PROTOCOL FOR ANIMAL USE AND CARE
Email to: campusvet@ucdavis.edu

PROTOCOL: 9950
EXPIRES: 9950

Investigator Contact

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Species (common names): Number: Source:

| vervets     | Approx. 11 | Wild, free-ranging in Kenya |
| patas monkeys | Approx. 7  | Wild, free-ranging in Kenya |

Project Title: Comparative Ecology of Cercopithecine Primates

Overnight housing location: Free-ranging Day use only: [ ] Vivarium [ ] Investigator

Animals will be maintained by: [ ] Vivarium [ ] Investigator (If investigator maintained, attach husbandry SOP's.)

Procedures: Provide a one or two sentence layman's description of the procedures employed on the animals in this project. This information will help the animal care staff understand any conditions they may encounter while caring for your animals.

Non-invasive investigation of behavior and ecology of wild, free-ranging primates in their natural habitat in Kenya.

Special Husbandry Requirements: Describe any special requirements your animals have with respect to food, water, temperature, humidity, light cycles, caging type, bedding, or any other conditions of husbandry.

Natural food and water available; temperatures range from 40-90 degrees Fahrenheit; humidity ranges from 0-100%; light cycles roughly 12:12; no cages; bedding provided by trees

Other instructions for animal care staff: (check applicable entries)

<table>
<thead>
<tr>
<th>Sick Animals</th>
<th>Dead Animals</th>
<th>Pest Control</th>
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<tbody>
<tr>
<td>[ ] Call Investigator</td>
<td>[ ] Call Investigator</td>
<td>[ ] Call Investigator</td>
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<tr>
<td>[ ] Clinician to treat</td>
<td>[ ] Bag for disposal</td>
<td>[ ] OK to use pesticides</td>
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<tr>
<td>[ ] Terminate</td>
<td>[ ] Necropsy</td>
<td>[ ] No Pesticides in animal area</td>
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</table>

| Hazardous Materials (only if in the animal room): |
|-----------------|-----------------|-----------------|
| Infectious Agents? | [ ] Yes [X] No | Agent(s): |
| Radioisotopes? | [ ] Yes [X] No | Agent(s): |
| Chemical Carcinogens? | [ ] Yes [X] No | Agent(s): |
| Toxic Chemicals? | [ ] Yes [X] No | Agent(s): |

University of California, Davis
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Summary of Procedures:

a) Briefly describe the overall intent of the study. Include in your description a statement of your hypothesis, the objectives and significance of the study. Your target audience is a faculty member from a discipline unrelated to yours. Do not use jargon.

The overall intent of the study is to examine the behavior and ecology of vervets and patas monkeys, two closely related primate species, to understand the ecological causes of their divergent social systems. This is a non-invasive study relying on standard methodology for collecting behavioral and ecological data, including focal animal and scan sampling. This study will contribute to the growing database of information concerning the ecological factors that influence the behavior of mammals, especially non-human primates, and it will allow us to test hypotheses generated by evolutionary and ecological theory.

b) Procedures employed in this project:

Please check the appropriate boxes if any of these procedures will be employed in your project:

- [ ] Monoclonal Antibody Production
- [ ] Polyclonal Antibody Production
- [ ] LD 50 or ID50 studies.
- [ ] Catheters, blood collection, intubation
- [ ] Prolonged restraint, (8 hrs+)
- [ ] Fasting prior to a procedure.
- [ ] Food or water restriction
- [ ] Non-recovery surgical procedures
- [ ] Survival surgical procedures
- [ ] Multiple survival surgery
- [ ] Behavioral modification.
- [ ] Aversive conditioning.

- [ ] Death as an endpoint (see i below)
- [ ] Induced illness, intoxication, or disease
- [ ] Trapping, banding or marking wild animals

** If this protocol only describes antibody production, you may use the attached antibody production page in lieu of completing section c below.
c) Describe the use of animals in your project in detail, with special reference to any of procedures checked above. Include any physical, chemical or biological agents that may be administered. List each study group, and describe all the specific procedures that will be performed on each animal in each study group. Use terminology that will be understood by individuals outside your field of expertise. (Note: This cell will expand to whatever length you require. You may make this section as long as you wish, but try to be concise. Some projects may require one or two pages.)

Animals in one group of vervets and one group of patas monkeys will be observed without manipulation throughout the study except under the following condition:

1. Immature patas monkeys will be marked with Nyanzol D dye to identify them as individuals (estimated occurrence: one mark per immature animal every three-four months, as the dye wears off).

d) Study Groups and Numbers: Define, in the form of a table, the numbers of animals to be used in each experimental group described above. The table may be presented on a separate page as an attachment to this protocol if you prefer. The Normal format should be three columns: Study Group, Procedure, Number of animals. The number of rows should follow from the number of study groups; you may add as many rows as you require. The chart must fully account for the number of animals you intend to use under this protocol. Assign each group to an invasiveness category according to the chart below.

<table>
<thead>
<tr>
<th>Group</th>
<th>Procedures / Drugs</th>
<th>Number of Animals</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pata</td>
<td>Mark pelage with Nyanzol D dye</td>
<td>Depends on number of births; 3-7 estimated</td>
<td>1</td>
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</table>
### Categories of invasiveness

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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| 1 | Little or no discomfort or stress  
Examples: domestic flocks or herds being maintained in simulated or actual commercial production management systems; the short-term and skillful restraint of animals for purposes of observation or physical examination; blood sampling; injection of material in amounts that will not cause adverse reactions by the following routes: intravenous, subcutaneous, intramuscular, intraperitoneal, or oral. |
| 2 | Minor stress or pain of short duration  
Examples: cannulation or catheterization of blood vessels or body cavities under anesthesia; minor surgical procedures under anesthesia, such as biopsies or laparoscopy; short periods of restraint beyond that required for simple observation or examination, but consistent with minimal distress |
| 3 | Moderate to severe distress  
Examples: major surgical procedures conducted under general anesthesia, with subsequent recovery; prolonged (several hours or more) periods of physical restraint; induction of behavioral stresses such as maternal deprivation |
| 4 | Severe pain near, at or above the pain tolerance threshold  
Examples: exposure to noxious stimuli or agents whose effects are unknown; exposure to drugs, chemicals, or infectious agents at levels that markedly impair physiological systems and which cause death, severe pain, or extreme distress; Surgical experiments which have a high degree of invasiveness. |

Further descriptions of these categories are included in the instructions following this document.

e) **Rationale for species and numbers:** How did you determine that 1) the species choice was appropriate and 2) the number of animals in each study groups was the minimum number necessary to achieve sound scientific results?

1) The two species are sympatric and control for phylogenetic history is better than any other pairwise comparison within the primates.

2) The number of animals is determined by natural births/deaths/immigrations/emigrations

f) **Surgery:** If the project involves survival surgery, where will the surgery be conducted?

Building:  
Room:  
Who will be the surgeon?

g) **Anesthetics, Analgesics, Tranquilizers, Neuromuscular blocking agents:**

Post procedural analgesics should be given whenever there is possibility of pain or discomfort that is more than slight or momentary. If postoperative analgesics are not to be given, justify the practice under part (i) below.

Provide the following information about any of these drugs that you intend to use in this project.

<table>
<thead>
<tr>
<th>Species</th>
<th>Drug</th>
<th>Dose (mg/kg)</th>
<th>Route</th>
<th>When and how often will it be given?</th>
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h) **Neuromuscular blocking agents** can conceal inadequate anesthesia and therefore require special justification. If you are using a neuromuscular blocking agent, please complete the following:

Why do you need to use a neuromuscular blocking agent?
What physiologic parameters are monitored during the procedure to assess adequacy of anesthesia?

Under what circumstances will incremental doses of anesthetics-analgesics be administered?

i) Adverse effects:
Describe any potential adverse effects of the experiment on the animals (such as pain, discomfort; reduced growth, fever, anemia, neurological deficits; behavioral abnormalities or other clinical symptoms of acute or chronic distress or nutritional deficiency)

No experimentation will be done

How will the signs listed above be ameliorated or alleviated? If signs are not to be alleviated or ameliorated by means of post-operative analgesics or other means, explain why this is necessary.

Note: if any unanticipated adverse effects not described above do occur during the course of the study, a complete description of those effects and the steps taken to mitigate them must be submitted to the committee as an amendment to this protocol.

Is death an endpoint in your experimental procedure? [ ] Yes [ ] No
(Note: “Death as an endpoint” refers to acute toxicity testing, assessment of virulence of pathogens, neutralization tests for toxins, and other studies in which animals are not euthanized, but die as a direct result of the experimental manipulation). If death is an endpoint, explain why it is not possible to euthanize the animals at an earlier point in the study. If you can euthanize the animals at an earlier point, describe the clinical signs which will dictate that an animal will be euthanized.

j) Literature search for alternatives and unnecessary duplication:

Federal law specifically requires this section. You are required to conduct a literature search to determine that either 1) there are no alternative methodologies by which to conduct this class/lab, or 2) there are alternative methodologies, but these are not appropriate for your particular class/lab. “Alternative methodologies” refers to reduction, replacement, and refinement (the three R’s) of animal use, not just animal replacement. You must also show that this use of animals is not unnecessarily duplicative of other studies.

UC Davis provides on-line access to a number of databases that can be used to search for alternatives. Visit http://trc.ucdavis.edu/jawelsh/Databases/Databases_Med_Vet_Researchers.htm (email: jawelsh@ucdavis.edu)
or http://www.vetmed.ucdavis.edu/Animal_Alternatives/main.htm (email: mwwood@ucdavis.edu)

What was the date on which you conducted this search? Jan. 2002

List the databases searched or other sources consulted (there should be more than one). Include the years covered by the search.

<table>
<thead>
<tr>
<th>Database Name</th>
<th>Years Covered</th>
<th>Keywords / Search Strategy</th>
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<tbody>
<tr>
<td>Current Contents</td>
<td>1998-present</td>
<td>Vervets/patas/primates/competition/cooperation</td>
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<tr>
<td>Biosys</td>
<td>1992-present</td>
<td>Vervets/patas/primates/competition/cooperation</td>
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<tr>
<td>Personal expertise</td>
<td>1965-present</td>
<td>Vervets/patas/primates/competition/cooperation</td>
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What were your findings with respect to alternative methodologies?

No other studies are being conducted on sympatric vervets and patas and there are no alternative methodologies that would be more appropriate than the methodology described above.

Has this study been previously conducted?  [x] Yes  [] No

If the study has been conducted previously, explain why it is scientifically necessary to replicate the experiment.

The study has been conducted previously in that it is an on-going study. No experiments are being conducted.

k) Disposition of animals: At what point in the study, if any, will the animals be euthanized?

No animals will be euthanized.

l) Methods of euthanasia: Even if your study does not involve killing the animals, you should show a method that you would use in the event of unanticipated injury or illness. If anesthetic overdose is the method, show the agent, dose, and route.

<table>
<thead>
<tr>
<th>Species</th>
<th>Method</th>
<th>Drug</th>
<th>Dose (mg/kg)</th>
<th>route</th>
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m) Surplus animals: What will you do with any animals not euthanized at the conclusion of the project?

They will continue living in their natural habitat in Kenya.
Project Roster: Please provide the names of all the individuals who will work with animals on this project. This page will not be made available to the public. Give either the University Employee ID # or a valid UC Davis email address so that we can document training and occupational health compliance for regulatory agencies. Include all investigators, student employees, post-doctoral researchers, staff research associates, post-graduate researchers and laboratory assistants who will actually work with the animals. You don't need to include the staff of the vivarium in which your animals will be housed.

The principal investigator is responsible for keeping this roster current. If any staff is added or subtracted from this project, you must amend the protocol by sending the campus veterinarian a memo describing any changes.

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Occupational Health Program:
Supervisors must enroll their employees in the campus Occupational Health Program if the workers are at increased risk of illness or injury (such as allergy, physical injury, or infectious disease) because of their work. Enroll workers by having them complete an "Animal Contact History Form", available from Employee Health Services (phone 752-2330). For further information, visit our web site at [http://clueless.ucdavis.edu/health/](http://clueless.ucdavis.edu/health/) or read the UC Davis Policy & Procedure Manual 290-25.

Training:
Supervisors are responsible for insuring that their employees are adequate trained, both in the specifics of their job and in the requirements of the Federal Animal Welfare Act. EH&S offers free, basic wet labs in laboratory animal handling and techniques, and lecture format classes in the requirements of the Animal Welfare Act. To schedule a class for your unit, contact EH&S at 2-2364. Autotutorials are also available on the world wide web at [http://clueless.ucdavis.edu/](http://clueless.ucdavis.edu/).
Assurances for the Humane Care and Use of Vertebrate Animals:

Principal Investigator's Statement:

I have read and agree to abide by the UC Davis Policy and Procedure Manual section 290-30 (Animal Use and Care). This project will be conducted in accordance with the ILAR Guide for the Care and Use of Laboratory Animals, and the UC Davis Animal Welfare Assurance on file with the US Public Health Service. (These documents are available from the Campus Veterinarian and at http://ehs.ucdavis.edu/). I will abide by all Federal, state and local laws and regulations dealing with the use of animals in research.

I will advise the Animal Use and Care Administrative Advisory Committee in writing of any significant changes in the procedures or personnel involved in this project.

__________________________  __________________________  ________________
Principal Investigator        Rank / Title                   Date

Committee Use Only Below

** Conditions necessary for Committee Approval:

| ____________________________________ |
| ________________________________ |
| ________________________________ |
| ________________________________ |
| ________________________________ |

Final Disposition of this protocol:

_______ Approved
_______ Not Approved
_______ Withdrawn by Investigator

Date of Action: _____ / _____ / _____

I verify that the Institutional Animal Care and Use Committee of the University of California, Davis, acted on this protocol as shown above.

__________________________  ________________
Campus Veterinarian        Date
Antibody Production Project Description

If your project involves only antibody production, either polyclonal or monoclonal, you may complete this page in lieu of section c), project description.

c) Will these animals be used for antibody production? [ ] Yes [ ] No

1. Polyclonal or Monoclonal antibodies? If Monoclonal, will you be producing ascites tumors in the animals? [ ] Yes [ ] No

2. What type(s) of antigen will be used? Will the antigens be sterile?

3. What adjuvant will be used for the initial injection? What adjuvant will be used for subsequent injections?

4. What route will be used for injections? What anatomical location will be injected? How many injections at one time? How frequently will injections be given? What volume will be injected at each site?

5. Polyclonal Blood collection Procedures: Who will collect the blood? From what anatomical location? How frequently will blood be collected? Will the animals be sedated? [ ] Yes [ ] No

6. Will monoclonal antibodies be produced in mice bearing ascites tumors? How often will the animals be assessed for abdominal distention? How often will they be tapped? How many times will they be tapped? Will the animals be sedated for tapping?

Note: If you are producing monoclonal antibodies using ascites tumors in mice, section j), alternatives, must explain why an in-vitro system is not suitable for your study.

7. Sedation / Anesthesia for blood or ascites collection: If the animals will be sedated for either injections or collections, please indicate the species, drug, dose and route:

<table>
<thead>
<tr>
<th>Species</th>
<th>Drug</th>
<th>Route</th>
<th>Dose (mg / kg)</th>
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h) What criteria will be used to determine that the animals should be euthanized rather than continue to be used?
Each year, the US federal government requires a report from the campus in which animal projects are categorized as to degree of invasiveness. Please assist the IACUC in this determination by assigning the animal procedures in your project to one of the categories below. The US Government Principles Regarding the Care and Use of Animals state, “Unless the contrary is established, investigators should consider that procedures that cause pain or distress in human beings may cause pain or distress in other animals.”

1. **Experiments which cause little or no discomfort or stress**.

   **Examples**: domestic flocks or herds being maintained in simulated or actual commercial production management systems; the short-term and skillful restraint of animals for purposes of observation or physical examination; blood sampling; injection of material in amounts that will not cause adverse reactions by the following routes: intravenous, subcutaneous, intramuscular, intraperitoneal, or oral, but not intrathoracic or intracardiac (Category 2); acute non-survival studies in which the animals are completely anesthetized and do not regain consciousness; approved methods of euthanasia following rapid unconsciousness, such as anesthetic overdose or decapitation; short periods of food and/or water deprivation equivalent to periods of abstinence in nature.

2. Experiments which cause minor stress or pain of short duration.

   **Examples**: cannulation or catheterization of blood vessels or body cavities under anesthesia; minor surgical procedures under anesthesia, such as biopsies or laparoscopy; short periods of restraint beyond that required for simple observation or examination, but consistent with minimal distress; short periods of food and/or water deprivation which exceed periods of abstinence in nature; behavioral experiments on conscious animals that involve short-term, stressful restraint: short term exposure to noxious but non-lethal levels of drugs or chemicals. Such procedures should not cause significant changes in the animal’s appearance, in physiological parameters such as respiratory or cardiac rate, or fecal or urinary output, or in social responses.

3. **Experiments which cause moderate to severe distress or discomfort**

   **Examples**: major surgical procedures conducted under general anesthesia, with subsequent recovery; prolonged (several hours or more) periods of physical restraint; induction of behavioral stresses such as maternal deprivation, aggression, predator-prey interactions; procedures which cause severe, persistent or irreversible disruption of sensorimotor organization; the use of adjuvants which cause clinically evident swelling or abscesses.

Other examples include induction of anatomical and physiological abnormalities that will result in pain or distress: the exposure of an animal to noxious stimuli from which escape is impossible; the production of radiation sickness; exposure to drugs or chemicals at levels that impair physiological systems.

Note: procedures used in Category 3 studies should not cause prolonged or severe clinical distress as may be exhibited by a wide range of clinical signs, such as marked abnormalities in behavioral patterns or attitudes, the absence or grooming, dehydration, abnormal vocalization, prolonged anorexia, circulatory collapse, extreme lethargy or disinclination to move, and clinical signs of severe or advanced local or systemic infection, etc.

4. **Procedures which cause severe pain near, at, or above the pain tolerance threshold of unanesthetized conscious animals**

   **Examples**: exposure to noxious stimuli or agents whose effects are unknown; exposure to drugs or chemicals at levels that (may) markedly impair physiological systems and which cause death, severe pain, or extreme distress: completely new biomedical experiments which have a high degree of invasiveness; behavioral studies about which the effects of the degree of distress are not known; use of muscle relaxants or paralytic drugs without anesthetics; burn or trauma infliction on unanesthetized animals; a euthanasia method not approved by the American Veterinary Medical Association; any procedures (e.g. the injection of noxious agents or the induction of severe stress or shock) that will result in pain which approaches the pain

**The text of these categories has been freely adapted from a document originally published by the Canadian Council on Animal Care (CCAC).**
tolerance threshold and cannot be relieved by analgesia (e.g. when toxicity testing and experimentally-induced infectious disease studies have death as the endpoint).
ANIMAL ROOM SAFETY INFORMATION
Complete this form if you will be using biohazards, radioisotopes, carcinogens, or toxic chemicals in the animal room.

PROTOCOL #________
EXPIRES: ________

RUA#: ________  BUA#: ________  CCA#: ________

Identity of Hazard:__________________________________________________________________________

Investigator Last Name: ___________________________  Department: _____________________________
First Name: ___________________________  Phone: _____________________________
Email: ___________________________  Fax: _____________________________

Provide a short description of the agent:
__________________________________________________________________________________________

This agent / material is hazardous for: [ ] Humans only  [ ] Animals only  [ ] Humans and Animals
For which Animal Species?

[ ] Blood  [ ] Feces/urine  [ ] Saliva/nasal droplets  [ ] Does not leave animal
[ ] Other:

Describe any human health risk associated with this agent:
________________________________________________________________________________________

The precautions checked below apply to this experiment:
[ ] The researcher or his/her technicians are responsible for the feeding and care of these animals.
[ ] The following items must be assumed to be contaminated with hazardous material and must be handled only by the researcher or his/her technicians.
   [ ] Cage  [ ] Stall  [ ] Water Bottle  [ ] Animal Carcasses
   [ ] Bedding  [ ] Other:
   [ ] Cages must be autoclaved before cleaning.
   [ ] Label cages and remove label after decontamination.
   [ ] Animal carcasses must be labeled and disposed of as follows:
      [ ] Incineration  [ ] Biohazardous Waste Container
      [ ] Bag and Autoclave  [ ] EH&S will pick-up (2-1493).
   [ ] All contaminated waste (soiled bedding or other animal waste) must be properly labeled and disposed of as follows
      [ ] Incineration  [ ] Biohazardous Waste Container
      [ ] Bag and Autoclave  [ ] EH&S will pick-up (2-1493).

Personal Protective Equipment Required:
[ ] The following personal protective equipment must be worn/used in the room:
   [ ] Lab Coat/Coveralls  [ ] Shoe Covers/Booties
   [ ] Disposable Gloves  [ ] Head Cover
   [ ] NIOSH Certified Dust Mask  [ ] Disinfectant footbath
   [ ] Eye Protection/Face Shield  [ ]
   [ ] Fitted Respirator  [ ] Type: ________  Other: Describe:

   [ ] Personal protective equipment must be removed before leaving the room.
   [ ] Personal protective equipment must be discarded or decontaminated at the end of the project
   [ ] Hands, arms, and face must be thoroughly washed upon leaving the room
   [ ] Full shower, including washing of hair, must be taken upon leaving the room.
   [ ] Decontaminate Room (Inform ARS area supervisor when cage and/or room can be returned to general use).

Provide any other information needed to safely work in this room:
________________________________________________________________________________________