

Unique Challenges When Working With Free-Ranging Wildlife: Hummingbirds As A Case Study

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2022 ILAR Roundtable Wildlife Workshop

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Diplomate ABVP (Avian) and ACZM

- ▶ UC Davis School of Veterinary Medicine
- ▶ Trained at National Zoological Park, Washington, DC
- ▶ Veterinarian; Avian Specialty
- ▶ Director of UC Davis Hummingbird Health and Conservation Program



Working with Free-Ranging Wildlife: Unique Challenges

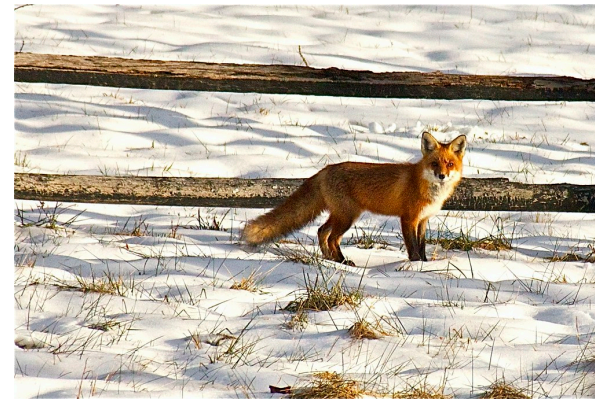
- ▶ Incredible diversity amongst free ranging animals
- ▶ Balancing the needs of animals, investigative team and research objectives



"King Snake" by Santa Monica Mountains National Recreation Area is licensed under CC BY 2.0



"Barred Owl Pair at Myakka River State Park (Explore)" by Photomatt28 is licensed under CC BY 2.0



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Bull Elk Look Across the Grassland" by Princess-Lodges is licensed under CC BY-NC-ND 2.0

Working with Free- Ranging Wildlife

Laying the Groundwork: Permits and IACUC Approval

Ingenuity: Necessary to achieve research goals

Meticulous Planning: Protecting the health and welfare of animals and research team.

Increased Commitment: More time devoted to “normative” tasks.

Working with Free-Ranging Wildlife: Hummingbirds As A Case Study

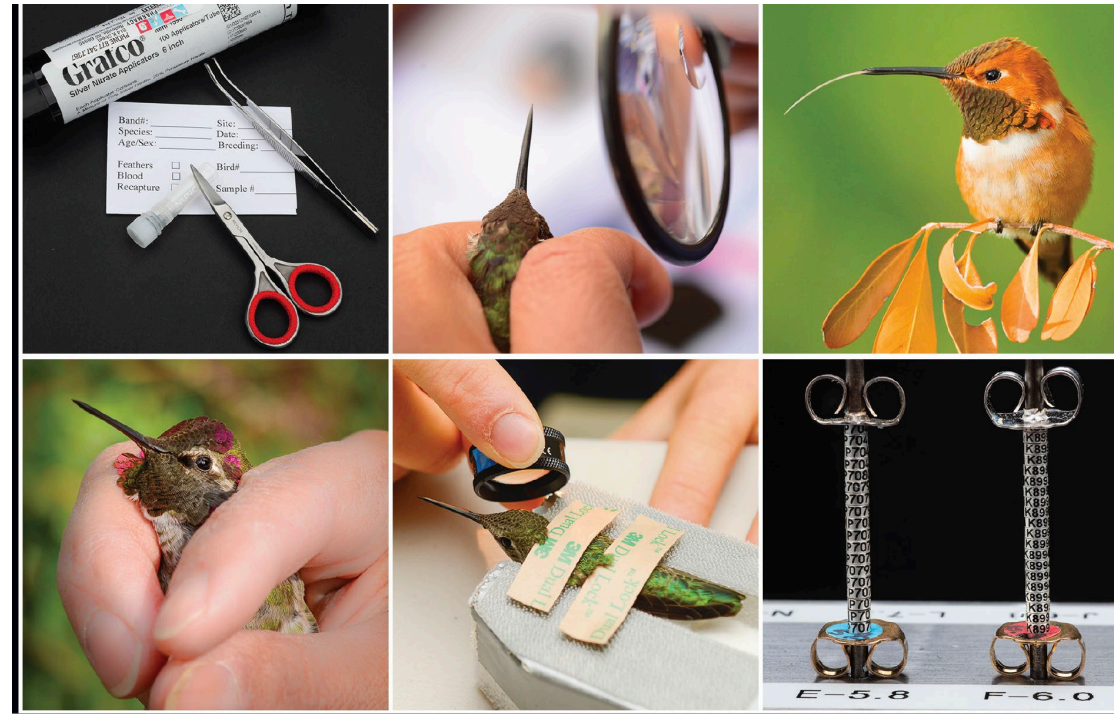


TEXAS TECH UNIVERSITY
Natural Science Research Laboratory

SPECIAL PUBLICATIONS

Museum of Texas Tech University
Number 76 19 January 2021

**HUMMINGBIRD (FAMILY TROCHILIDAE) RESEARCH:
WELFARE-CONSCIOUS STUDY TECHNIQUES FOR
LIVE HUMMINGBIRDS AND PROCESSING OF
HUMMINGBIRD SPECIMENS**



Photographs courtesy of Don Preisler and Lynda Goff. Previously published in Special Publications, Museum of Texas Tech University, No. 76 (2021).

Working with Free-Ranging Wildlife: Laying the Groundwork

- ▶ Permits
 - ▶ Various agencies
 - ▶ Federal/State/Public Land use
- ▶ IACUC protocol approval
- ▶ Timing challenges



SCIENTIFIC COLLECTING WITH IMPORT/EXPORT

Permit Number: MB55944B

Version Number: 2

Effective: 2021-10-15 **Expires:** 2023-03-31

Issuing Office:

Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
MB Sacramento Permit Office
2800 Cottage Way - Room W-2606
Sacramento, California 95825
permitsR8MB@fws.gov
Tel: 916-978-6183
Fax: 916-978-6183

Digitally signed by

**JENNIFER
BROWN**

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BROWN
Date: 2021.10.15 17:49:31
-07'00'

Supervisory Wildlife Biologist

Permittee:

Lisa Tell
dba UC Davis School of Veterinary Medicine
VM: Medicine and Epidemiology Tupper
Hall, Room 2108
Davis, CA 95616
US

Authority: Statutes and Regulations: 16 U.S.C 703-712 50 CFR Part 13, 50 CFR 21.23, 50 CFR 21.21

Table 1. Required federal (United States Fish and Wildlife Service [USFWS] or United States Geological Survey [USGS] Bird Banding Laboratory [BBL]) or state permits for conducting hummingbird research in California, United States of America.⁺

Process	Method	USFWS	BBL	State
Capturing and marking a hummingbird	mist-net, drop-door, etc.	N	Y	Y
Capturing and <i>not</i> marking a hummingbird	mist-net, drop-door, etc.	Y	N	Y
Holding a hummingbird in captivity for ≤ 24 hours (only for the safety and well-being of an individual bird; not for sample collection or procedures relative to research)	any method	N	Y	maybe
Holding a hummingbird in captivity for ≤ 24 hours (for research purposes, including but not limited to sample collection)	any method	Y	N	Y
Holding a hummingbird in captivity for > 24 hours	any method	Y	N	Y
Auxiliary marking of a hummingbird ⁺⁺	color marking, tagging	N	Y	Y
Banding of a hummingbird	banding	N	Y	Y
Feather sampling and banding/marking	any feather	N	Y	Y
Feather sampling and <i>no</i> banding/marking	any feather	Y	N	Y
Blood sampling and banding/marking	any method	N	Y	Y
Blood sampling and <i>no</i> banding/marking	any method	Y	N	Y
Cloacal or oral swab sampling and banding/marking	swab	N	Y	Y
Cloacal or oral swab sampling and <i>not</i> banding/marking	swab	Y	N	Y
Fecal/urine collection that requires restraint or containment of the bird	restraint or contained holding of a bird	Y	N	Y
Fecal/urine collection <i>after</i> the sample has left the bird's body and without restraining or retaining the bird	fecal/urine sample collection from an abandoned nest or under a free ranging roosting area etc.	N	N	maybe
Euthanasia due to injuries or pre-existing conditions	IACUC approved	maybe*	Y**	Y
Lethal take of birds (healthy birds for study skins, invasive sample collection, disease studies, etc)	IACUC approved	Y	N	Y

Working with Free-Ranging Wildlife: Animal Related Special Considerations

- ▶ Restraint
- ▶ Determining Species/Age/Sex
- ▶ Marking
- ▶ Sampling
- ▶ Euthanasia



Working with Free-Ranging Wildlife: Restraint

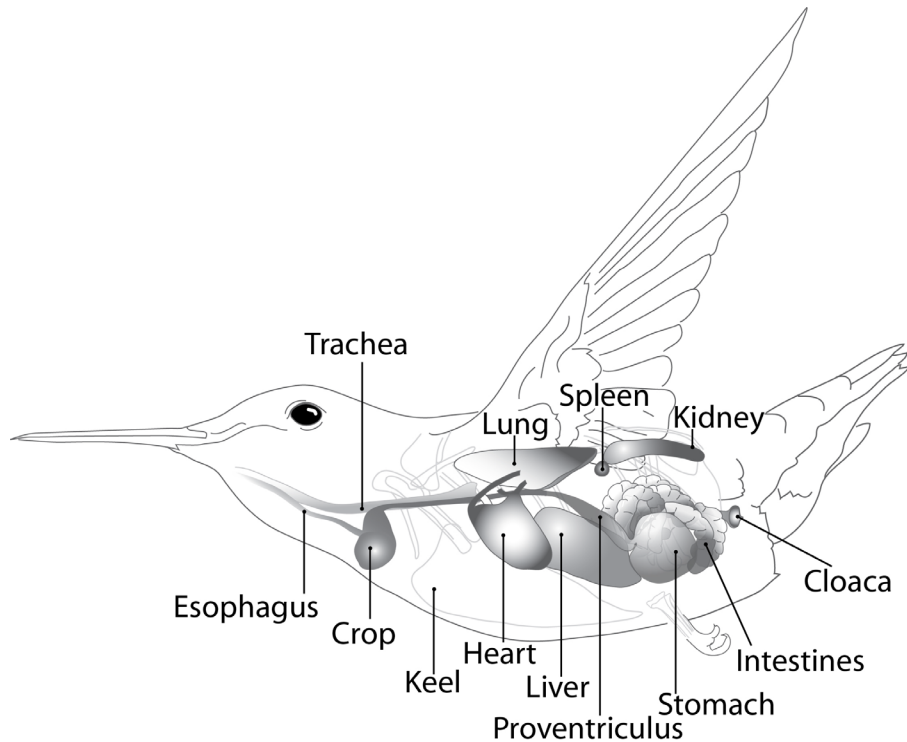




Photo Credit: Don Preisler



Photo Credit: Don Preisler

Working with Free-Ranging Wildlife: Capture/Restraint



Photo Credit: Don Preisler

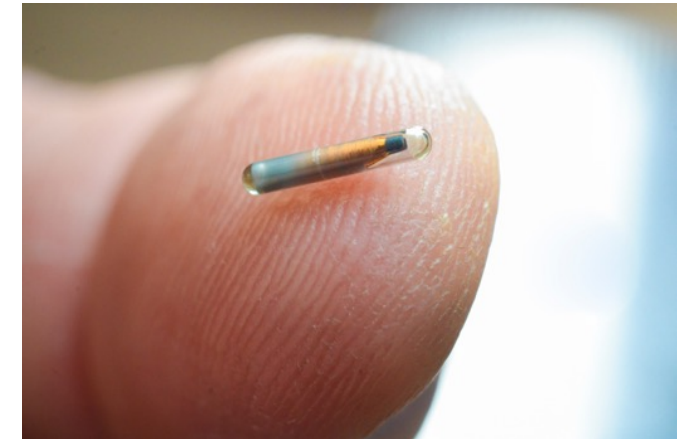
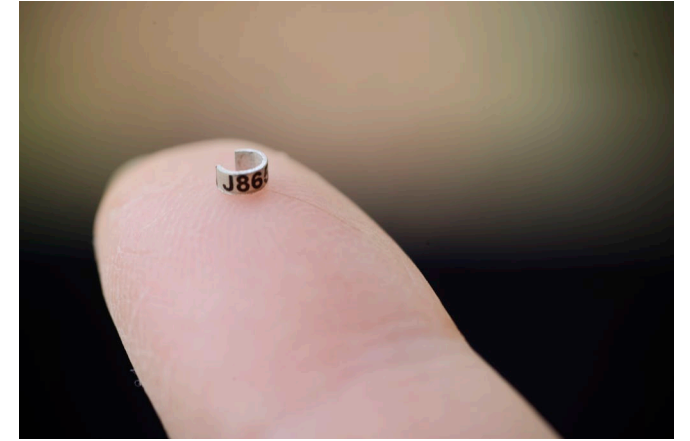
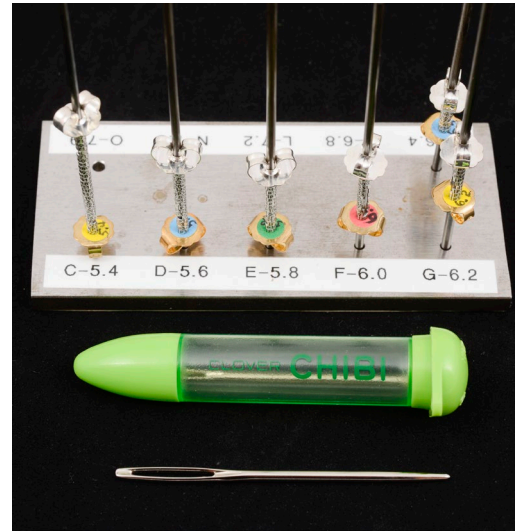


Photo Credit: Don Preisler

Working with Free-Ranging Wildlife: Determining Species/Age/Sex

Working with Free-Ranging Wildlife: Individual Animal ID/Marking

- ▶ Marking/tagging research subjects
 - ▶ Research objectives
 - ▶ Impact on study subjects



All Photos Credit: Don Preisler

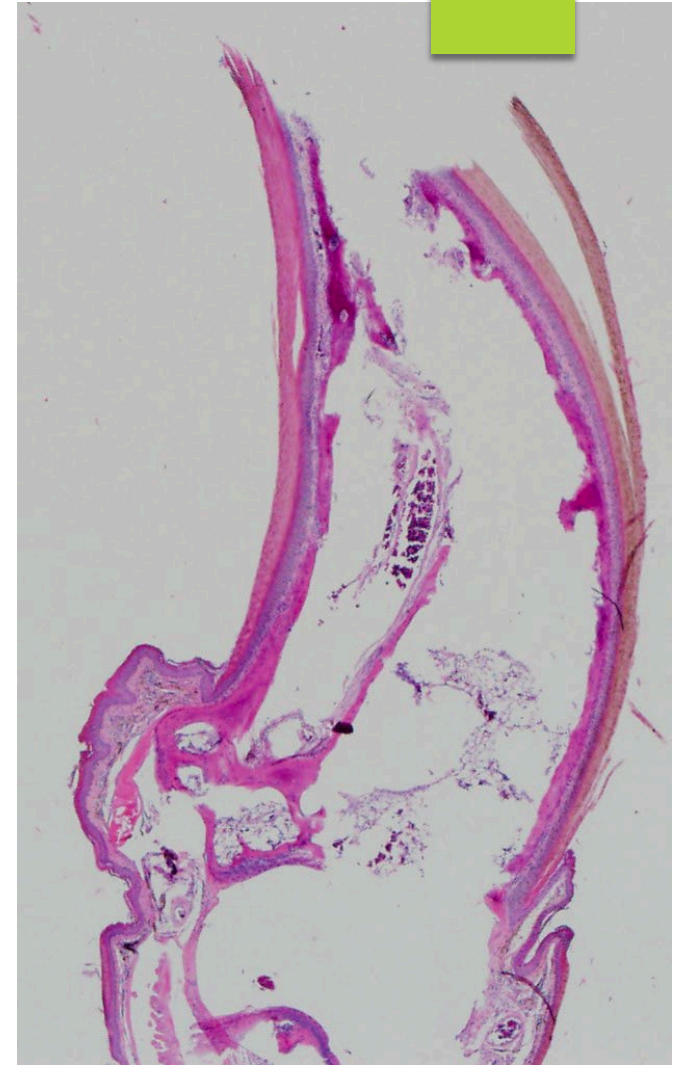


Blood Sampling

- ▶ Marking
- ▶ Safe sampling volumes
- ▶ Welfare Considerations



Intact bone in the toenail



Amputated bone in the toenail

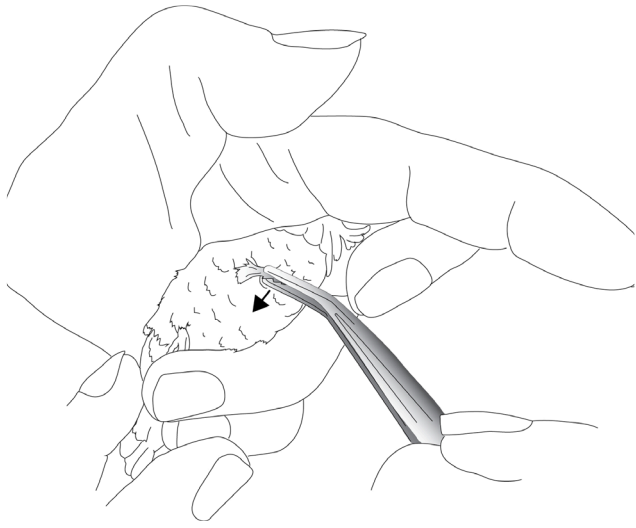
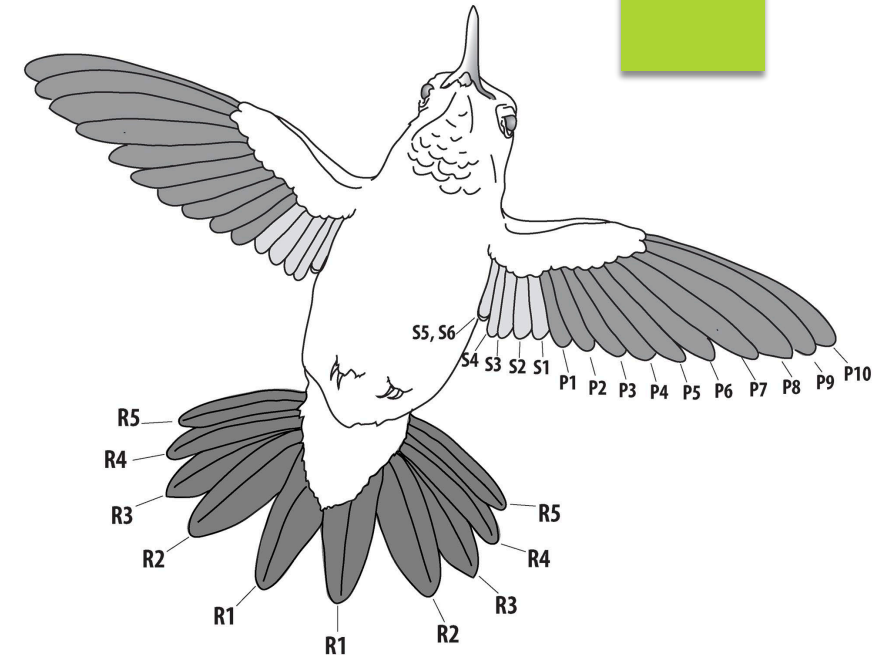


Photo Credit: Don Preisler



Feather Sampling

Working with Free-Ranging Wildlife: Other Considerations

- ▶ Research Team
 - ▶ Weather conditions
 - ▶ Nearest hospital
 - ▶ Emergency protocols
 - ▶ Specialized training for field conditions



Photo Credit: Don Preisler



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Working with Free-Ranging Wildlife: Other Considerations

- ▶ Euthanasia
 - ▶ Substance transport
 - ▶ Controlled substances
 - ▶ Remove carcasses to avoid secondary poisoning



Concluding Remarks

- ▶ Working with free-ranging wildlife is not for the faint at heart!!!
- ▶ Researchers should be ready to embrace challenges
- ▶ Ingenuity, organization and pre-planning are essential
- ▶ Working with free-ranging wildlife is a privilege and can be extremely rewarding!!!



Photo credit: Scott Logan



Video Credit: Scott Logan