

Animal Welfare Challenges in Research and Education on Wildlife: A Natural History Museum Perspective

Adam W. Ferguson, PhD

Negaunee Collection Manager of Mammals

Field Museum of Natural History



Introduction

- Negaunee Collection Manager, Mammals
- 245,000 specimens (mice to elephants)
- Day-to-day care, access, support (80%)
- Research (20%)
 - Evolutionary Ecology
 - Biodiversity
 - Pathogen discovery
 - Rabies eradication (One Health)



PhD, 2014



Postdoc, 2014-2016



Inspiring Innovation and Leadership

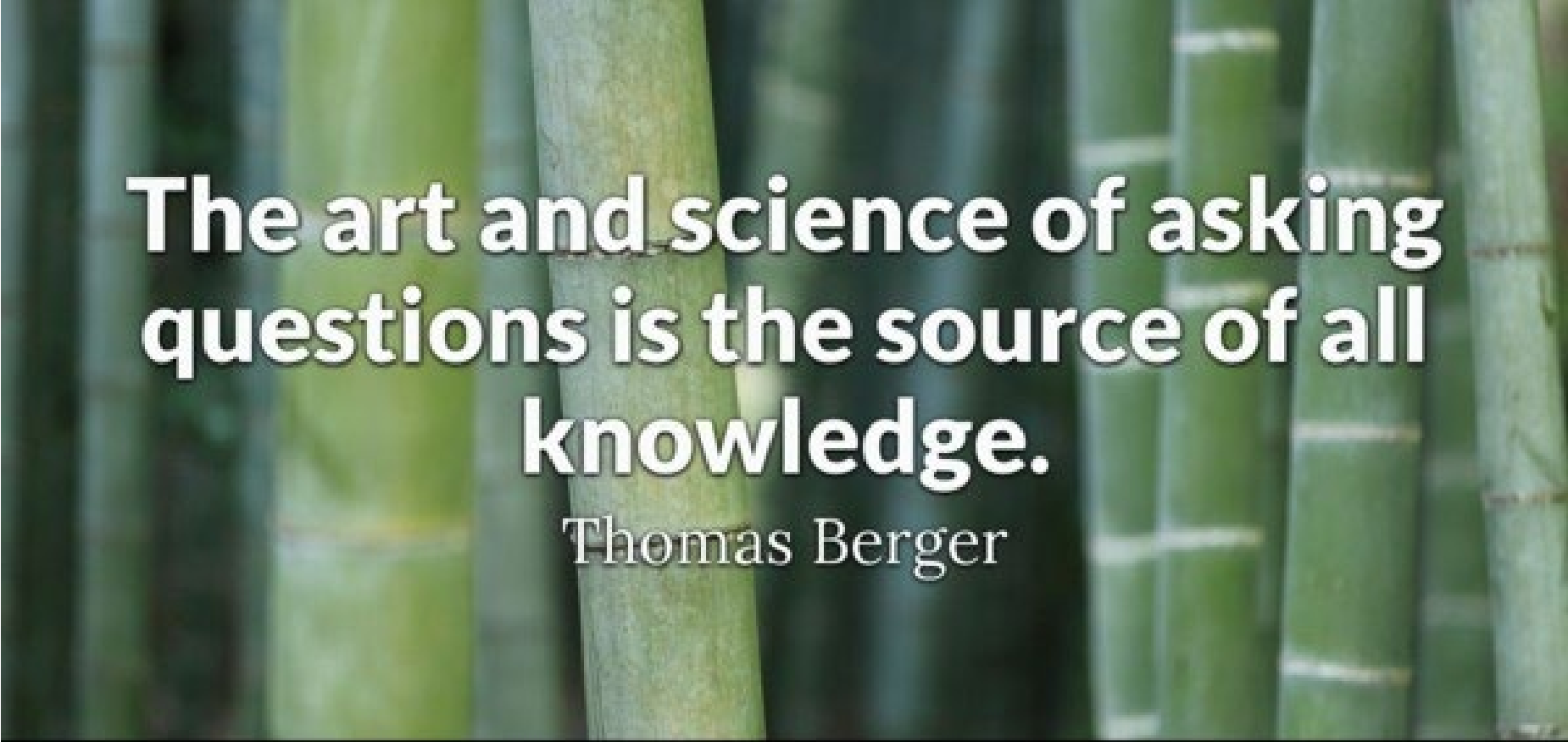


Fulbright, 2017



Coll Mgr, 2017-Present

Science starts with good questions



**The art and science of asking
questions is the source of all
knowledge.**

Thomas Berger

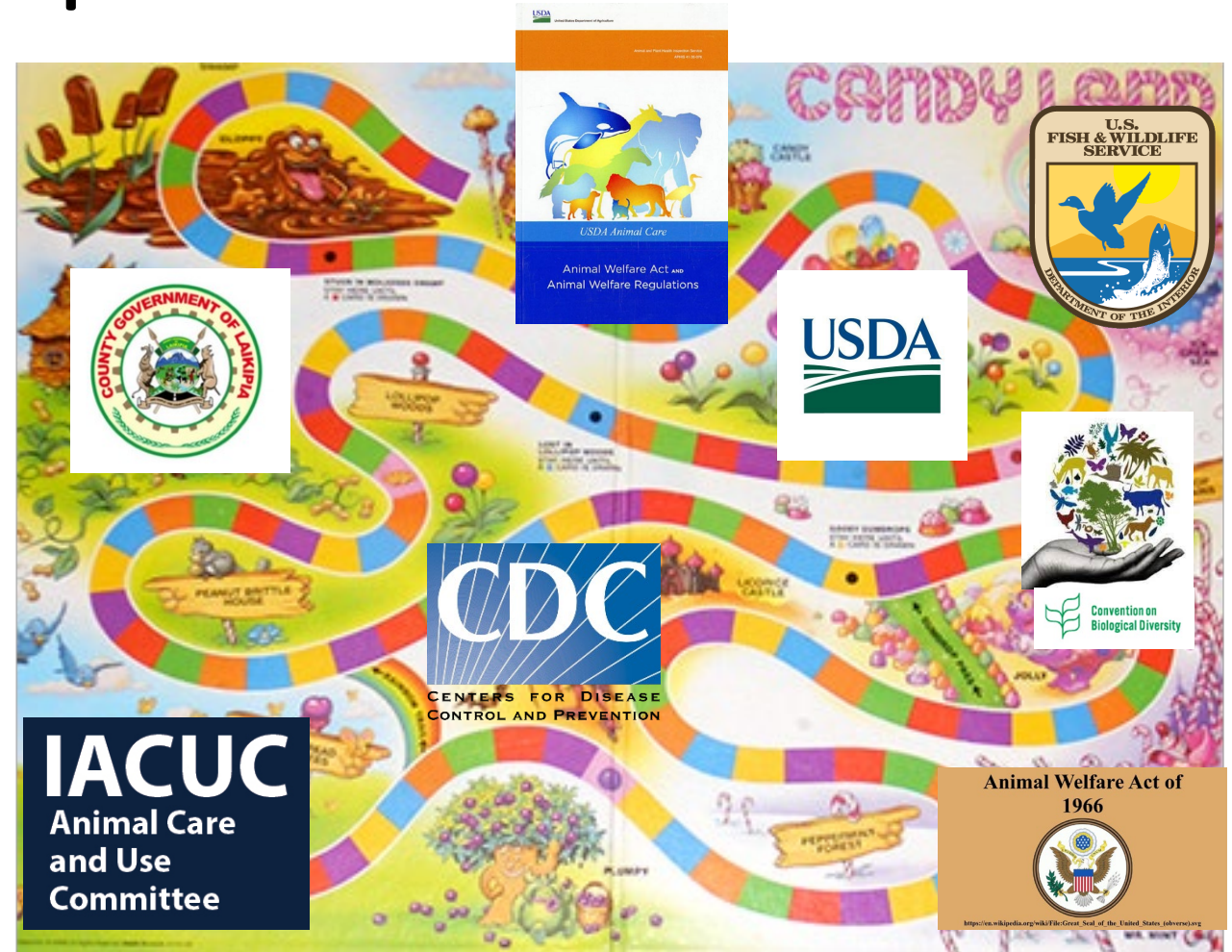
Reality of pursuing such questions...

Regulations Can Drive Research

- Which species to study
- Study objectives/methods
- Domestic or international
- Lethal vs non-lethal sampling

Emotions Can Drive Regulations

- Taxonomic bias
- Scientific resentment
- 'Who cares' factor
- Why do we still need to collect?



Museums = Specimens

- Losing species before we can describe them!
- “Next-Generation-Collections” facilitate studies of complex biological interactions (Schindel & Cook 2018)
- Holistic/Extended Specimens facilitate novel and interdisciplinary studies
- Modern studies impossible without ‘fresh material’
- Time capsules for studying change over time (disease, pollutants, extinction)

Ethics & Morality of Killing for Science

Scientific Collecting

Robert W. Loftin *

Scientists often collect (kill) organisms in pursuit of human knowledge. When is such killing morally permissible? I explore this question with particular reference to ornithology and against the background of animal liberation ethics and a land ethic, especially Mary Anne Warren's account that finds the two ethics complementary. I argue that the ethical theories offered provide insufficient guidance. As a step toward the resolution of this serious problem, I offer a set of criteria to determine when collecting is morally permissible.

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<http://museumvictoria.com.au/about/books-and-journals/journals/memoirs-of-museum-victoria/>

Value and impacts of collecting vertebrate voucher specimens, with guidelines for ethical collection

NICK CLEMANN¹, KAREN M. C. REW², KEVIN C. REW², TAREM RAADIK¹, MARTIN GOMON², PETER MENKHORST², JOANNA SUMNER², DIANNE BRAY², MARK NORMAN² AND JANE MELVILLE²



Permission to Collect is Taxonomically Biased



Regulations are Taxonomically Structured



**Division of Special Agents
and Toxins (DSAT)**



**Division of Global Migration
and Quarantine (DGMQ)**



Regulations not based on biology/science

- (f) A permit issued under this part is not required for an [item](#) if:
 - (2) **With the exception of bat or nonhuman primate specimens**, it is a diagnostic specimen not known by the [importer](#) to contain, or suspected by the [importer](#) of containing, an infectious biological agent and is accompanied by an [importer](#) certification statement confirming that the material is not known to contain or suspected of containing an infectious biological agent, or has been rendered noninfectious.



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Non-infectious

Regulations not based on biology/science

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Non-infectious



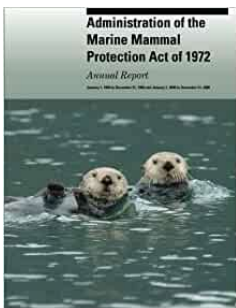
IACUC
Animal Care
and Use
Committee

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Division of Select Agents
and Toxins (DSAT)

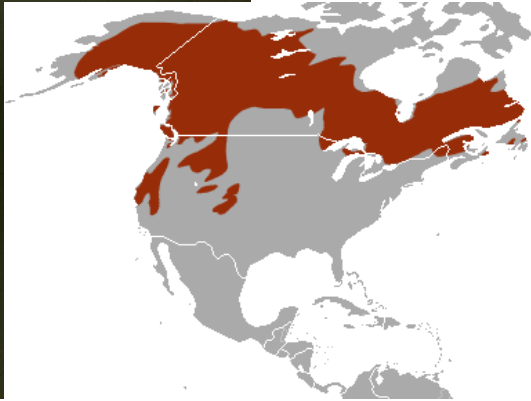


Division of Select Agents
and Toxins (DSAT)

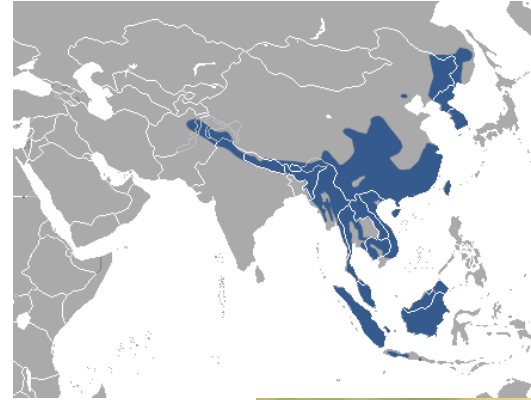


No longer attempt to collect/salvage specimens due to regulations

Tale of two martens...



American marten
Martes americana (Turton, 1806)

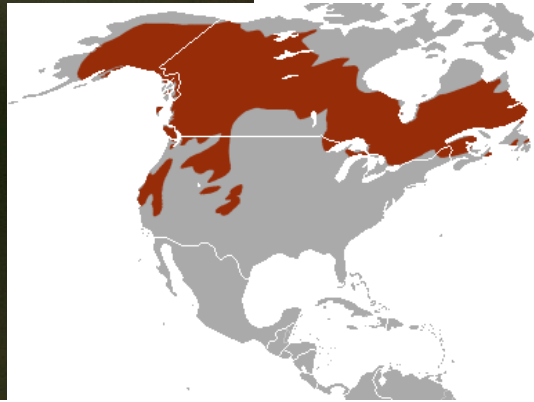


Yellow-throated marten
Martes flavigula Boddaert, 1785

Facilitates research

Hinders research

Tale of a two martens...



- Taxonomic/trophic status
- State regulations differ
- Domestic study
- Lethal study
- Non-CITES/ESA
- IUCN- Least Concern

American marten
Martes americana (Turton, 1806)

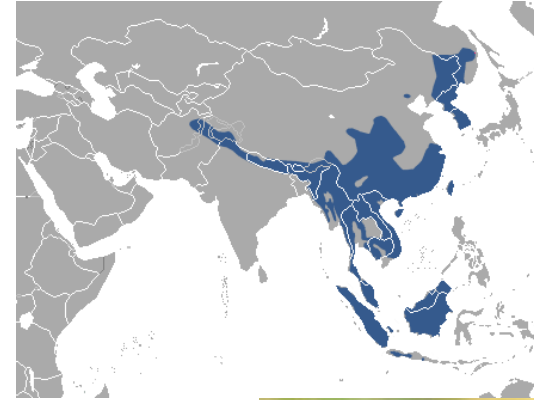


Tale of two martens...

- Taxonomic/trophic status
- International
 - Obtaining/transporting appropriate drugs
 - Specimen ownership
- CITES III (India)
- IUCN- Least Concern

Facilitates research

Hinders research



Yellow-throated marten
Martes flavigula Boddaert, 1785



The 3 R's of Animal Research



Replace

the use of animals
whenever possible

Reduce

the number of animals
needed to a minimum

Refine

tests to cause
animals the least
amount of distress



No substitute for physical specimen



Journal of Mammalogy, 92(1):235–253, 2011

Guidelines of the American Society of Mammalogists for the use of wild mammals in research

ROBERT S. SIKES,* WILLIAM L. GANNON, AND THE ANIMAL CARE AND USE COMMITTEE¹ OF THE AMERICAN SOCIETY OF MAMMALOGISTS

AVMA Guidelines for the Euthanasia of Animals: 2020 Edition*

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Collection of Scientific Specimens: Benefits for Biodiversity Sciences and Limited Impacts on Communities of Small Mammals ^{FREE}

Andrew G Hope, Brett K Sandercock, Jason L Malaney

BioScience, Volume 68, Issue 1, January 2018, Pages 35–42,

<https://doi.org/10.1093/biosci/bix141>

Published: 08 January 2018

Limits often subjective,
not based on species
biology

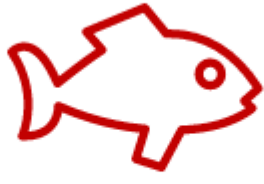
No testing, but guidelines exist/are refined

The 3 R's of Animal Research



Replace

the use of animals
whenever possible



Reduce

the number of animals
needed to a minimum



Refine

tests to cause
animals the least
amount of distress



Responsible
represent
research and
regulations to
match biological
reality

- Require deposition of incidental mortalities in a collection
- Regulate (justifiable) lethal take of animals based on biology
- Re-align regulations aimed at scientists to match other sectors
- Re-examine restrictions not founded in biological reality
- Reinforce effective communication/dialogue between scientists and regulators
- Recognize that regulations CAN hinder research



- Questions???
- Comments
- Suggestions
- Advice

