

Guideline for field research of non-human primates

1989.3.8. Established

2001.2.14. Revised

2008.6.27. Revised

2008.7.1. Translated into English

2016.11.9. Revised

2018.12.12. Translated into English

2019.5.17. Revised

Primate Research Institute, Kyoto University (KUPRI)

Contents

I. Introduction

II. Selection of study subjects

III. Observations of laws and social responsibility

1. Domestic laws

2. International laws

3. Pest control

IV. Capture, sample collection and drug administration

1. Capture

2. Keeping and carrying captured animals

3. Collection of samples from living animals

4. Marking animals

5. Release of captured animals

6. Collection of samples

7. Keeping samples

8. Euthanasia

9. Considerations on the health of captured animals

10. Drug administration and dosage (other than anesthesia)

V. Public engagement

VI. Operations of this guideline

VII. References

VIII. Notice

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 are requested to obtain the necessary permission to carry out field research, including entry permit (to the Forestry Agency, in case of national forests in Japan), collection of plants and non-invasive samples from subject animals, hosting research facilities, the related governmental agency or the land owner.

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. According to the Invasive Alien Species Act (外来生物法), rhesus, long-tailed and Taiwanese macaques and their hybrids with Japanese macaques are regarded as special invasive alien species (特定外来生物) in Japan, and researchers are requested to follow the regulations of the law.

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

For the purpose of regulating international trade of endangered species, all primates are listed in the CITES Appendix I or II. Therefore, when introducing primates other than Japanese macaques as study subjects, and when importing their derivative

samples, researchers should confirm the legal procedures of the country and obtain necessary permission.

The Convention on Biological Diversity (CBD) stipulates the the sovereign right of States over their natural resources and fair and equitable sharing of the benefits coming from the use of genetic resources. Access to genetic resources and fair and equitable benefit sharing (ABS) is an obligation for all the members of the treaty, including Japan. Nagoya Protocol is the framework to implement ABS and legislation of domestic laws is an obligation for each signatory country. Researchers are requested to follow the laws of the country when exporting samples.

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. 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. Researchers are requested to follow the rules of ‘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) on the structure of the traps.

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. 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.
- c. 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.
- d. Radio transmitter: The weight must be less than 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, from the viewpoint of conservation and animal welfare, researchers are requested to make all efforts to collect samples in a non-invasive way. When an invasive way is inevitable, 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 zoonoses 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 'Application for Field Research Permission' 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 and/or the permission from 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. If the applicant is not the person who obtained the permission from the governing organization and when it is difficult to obtain a photocopy of the application/permission, they are requested to explain in as much detail as possible, including the name(s) of the person-in-charge of the capture, his/her contact number, permit number, and the date of the permission. It is possible to submit the form to the Field Research Committee before the plan is approved by the governing organization. However, final approval by the committee is made only after the permission from the government is confirmed. When the researchers receive samples directly from the governing organization and do not capture animals by themselves, they are not requested to submit the 'Application for Field Research Permission' to the committee.

b. When drug administration (other than anesthesia) is conducted, the researchers are requested to submit 'Application for Field Research Permission' 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 and/or the permission from the appropriate governmental authorities, and other related organizations. When approval from the governing organization is not obtained at the time of submission of the forms to the committee, the applicants are requested to follow the same procedures in the case of capture.

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

European Biomedical Research Association, 1996. The supply and use of primates in the EU. EBRA Bulletin. (http://www.ebra.org/bulletin/july02_96.html)

Animal Care and Use Committee, the American Society of Mammals, 1998. Guidelines for the Capture, Handling, and Care of Mammals as Approved by the American Society of Mammalogists.

(<http://www.mammalsociety.org/committees/commanimalcareuse/98acucguidelines.pdf>)

Anonymous, 2006. Guidelines for the treatment of animals in behavioral research and teaching. *Animal Behaviour*, 71: 245-253.

池田啓・花井正光 1988. 野生鳥獣の捕獲と関連法令上の手続きについて. *哺乳類科学* 28: 27-38.

京都大学霊長類研究所、1986. 「サル類の飼育管理および使用に関する指針」

(社)大日本獺友会、2000. 「鳥獣保護および狩猟に関する法令集」(鳥獣保護法、種の保存法等関連資料を詳述、各年度毎に改訂される)。

環境省、2006. 「動物の愛護および管理に関する法律」。

通産省、1987. 絶滅のおそれのある野生動植物種の国際取引に関する条約(通称:ワシントン条約)に係わる輸出入手続き等について(特集)。通産省公報 1987年11月16日号。

環境省、2005. 「特定外来生物による生態系等に係る被害の防止に関する法律」

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