

TRACEY K. KUEHL, et al,)	
)	Case No. C14-2034-LRR
Plaintiffs,)	
)	
vs.)	
)	
PAMELA SELLNER, et al.,)	AFFIDAVIT OF PETER H. KLOPFER,
)	Ph.D., IN SUPPORT OF PLAINTIFFS’
Defendants.)	MOTION FOR SUMMARY JUDGMENT
)	

I, Peter H. Klopfer, declare that if called as a witness in this action I would competently testify of my own personal knowledge as follows:

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2. In addition to my study of captive lemurs, I have likewise conducted field work on wild lemurs in Madagascar, as well as other species throughout Central America and the Caribbean. I have published numerous articles in refereed scientific journals that describe some of my research with lemurs, some of which are catalogued in my *curriculum vitae*, attached as Attachment A. I have spent many seasons over more than a decade in the forests of Madagascar, where I have studied these animals under natural conditions.

3. Furthermore, I am, and have been for close to two decades, a member of the Duke University Institutional Animal Care and Use Committee (IACUC), which oversees all Duke University research with vertebrate animals to assure compliance with the United States Department of Agriculture (USDA) and National Institutes of Health standards for animal welfare.

4. This affidavit does not necessarily represent the opinions of the lemur and captive animal-related organizations of which I have been a part. Neither am I speaking on their behalf. However, I draw on my extensive experience with those organizations and from my professional background to support my analysis in this affidavit. More detailed information about my qualifications can be found in my *curriculum vitae*.

5. Because it is imperative that endangered animals such as the lemurs at the Cricket Hollow Zoo in Manchester, Iowa, are well cared for in captivity, I have agreed to participate as an expert in this case. In formulating my opinion, I have reviewed the following materials in preparing my opinion:

- a. USDA inspection reports of the Cricket Hollow Zoo;

- b. The defendant's initial production of documents, including materials related to the acquisition and breeding of lemurs, their primate enrichment program, veterinary records, and photographs;
- c. The defendant's responses to plaintiffs' interrogatories, including materials related to animal deaths and causes, daily care program, veterinary care program, etc.;
- d. The defendant's responses to plaintiffs' request for documents, including materials related to a lemur necropsy and lemur care;
- e. Deposition transcripts of the defendants and the defendants' veterinarian;
- f. Photographs and video of the lemurs and their cages at the Cricket Hollow Zoo, including those taken by an investigator and the USDA itself.

On the basis of my review of these materials, I conclude that the conditions under which the lemurs are being held at Cricket Hollow Zoo are unacceptable, harm and harass the lemurs, and severely compromise the lemurs' ability to survive and thrive.

6. The two species in question, *Lemur catta* (ring-tailed lemurs) and *Vareciea variagatus* (red-ruffed lemurs), are both species very familiar to me, both from field work and from studies in captivity. They are highly social animals, living in troops of eight to twenty animals, and ranging over many hectares. Both species have highly developed cognitive abilities and the capacity to suffer greatly—as measured physiologically by stress indices such as heart rate, electroencephalography (EEG) distortions, increased steroid levels, and other methods—when isolated or limited to a small area. Even in larger cages, which are clearly not the case at Cricket Hollow Zoo, these species require a variety of play or enrichment objects, which must be regularly changed. (See Ex. 1 at 0012–0014 (photographs of diminutive lemur enclosures

accompanying the Notice Letter)). The two species can be co-housed when their numbers are few, but they then require particularly large and tall cages: *Vareciea variagatus* prefers to be high in the canopy, while *Lemur catta* spends up to one-third of their time foraging on the ground. At Cricket Hollow Zoo, none of the housing arrangements for lemurs are designed to accommodate these preferences in the different species.

7. Single housing for either species is extremely stressful, again as measured physiologically, and single housing conditions like those at Cricket Hollow Zoo should never be permitted. Indeed, even the United States Department of Agriculture (USDA) regulations relating to animal care and use expressly forbid solitary housing of any social primate species (which includes lemurs) except when medically or scientifically justified. In contrast, the defendant's handwritten "Primate Enrichment Program" insists that the lemurs are housed individually because "they don't get along housed together." (Ex. 4 at 0302). Even a twosome is scarcely appropriate: *Lemur catta* is a female dominant species, so males are excluded from the social group except during the short mating period. Hence, at a minimum, a group would have to have space enough for two females, and if a male is to be present, that space would need to be tripled, at the least. The cages for the lemurs at Cricket Hollow Zoo are not anywhere near these bare minimum conditions. In my opinion, the housing conditions cause such appalling suffering for the lemurs there that on this basis alone I would insist that the lemurs be removed immediately from the facility. The housing of the lemurs at the defendants' zoo clearly constitutes harassment of these animals since it significantly disrupts their normal behavioral patterns and creates a likelihood of injury to them, is not a generally accepted animal husbandry practice in lemur care, and in my opinion fails to meet the minimum humane care and treatment standards.

8. Captive lemurs require constant and ever-changing stimulation. At the Duke

Lemur Center we change the lemurs' enrichment—the entirety of it—every few days. We provide our lemurs with swings, structures to climb on, objects to manipulate, and fresh vegetation. We likewise provide children's toys like stuffed animal, blocks, and balls, the same kinds of things that children or puppies might play with. Providing such stimulation is absolutely necessary since, as I said above, lemurs in the wild would be ranging over several hectares and would derive stimulation from the variety of their habitat. The USDA requires that an exhibitor or research facility provides this very environmental enhancement that promotes the psychological well-being of every nonhuman primate. In contrast to these federal requirements and the generally accepted practice of providing significant enhancement to ensure the psychological well-being of captive lemurs, the defendants provide very little enrichment. They offer their lemurs only “perches and branches,” (Ex. 4 at 0302), which likely never change, and enrichment related only to food, e.g. “PVC tubes with peanut butter and nuts,” (Ex. 4 at 0302). (*See also* Ex. 1 at 0012–0014 (photographs of lemur enclosures accompanying the Notice Letter showing scarcity of enrichment)). Such limited enrichment does not satisfy the intellectual needs of these nonhuman primates, injures their psychological well-being, and significantly disrupts their normal behavioral patterns. Failure to provide adequate enrichment for nonhuman primates is not a generally accepted animal husbandry practice for lemurs and in my opinion fails to meet the minimum humane care and treatment standards.

9. Lemurs can tolerate a wide range of temperatures but, as I know from my work at the Lemur Center, federal regulations limit the lower temperatures to a minimum that is well above the temperature that I understand to occur in eastern Iowa, and the temperatures at which I believe Cricket Hollow Zoo's lemur enclosures are maintained. To escape the cold, the Zoo's lemurs must access indoor shelter located inside the Zoo's “reptile house,” where they can see—

I understand from the Zoo's website—an alligator, a monitor lizard, and snakes, including a boa constrictor. (*See also* Ex. 8 at 0618 (photograph of alligator in reptile house)). In my opinion, to share indoor space with reptiles disturbs the lemurs, since in the wild they are preyed upon by crocodiles and snakes, and since even the home-raised captive lemurs at the Duke Lemur Center are terrified of such reptiles. In my opinion, to require a lemur to choose between suffering inclement conditions and the anxiety that accompanies such inappropriate cross-species encounters significantly disrupts their normal behavioral patterns and creates a likelihood of injury to them, and fails to meet the minimum humane care and treatment standards.

10. For the foregoing reasons, and especially on the basis of their solitary housing, as I have explained, I have concluded that the defendants' facility is entirely unsuitable for housing lemurs.

11. Beyond my opinion of the current conditions, I have been asked moreover whether allowing the zoo to increase their number of lemurs so as to provide a normal social environment might resolve the problems I have highlighted. In theory, a group of four to six animals in an enclosure of several hundred cubic feet might suffice. However, a space of less than several acres would have to have its contents frequently renewed so as to provide the requisite environmental enrichment, and food would also have to be varied to meet the dietary needs of these animals. For the following reasons, however, it appears to me highly unlikely that this particular zoo and its staff are competent to provide adequate care such that it satisfies the humane care and treatment standards, and does not harm or harass the animals:

- a. The attending veterinarian, by his own admission, has had no training or experience with lemurs. (Ex. 7 at 0540–0541 (Tr. J. Pries 112-115)). Primates in general require

specialized care and lemurs, with their aberrant diets and behavioral peculiarities, in particular. Our own Duke University Lemur Center veterinarians required many months of intensive internship before being deemed competent with lemur medical practice. Even the University's lab animal veterinarians, who are trained to deal with baboons, macaques and chimpanzees, find that they are unable to deal adequately with prosimian primates such as lemurs and lorises: specialized training is unquestionably needed.

- b. The fact that necropsies are not routinely performed when an animal dies indicates that the caretakers cannot possibly know the cause of an animal's death and thus cannot be prepared to treat recurrent diseases. (*See* Ex. 7 at 0541 (Tr. J. Pries 116:7–8); Ex. 7 at 0433–0434 (Tr. P. Sellner 188–190)). For example, there is testimony that two lemurs died of encephalitis but a necropsy was performed on only one of them. (Ex. 7 at 0433 (Tr. P. Sellner 187–88)). And it was further stated that there was no treatment possible for the lemurs who died of encephalitis. (Ex. 7 at 0541 (Tr. J. Pries 115:2–24)). In fact, there are several types of encephalitis, and at least one of these, of bacterial origin, is treatable, though absent an adequate necropsy of the diseased animal no one could know whether the death could have been avoided. The record suggests that the type of encephalitis was not identified, so it appears that a complete cytological and serological study of the tissues was not conducted. (*See* Ex. 4 at 0311 (“Tissues have been retained *if further testing for viruses or bacteria are warranted*” (emphasis added))). I might add that in 30 years at the Duke Lemur Center, with its hundreds of lemurs, I have never seen a single case of encephalitis. This is not a common condition, so its occurrence raises serious questions regarding the care and treatment of lemurs at the Cricket Hollow Zoo. The Duke Lemur Center always performs necropsies, cytological and serological

analyses of diseased animals, and this is standard practice in every Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) approved zoo that I have ever encountered. Failure to ascertain every cause of death, especially for endangered species such as these lemurs, is inexcusable and I believe demeans the protections for these species that laws like the Endangered Species Act are intended to provide.

- c. Further evidence of the caretaker's ignorance of aspects of lemur husbandry is seen in their description of trichinosis as due to something larger than a bacterium. (Ex. 7 at 0547 (Tr. P. Pries 139–140)). In fact, trichinosis is caused by a parasitic roundworm and it is, in my view, inexcusable for any animal establishment to house this parasite, which is easily controlled.
- d. Finally, the many USDA citations, stretching over several years, though not limited to the condition of the lemurs and their caging, demonstrate to me an inadequate understanding on the part of the caretakers of animal physiology and behavior, and even the most rudimentary principles of animal husbandry. At the very least, the USDA citations exhibit an utter lack of proper hygiene at the Zoo, resulting in environmental conditions that encourage the development and spread of disease. The unsanitary living conditions to which the Zoo's animals are routinely subjected will have given rise to the encephalitis and trichinosis outbreaks I reference above, not to mention many other probable outbreaks not identified by the caretakers, owing to their failure to necropsy the majority of their dead.

For the foregoing reasons, I conclude that the defendant's facility is neither currently suitable for housing lemurs nor could it become suitable to house lemurs in the future.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. I authorize electronic signature of this declaration and provide Plaintiffs' counsel with my original signature page.

/s/ Peter H. Klopfer, Ph.D.
Peter H. Klopfer, Ph.D.

Dated: May 31, 2015

ATTACHMENT A

**CURRICULUM VITAE
PETER H. KLOPFER, Ph.D.**

C.V.

Peter H. Klopfer

Personal

Born, August 9, 1930, Berlin, Germany

Married, 1955; 3 children

Education

B.A., University of California at Los Angeles, 1952 (with honors)

Ph.D., Yale University, 1957

Scholarships and Fellowships

Graduate Assistant, Yale University, 1953-1954; 1956

Postdoctoral Research Fellow, U.S. Public Health Service,
University of Cambridge, 1957-1958.

Elected Fellow, American Association for the Advancement of Science, 1963

Special Postdoctoral Fellowship, U.S. Public Health Service, 1964

Career Development Award, NIMH, 1965-1970

Elected Fellow, Animal Behavior Society, 1968

Research Scientist Award, NIMH, 1970-1975

Honors and Awards

Outstanding Professor Award, Duke University Student Association, 1968

Humboldt Award, Alexander von Humboldt Stiftung of the German Federal Republic,
1979-1980

United Negro College Fund, Disting. Prof. for 1985-86

Inaugural Lectures, Bolyai College, Eötvös University, Budapest, 1995

Samual Cook Society Distinguished Service Award, 2008

Professional Positions

Science Instructor, Windsor Mt. School, Lenox, Massachusetts, 1952-1953

Head, Science Department, Windsor Mt. School, Lenox, Massachusetts, 1956

Assistant Professor, Department of Zoology, Duke University, 1958-1963

Associate Professor, Department of Zoology, Duke University, 1963-1967

Professor, Department of Zoology, Duke University, 1967- present

Visiting Professor, Zoology Institute, Tel-Aviv University, 1970 (Spring)

Visiting Professor, Abt. Physiol.-verhalten, Tübingen University, 1979-1980
Visiting Professor, Institute for Veterinarian Science, Hebrew University, 1987
Visiting Professor, Zoologie, Universität Potsdam, 1992

Professional Offices

Regional

Executive Committee, American Friends Service Committee, Southeastern Region, 1967-74; 2003-2010
Executive Committee and Board of Directors, Carolina Friends School, 1963-2010
Collegiate Academy Representative, North Carolina Academy of Science, 1959-60

University

Undergraduate Faculty Council, 1959-64; 1988-89
Neuro-Sciences Curriculum Committee, 1965-66
Animal Care Committee, 1966-68
Academic Council, 1967-71
Organization for Tropical Studies Representative, 1967-82
Duke Chapter AAUP Secretary 1967-69
Director, Field Station for Animal Behavior Studies, 1968-73
Board of Directors, Student YM-YWCA, 1969-70
Institutional Animal Care and Use Committee, 1997- present

National and International

Behavioral Biology Panel, National Academy of Sciences, 1967-68
Associate Editor, Journal of Experimental Zoology, 1970-76
Editorial Advisor, Springer Verlag, 1970-1990
U.S. Representative, International Ethology Committee, 1967- 77
Experimental Psych. Panel, NIMH, 1972-76
Editorial Board, American Naturalist, 1972-76
Co-Editor, Perspectives in Ethology (Plenum Press) 1972-1994
Organization for Tropical Studies, Board of Directors, 1967-82
Board of Editors, International Journal of Comparative Psychology, 1995-2000

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within individual clutches of wild ducklings. *Zeitschrift für Tierpsychologie*, 19:183-190.

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