

Guideline for field research of non-human primates

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I. Introduction

The effect of field research on study animals and their habitat is usually smaller than the effect of experimental research on captive animals; however, it is not negligible. Field researchers may inflict pain on study animals, for example by capture or field experiments. This guideline aims to minimize the abuse of and deterioration of their habitat caused by field research on wild non-human primates ('primates', hereafter). We hope that this guideline can be used as a manual so that field researchers treat their study subjects properly in view of animal welfare and conservation while conducting field research and studying primates in the wild.

Although this guideline is focused mainly on wild Japanese macaques, it is applicable to the study of other primates. This guideline should also be used when researchers study dead animals.

The target of this guideline is free-ranging primates, including provisioned populations. Studies on animals in zoos or open enclosures are not considered. Studies on those primates should observe the 'Guide for the Care and Use of Laboratory Primates/サル類の飼育管理および使用に関する指針' of KUPRI.

II. Selection of study subjects

Although inflicting pain on study subjects and alteration of the environment cannot be avoided in some situations, researchers should try to make the best use of their knowledge, obtained through their research, for the conservation of the study population and their habitat. Therefore, researchers should always try to broaden their perspectives not only of the primate study subjects but also of their habitat.

Many primate species are at risk of extinction. When making a research plan, researchers should always consider whether it is appropriate to study such primates to meet their research objectives.

If studying primates is not necessary and the impact on the study subjects and their habitat is significant, researchers should not choose these primates as study subjects. Even if studying primates is essential, they should choose captive ones whenever possible. Captive animals are under strict control, so it is possible to obtain more precise results. We need to try to minimize the pain imposed on study subjects and any alteration of their lives, even if it is necessary during research.

Even if the research is non-invasive, such as behavioral observations, researchers should try to minimize the effect on the subject animals' normal behavior and the risk of disease transmission from observers, giving consideration to the species-specific

characteristics of the subjects. When researchers interfere with the study subjects through provisioning, playback experiments, etc., they are requested to carefully examine the possible impact on the behavior and health condition of the subject animals. Decisions should be made based on the necessity of the interference and general consensus among the researchers' community. The frequency and the number of subject animals should be minimized, whenever such interference is performed.

III. Observation of laws and social responsibility

Researchers should observe relevant laws, whether domestic or international, at any stage of research activities, including behavioral observations and collection of samples.

1. Domestic laws

According to the 'Wildlife Protection and Hunting Law of Japan' (鳥獣保護および狩猟に関する法律/Choju hogo oyobi shuryo ni kansuru horitsu), capture-and-release is regarded simply as capture; therefore, researchers must obtain the 'permission of capture for scientific purposes' (学術捕獲許可/Gakujutsu hokaku kyoka) from the governor of the prefecture. Ketamine is registered in the narcotics control law of Japan, and researchers should observe legal regulations pertaining to its use. When researchers keep captured animals for more than 29 days or transfer them to another party, a 'breeding permission' (飼養許可/Shiyo kyoka) form is required. It is prohibited to transfer animals that are illegally captured, so researchers should try to obtain the appropriate permission before the animals are first captured. Special permission is required for capture of natural monument species (天然記念物/Ten-nen kinen butsu) or in National Parks (国立公園/Kokuritsu koen), from the Commissioner for Cultural Affairs (文化庁長官/Bunka-cho chokan), Minister of the Environment (環境大臣/Kankyo daijin), or governor of the prefecture.

When conducting research outside of Japan, researchers are required to observe the laws of that country, with an understanding that each country has different regulations.

2. International laws

All primates are listed in the CITES Appendix I or II. Therefore, when introducing primates other than Japanese macaques as study subjects, researchers should confirm that they were born in Japan or imported by regular procedures, such as by import permits.

Even if researchers import captive-bred individuals, it is possible that the source is a wild population from which the capture was made in an unsustainable manner.

Import of primates may promote poaching in the habitat countries. It is important for researchers or institutes to register and publicize the source and use of primates in order to facilitate conservation. Researchers need to realize that observation of laws may not be sufficient for effective conservation of wild primates, and they should make conservation efforts at an international level.

3. Pest control

Japanese macaques are extensively captured for pest control (有害鳥獣捕獲/Yugai choju hokaku), although this entails problems in terms of conservation. The capturer has ownership of the captured macaques, and commercial trade is not prohibited. Due to the large potential demand for macaques for experimental research, wild Japanese macaques are being supplied for experiments in illegal ways. Nowadays, there is a consensus that only captive-born macaques should be used for experimental research, both within and outside of Japan, including at KUPRI. As a result, at KUPRI, we have established a self-supplying system, and in principle we do not use macaques captured for pest control in experimental research. If we do use such macaques, we confirm 1) capture was effective in decreasing crop raiding; 2) there was no effective alternative; 3) there was no significant impact on the conservation of the population. If even one of these conditions is not met, we should not introduce the captured animals, even if the capture was legal. Researchers should not help to transfer macaques out of Japan, either directly or indirectly, when the animals were captured and traded in an inappropriate manner.

IV. Capture, sample collection and drug administration

1. Capture

Researchers need to verify that capture is indispensable for their research, including temporary capture for release. If capture is not essential, it is desirable not to capture.

Cage traps and net traps are usually used to capture Japanese macaques. Traps are made of metal, wood, metal nets, fishing nets, etc. When an animal enters inside, one or more doors are closed. The traps have to be safe and effective so as not to injure animals or accidentally clasp a body part of the captured animal.

Traps should be checked frequently. Researchers need to determine the proper number of traps, in consideration of the available manpower to check traps and the conditions of each study site.

When capturing animals with nets, researchers need to act immediately so that

animals do not get panicked and injured.

Adequate knowledge of anesthetics and support from other researchers are required when using a tranquilizer gun, blowpipe and dart, or bow and arrow, in order not to kill the animal and to follow the animal until it is fully anesthetized. The supervision by veterinarians who have sufficient experience with wildlife is essential.

2. Keeping and carrying captured animals

Post-capture treatment needs to be conducted out of the sight of other animals. Pain, injury and stress need to be minimized during the treatment. When an increase in body temperature or frequency of respiration and heartbeat is observed immediately after the capture, post-capture treatment needs to be delayed until the animal's conditions become normal.

Captured animals need to be kept in a cage with adequate ventilation and space. Captured individuals need to be kept separately so that injuries are avoided and they can consume enough water and food. Keeping animals in bags, such as hemp bags, should be avoided because respiration is inhibited and animals may bite researchers and other captured animals. Mother and young offspring sometimes need to be kept separately, since infants can be crushed to death under an anesthetized mother. Caged animals should be kept at an appropriate temperature, without exposure to direct sunlight, wind or rain. They need to be observed as frequently as possible. When they are kept for a long time, they need to be supplied with sufficient water and food. Researchers have to try to enrich the captive conditions so that the requirements of the 'Guide for the Care and Use of Laboratory Primates/サル類の飼育管理および使用に関する指針' of KUPRI and the Act on Welfare and Management of Animals (動物の愛護及び管理に関する法律/Dobutsu no aigo oyobi kanri ni kansuru horitsu) are satisfied. It is not desirable to keep temporarily captured animals for a long time. However, when it is inevitable, researchers have to minimize physiological changes, such as deterioration of muscular strength due to insufficient exercise and preferences for crops, which may promote crop raiding when the animal is released.

3. Collection of samples from living animals

Sampling of blood and tissues from living animals needs to be minimized, and preferably it should be done by experienced and well-trained researchers. In order to avoid infection, sampling should be done with sufficiently sterilized equipment in as clean an environment as possible. To minimize localized pain during sampling, anesthetics are occasionally required. If the pain is not so severe or only temporary, it

is better to release the animal as soon as possible rather than to anesthetize it. Sufficient examination is required in deciding whether to anesthetize the animal. When conducting general anesthetics, observation of the anesthetized animal should be conducted very carefully, and it should not be released until it is fully awake.

4. Marking animals

Marking enables re-identification of captured animals in the wild. Radio telemetry is used to locate and measure activity rhythms of the released animals. When marking, pain, damage, and constraints on the animal's daily life need to be minimized.

Researchers need to consider the following points for each method:

- a. Tattoos: Be careful to avoid bacterial infection when tattooing.
- b. Freeze branding: Be careful about bacterial infection. Proper training is needed in advance.
- c. Ear tag: Animals may tear this off along with their ears.
- d. Collar, plate and banding: When attached to young individuals, researchers need to recapture them and remove it or attach one that will deteriorate and detach itself in a few years. Do not attach anything that may injure the animal's body.
- e. Ear or finger cut: Rarely used in primates. They are difficult to distinguish from naturally occurring injuries, such as by fights with other animals, so they are not effective. In no case should a finger cut be made for primates because it significantly interferes with their locomotion and feeding.
- f. Radio transmitter: The weight must be less than 1/10 or 1/20 of the animal's weight. It is better to continue observation as long as it is attached.

5. Release of captured animals

When releasing captured animals, researchers need to ascertain the survival of released animals and minimize the impact to the animal population where the captured animal is released. As a rule, animals must be released at the place where they were captured. Except when an operation or other surgical treatment is conducted, animals should be released on the same day of the capture. Release of animals kept for a long time should not be done because their behavior may have already changed.

6. Collection of samples

When collecting samples, researchers need to make efforts to confirm that sampling and transportation are conducted legally and the animal is treated in an appropriate manner from the viewpoint of animal welfare. When buying from traders, researchers

need to request that they show their capture permission and/or breeding permission in order to prevent irresponsible activities.

Regardless of whether collection is from living animals or dead bodies, it is necessary to confirm whether the animal is wild- or captive-born as well as its origin and history.

7. Keeping samples

Carcasses of wild-derived animals have potential as future study subjects.

Researchers are required to save them as samples in a way that is widely accessible for other researchers, such as in KUPRI, museums, or other research institutions.

8. Euthanasia

If killing animals is inevitable, it should be done as quickly as possible, without pain.

In general, euthanasia is conducted by injection of excessive dosages of barbitol anesthetics into a vein. The cessation of respiration and heartbeat needs to be confirmed. After sampling, the carcass should be kept frozen or immersed in the appropriate chemicals so that other researchers can use it in the future.

9. Considerations on the health of captured animals

Various types of amphi xenoses are known to exist between humans and primates.

Researchers need to pay attention to the potential risk of disease transmission. Direct contact with not only the animal but also sampled blood, tissue and excretion should be avoided. When bitten by an animal or having pricked yourself with a hypodermic needle, the wound should be washed immediately with water and sterilized, such as with a tincture of iodine.

Attention should also be paid to possible infection from observers to captured animals.

10. Drug administration and dosage (other than anesthesia)

Drug administration to wildlife should not be conducted, unless permission is obtained from managing governmental organizations and institutions, because of possible undesirable side-effects of the drugs and also long-term impacts on the ecosystem.

When it is conducted, careful consultation with veterinarians about the administration of the drug and its dosage, before, during and even after administration, is essential to avoid incident.

V. Public engagement

However scientifically significant particular research may be, its significance is not readily understood by the public. Field studies are conducted in an open space, and the activities of field researchers are sometimes difficult for non-researchers to understand. It is important to try to publicize research activities to the local people.

For example, giving a presentation at a school using slides or video is one of the best ways of doing so. It is an effective method to advertise the significance of the research, and may also be useful for collecting information on the study subjects. When capturing animals, special consideration is required in order to show that the capture is legal, e.g. displaying photocopies of the capture permit. Similar considerations are required for samples gathered in the field.

VI. Implementation of this guideline

For the effective implementation of this guideline, members of KUPRI and researchers in the Cooperative Research Program of KUPRI need to do the following:

a. When they wish to capture wild primates, they have to submit a research plan to the Field Research Committee of KUPRI in advance and obtain its permission. They have to indicate their research objective and method of capture (type of trap, method of anesthetics, type and weight of attached transmitter), along with a photocopy of the application forms submitted to the appropriate ministry, prefecture, and other related organizations. They also have to indicate a method of minimizing injuries to primates during capture and describe how they will announce their work to local people.

b. When drug administration (other than anesthesia) is conducted, the researchers are requested to submit a research plan to the Field Research Committee of KUPRI in advance and obtain its permission. They have to indicate their research objective and method of administration (type of drug, dosage, and the method of administration), along with a photocopy of the application forms submitted to the appropriate governmental authorities, and other related organizations.

c. When introducing living primates from outside of KUPRI, the following documents must be submitted to the Animal Welfare and Animal Care Committee of KUPRI (copies are acceptable). In the case of primates other than Japanese macaques, an import permit or other document is needed to show the birth and history of the individual. In the case of wild-derived Japanese macaques, a capture permit or breeding permit is needed prior to the time of its introduction to KUPRI. All introductions of living primates to KUPRI have to be conducted through the Center for Human Evolution Modeling Research.

d. When introducing the carcass of a primate from outside of KUPRI, the same

documents as in the case of living primates should be submitted to the Materials Committee.

e. When introducing samples derived from living or dead primates from outside of KUPRI, researchers must report to the Biosafety Committee.

VII. References

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VIII. Notice

KUPRI established this guideline in order to promote animal welfare and conservation during research on primates. This guideline is applicable to all members of KUPRI and researchers in the Cooperation Research Program of KUPRI. Researchers who wish to apply to the Cooperation Research Program of KUPRI are requested to read this guideline carefully. It is our hope that this guideline also be used as a manual for conducting field experiments.

Field Research Committee/野外研究委員会