence and equipment in most cases resides with persons having a formal veterinarian training, the Norwegian Food Safety Authority has granted exemption from §6 in some cases, thus accepting that hands-on competence, rather than a formal title, is more important in securing adequate animal welfare.

The meeting agreed that whenever possible, specially trained veterinarians should conduct chemical immobilization, but it was accepted this was not the case in some countries. In these countries, trained and certified competent people (often trained by veterinarians) were permitted to perform these procedures. As well as being involved in experimental planning, veterinarians should also be involved in determining post-release monitoring, not only post-anaesthetic surveillance but also of longer-term health effects such as changes in movement patterns, body condition and mortality.

Another potential complication discussed at the meeting was the prescription of drugs for chemical immobilisation which requires compliance with other legislation. This has to be done by a veterinarian, who will be responsible for their use, even if he or she is not on-site. In some countries (e.g. Sweden) these drugs can also be ordered by a supervisor of animal research, who is then responsible for the use of the drug. These are often potent narcotics, and if a dart is lost during the attempt to immobilise an animal, or if complications occur with the use of the drugs, the responsibility lies with the prescribing veterinarian or supervisor, even if this person is not on site.

Good collaboration between veterinarians, scientists and other professions is the best foundation for successful field research and optimal animal welfare.

The issues of competence and availability of appropriate persons should be considered when evaluating an application to conduct field research.

**E. The use of collars, harnesses, tags and transmitters in field research**

Although great improvements have been made since the previous consensus meeting, there continue to be welfare issues concerning the use of collars, harnesses, transmitters and tags on free-living animals. It is imperative that scientists using these new methods share their experiences and publish methodological papers so that refinements are rapidly disseminated.

We are also concerned that insufficient attention is paid to the more subtle effects of equipping an animal with such a device. These effects may include increased drag, a shift in the centre of gravity, and higher energy expenditure due to the weight of the device. This may cause long-term alterations in the animal's natural behaviour and life history. Such changes can potentially compromise the animal's value as a research subject. These effects are likely to be greatest on relatively small animals and on those dependent upon rapid and unencumbered movement (either in the air, on land or in water).

***Action point:***

*Insufficient attention is being paid by some scientists to the physical forces and resultant energy expenditure caused by the site of attachment of external tracking devices, and to the design and placement of such devices. More careful consideration of these should be encouraged. Where undesirable effects and equipment failure occur, these (as well as descriptions of refinements to current techniques) should be published or otherwise disseminated.*

Efforts should be made to minimise or miniaturise all devices irrespective of the size of the animal. Local guidelines may assist in setting standards, but these should be continually reviewed to stay updated with technological advances. This applies to all species, but particularly those which expend much energy on locomotion (birds, aquatic animals and small mammals).

In large marine mammals, interventions are often performed without anaesthesia or analgesia. Devices may be attached for considerably longer than the time needed to collect data to satisfy the hypothesis to be tested. Project evaluators should consider how refinements will be applied to ensure least harm in these circumstances.

Where possible, tracking devices should be equipped with a drop-off capability so that the animal is not encumbered by the device for longer than is scientifically necessary. There is

still a need to refine the use of collars and harnesses for tracking animals, to minimise interference with the animal's natural behaviour, to improve drop-off reliability or capability, to avoid entrapment, to prevent rubbing or skin/tissue damage, to allow for growth and to prevent undesirable scenarios such as ice accumulation.

***Action point:***

*Scientists should liaise with industry to assist them to produce collars, harnesses, tags and transmitters which minimise impacts on animals as well as satisfying their requirements, rather than just accepting what is currently on the market.*

**F. Other areas in which novel thinking is needed include the following action points:**

1. *There is a clear need for an easily accessible inventory of field methods, including success and failure stories, preferably with a discussion forum.*
2. *Examples of severity classification (similar to those for procedures on fish[13]) are needed, to facilitate compliance with the requirements in EU Directive 2010/63.*
3. *New techniques, beyond physical marking, should be developed further. These include the use of camera-traps, drones and non-invasive DNA techniques.*
4. *More specific education in field research is needed, such as the module on wildlife under development by the Nordic Consortium for Laboratory Animal Science Education and Training, NCLASET[14].*

**G. The 3Rs and field research**

Field researchers should be encouraged to place emphasis on the 3Rs and a Culture of Care[15] when they present their findings at conferences. The 3Rs can easily be made explicit, as for example:

*Replacement:* non-invasive techniques

*Reduction:* better experimental design, more sample and data sharing and active collaboration between researcher groups

[13]https://norecopa.no/3r-guide/guidance-on-the-severity-classification-of-scientific-procedures-involving-fish
[14]http://www.nclaset.org
[15]https://norecopa.no/more-resources/culture-of-care

*Refinement:* improved methods for capture, handling, marking, anaesthesia, analgesia and sampling, to mitigate the harms of these procedures

Knowledge and experiences should be shared between laboratory and field workers, to stimulate creative lateral thinking. The PREPARE guidelines for planning animal research[16] can be helpful in this respect. These provide a list of topics, with links to specific guidelines for each topic, which should be considered when starting to plan any experiment which may involve procedures on animals.

***Action point:***

*More species- and situation-specific guidelines for field research should be produced. The exchange of experiences between scientific disciplines should be encouraged.*

**H. Other points**

- Wildlife research is now recognised as part of the One Health concept, as the study of disease transmission and population movements becomes more important. This should strengthen the perception of wildlife research in society and indirectly increase its quality if more resources are available
- Scientists should always consider the effects that their interventions may have on the animals' social interactions with conspecifics, as well as on their energy consumption which may affect, among other things, their predatory efficiency or their ability to escape from predators.

**I. General Conclusions**

1) The central animal research authorities should:
    a. *Work with other competent authorities where appropriate to make the decisions on whether a project involving wildlife falls within the scope of EU Directive 2010/63 or within the jurisdiction of other legislation (which may be controlled by other regulatory authorities)*
    b. *contribute to the sharing of best practices both nationally and internationally*

[16]https://norecopa.no/PREPARE

c. *collaborate with others if relevant to consider whether a procedure falls above or below the threshold for regulation*

2) Field researchers should:
   a. *apply correct implementation of the legislation on marking and field research*
   b. *encourage harm-benefit assessment of all interventions involving wildlife (this is a legal obligation if a procedure falls within the scope of the EU Directive)*
   c. *apply the 3Rs systematically at all stages*
   d. *promote advances in the 3Rs at scientific meetings*
   e. *publish failures as well as successes with their techniques*

3) Norecopa should:
   a. *arrange meetings on a regular basis where all stakeholders are represented, including regulators, researchers, relevant industries, veterinarians, animal technologists and welfare and conservation organisations*
   b. *be an arena for discussion of the improvement of all aspects of field research, including ethical issues and implementation of the 3Rs*
   c. *collect, review and stimulate the production of guidelines and protocols for field research*
   d. *communicate and liaise with the authorities on the issues mentioned in this document*
   e. *encourage other 3R centres to disseminate information on animal welfare in field research*

Summary of the Action Points in this document:

1. *We believe that decisions regarding capture, marking and tracking of wild animals should be made with input from the central animal research authorities irrespective as to whether this is for scientific purposes or for population management. Such procedures should comply with all relevant legislation. Interaction with other national competent authorities, where locally relevant, should be encouraged to ensure the most refined methods are used.*
2. *The National Committees for the Protection of Animals used for Scientific Purposes should share best practice, both within the country and internationally.*
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4. *Insufficient attention is being paid by some scientists to the physical forces and resultant energy expenditure caused by the site of attachment of external tracking devices, and to the design and placement of such devices. More careful consideration of these should be encouraged. Where undesirable effects and equipment failure occur, these (as well as descriptions of refinements to current techniques) should be published or otherwise disseminated.*
5. *Scientists should liaise with industry to assist them to produce collars, harnesses, tags and transmitters which minimise impacts on animals as well as satisfying their requirements, rather than just accepting what is currently on the market.*
6. *There is a clear need for an easily accessible inventory of field methods, including success and failure stories, preferably with a discussion forum.*
7. *Examples of severity classification (similar to those for procedures on fish[17]) are needed, to facilitate compliance with the requirements in the new EU Directive*
8. *New techniques, beyond physical marking, should be developed further. These include the use of camera-traps, drones and non-invasive DNA techniques.*
9. *More specific education in field research is needed, such as the module on wildlife under development by the Nordic Consortium for Laboratory Animal Science Education and Training, NCLASET[18].*

[17]https://norecopa.no/3r-guide/guidance-on-the-severity-classification-of-scientific-procedures-involving-fish
[18]http://www.nclaset.org

10. *More species- and situation-specific guidelines for field research should be produced. The exchange of experiences between scientific disciplines should be encouraged.*