Field research: The animal welfare view

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Harmonisation of the Care and Use of Animals in Field Research

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Norwegian Animal Protection Alliance (NAPA)

Photo: USFWS
About NAPA

**Norwegian Animal Protection Alliance (NAPA)**
- Established in 2001
- Represents 8 local animal protection organizations.

Vision: A world where human activities do not involve intentionally causing suffering to other sentient beings.

In practice: Work non-violently to reduce the harm caused by humans - particularly in **farming** and **research**.

Dialog with **authorities, academia** and **industry**.
Consumer information to the **public**.

Represented in (amongst others):
- Norwegian Animal Research Authority
- Norwegian Council for Animal Ethics
- Norecopa - consensus platform for alternatives
- Relevant public consultations & working groups
Overview

The aim of this presentation is to:

• Present **ethical views** relating to field research.
• Outline **animal welfare** concerns.
• Offer **suggestions** to all stakeholders.

Focus will be on **biologging** (marking/tagging) as these are the most common techniques in Norway.

However, the views presented should also be relevant for other areas of field research. E.g.:

• Removal/addition of species to study ecosystems
• Manipulation of populations to study life histories
• Manipulation of individuals to study behaviour
• Removal of rare specimens for collections
Animal protection

“The question is not, Can they reason?, nor Can they talk? but, Can they suffer?”

Two main branches of animal protection:

- **Animal rights** - animals are sentient beings and “subject-of-a-life”, they have vital interests that humans must not override. Calls for an end to exploitation.

- **Animal welfare** - animals can suffer, their interests must be taken into account in relation to human interests. Work to end unnecessary suffering.

The distinction between these branches may vary from country to country.

Usually, the outcome of most peoples’ views and practices reflect a combination of these approaches.

"A consideration of ethical questions [...] involves applying to science itself the scientific spirit of scepticism, rationality, and a demand for evidence.”

Having ethical concerns about animal research is **not anti-science**. All areas of modern science are now required by society to adhere to ethical norms.

Science is seldom **value-free**. The questions asked, the methods used, and the conclusions reached, are influenced by ethics, religion, culture, politics, funding etc.

For example:
The scientific use of animal in research is based on the belief that humans have a privileged place in the world. One could argue that this makes the non-animal (alternatives) road to scientific progress harder to envisage, and less motivating to follow.

Animal ethics and nature management

"The welfare of wild animals has only occasionally been included in the formal consideration of sustainability of wildlife."¹

Nature management principles can conflict with animal welfare concerns. For example:

Conservation point of view: a lack of nature management is a threat to animal species or populations.

Animal welfare point of view: nature management often results in harm and suffering to individual animals.

Nature management principles could apply to individuals:
- **Precautionary principle**: when in doubt about welfare, give animals the benefit of the doubt.
- **Polluter pays principle**: the “cost” of avoiding animal suffering should be placed on the animal user.
- **Prevention principle**: the prevention of animal suffering should be integrated into management.

Animal ethics and field research

"Although most countries have ethical guidelines for research involving human subjects and other sentient animals, the ethical issues associated with field research have received little attention."¹

Field research has undoubtedly contributed greatly to the view that animals are **sentient beings**.

Better understanding of animals has in turn led to greater **public interest** in animal ethics.

Field research on wild animals continues to vary greatly in its invasiveness and thus also in its ethical acceptability.

By not paying proper attention to animal ethics, field researchers risk undermining their own public position.

Animal welfare concerns

”[...] researchers tend to choose markers that intuitively seem least likely to induce abnormal behaviour or survival, even though data supporting that assertion usually are weak or lacking.”

Wildlife studies are regularly carried out on the assumption that they have insignificant negative effects on the animals involved.

However, this assumption is often undocumented, thus raising legitimate scientific and animal welfare concerns.

The lack of systematic evidence from researchers, combined with anecdotal cases of animal suffering from other sources, amplifies public concern.

Effects of capture and restraint

"[...] animal capture and restraint is probably one of the most stressful situations that a wild animal can experience. [...] there is substantial literature on the radical physiological changes that accompany capture."¹

Capture and restraint can have short term and long term effects. However, usually only severe injuries or deaths are recorded and reported.

Other effects are seldom investigated:
• Avoidance of capture area
• Long term stress from restraint
• Long term injuries from capture
• Behavioural changes

“Reuse” of wild animals through recapturing and remarking is of particular concern.

Effects of attached devices

“Attaching or implanting devices to animals will always have an impact on physiology or behaviour, and this can be significant.”

A number of reviews show that far too little has been done to document effects:

**Withey et al.** reviewed 5 leading wildlife journals between 1972 and 2000. They found only 96 articles properly assessing effects of radiotransmitters.

**Murray & Fuller** surveyed 9 relevant journals for 1995. Of the 238 articles they found only 7% included information about marking effects.

**Godfrey & Bryant** surveyed all 1990 radio-tracking literature and found that only 10.4% of 836 studies directly addressed the effects of tags.

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Effects of attached devices (contd.)

"A common characteristic of marker evaluation studies is the use of subjective or qualitative measures of marking effects."\(^1\)

A wide range of effects have been reported:\(^1,2\)

**Growth**
- resulting from reduced hunting success

**Survival**
- vulnerability to predators (even poaching!)

**Health**
- increased parasite load

**Behaviour**
- increased grooming
- changed social relations

**Breeding success**
- biased mate choice
- reduced brood survival

**Movement**
- changed use of space
- change in migration time

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“ [...] finding no evidence for an effect of tags on survival does not prove that tags do not effect survival.”

Specific examples:

In Adélie penguins flipper-tags directly damaged flippers, increased swimming costs by 24%, decreased survival in the first year after banding by 28%, and may have accelerated decline of a dwindling colony by 3%.

In radio-collared Kit foxes, the post-collaring acclimation period was about 30 days. During this time there was body mass loss and reduced survival.

Chinook salmon with implanted transmitters were unable to pass a dam when heading up to spawning grounds, and eventually migrated downstream.

Alternatives

"The greatest scientific experiments have always been the most humane and the most aesthetically attractive, conveying that sense of beauty and elegance which is the essence of science at its most successful."\(^1\)

There is strong consensus that the 3R’s should be applied to all animal research.

Yet Replace, Reduce and Refine appear to be less frequently applied to field research:

- Fewer papers on the subject compared to laboratory research.
- No specialized databases for alternatives in field research.

A number of extra Rs have been proposed by animal protection organizations including:

- Redirection
- Rejection

Replacement

"Replacement means the substitution for conscious living higher animals of insentient material."\(^1\)

Unlike much laboratory research, the ultimate subjects of interest for most field research are wild animals themselves. In some cases computer modelling can do away with specific field experiments.

Replacement usually involves substituting invasive studies with non-invasive or hands-off research.

Examples:
- Faeces/hair for DNA/"stress hormone"/parasite analysis.
- Camera traps and remote weighing stations.
- Natural markings to identify individuals.
- Biometrics to identify individual animal by their tracks.\(^2\)

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Reduction

"Reduction means reduction in the numbers of animals used to obtain information of a given amount and precision."¹

Unlike laboratory research involving standardized animals, field research often involve relatively large numbers of wild animals under less predictable conditions.

However, practical constraints (eg. inaccessible or rare animals) can result in sample sizes being too small.

Examples of reduction in field research:
- GPS-tags give more data per individual than VHF-tags.
- Improved statistical methods can reduce numbers.
- Avoiding duplication of experiments.
- Pilot studies to ensure feasibility of larger projects.

Refinement has great potential in field research. Use of the best available technology and techniques to ensure that animals are harmed as little as possible for as short a time as possible.

Examples:
- Improved trapping and handling
- Drop-off collars for mammals
- Suction cups to attach devices to cetacea
- Smaller, lighter, more accurate loggers

More curious examples:
- Bloodsucking insects for blood sampling
- Radio-triggered anesthetic-dart collar for recapture

Redirection

“There are no right or wrong answers to many questions about how humans should treat animals. However, there are better and worse answers.”¹

Redirection is Replacement in a wider perspective. Redirection seeks to solve problems outside the realm of animal research - by political, social or other means.

An example from field research:
The arctic fox is an endangered species in Scandinavia.

In an attempt to boost numbers, experimental captive breeding has been undertaken in Norway. The project has been heavily criticized for animal welfare reasons.

In Sweden the approach no longer involves animal experimentation, but instead efforts have been redirected to supplementary feeding of wild arctic fox with promising results.

Rejection

"We must accept that ethics might dictate the demise of certain projects."  

Because something is doable, does not necessarily mean it should be done.

From an animal welfare point of view there are a number of instances where invasive procedures on animals should simply be rejected for ethical reasons. Or because suitable technology does not yet exist.

Candidates from field research:
- Certain capture techniques
- Amputation of functional body parts
- Implanted transmitters for mammals
- Force-fed transmitters for reptiles

Suggestions to stakeholders

"We will come to a consensus about ethics of specific practices only if we expose our differences to the light of day, and frankly discuss the issues that are involved.”

There is growing public concerns for the welfare of animals in field research.

These concerns need to be met by all stakeholders – field researchers, equipment manufacturers, regulatory bodies and animal protection groups.

We should more actively seek to pinpoint the shortcomings of present methods, rather than leaving it for the future to reveal.

Suggestions to academia

"Behavioural research, because it does not seem to contribute to human health or welfare, may be especially vulnerable to criticism.”¹

Field scientists tend to focus on mortality. More focus should be given to measures of reduced welfare - discomfort, pain, stress etc.

Animal welfare considerations and consequences should be more widely published. Also equipment failures need to be extensively reported.

Zoological societies should provide more specific, binding and progressive guidance on ethical issues of field research.

Scientific journals should promote high standards of animal welfare. More negative results need to be shared to avoid duplication. Journal of Negative Results in Biomedicine would be a good example to follow.²

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Suggestions to authorities

“Perhaps the way forward is for an assessment of the possible negative effects of intervention on individual animals to be included as an integral part of all research projects.”

Licensing bodies need to be more aware of animal welfare challenges in field research. Where information is lacking, they should encourage investigation.

Funding bodies should do more to support technique evaluation studies. Resources are wasted if poor animal welfare leads to bad science.

Authorities should regularly inspect field research. Otherwise it is difficult to evaluate if permits and protocols are practiced properly.

Authorities should encourage transparency in all areas of field research in order to stimulate informed debate.

Suggestions to manufacturers

"Collars do not always perform as advertised by the manufacturers. [...] We also commonly faced animal-welfare and ethical issues when recapturing grizzly bears with failed collars.”

Manufacturers of equipment should rigorously test products before they are used by scientists. Wild animals should not be a testing ground for new products.

Better information about reliability and margins of error should be made readily available to all parties involved with the application and regulation of field studies.

Developing “animal friendly” and “welfare monitoring” technologies should be a higher priority for wildlife equipment manufacturers.

Suggestions to animal protection groups

"Field studies contribute information on the complexity and richness of animal lives that is very useful to those interested in animal well-being and animal rights."¹

Animal protection organisations have traditionally focused on laboratory experiments.

Yet, in Norway at least, a large proportion of animal research is done on wild animals.

Fish often undergo treatments that would be unthinkable to do on mammals or birds.

Animal protection organizations should focus more on field research, and in particular research on fish.

In summary...

**Animal ethics** should be seen as a natural part of field research.

**Animal welfare** effects of field research should receive more attention.

The **5-R principles** should be more widely implemented in field research.

**All stakeholders** have a part to play to improve animal welfare.

Ultimately, **public perception** will be a measure of our success.
Essential reading


